BUSINESS ECONOMIC PLANNING

THEORY, PRACTICE AND COMPARISON

GUNNAR ELIASSON
Chief Economist
Federation of Swedish Industries

1976

SWEDISH INDUSTRIAL PUBLICATIONS
STOCKHOLM

JOHN WILEY & SONS
LONDON–NEW YORK–
SYDNEY–TORONTO

Library of Congress Cataloging in Publication Data

Eliasson, Gunnar.
Business economic planning.

Bibliography: p.

1. Management. 2. Managerial economics. I. Title.
HD38.E454 1976 658.4 76-5895

ISBN 0 471 01813 9

Printed in Sweden
Sörmlands Grafiska AB Katrineholm 1976

BUSINESS
ECONOMIC PLANNING

FOREWORD

Business firms rely more and more on formal planning procedures and for large firms efficient methods to manage a geographically and technologically diversified organization from a distance have become necessary tools. At the same time Governments, research institutions and other organizations collect an increasing volume of numerical information from companies to understand and to govern the increasingly complex system that makes up a national economy. Our knowledge of the mechanics of the information flows and the decision systems of large business firms is very scant and our ability to assess the character and quality of the information we collect is quite hazardous. Dr. Gunnar Eliasson began this research project already before he took up his present position as the Chief Economist of the Federation of Swedish Industries and his project has been very useful for the research and forecasting activities of the economic analytic department of the Federation that he is heading. This study on remote guidance and control system in more than 60 U.S. and European firms is quite unique and we are very pleased to endorse its publication.

Stockholm in February 1976.

Axel Iveroth
Director General
Federation of Swedish Industries

CONTENTS

Part II. PRACTICE

SUPPLEMENTS

List of cases

PREFACE

Planning is a systematized way of thinking ahead of time. In this general sense planning has always been there-with individuals as well as in organizations, large and small ones.

In most business firms planning is predominantly informal and communication largely oral and dependent on memory rather than on numbers and memoranda. However, the formal or bureaucratic element in planning has grown with the size of the organization. This is something that has been observed. More formal communication is also a rather obvious requisite since mental faculties of humans are limited; in particular when memory is involved.

Informal planning represents a process of thinking leading ultimately to an irrevocable decision. As such planning and decision-making is a mixed process. No doubt the formalized plan in some way or another reflects the ways business men think when facing the future. In a large organization there is more information to handle than in a small organization and there are more humans involved. Consequently, the process af arriving at a decision and implementing it is more complex and has to be standardized and coordinated to be manageable. This is the basic reason why the use of formal planning methods has become more frequent. This is also the *first* reason why the *formal planning system* of business firms has been singled out as an object of investigation in this study. In one way or another it mirrors the intricate decision machinery of a business organization. It gives at least an idea of the minimum of information that has to be processed mentally at the very top of the corporate hierarchy. And its presence can be observed and measured.

Prime emphasis has been placed on the logical structure and integration of formal planning routines. The bulk of the text is devoted to an analysis of various aspects of the formal planning systems in use among a sample of U.S. and European corporations.

This does not mean that the informal element in planning — always present even in very large business organizations — has been neglected. Although hard to observe systematically, attempts have been made to recognize the ways management discretion is imposed upon the formal planning routines and to assess the importance of informal planning in final decision-making.

Still, it is imperative to keep the concepts of *planning, decision-making* and *behaviour* apart. The explanation of behaviour should always be

the prime concern of research in social sciences, and formal planning as a logical construct could only be considered of interest if a potential impact on behaviour is at least to be expected.

The *second* purpose was in fact the original one, namely to examine the relevance of some basic assumptions as to firm behaviour postulated on rather loose grounds in two previous studies of mine.[1]) Furthermore, I felt a need for more relevant starting points for a meaningful growth theory of a business organization than those provided by current "a priorising" in economic theory. As a result, this monograph in fact winds up with a set of suggestions for the formulation of a growth theory of a business organization.

Third, requests on firms to supply all kinds of data on their plans for the future have taken on such proportions over the last 10 to 15 years that one is at times inclined to talk about a fashion among the bureaucracy, the data gathering institutions and the professional economists. Such data are now put to extensive use for prediction purposes, economic research and as a basis for macro-economic policy making. For this reason alone there should be some demand for information as to the character of such data and the purpose they are supposed to serve within the firm itself. On this point, I can promise to present results since the problem refers directly to the matter that takes up the bulk of the text; namely how numerical data on the future related to aggregate firm operations originate in and are processed within the firm.

In any inquiry it is always highly rewarding to keep asking questions like: What is this supposed to be good for? As this study has progressed emphasis has gradually shifted from the mechanical design of the planning system towards problems related to how to use them. One observes with some surprise the large number of elaborate management routines instituted that can be described in great detail but that one finds great difficulties in associating with any obviously beneficial purpose of the firm. Interpretation, hence, is a selection process that is both precarious and fascinating.

The reader of this book must be aware of one thing. A study of this extent cannot be kept going for a 5 year period without a gradual change in emphasis taking place and without a few insights being gained. Originally, the study focussed on the mechanics of the number-system called planning. This side of the report, weighs in heavily in part II (Chapters V through VII and the supplements). When something is not well understood the explanation is usually everdone with superfluous details and circumstantial evidence and this is, unfortunately, quite typical of Part II. A growing awareness of the use to which planning is put, however, gained momentum during the course of repeated interviewing and callbacks in 1973 and 1974. The realization that numbers largely were assembled as a result of

---

[1]) *Kreditmarknaden och industrins investeringar,* Uppsala 1967 and *The Credit Market, Investment Planning and Monetary Policy* an econometric study of manufacturing industries, Uppsala 1969.

bargaining between conflicting parties in the organizational hierarchy, rather than through "objective" research, involved a series of somewhat puzzling sensations for the author in the capacity of being a prejudiced economist. These sensations took some time to sort out. The ultimate purpose of planning is to identify and pin-point responsibilities in precise terms and to exercise remote control and impose pressure without unduly inhibiting initiative and reducing flexibility. Hence, planning very much is a vehicle for delegating routine management out of Corporate Headquarters. This is not the idea of planning that the majority of researchers in the area entertains. It is not even something that is clearly manifested in but a small number of U.S. firms and maybe a few European firms. However, a gradual development in this direction seems to be taking place. In fact, and in retrospect, it is very difficult to see what the number game called planning is really supposed to be good for without this idea in the background. In fact, again, many planners and executives when asked had very vague ideas of what exact purpose their system had been installed to serve.

This is (1) the reason why *control* has come to be a key word in this study. The argument is repeated frequently, that to study planning and control separately is like reading a language you don't understand. Secondly (2) this also warrants that we keep the rather tedious report on numerical practices, that makes up part II, as it was originally conceived predominantly in 1969 and 1970. To modify these chapters in the direction I now consider more relevant would be to manufacture evidence for conclusions that I don't really have. These conclusions (3) can be summed up as suggestions, that can be indicated here, but that will not appear until the final chapters.

The enormous progress made during the post-war period at the shopfloor level in mechanizing the production process probably has got an analogue in recent years in the detection and correction apparatus that makes up a sophisticated planning system, as a means of automating routine management of a large, complex and geographically scattered production, distribution and financing system. This system — if elaborated to the extent exhibited in some cases — is extremely "pluralistic" in the sense that it identifies the location of information and the competence to make use of this information with the power to make restricted decisions and ties down all such decision units with precisely defined responsibilities; allowing all the time for a gradual change. The instable nature of the "systems" was also obvious from those firms that were visited twice or three times. This also means that a study on planning practices will have to take organizational structure into account and recognize that a change in planning methods as a rule also means a simultaneous change in this structure.

Such systems, however, are more or less useless for handling large, unstructured innovative decisions. This is also well realized in corporate life.

The research project now to be reported on sounds rather pretentious on the surface of it and the modest results arrived at will not compare well with this introduction. I also have to add, that writing this report

has been a rather frustrating experience intellectually. Not only has defining my problems and concepts been like fitting an elastic painting into a rubber frame. The only method of measurement at hand (interviewing) has meant applying a rubber ruler the elasticity of which is impossible to assess properly. I have, however, at times experienced the comforting feeling of being an explorer in virgin lands trying to systematize and describe what I observe as well as I can.

Thus, the results to be presented in the chapters to come pretend to be no more than a description of the methods by which large firms arrange their formal planning routines, an analysis of what purposes they are supposed to serve, and suggestions towards a theory of firm behaviour based on sporadic evidence from a biased sample of large and (predominantly) successful business organizations. *Observation and the formulation of hypotheses are basic.* No advice is attempted. The figures of the plan are of secondary importance. It is the ways and means by which numbers are arrived at and how they are interpreted and put to use that matters. Information is what one makes of facts and figures, not the facts and figures themselves. I find March's (1965 p. XIV) implicit suggestion that academicians have a lot to learn from practiced organizational technique a comforting starting point.

This study began during my visit to the United States in 1969. I am very grateful to the Industrial Institute for Social and Economic Research (IUI, Stockholm) for making this visit possible and Sparbankernas Forskningsstiftelse for supporting the interview series in the U.S. I also want to thank Professor Dale Jorgensen, then at the University of California at Berkeley, for providing generous secretarial help and for many fruitful discussions on economic problems, not in the least on the matter of firm behaviour. I also want to express my gratitude to Professor Hans Brems, Professor Case Sprenkle and Professor John Meyer for a very profitable exchange of ideas and generous secretarial help during my brief stays at the University of Illinois and The National Bureau of Economic Research respectively.

The interviews stretch over the five year period 1969—1974. The bulk of U.S. interviews were conducted in 1969 although several return calls were made in November 1973 and May—June 1974. Most Swedish interviews took place in 1969 and 1970 although my present position as chief economist at the Federation of Swedish Industries has provided ample opportunities of systematic interviewing and return interviews (listed in Supplement 8) and more occasional inquiries as to planning practices with Swedish companies. Similarly, frequent travelling on the European continent in my present professional capacity has facilitated my interview calls to a fairly large number of European firms. I am also very grateful to the Keidanren for preparing my visits to three Japanese firms.

The long observation period has at least two advantages. I have had the opportunity to register substantial reorganizations in planning systems among several of the firms visited twice and three times, changes that were not anticipated by the time the first interview took place. I have observed how new problems like unexpectedly severe recessions in

demand, inflation and flexible exchange rates have brought about modifications of the planning systems.

A preliminary report on the U.S. interviews was discussed at a seminar at the IUI in the spring of 1970. A brief article on some of the results was published in *Svensk Sparbankstidskrift*[1]) the same year. The experience gained during the course of this project has greatly influenced the layout of two "intermediate" studies of mine, one for the Swedish shipyards committee on the financial situation of the shipyards and one survey paper for the OECD on "capital transfers, taxes and international corporate operations".[2])

A preliminary report was prepared in July 1973 for restricted circulation among participating firms. I am very grateful for all the comments received. They have affected this final version in various ways. An interim report, now revised substantially, was also made public in September 1974[3]) to be used as a text for a graduate course in Investment and Financing at the Department of Business Administration, the University of Stockholm. I very much appreciate several useful and nice comments from students, who have had to read the text.

Some results from this study were presented in a paper given at the Twenty First Conference of the Economic Outlook at the University of Michigan, Ann Arbor in November 1973[4]) Two papers related to this study were also presented at two Swedish-Russian symposia in Stockholm (1974) and Batumi, Georgia (1975) chaired jointly by Professors Erik Lundberg, Handelshögskolan, Stockholm and Tiger Khachaturov, the Association of Soviet Economic Institutions.[5])

The final form of this report also profited greatly from a seminar in February 1975 chaired by Professor Sune Carlsson at Uppsala University and several very useful comments from Professor Igor Ansoff, European Institute for advanced studies in Management, Brussels.

Many persons have contributed directly and indirectly to the

---

[1]) Planering i Amerikanska Företag, *Svensk Sparbankstidskrift,* nr 2, 1970.

[2]) Räntabilitet och finansiering i sex svenska varv under en 20-årsperiod from Ekström; *Varvsindustrins problem,* Stockholm 1970 and *Capital Transfers, Taxes and International Corporate Operations,* nr 2 Mimeographed Economic Research series B (Federation of Swedish Industries) April 1972.

[3]) Under the title; *Corporate Planning* — theory, practice, comparison — a study of remote guidance and control systems among U.S. and European Firms. Research report B 10, Federation of Swedish Industries.

[4]) Published in papers and proceedings from that conference under the title *Business Cycles in Business Planning,* Ann Arbor, Michigan 1974 and as nr 8 in Economic Research Reports, series A (Federation of Swedish Industries), Stockholm, March 1974.

[5]) *Planning at the Corporate and Government levels* — some thoughts about the interaction of semi planned systems Nov. 1974 and *Productivity Change and Management Technique* (Sept. 1975); Federation of Swedish Industries, Stockholm, Nov. 1974 (mimeo).

completion of this book over its five year gestation period. I am very grateful to those who have read and commented upon various sections at various stages of completion. This final version benefitted greatly from my discussions in 1973 and 1974 with Professor Robert Anthony and Professor Richard Vancil at Harvard Business School and Professor John Meyer at the National Bureau of Economic Research. Special gratitude goes to Carl Erik Björkegren and his associates at SANDVIK, Sandviken, to Dr. Grove, Dr. Karchere and all their colleagues at IBM, Armonk, Thomas Lindberg at IBM Sweden and to all those who have commented on my manuscript and helped me on several occasions, for instance at Mo and Domsjö (Örnsköldsvik), Telefon AB L M Ericsson and Atlas Copco (Stockholm) and General Electric and Exxon (New York).

Particular thanks go to Professor Erik Lundberg who read and commented upon an early version of my manuscript in his very special way, to Jan Bröms, Eva Christina Horwitz and Dr. Per Martin Meyerson at my Department at the Federation, who have struggled with sections of my manuscript under the particular pressure imposed by my next-door presence. This also goes for Professor Ronald Teigen, The University of Michigan, who spent two — for *us* very beneficial — months at my Department in the summer of 1974.

My gratitude also goes to Dr. Bengt Christer Ysander, Dr. Rolf Rundfelt, Dr. Anders Linde and Dr. Rolf Back who have all read an early manuscript from beginning to end which was — and perhaps still is — an achievement. Also civilingenjör Mats Heiman was very helpful in tidying up my algebra.

May-Britt Rydholm, Maj-Lis Brimberg and Lillan Östlund have all done a marvellous job in transforming my scrabble into readable and typed form through many stages of rewriting.

To all those 62 firms and more than two times as many firm officers who have received me one or more times and patiently listened and talked to me, I want to express my sincere appreciation.

Finally, my thanks go to Axel Iveroth, whose presence at the top of the Federation of Swedish Industries is imperative for the stimulating, open-minded and flexible intellectual athmosphere that prevails there.

Sollentuna in February 1976

Gunnar Eliasson

PART I
CONCEPTS AND PURPOSES

"3.262
What does not get expressed in the sign is shown by its application. What the signs conceal, their application declares."

Ludwig Wittgenstein

I INTRODUCTION

1. Plans, decisions, behaviour

Firm behaviour is partly dependent upon the decisions taken by the firm, and partly on the environment in which the firm operates. Decisions are based on expectations as to this environment. Decisions taken involve the problem of adopting to an expected environmental development as well as changing the environment (moving into a new market etc.). To achieve this, decision-makers have to acquire knowledge about the environmental situation and its future prospects. They have to know about the mechanics of their business organization. They have to make up their minds as to what they want to do with it (goal formulation, policy making). They have to check up on the extent to which results conform to established goals (control).

Normally also the various parts of the organization (divisions, subsidiaries etc.) face problems similar to that of the entire organization. For each of them the rest of the organization is part of its external environment. The character of this problem, as faced by a subsidiary or a division, depends on how the pieces of the organization have been knitted together or on its hierarchical decisions structure.

For those at the hierarchical top responsible for the entire organization (Corporate Headquarters, (CHQ)), the *remote guidance and control* function is composed of two problems. First are *external* relationships to the environment, which are a matter of high quality, relevant information and good judgements. Second, there is the *internal* problem of coordinating, guiding and motivating activities of the various parts of the organization. From the point of view of CHQ this is a matter of management efficiency.

Sometimes all of this is called *planning* and we might as well use this terminology. By this definition probably most — by any measure — of planning is of the *informal type* without any kind of systematic documentation. This process can be observed by those directly involved only. Behaviour can be observed by an external investigator as sometimes can the decisions taken, if put on record, but not the process of arriving at a decision.

In addition to this, *formal planning routines* are employed. In this case, information handling and decisions taken within the planning process are put on record in a systematic and standardized form. In this case, also, the process to some extent can be observed by an outside investigator even after it has taken place. This is a prime reason why

the presence, character and methods of formalized, numerically explicit and comprehensive planning systems within business organizations have been made the object of inquiry in this study.

Both formal and non-formal planning affect decision-making and behaviour. In order to study the links between formal plans and behaviour via decisions taken, informal planning has to be considered in some way. This is also necessary to lend some interest to the *formal* plans themselves. The question, what kind of purpose the formal plans are supposed to fulfil has been kept foremost right through this study.

The term "comprehensiveness" refers to the coverage of business operations. To qualify as a *comprehensive plan,* all aspects of operations from purchasing and production to sales have to be included along the vertical scale and all divisional and/or subsidiary operations along the horizontal scale. A comprehensive plan — in addition — requires that a complete closing of the future accounts (profit and loss statement and balance sheet) on the horizon be made or at least be possible. This defines the formal comprehensive plan as an exclusive CHQ instrument. It also emphasizes such key words as information handling, coordination, control and remote guidance that will appear frequently in the text.

It also means that little attention has been paid to planning at the workshop level and to sub-planning routines such as production and inventory planning that normally appear as activities parallel to comprehensive CHQ planning, sometimes based on the overall plan, sometimes not. Less attention has been paid to such details of the comprehensive planning system as the so-called appropriations procedure or to rate of return calculations on individual investment objects, even though these formalized planning sub-routines may bear heavily on investment decisions.

A comprehensive plan does not have to be an *integrated plan* or the outcome of an integrated planning process. In keeping with current business terminology, this term signifies the methods by which the various sub-routines of comprehensive planning (division plans, short-term and long-term plans) are moulded together in time or over time. The term covers the adjustment or negotiation process between CHQ and divisions that often precedes the finalizing of the comprehensive CHQ plan. The integration process is an informal part of planning. Active integration requires almost by definition the creation of sometimes intense friction between the various vested hierarchical interests involved in exercising and taking on pressure and responsibilities. The passive adding up of figures on the future collected by CHQ from divisions that was found to be quite typical of European planning is not characteristic for integrated planning. Likewise, the outcome of a fully integrated planning process is not necessarily a numerically consistent plan, rather the other way around. The more integration, the more emphasis is put on negotiation, rather than analysis, to arrive at the numbers of the plan and the more active will pressure exercised by CHQ on divisions. Also, a high degree of integration is by no means always a good thing.

Too much integration between long-term and short-term planning is often considered detrimental to long-term planning. We will see in what follows that internal consistency is no particular characteristic of planning systems; and often deliberately so.

To qualify as a formal plan some minimum requirements as to numerical specification (mentioned above) have to be satisfied. Even though formal and *numerical planning* will sometimes be used synonymously in the text, formal planning is the broader concept of planning subject to investigation. However, most of the information compiled here refers to the substructure of it that has been numerically specified, although our definition also covers non-numerical but formalized procedures associated with the numerical, comprehensive planning process. The special advantage with this, perhaps still restrictive, definition is that the phenomenon as such can be observed, that it often has a fairly clear institutional demarcation line within large companies and that it is a recognized practice. It is nevertheless wise to devote extra space to describe where the limits of a definition are in fact localized to avoid confusion. A multitude of *formal procedures* with no or little numerical specification are being practized in most large firms at CHQ level without necessarily being related to what we have described as formal, comprehensive planning. These procedures are sometimes called "planning", "strategic planning", "corporate planning" etc. and in fact with increasing frequency over the last few years as we shall learn more about in chapter IV. The reader has to keep in mind throughout the text that conclusions about planning practices reported on, if not otherwise stated, refer *only* to what we have described as formal comprehensive planning.

To some extent planning of foreign subsidiaries has been covered, but it will be reported on in this study in a sporadic fashion only.

As for the time dimension of planning, emphasis has been put on what is usually called *long-range planning* or *extended budgeting* including also the *short-term budgeting procedure*. No complete account of the presence (in the sample) of so called *prospective* or *strategic* planning will be given, although the possible importance of such plans in long-range planning will be discussed.

It should be made clear already here, and it will be illustrated in Chapter IV, that the terminology to use is by no means self-evident. The glossology of planning has been constantly changing and is now rapidly being subjected to a differentiation process that makes things difficult for a writer. Originally — some twenty years ago and before — planning was most naturally associated with physical things or — for that reason — military matters. Through the sixties the use of the term within U.S. firms was made almost synonymous with financial planning, short run (budgeting) and long run. This is the usage the author has met with throughout most of the interviews in the U.S. and in Europe. Fortunately, he had not covered the literature on planning extensively and in depth when the interviews were begun in a modest way, so the reader will have to get used to the slightly old-fashioned

and unpretentious terminology of the sixties, that is still typically used among the firms.

More precisely, the kind of planning studied here is well covered by the terms "formal corporate planning", "formal planning systems", or "formal long-range planning" used by the Harvard Business School study that will be referred to in Chapter IV. "Business planning" or "economic planning" are also applicable terms as well as "long-range" or "corporate planning" to the slightly old-fashioned reader.

However, asking a library computer to reel off everything written on planning at the firm level during the seventies is a distressing experience. The term has become a status term. Much barren theorizing at the micro level seems to need the term planning headlined to attract readers' attention. Furthermore, the recent literature *on corporate planning* seems to emphasize the high level conceptual side rather than the down-to-earth formalized financial or business planning routines. This intellectual process of thinking ahead of time is of course always there to a varying degree. However, its presence and qualities are almost impossible to observe by any objective measurement instruments. Only a very few large U.S. companies had organized — at the time of interviewing — separate departments under the heading of prospective, strategic etc. planning and their influence on actual decision-making was not very obvious.

Anyhow, in what follows, the concept of a *short-run plan* should be identified with the budgeting procedure covering *at least* the next fiscal year. Any numerical projection beyond five years is defined to constitute a *long-term* plan. To be classified as a comprehensive long-term plan, the projection has to cover at least *five* future years and be comprehensive in the sense defined above. Objections may be raised to calling a five-year plan (budget) a long-term plan. Whatever the case, some arbitrary classification criteria have to be entered from the beginning in order to introduce the terms.

Formal planning so defined seems to be a fairly recent thing even among large U.S. corporations. If one looks back into the history of most firms, one will see that even annual budgeting on a formalized and comprehensive basis is a typical post-war phenomenon. Some kind of partial capital appropriations procedure involving the final authorization to spend on capital account usually preceded the introduction of budgeting.

Formalized and numerically specified long-term plans covering a future period of 5 years or more have been developed during the last 15 or even 10 years even among quite large U.S. corporations. So-called strategic or prospective planning taking in the future beyond the 10 year horizon is an invention of the last 5 or 10 years in most of those few firms where it takes place.

Summarizing so far, to start with, we will use Theil's (1966 p. 3) definition of a plan as a *forecast of the firm that is to some extent controlled* by the firm itself. *Systematic* observation will only be made (1) on the *formal side* of corporate planning, (2) on the part of planning that is ultimately handled at CHQ and concerns the entire

business organization and (3) on the part of planning that fulfils certain minimum numerical requirements and as a consequence limits the time horizon considered to 10 years or less. This definition does not cover (4) the process of arriving at a plan and (5) interpreting and putting the plan to use or — as I will also call it — the *content* of planning. The content of planning is also part of this study to the extent it has been possible to observe. This means that reporting and control have been covered in this study under the heading of planning. There is also the problem of (6) how planning relates to the organization of the business entity. Formal planning can be conceived of as a set of measures or a measurement method. The meaning of these measures for managers and decision-makers depends on what the measures stand for and to what extent supportive knowledge (read experience) for their proper interpretation is available. One should not take the presence of such knowledge for granted or regard it as self-evident.

The interpretation of the measuring system depends heavily upon how the business firm has been divided up into measurement units or cells. The method of planning has to be determined with a particular purpose of planning in mind. This in turn should affect the method chosen to organize the firm. With such a broad coverage of the concept of planning, some would probably say that the planning system studied here should rather be called the *formal side of management or organizational systems.*

There is also the semantic problem of how and when plans resolve into decisions (cf. Eilon (1969)). In this study, planning will be described as an *ex-ante rehearsal of the macro decision process* that controls the entire business organization. Planning consequently both supports a number of ultimate decisions and involves a number of ex-ante decisions. Further clarification on these points will follow in the next section. Some important modifications in the above definition will have to be made as we proceed. This cannot be done until we have discussed the purpose of planning in Chapter II. The reader will have an additional opportunity to participate in the various conceptual and definitional problems of planning in the survey Chapter IV on the literature on planning.

2. The observation model

One could hardly claim that informed opinion favours the view that formalized planning methods support more sophisticated decisions when we reach above the level of routine operations management. Most business executives would agree to this and they are backed by Ansoff[1]) who argues that those who abstain from making up their minds unless they have numerically specified information will be left "to graze in an enclosure beside the road that all decision-makers have to travel".

Nevertheless, some such objectionable idea will have to guide observation work in this study. The questions will always have to be

[1]) Ansoff, H. I., A Quasi-Analytic Method for Long-Range Planning from *Organizational Decision-Making* (Alexis and Wilson, eds.), Englewood Cliffs, 1967.

asked: What kind of decisions can be improved (be made more sophisticated) by recourse to a formalized planning method? What other and better instruments are available? For this to be possible a reference model is needed for comparison and some simple textbook idea of optimal decision-making will have to do as a yardstick when commenting upon observed patterns of planning.

Thus, for instance, we will assume to begin with that there always exists an easy and practicable way for CHQ management to obtain information in full detail about its own internal organization, an assumption that we will later have to refute. When we furthermore find, as we will frequently do, that planning routines mean that positions are numerically fixed step by step and that sub-decisions are often taken in an uncoordinated way, we will conclude that information is lost in the process and ask why. The answer may be that the information lost is not essential to decision-makers or not worth the effort needed to procure it on the margin. It may also be that the time lag in getting hold of essential information is so long as to make it irrelevant to the decision once obtained. Another answer may be that formal planning routines are not primarily designed to channel data to facilitate more informed decisions e.g. as to where to invest. Control rather than guidance may be its most important function. Otherwise, why is it that rate of return calculations on an investment object basis normally are carried out only after the investment plan has been decided on and that rate of return calculations on plan data are only seldom performed at the level of aggregation of a division or a profit centre? This is one reason why the purpose of planning will have to be considered rather extensively in the next Chapter II and that Chapter III will be devoted to an account of the organizational structure of planning work.

After Chapter IV, reading becomes of necessity very cumbersome. Details will have to be presented in abundance and this rather unorganized matter can be structured in an easily readable way (and then in a much too simplified form) only from Chapter VII and onwards.

To help the reader through the morass of Chapters V, VI and to some extent also Chapter VII, some conclusions from Chapter VII will be noted already here. For the same reason a brief survey of the literature on corporate planning has been inserted as Chapter IV.

Diagrams I:1 A—C exhibit the general planning structure used as basis for questioning during the interviews. Charts A and C are rather self-explanatory. Chart B has to some extent been adjusted to fit the results of the study although the basic structure is still the one preconceived before interviewing started.[1]) In a way Diagram I:1 can be said to represent a second kind of reference model for this study. It carries no normative connotations like less than optimal. sophisticated, bad etc. As it stands, most formal planning systems met with in the interviews contain the simplified structure represented on the charts, and individual planning features most often can be identified

---

[1]) This causal structure also has a precedent in Eliasson, op.cit. 1969 p. 48 f.

Diagram I:1 A The time structure of planning

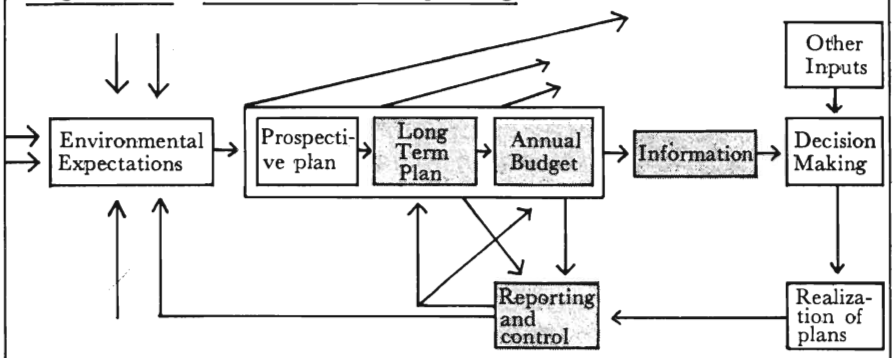


Diagram I:1 B The elements of the plan

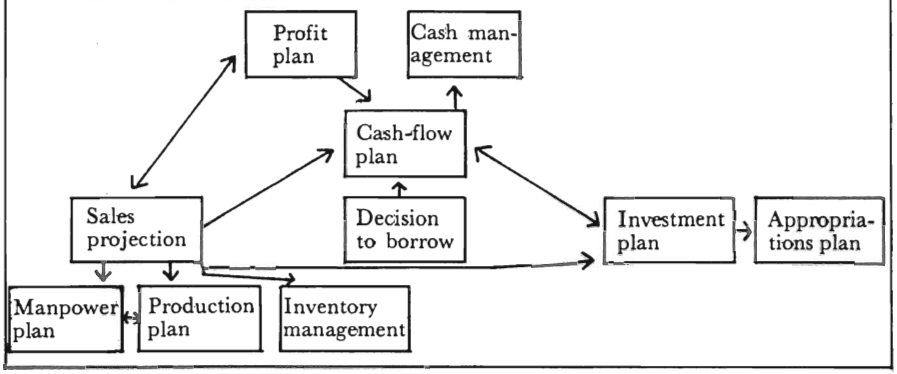
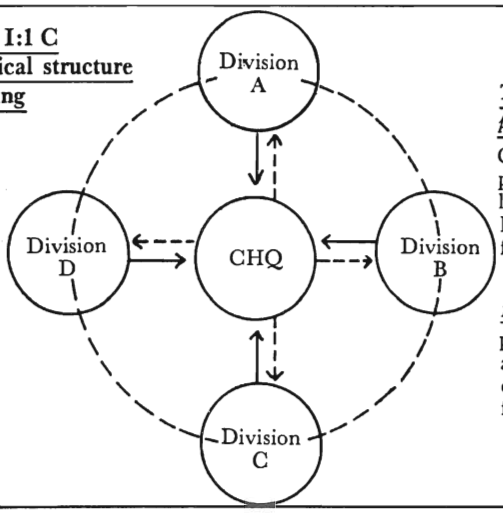


Diagram I:1 C
Hierarchical structure of planning



Terminology used:
pure shop-floor approach

CHQ assembles plan data from division level. Data are consolidated for the entire firm as they are.

pure CHQ approach;

plan is put together at CHQ with no systematic data collection from divisions.

as extra loops in this structure. So it will also be made use of, although explicit references back to this chapter are not always made.

As for Chart A, the input of expectations and the links between planning and decision-making have to some extent been covered during the interviews. The process of implementing the plans has been left out altogether. The reason for this is that implementation planning — if there is any — is never part of comprehensive planning and never takes place at CHQ. CHQ involvement in planning is typically centered around the question "What to do" in the sense of laying down or negotiating goals or targets. Prime emphasis has been put on the internal structure of the long-term plan, the annual budget and the control function (shaded blocks).

An appraisal of the control function as an element and a purpose of planning turned out to be a necessary part of the study. The plan horizons, the frequency of plan revisions, the degree of specification and the character of the control function have all been covered in a fairly systematic fashion.[1])

The internal structure of the long-term plan and the annual budget has been accounted for in considerable detail. The recursive time structure of this process displayed in much simplified form in Chart B turned out to be quite typical: so typical that Chapters V through VII have been structured accordingly, starting from the left hand side. As far as possible attention has been paid to the frequency and character of *informal* feedback between the blocks in Chart B — and this is accounted for simultaneously with the calculation procedure that makes up the formal plan. This is one reason why going through Chapters V through VII at times puts the reader under great strain.

The hierarchical structure of planning (Chart C) is perhaps even more important than its formal structure. It defines the character of management involvement in planning and — as it seems — also the extent to which information from the formal plan enters the decision process. Is CHQ the only active part in company-wide planning or is planning an interdependent process between CHQ and division management? To what extent and when are top CHQ executives involved in the shaping and authorization of formal plans? Whenever deemed necessary, information of this nature is entered in all chapters. However, a more systematic summing up is presented in Chapter IX.

The report winds up in Chapter X with a summary of the results arrived at and in Chapter XI with a set of suggested implications for a theory of firm behaviour. As far as possible, these results have been phrased in terms of the hypotheses as to the purposes of planning to be introduced in Chapter II. Chapter X also attempts a *comparison* of planning practices in U.S. and non-U.S. firms. Needless to say, the

---

[1]) Note that many authors on the subject prefer to keep the concepts of ***planning*** and *control* apart as e.g. Vancil (1972) and Anthony (1965). Also cf. Hofstede (1967 p. 10 f). However, one prime purpose of short-term planning — as it turns out — is to build a system of reference measures for the application of controls, and we will loose sight of some important aspects of the matter by studying planning and control separately.

element of speculative and impressionistic inference grows in the final two chapters.

Principal topics for discussion with corporate planners have been: What kind of numerical information on the future is put together and prepared? What kinds of plans are submitted regularly to top management? Where does the work on the plan start? How does the final product look? If several plans are worked out, what are the principal differences in purpose and method? What written documents (if any) regulate work on the plan?

When returned for implementation, what revisions have usually been imposed on the plan by top management? To what extent is the current realization of plans analysed in terms of original plans? To what extent does planning work actually tie in with decision-making? Is there much planning work and information processing going on, the results of which never reach decision-makers? Given the information about and the proposals for the future, *why* did top management make such and such revisions in a proposed course of action? (see further Supplement 7).

The object under investigation, the plan or the planning system, has been defined already with reference to its formal appearance in the firm management process. Nevertheless, the question *How to use the system* will be seen to embody a more relevant aspect of planning than the question *How is the system* designed. A description of the full *content* of the plan should be a desired end-product of this study. This ambition will only be partially attained. It is, however, appropriate again to emphasize that comprehensive planning will gradually (by description) be seen to embody a method of *ex-ante decision-making* for CHQ. *Rehearsal of decisions* or *preliminary decision simulation* will also be terms used to achieve some verbal variation. Decisions at CHQ control aggregate firm behaviour. The rehearsal is a macro decision process involving a large number of interdependent decisions. One should recall already here that practice as a rule should lead to improvements, this time in decisions actually taken. Hence, this way of looking at planning has implications for the accuracy of plans. The "rehearsal" often leads to changes in actual decisions taken. If so, actual performance should deviate from planned performance.

Most firm officers wanted to emphasize the fact that the design and comprehensiveness of the planning systems were *constantly changing*. To some extent the process of change has been studied through repeated visits to both U.S. and Swedish firms over the 5 year period covered by this study (see further the list of participating firms in Supplement 8).

This is an *empirical* study with no numbers and quantities and few diagrams. As mentioned before, the basic empirical concern is with the structural ordering of numerical routines as an information and guidance system for a business organization. This purpose also governs the form of presentation.

There are at least two different layouts of a study like this. The first, which is normative, starts from the ideal planning system and registers and evaluates the deviations met with in practice. The second, which is less pretentious, starts from observation and attempts a report, or a

reconstruction only, of the typical planning setups met with and an analysis of the consequences inherent in various schemes. I do not feel competent to present the ideal planning system. I definitely would not dare do such a thing on the basis of empirical literature and current theorizing on the matter. The reader may judge for himself when he reaches Chapter IV and has also consulted the literature. Besides that, my prime secondary interest is to search for explanations to behaviour, not to teach businessmen business. So, I have chosen the second line of approach.

3. Method of observation

The method of measurement has been *interviewing*. Since 1969 62 predominantly large corporations have been interviewed in 78 systematic interview sessions; 30 U.S. firms and 32 non-U.S. firms — among which 16 firms are Swedish — make up the sample. The firms are all listed by name in Supplement 8 at the end.

Each interview in the U.S. has taken 4 hours on the average. The non-U.S. interviews average 5 hours. 5 U.S. and 3 Swedish firms have been subjected to extensive observation in two or three interviews. In one of the U.S. firms I spent three days altogether, and in one Swedish firm four days including a visit to one of its subsidiaries in Mexico City. During these extensive interviews I had the opportunity to meet a large number of corporate officers in each firm. For obvious reasons, several of the cases reported on have been selected from these 8 firms.

To stabilize the scales of the measuring instrument, a basic set of questions was asked throughout all first interviews in the U.S. and in Sweden during 1969—70 although the scope of questioning was changed and enlarged during the course of interviewing. It has also been unavoidable to rephrase some of the basic and initial questions in the light of experience gained during the interview sessions. This set of interview questions is found in Supplement 7. It must be stated that my initial interview approach during the first U.S. interviews in 1969 was much prejudiced by the popular conception of planning as an instrument primarily designed for gathering and analysing information and for producing a rich menu of options from which decision-makers could choose. In retrospect this notion of planning at CHQ of course looks somewhat naive. It had to be modified.

As far as possible "CHQ-information" has been gathered on the "arrows" in Chart A. The presence (or not) of so-called prospective or strategic plans has been ascertained and the shaded boxes have been covered systematically and in considerable detail. This means, among other things, that emphasis has been put on the causal ordering represented by the arrows in Chart B and that the methods of putting together the consolidated profit, cash-flow and investment plans have been gone through in much detail, the appropriations procedure less so and the details of sales projections only in so far as CHQ could provide answers. The origin of plan data, the starting point (shop-floor or CHQ) and the extent to which plans go into the decision process have been covered systematically by questions, although the selection of

persons to interview, difficulties of communication, and the intricacy of the subject matter as such make the pieces of information obtained sporadic at best.

A separate and at times rather lengthy report has been written for each interview — in most cases on the same day as the interview. Furthermore, some basic characteristics of planning were entered for each interview on a prepared form for all interviews carried out through 1969 and 1970. The records so obtained have been necessary for an objective appraisal of the observations made.

As mentioned already, a separate summary report on the U.S. interviews in 1969 was completed in February 1970. The results put down in writing in this report have not been changed here and they hopefully represent a fairly stable standard of reference for comparing results from the non-U.S. firms and later return visits to U.S. firms. However, this also means that questions and discussions in the non-U.S. firms to some extent have been oriented towards finding differences in planning methods on both sides of the Atlantic.

The interviews conducted cover some medium sized but mostly large and very large firms. The average size of the sample (measured by sales and excluding General Motors) was $ 1350 Million in 1968 for the U.S. firms[1]) and compares with an average (the same year) of $ 850 Million for the non-U.S. firms and $ 310 Million for the Swedish firms only. The size distribution of the U.S. and the non-U.S. sample by sales and employment 1968 is given in Diagrams IX:1 and 2 in Chapter IX.

It should be noted that firms have not been selected for interviews with the purpose of obtaining a "representative" sample of U.S. or Swedish firms. Secondly, since very few studies of the kind here to be accounted for have been conducted before, and since we know very little empirically about corporate planning, the optimal first step in gathering information was considered to be the investigations of the most sophisticated and/or successful systems in use. Thus large and successful firms with sophisticated production and sales techniques and advanced products ought to bias the sample. Thirdly, and finally, even though I encountered new details, new names and new concepts until the very end, a rather stable pattern as to major features of corporate planning practices became apparent at a rather early phase of interviewing.

The U.S. firms to be interviewed were taken from a list of potential firms selected from three basic sources; A) *Fortune's Directory of the 500 largest U.S. firms,* B) *Moody's Industrial Manual* and C) *Poor's Register of Corporations, Directors and Executives.* It should be mentioned that 22 of the 30 U.S. firms interviewed were listed in Fortune's Directory of 1968.

The executives interviewed in U.S. firms vary in rank between firms. As a rule, my first contact was with the (Senior) Vice-president of Finance, or the Comptroller (often with the rank of VP). Sometimes this person took on the interview himself, and sometimes he referred

[1]) These data exclude firms interviewed after August 1973 (EXXON) and in 1974.

me to the officer in charge of corporate planning, or one of his assistants. On most occasions I had the opportunity to question two or three persons within the firm. Even though most large firms had a separate department of planning or at least an officer in charge of planning (often with the rank of VP), this particular person could seldom be identified from the beginning from the directories referred to above. Generally speaking, in most firms interviewed (and this holds for non-U.S. firms as well) the planning function was attached to or subordinated the financing and/or controlling function.

As far as the San Francisco Bay area is concerned all interviews on the potential list were completed in 1969. This, of course, was due mainly to the fact that I was stationed at the University of California at Berkeley for four months. As for the New York City area, my time schedule in 1969 could not accommodate contacts with more than 6 of the sample of 11 firms selected for potential interviewing. The remaining interviews involved extensive travelling. My method was to contact one firm by letter or by phone, fix an appointment and then hope to arrange one or two more appointments from the potential list upon arrival. This method worked out quite well, although some contacts simply could not be made due to insufficient time. Despite the rather straightforward and demanding methods of approaching the firm that I had to adopt in order to keep travelling within limits, it never happened that I was refused an interview *in the U.S.*

As for the Swedish interviews, I have had the opportunity to choose and contact firms in a fairly systematic fashion over some 5 years. In 1969 and 1970, 12 interviews were carried through. The rest, including the European ones, have mostly been conducted in conjunction with the extensive travelling associated with my present position as chief economist at the Federation of Swedish Industries. This position of course has given me more than ample opportunities to tap business executives at all levels and from a very large number of firms on information on the matter of planning; this has been in a form that cannot be labelled systematic interviewing and the firms subjected to it have *not* been listed at the end (Supplement 8).

4. Problems of objectivity

Direct questioning always involves the danger of suggesting an answer with the question. Leading questions are by their very nature inevitable, since the mere choice of question at least suggests the problem one has in mind. My first attempts to work my way through a prepared battery of questions did not turn out to be much of a success. For one thing many questions were simply irrelevant or wrongly posed. Secondly, a large number of relevant aspects of planning were not included in the battery. Thirdly, breaking off an interesting discussion in order to have the time to follow through a preset sequence of questions gave rise to too many associations with court room procedure, was slightly disturbing for the person interviewed and — above all — did not create the atmosphere needed for the interesting pieces of information to come forward.

Consequently I changed the technique after a first round of interwievs and instead asked the person being questioned to give a rough outline of the planning system adopted. By inserting questions now and then the conversation could normally be shifted from subject to subject — without any obvious purpose being revealed — to cover in the end the most essential aspects of firm planning.

It is true that this method sometimes meant that some aspects in some instances were missed due to neglect from my side or from lack of time. This was a minor problem, though, since a complete coverage of each important aspect of planning with every firm was never attempted.

One cannot pass over the professional language problem that always has to be faced in a study like this. A professional economist and corporate executives as a rule will have to communicate by way of two overlapping languages. As we will see in Chapter IV, the literature on planning has not helped to dispel semantic confusion. Also, the terminology used differed a great deal between firms, in particular when it came to defining the exact meaning of concepts like gross profits, operating income or profitability. It is also quite certain (to me) that some firm officers tried to hide what they considered less sophisticated planning devices by way of a difficult or sweeping terminology. I believe, however, that the difficulties of language are not as important in practice as they may seem. They apply mostly to the gathering of qualitative information. As far as the numerical planning methods go, it was always possible to get information on the exact methods of calculation put to use if desired. I was also happy to note that no corporate officer took offense at the rather far reaching cross-questioning and backchecking methods that I indulged in towards the end of my interview.

A major observation problem refers to the operational definitions of the large numbers of concepts used. I have found it an impossible task to attain the degree of precision in terminology that would of course be desired. Planning is difficult to understand since few know what planning is. A general definition would be all but an empty statement in a context like this. A meaningful definition will have to refer to operational practice directed towards some particular management purposes. It helps but it does not solve the problem to explain by introducing a new and somewhat more exactly defined concept. However, one is always at liberty to assume a circle of fairly well-experienced readers endowed with the faculties of imagination needed to overcome a less perfect communication method. The reader can see for himself by consulting a random sample of the literature on planning referred to in Chapter IV that this is a problem not unique for this piece of research. One should also recall a simple rule of scientific inference often forgotten, namely that the degree of exactness required in defining the concepts used depends on the degree of precision required of the conclusions. There is no extra virtue to be gained from being more accurate than needed. I feel that I have kept within acceptable bounds here.

The problem of empirical method, however, still remains. E.g.,

several rather extensive arguments consist in an analysis of the consequences for decisions of some particular feature of planning met with in three, four or at best five firms. Such analyses cannot be justified on the ground that they constitute a typical feature of planning systems, among U.S. and/or European firms. The small sample and the selection method chosen do not allow such backward inferences and I seriously hope that no one will read such implications from the text.

The generalizations made in this book through Chapter X refer to the *sample of firms interviewed only.* This is an obvious circumstance that I have abstained from noting at all places.

Chapter XI is of a somewhat different character. I am still not generalizing beyond the sample of firms. However, I am generalizing *with little or no empirical backing* from my observations on planning methods to *the behaviour of the firms* studied. Consequently Chapter XI contains no conclusions but rather *suggestions* as to certain features of a theory of firm behaviour that might be considered worth testing out empirically by another method, on another sample of firms by someone else.

II PURPOSE OF FORMAL PLANNING PROCEDURES

Planning is a multidimensional thing. There are a number of overlapping and partly conflicting reasons for operating a planning system in a business organization. There are an equally large number of methods of engaging a planning system in the decision process of the firm. The method cannot be understood or evaluated until the purpose or the set of purposes have become clearly formulated in terms that are operationally understood. The purposes are in turn manifold. They apply at various sub-stages of the hierarchical goal structure of the business organization that may be fairly simple and loosely phrased at the top, but that may display features of extreme complexity and detail at lower levels. Consequently neither purpose nor method can be studied in isolation. They mirror the type of organization, the degree of centralization of decision-making, the history of the firm, current problems, the mentality of top decision-makers etc. or there may be no links to these facets of firm life which is interesting enough as we shall see. In fact, there were frequent occasions when it seemed unclear to top-management itself what planning was supposed to be good for.

Five principal motives for the application of explicit, formal planning procedures have been repeatedly stated in the interviews. These are:

a) *Control and coordination*
b) *Forecasting*
c) *The specification of goals or targets — motivation*
d) *A point of reference for the measurement of (management) performance*
e) *Information for improving the allocation of available financial resources*

The five purposes, of course, often overlap as to content and no clear-cut distinction between them can be made. However, between firms emphasis put on the five purposes differ and the differences in emphasis also seem to be reflected in the methods of planning adopted.

a), c) and d) are the explanations for particular features of the planning setup most commonly volunteered during the interviews. b) and e) were less frequently referred to. On the other hand b), and in particular e), figure importantly in normative economic literature as the rationale for compiling and analysing numerical "data on the future" (see Chapter IV).

Surprisingly enough a sixth motive for planning;

f) *Improving flexibility — contingency planning*

did not often appear during the course of the interview.

Very often the word planning is associated with a seventh motive for or rather type of planning:

g) *Activity planning or programming.*

I found very little reference to the budget as a program for action among the firms interviewed within the context of comprehensive planning. However, more specific functions within the firm such as production scheduling, transportation planning etc. where this quality of planning routines may be more relevant have been left outside the interviews.

The seven "purposes" a) through g) listed may be reclassified under three main headings;

(A) Analysis (what?)
(B) Control (where?)
(C) Implementation (how?)

"Analysis" covers the "sub-purposes" forecasting (b), allocation (e), and flexibility (f) and may as well be referred to as the information aspect of planning in the sense of gathering and analysing data on the future with a view to deciding from a number of investigated choices on a most optimal course of action. This aspect of planning, highlighted by the question: what shall we do?, is the aspect most emphasized in non-empirical literature on planning. This purpose of planning being dominant would also mean — by inference — that planners play a supreme role in the decision process. As we shall see, evidence in this study does not suggest that either analysis with a view to deciding on what or presenting basic information to support the same analysis is of much importance in comprehensive, formal planning applied at the time of interviewing at the CHQ level.

More precisely, major, new business ventures are practically never researched, prepared or handled within formal comprehensive planning routines. They belong to the complex, not well structured decision areas that are always handled high-up, separately and behind closed doors until a definite decision has been taken.

However, "what" can be given a new meaning by reinterpretation, namely to decide on what standards or requirements (notably in terms of profits and sales growth) to apply top-down. This activity, called *targeting,* is much in focus in planning and will be discussed in detail below. It is 100 per cent restricted to well-structured, repetitive operational management routine decisions.

Once *what* has been decided on, the next step is *to communicate the decision to the organization and to see to it that the decision is enforced. Control* in the sense of coordination (a), targeting (b) and performance rating (d) is heavily emphasized in comprehensive, formal planning. The control purpose then also includes methods of shaking information out of the cells of the organization and forcing it to surface at the corporate level. Targeting is part of this process. Targets (given the objectives or goals of CHQ) mean operational specifications for middle

management which is responsible for their implementation. It is basically a top-down procedure. Reviewing the plan means coming to an agreement on the numbers to stay with for a well defined future. It means responsibility for middle management and involves a process of negotiations and agreement with CHQ. Reporting often means reporting against these numbers to CHQ. The whole sequence essentially means putting the planning system to use as a control instrument. Control also covers the design of the planning system in the sense of deciding on which strings CHQ should pull, how far down in the organizational hierarchy these strings should go and what decisions can be delegated downwards. If control is an essential objective of planning — as it seems to be — the design of the planning system should mirror also the hierarchical level of the decision process. Where are decisions taken and by whom?

One management function typically delegated below the level of CHQ is the decisions as to *how* comprehensive plans are to be *implemented.* Hence, the method of implementation (selling, producing etc.) is typically absent from comprehensive formal planning. However, the final execution of the plan again ties back into the plan through the reporting procedure.

What has been labelled activity planning or programming under (g) is part of the implementation phase. As a rule there are numerous sub-planning routines that control or guide the implementation of the comprehensive plan. They often use data from the comprehensive plan as inputs. The implementation side has not been systematically covered in this study although certain aspects of it have been discussed. One interesting aspect of implementation has to do with the use of comprehensive plan data for cash management purposes (see Chapter VII.3).

There is a pronounced *financial bias* in all planning systems investigated in this study. Even though *operations planning* and *financial planning* always blend in comprehensive planning, these two different sides of business activities will have to be kept apart in what follows. Both in annual budgeting and in long-range planning, the ultimate aim normally was to produce a set of future income statements and balance sheets. One reflection of this bias is the fact that with no exception, comprehensive planning at a level of aggregation above the division or profit centre level is in terms of *values expressed in current prices.* This feature and the predominance of *single valued* plans tally neatly with the emphasis put on the control, targeting and performance rating motives of planning.

In some literature (see Chapter IV) one meets with an inclination to approach the concept of planning in terms of *all-purpose information* or decision *systems.* Here the quality of consistent information processing and non-conflicting purposes becomes important. Some of this literature has its origin in price theory and its application in modern planning theory at the national level. Some fruitful results have appeared in the methodology of optimal transfer pricing methods where the existence of a consistent and numerically specified organization model is a requirement.

Part of the literature falls back on enthusiasm for the potential of modern computer technology (cf. Supplement 6). Practically nothing of this kind came out of the interviews. Even though many firms had developed comprehensive formal planning systems they were never of the all-purpose type. A number of separate purposes (like production planning) were either catered for by separate planning sub-routines connected with the comprehensive plan, with no feed-back allowed, or by entirely separated planning routines. Conflicts of purposes were, as we shall see, frequent. Also the comprehensive planning system as a rule consisted of a set of not well coordinated and at times grossly inconsistent numerical routines. This was sometimes deliberate and some reasons for this peculiar feature will be given as we proceed.

1. Control and coordination

The first and foremost motive for planning stated in the interviews was *control;* in particular control of current operations by CHQ. In fact, most firm representatives made it quite clear that the ever-present budget procedure was basically there to control and coordinate overall operations. A second aspect of control, not as strongly emphasized, was the possibility of comparing current, actual performance, i.e. the realization of plans (production, profits, investment, etc.) with the plan itself. Experience, often reported during the interviews, was that the more formalized and systematic the planning procedure, the easier it was to track down the causes of divergencies arising between actual and planned for developments, and the faster new decisions could be made to correct an undesired development. This second aspect is part of the explanation to the detailed specification of ex-post reporting on a quarterly or a monthly basis, a degree of specification that was commonly required also in plans.

In fact, almost all U.S. firms interviewed had at least quarterly reporting routines of all basic external and internal accounting entries. In 21 of the 30 U.S. cases, reporting was by month. In at least 23 of the 30 cases ex-ante and ex-post entries were systematically and currently matched at quarterly or monthly intervals. In at least 12 of the U.S. firms interviewed, such checks were computerized and "requests for explanation" were forwarded as a routine procedure to those responsible. Again, in 12 out of the 20 instances, plans were systematically revised each quarter, for at least the rest of the fiscal year, taking current changes in basic plan assumptions into account.

However, the control purpose also entered formal planning indirectly, by way of the actual process of putting the elements of the plan together. During this process, all kinds of problems that would otherwise have been securely concealed in the depth of the organization were brought upwards in the management hierarchy. In this sense the plan filled the purpose of an early warning system.

It may be that the impression given so far of a dominant control motive is biased by the results from the mostly very large U.S.

corporations interviewed. In effect, when looking at the non-U.S. part of the sample of firms the control motive did no longer appear as predominant. On the other hand, the degree of detail and sophistication in planning was also lower (see Chapter X). It is fairly safe to conclude that the presence of numerical detail in corporate planning is strongly correlated with the emphasis placed on control. There is furthermore a distinct difference between the degree of numerical detail between the U.S. and non-U.S. parts of the sample.

Another feature worth observing here, that appears again in the section on targeting, has to do with the degree of CHQ control of division details. It was by far more common among the U.S. firms than among the non-U.S. firms that CHQ requested routine reporting against budgets or plans of details at division level i.e. reporting cut in behind or below responsibilities of division heads. Among the European firms CHQ management more frequently felt satisfied with having routine reporting related to division aggregate performance only.

A second aspect of control is the increasing need for a *coordinating system,* the larger and the more decentralized the firm's organization. As will be accounted for in what follows, some typical features in firm planning can be pointed out which are always present in a decentralized decision-making structure but not so in a typically centralized organization. This does not have to mean, however, that the amount of planning for control (firm size held constant) is proportional to the degree of decentralization and the willingness of CHQ management to delegate responsibility. It may be noted that the planning system was often characterized (mostly in U.S. firms) as a means of decentralizing decision-making, keeping only the most essential reins for CHQ and top decision-makers to pull and to guide the entire business in the desired direction. This, however, does not preclude a requirement of routine reporting to CHQ of the most intimate of division details. We will come back later to this seemingly paradoxical conclusion in the context of targeting.

Finally, the control motive basically accounts for the 100 per cent presence of short-run (mostly annual) plans (budgets). The control motive, however, is there also in long-range planning as well although in a less formalized and obvious way. The previous long-range plan is frequently "activated" when the next budget or long-range plan is being prepared as a reference for questions. "What happened to this big project you talked so much about last time?" etc. It should be kept in mind that the effects of most of next year's planned investment spending do not show up until after the budget horizon, i.e. in the long-term plan. A typical, repetitive CHQ experience with division plans was that CHQ demands to step up performance was countered by the division by a large demand for investment funds and a promise (in the long-term plan) to meet performance requirements in the third or fourth year from now. Many CHQ planners had found it to be an excellent bargaining weapon to confront division demands for extra investment funds with pedagogically arranged charts of "such designedly overoptimistic promises" in the past.

Thus, it seems to make good sense to keep two aspects of control apart; (1) control in the sense of an *auditing system* oriented towards checking performance against plans or goals and (2) *distant control* of a large organization from CHQ where emphasis is on such key words as information and coordination. There is also another dimension of the control function that cuts through both (1) and (2). Control can be exercised at the ex-ante stage of planning (usually called *reviewing* and/or targeting) as well as in the form of checking performance against the plans *(reporting)*. This will be discussed again in Section 3 and in more detail in Chapters VIII and IX.

2. Forecasting

The notions of a plan and a forecast sometimes tend to be confused. I often heard the term forecast used in two different senses. First various elements of forecasting in the sense of the most probable estimates of the future always enter formal planning work; notably when basic plan assumptions such as future sales levels have to be decided upon. The "sales assumption" — normally exogenous at least in the short-term planning (budgeting) process — often was named a "sales plan" or a "sales forecast".

Second, within the plan, certain output data from the comprehensive plan were often used to forecast other entities — given the plan as an assumption. "Liquidity forecasting" was a term sometimes used. Implicit in this notion was the firm as a fixed structure of calculation procedures (a model) that adjusted passively to a given exogenous environment. What happens to liquidity or profits if this or that particular set of initial conditions come true? This last mentioned use of the plan was common in both long-term and short-term planning.[1]) However, in those instances where this matter came up for discussion it was quite obvious that no one thought of the plan as a "map of the future". The plan was rather regarded as a forecast for some important firm targets (profits, sales etc.) that were at least partially under the control of the planners (cf. the definitions on planning and forecasting on p. 22).

In the long run the plan was usually looked at as (approximately) the best program for future action given today's circumstances and assumptions concerning the future (initial conditions). Above all, the plan — no matter the distance to the horizon — was always regarded as something that would normally have to be revised — often substantially — long before the planning horizon becomes reality.

To sum up under this heading: Initial, environmental conditions for the planning procedure are usually arrived at in a way that warrants the name forecasting. Planning in the sense of forecasting, however, would be a very mechanical calculation procedure. It occurs regularly

---

[1]) A case in point is the use of an updated budget for purposes of current cash management (see Chapter VII.3, also see Gershefski, *The Development and Application of a Corporate Financial Model,* Oxford, Ohio, 1968, p. 15) or the use of a long-term plan to derive the need for external financing in order to carry out a growth program (see Chapter VII.2).

in a *partial* sense when a division picks the data-set from the comprehensive corporate plan as initial conditions for some divisional projections or when some particular entries on, say, the cash flow balance are taken from a given and completed corporate plan to be used for some particular purpose in, say, the treasurer's department (cf. Chapter VII.3).

3. Targeting

The third motive, *targeting,* emphasizes the degree of active steering versus passive adjustment subsumed in firm planning. The targeting concept, as I have understood it, encompasses two main objectives: 1) the specification of overall firm policies or desired objectives; 2) the stating of particular objectives to be achieved, *if possible.*

Corporate policy making or targeting in the first sense will be further considered in a separate section later on. Targeting in the second sense, in one way or another *explicitly* and in much detail enters firm planning procedures in about half the cases investigated. By explicit I mean that there are well defined methods and criteria to be used as a guide in current planning work. Rules can be found as to how to evaluate the distant future as compared to the future nearest ahead; what kind of projects should be submitted to strict economic evaluation, and what projects should be considered mandatory for the long-run survival of the firm; to what lines of business the firm should be restricted etc. There is of course no clear dividing line between policy making of the loosely phrased first kind, and explicit and very detailed operations targeting of the second kind.

With some exceptions, in all instances where this topic came up for discussion I always found some policy constraints on the courses of action open to firm management and — consequently — planners. Sometimes these restrictions had been made explicit in formal documents but often they were implicit in the sense of being "felt as traditionally established" by those concerned.

Even though the frequency may be hard to establish, there is written (although not presentable) evidence to support the hypothesis that firms — as far as policy making goes — often do favour growth within traditional lines of business at (expected) satisfactory rates of return at the cost of lost, more profitable and possibly even safer opportunities outside traditional lines of business. If these lost opportunities are of a short-run nature — the most frequent case — such behaviour could easily be rationalized in terms of uncertainty as to the future and the presence of a basic survival premise in firm behaviour, i.e. survival as a business organization. Also, elements of inertia built into the enterprise were presented as a rationale for explicit policy statements as to the boundaries of operations open to the enterprise. "These are the technologies, production methods and the markets our people are experts on" etc.

However, the sample of firms interviewed also include some (notably U.S.) firms with conglomerate features. These firms displayed in the interviews, in their policy manuals (a couple of cases) and in their

planning documents a much less restrictive attitude towards the lines of business open for future exploitation.

Well developed and elaborate planning systems always exhibited a number of circular sequences where beginning and end met at least in a delayed, iterative step. Targeting was often seen as the first step and a method of specifying the future goals of the firm. Quite often policy elements appeared in the targets in the form of intentional deviations of targets from what planners believed was feasible performance without extra exhortation. Most often targets were rather crude (profit-margin requirements etc. cf. Chapter VIII.1) and sometimes quite loosely formulated. There were several exceptions to this, however, and some targeting systems in the sample were found to be very specified and elaborately tied in with the reporting and control procedure. This time, however, targeting should be conceived of as a systematic breakdown of aggregate goals formulated at the top executive level rather than profitability goals in particular. This breakdown may go into extreme detail, and the problem of formulating such detailed targets *consistently* was considered important.

One frequently met with quite detailed requirements imposed from the top down on operating departments, such as growth requirements on individual product lines, requirements to maintain certain ratios as regards particular cost items (cf. Chapter VIII.6) etc. Quite often such requirements were in apparent conflict with one another. They might (e.g.) have been introduced in a period of sudden commercial distress. To warrant the name targeting here they had to be the result of a systematic and consistent effort on the part of the management to break down aggregate goals and plans into sub-items with the express purpose of making the reporting and control system more effective. With this qualification, targeting was very uncommon among the sample of firms interviewed.

Case 1: *Sophisticated targeting (simplified). Large U.S. firm.*

In this large U.S. firm the targeting procedure followed a very sophisticated sequence. One particular man with an assistant was assigned to the task of compiling three sets of data at an early phase of the planning sequence (1) CHQ forecast on the environmental outlooks (2) division forecasts and plans (preliminary) and (3) records on past division performance. This information was then put together into aggregate targets for decision units (profit centres) that were considered reasonable in the sense of being obtainable with some effort. In this firm *the growth rate in net profits* was the most common profit centre target.

These targets were then subjected to hearings between people responsible for their realization and the planning people possessing an overview of entire corporate operations. Once a compromise has been struck, CHQ planners took over the data and started breaking down the targets into goals (sub-targets) that were based on the preliminary division plans handed in and were made consistent with aggregate targets decided upon. A division might get to ponder a set of product-wise sales growth and profit margin combinations to which were added price specifications, minimum productivity demands (here output in current values divided by man hour inputs), the volume and composition of employment allowed, certain maximum cost-shares allowed (e.g. on computer installations, secretarial personnel etc.), and so on. This sub-targeting was made up in current contact with responsible profit centre people and much of the work was done by planning people at the profit centre. The goals decided on were

finally authorized as *operational targets* in a format consistent with the reporting format.

These operational targets made up the backbone of the annual budget and also the long-term plan. After some supplementary mechanical calculation work the set of operational targets was reshaped — late in the year — into the set of future accounts that constituted the budget. This budget also was the basic reference yardstick for reporting and control purposes throughout the year even though the budget as such was revised completely three times during the year for other purposes.

It was normally conceded, if not volunteered, that targeting often had the same purpose as the carrot and stick for the donkey. In many instances, such targets as were numerically specified in the plan (e.g. minimum profit margins or required growth rates) were consciously over-optimistic, and failure to reach them was excused.

I will argue later that many of the extensive planning systems of U.S. firms that may seem extremely bureaucratic in the bad sense of the word at first sight may have been designed deliberately as such to function as administrative stress systems. They serve the purpose of forcing information out of isolated organizational cells and channelling it upwards to CHQ screened for irrelevant information and shaped in a format that can be taken in by those who have to make major decisions. This does not exclude the possibility that many or most of these complex systems nevertheless are bureaucratic and excessive in some sense.

As reported to me several times the purpose of the planning system was less to channel reliable indicators on the future upwards but rather to reveal as early as possible when something was going wrong and *how*. Such information was harder to extract from the parts of the organization than ideas. Covered-up information and biased presentations were often considered a problem by CHQ in their negotiations with divisions. This probably also explains much of the emphasis placed on targeting, on the one side, and reporting and control, on the other, in conjunction with planning.

Planning as an administrative stress system also emphasizes the link between planning and the organization of the corporate body. It also highlights the planning system as an administrative replacement for a competitive market mechanism that does not exist within the business organization.

Case 2: *A system of contention* (large U.S. firm).

In this firm the finance director of the entire corporation had established — directly reporting to him — a small unit of planning coordinators that were concerned with the ways by which plans were made up, not with their content. The finance director was also responsible for planning and budgeting as such and participated in all major decisions.

The philosophy of the firm was that the more people that are involved and the more views that are given the more information will be fed into plans and decisions. However, one was not prepared to let top decision-makers' time and work get clogged up with such "democratic practices". Involvement and participation should be hierarchically ordered. Second, the belief was also that slight but current confrontations between planners and operations people forced information to surface at CHQ and forced people to respond in various ways. A major task for planning designers therefore was to see to it that the right level of *contention* was always tuned in. I short, as one executive expressed

himself; "The planning system should be a system by which CHQ communicates *efficiently* with the shop floor and not only in one direction".

Thus an elaborate three (or four) dimensional cell design had been built up. There were three mandatory friction surfaces. Division planners (1) had to even out their plans with CHQ short-term planners and (2) with CHQ long-term planners. Also (3) CHQ long-term and short-term planners had to bridge conflicting ideas.

In this firm CHQ *short*-term planners were responsible for overall supply coordination. CHQ *long*-term planners reviewed overall financing and investment plans. The finance director occupied a very strong position in the corporate hierarchy and actively made use of this planning apparatus to "communicate with" the organization.

Division planners were supposed to push the interests of the division while CHQ planners were supposed to represent the entire organization. At each meeting agreement might be reached easily and the final plan could take shape with few or no interruptions. Non-concurrence, however, should take place in a non-alarmist way. After some further consideration either party might revise its views. If not, each party was supposed to present their views briefly in writing upwards and downwards. CHQ management might then either solve the issue itself or call (at *their* initiative) a *hearing* with all management people that were in some relevant way affected. The idea was that if the "conflict" had gone so far it should be brought into the open for resolvement. In effect this meant that if the cells could not compromise, the right to decide was taken away from them.

Targeting in the first policy sense referred to short-run as well as long-run planning. Targeting in the second sense of being an incentive system or a "whip" built into the plan was most frequently met within the context of short-run, annual budgeting and lost in importance in long-range planning (cf., however, case 7 in Chapter V.4). Also, it was very frequent in U.S. firms and much less so in the sample of non U.S. firms.

The more emphasis placed on targeting in the second sense, and hence also on control, the more the character of a set of negotiated figures or responsibilities the plan. This leads directly into the next section on responsibility budgeting. It may be said that well designed and consistent targeting and reporting systems were not all that frequently observed in the first round of interviews in 1969 and 1970. This holds in particular for Swedish firms. However, repeated visits to the same firms later seem to indicate that sophisticated methodology in this area is rapidly spreading in U.S. as well as non-U.S. firms.

What has been said may resolve the paradox mentioned in Section 2. Delegation is quite compatible with very elaborate targeting of internal division matters and later reporting to CHQ as long as the detailization of CHQ targeting guidelines is a delegated or joint procedure and as long as decisions at division level aimed at those targets can be taken on a delegated basis.

4. A point of reference (responsibility budgeting)

The fact that plans often were used as a point of reference for the measurement of management performance at various levels within the firm may seem surprising, since failure to realize plans depends also on variations in the basic assumptions of the plan (product market development, prices on inputs, etc.) in addition to the ability to carry out a proposed course of action.

Primarily the short-run plan or the annual budget was put to use as a point of reference for performance rating. As such, again, it was mostly considered to be a device to measure performance *between* the various sub-sectors (divisions or profit-centres) of the firm organization. As a standard of comparison, the plan normally replaced the method of assessing change in terms of percentage increases or decreases from a previous period (year). This feature of short-term planning may also explain the well known practice with firms to stick to the original (annual) budget throughout the budget year no matter how the basic assumptions of the budget turned out ex post. The budget was practically always looked upon as a document that had been compiled carefully and in detail, with much consideration and with a substantial input of effort. Its basic premises were supposed to be known. Thus divergences from budgeted entries were considered to be more informative than, say, the change from the previous year.

Often a series of updated budgets — usually only partial versions — were made alongside the original budget. It should be noted that comparisons with ex-post outcomes (reporting) were practically always made with *originally* budgeted entries. It is fairly obvious that in the capacity of serving as a standard of comparison, the need for *stability* is imperative and this was the most frequent reason cited for not revising the budget too often. A person currently travelling (by air) around the globe having several appointments a day and crossing several geographical time-limits a day provides an illustrative case in point. It would be highly inconvenient for him currently to keep local times as a point of (time) reference. His only purpose being to keep his appointments, it doesn't matter very much which scaling of time he chooses. On the other hand the locations of his point of departure and point of final destination should suggest some particular standard as convenient.

Performance rating between divisions usually was a multifaceted matter. Besides traditional comparisons of growth rates and returns on investment over past periods, division heads were sometimes ranked according to their ability to present and to realize plans. This is another aspect of the need for a stable standard of comparison. In this context the need for proper and transparent transfer pricing systems was also emphasized. However, I was frequently told that detailed reporting on negotiated key variables across divisions within the framework of comprehensive budgeting was a much more "practicable approach" to interdivisional performance rating than "the impossibility of designing a meaningful transfer price system that made 5 per cent mean the same in each division". (See later on).

Division management normally was responsible for the setting of reasonable or realistic assumptions as to the future as well as the implementation of the plan. Such a management evaluation aspect being emphasized in planning work also tended to lend more importance to the plans, as well as to result in more realistic plans. Furthermore, if failure to achieve proposed goals was dependent upon factors which could not reasonably have been foreseen and/or could not be controlled

by management, the evaluation could be adjusted accordingly, and the more explicit the plans, the more easy such adjustments.

This is the only way of making the valuation-of-performance aspect of planning compatible with the *targeting* of goals to *strive for* (see previous section). To use the same instrument for performance rating and targeting requires that targets be negotiated figures or responsibilities arrived at by some consensus and in the context of a fully known incentive system. The measurement of performance aspect was *only* stated in connection with short-run (annual) plans (budgets).

5. **Allocation**

Planning for improving the overall allocation of available financial resources in some well-defined sense is the fifth and most involved one of the aspects of planning listed. It was seldom volunteered as a basic reason for formal planning. However, when I brought up the question the answer was invariably, "of course".

To some extent the allocation aspect is taken care of under the headings of control and targeting. These purposes, however, conflicted with the idea of using the formal plan as an analytical instrument, e.g. to provide information in order to facilitate the choice of the most optimal courses of action. Since planning normally involved the deliberate introduction of biased information, the analytical purpose is not well served by the numerical information handled in the planning process. However, once a choice had been made, the plan based upon it served the purpose of a standard of reference to check that CHQ intentions were carried out as planned for. Also, a meaningful plan to promote a more efficient (as yet undefined) allocation purpose as a rule must have a horizon beyond the one- and five-year limits usually applied in formal planning. Furthermore, in order to serve as guidance in the choice between different investment opportunities or different courses of action open to the firm, a systematic evaluation procedure (defined in terms of specified goals) covering all aspects of firm behaviour must exist. Even a very generous appraisal (by me) would mean that not more than a fourth of the firms interviewed (U.S. and non-U.S.) made systematic efforts to collect the information required to perform — systematically again — any meaningful allocation purpose within the framework of the comprehensive, numerical planning routines. Allocation decisions involving a choice between alternatives will have to be taken on top of or separately from the formal planning process studied here and be based on information not routinely handled within planning (see below).

This does not necessarily imply that the "sophisticated" group mentioned above represents the most successful group of firms in terms of their ability to fulfil stated or standard criteria of success (growth, profitability, etc.). An argument often met with was that the economic environment of the firm was a too uncertain, a too complicated, and a too esoteric matter to lend itself to numerical measurements. The reliance on guesses, feelings, or outright hunches often had proved far superior when major decisions were concerned, or, as one executive

in a Swedish firm expressed himself; "All our successes have been based on hunches while decisions founded on careful calculations usually have resulted in bad profit performance."

I have six comments on this. The *first* is that in firms where major decision-making is running parallel or contrary to explicit, formal plans, planners in fact do not possess the relevant pieces of i nformation and/or are unable to present such information in numerical and explicit form.

Second, in some firms planning — notably long-term planning — seems to be viewed as an activity which is not really necessary *today* but which has to be carried out and which has to be improved for possible future uses. In such cases management participation in planning work was usually lacking and plans consequently had no or little leverage on decision-making.

Third, rate of return calculations and rate of-return standards at the level of the individual investment object took place or were applied in practically all firms interviewed. However, within the framework of the entire business organization the evaluation of individual investment projects was a typical suboptimization procedure (part of the appropriations procedure) that in most cases was not even integrated in comprehensive planning proper (see Chapter VIII.3).

My *fourth* comment is the most important one. It refers to the restrictions instilled in planners by explicitly-stated corporate policies, not unfrequently in the form of written documents. I met with no such simple notions as the maximization of profits (in any time dimension) or present net worth of the firm. Neither did I find much evidence to support a proposed alternative; namely to maximize growth (e.g. in sales) provided certain profitability standards were met.

I met with a number of profitability standards to be satisfied in planning. However, there were numerous exceptions, sometimes stated in the formal policy documents and standards were often violated in practice. Of course, this "evidence" should not lead anyone to believe that "money-making" is not a basic objective of business firms. On the contrary, I was sometimes met with generous agreement when I brought up the matter of maximizing certain goal variables (profit etc.). Again, the objection was invariably that the notion of optimization was not operational. A basic purpose of the firm organization — implicit in several policy documents — was to stay alive in the long run and often to stay alive in a rather restricted environment (market, technology, etc.). To extract maximum profits in the short run, i.e. within the budget or the five-year plan would not benefit the purpose of fulfilling such long-term goals, it was argued. Since most important decisions carried consequenses beyond the long-term plan the notion of an "optimum" solution today was not considered meaningful[1]).

---

[1]) The only areas where methods of normative planning or optimum programming were reported to have been used with some success were those where (1) the numerical structure of the activity is approximately stable during the optimization period and where (2) decisions are binding for a relatively short period of time only, such as production or inventory planning.

Another *(fifth)* objection to "optimal thinking" sometimes raised was the fact that the information bank on the structure of the business organization residing in CHQ was of the "soft-coefficient" type. Improvements in performance mostly occurred through changes in that structure, usually without CHQ people knowing exactly how. CHQ planners then have no fixed coefficient "model" at their disposal that remains stable in an optimization experiment. Optimization exercises at CHQ level then become less meaningful.

This "soft-coefficient" feature of the firm structure is sometimes refferred to as the presence of "slack". We will see in later chapters how the "awareness" by CHQ planners that unidentified "pockets of slack" exist everywhere in the organization is systematically made use of in planning.

As a consequense one would expect a frequent use of probability concepts in planning work; e.g. the use of *alternative plans.* I found very little of this. With a few exceptions plans were all single-valued. Again the argument was that uncertainty could not be specified numerically in a meaningful way. Besides, most long-term plans were completely revised at least once a year, a circumstance which probably did not make the numerical specification of an uncertainty element worth while. Consequently the *sixth* point to be made is that the presence of an *allocation purpose in planning has to be related to the basic policies of the firm organization.* For one thing, these vary over time in a not negligible way. Secondly, they are seldom explicit or precise enough to allow a satisfactory numerical analysis of the matter.

By and large my impression was that the systematic pursual of the allocation motive in *formal* planning was of rare occurrence. If defined with respect to simplified notions such as maximizing expected profits in a fixed time-dimension or expected present net worth of the corporation, it was probably entirely absent. Major decisions that involved basic structural changes were taken outside the context of formal planning and most probably not even on the basis on information provided by the planning process. In addition, the implications of the chapters to come will be that the structure and information content of the formal plan do not allow this kind of applications.

6. Flexibility — contingency planning

To enhance flexibility by way of planning has often been advocated as the primary motive of planning, e.g. by Donaldson (1969). By preparing a set of alternative plans, each one contingent upon a particular and not unlikely development of an erratic economic environment, the firm should always be ready to reverse decisions taken or to wait with decisions to the latest possible date at which they can be enforced with a minimum of economic disturbance to the firm.

The interview findings on this point were in the negative. For one thing, this aspect of planning was seldom emphasized during the interviews. Second, most formal planning systems investigated were too crude to be of much use in such a context. Normally the workload required to produce a single-valued budget or plan of sufficient detail

only, was so large that the presentation of alternative plans was simply out of the question. This observation is consistent with the emphasis placed on targeting and control mentioned earlier. Alternative plans and flexibility does not make sense in a system based on target-specification and control by reporting. On the action side planning is rather based on a strongman's philosophy. Non-planned for or unexpected events are cracked down upon with drastic corrective measures. It is considered more economical to have an efficient detection system (targeting and reporting) than to be able to foresee and prepare for contingencies. One would expect to see a gradual change in this approach, however, the more of social responsibilities, in particular as regards employment, that are vested with the companies by contract, by law or by social environmental pressure.

Practically all planning systems (budgets and long-term plans) investigated were of the *single-valued* type. In a few instances, explicit and numerical consideration was given to the probability of this or that outcome of the exogenous, environmental variables of the plan. Always, however, both the budget and the long-term plan were stated in terms of one choice or one solution. As for the budget, flexibility was incorporated by frequent but partial updatings. In long-term plans, the annual and complete revisions were considered sufficient.

Despite the impressions reported above, this does not mean that flexibility or contingency planning is not important if planning is defined more broadly than to include only numerically-specified plans. First, it was frequently stated during the interviews that the *process* of arriving at the planning document was more important than the document itself. This process — as we shall see — was built on an elaborate system of integrated information points with telephone dialogues, working sessions and negotiating procedures, before basic data for the plan were fixed. Normally, CHQ people had a detailed working experience of the "numerical properties" of the business organization. Such information and the informal information-contact system could be put use at short notice without going through the whole process of producing a new planning document.

Second, to a varying degree special or new projects or particular functions (like inventory planning) were singled out of the comprehensive planning process for separate inquiry. Here, alternative planning was frequent and I had the opportunity to look into a few cases where the basic concern was to estimate what would happen to the firm if one particular (and major) project went wrong in several well-defined senses. One large firm, for instance, was very much concerned with the fact that its present dominant business would not be able to support operations of the present size for more than 5—10 years. If no other major business could be embarked upon successfully over the next five years, the firm would have to shrink considerably in terms of employment. The most promising candidate involved a new technology to be introduced in the same market. A new R & D set-up was needed and capital requirements were considerable. So also were risks, since there were at least two major competitors. Here, planning

was more concerned with the impact of a major mistake and — if so — to map out ways of coming down with both feet on the ground rather than with the consequences of success.

Third, contingency planning within the framework of comprehensive numerical planning was normally considered on the financing side rather than with reference to operations planning. What minimum financial margin was needed each of the next five years? For how long could the decision to float the $ 50 million bond issue be postponed?

In a small number of the U.S. firms interviewed, a financing simulation model had been built to facilitate financial flexibility. Usually, this model was a condensed and much simplified version of the long-term plan. Normally it was also considered to be too crude to be of much use — so far. The majority of U.S. firms, however, revealed (in 1969) that they possessed, were currently working on building such a model or planning to start on such work soon. However, scepticism rather than enthusiasm seemed to dominate among those I had the opportunity to question — with the exception of those persons actively engaged in model building work.

7. Activity planning

From what has been said already, comprehensive numerical planning at the CHQ level has a marked financial bias. In short run, annual budgeting, financial and profit control seem to be the dominant motive and — as will be illustrated in much detail later — the information handled in the budget procedure is defined in financial terms. In long range planning, financing and profit prospects are still dominant in the sense that the long-term plan represents an evaluation of the financing and profit consequences of a chosen growth path.

In both annual budgeting and long-range planning at CHQ level the *operations or implementation side* seems very much suppressed in the data-set that constitute the comprehensive CHQ plan.

There are some exceptions to this that will be accounted for later. The point to be made here, however, is that operations problems *in planning* (except large investment decisions) are solved at levels below CHQ. This is probably the main reason why contingency planning on the operations side did not appear as a motive of any importance in comprehensive planning. However, the fact that single valued comprehensive plans ultimately fall back on an operational basis must excercise some kind of constraint on the options for contingency planning below the CHQ level. Production planning normally takes the sales and investment plans of the budget and the long-term plan as given inputs. The same holds for manpower and inventory planning (see Diagram I:1 B). Within this enclosed environmental frame, operations planning reduces to a rather technical suboptimization problem[1]). Here, planning normally takes on the character of activity planning or programming.

---

[1]) Note, however, that even though comprehensive CHQ plans are normally single valued the informal process of arriving at the single valued plans at an earlier stage of course necessitates a choice-sequence. This will be considered in the following chapters.

I have met with several sophisticated and numerically specified optimization systems at this level and in particular in day-to-day production scheduling and inventory planning. On this point, however, interviewing has been very fragmentary and no account of such methods will be given. The focussing on comprehensive CHQ planning chosen for this study explains why subroutines such as rate of return calculations at the investment project level and production planning play a secondary role in this book. Besides, these topics have already been covered fairly extensively in the literature.

III TYPES OF FORMAL PLANNING SYSTEMS

At CHQ the concept of "planning" most frequently was understood as "comprehensive planning". Ideally the notion of comprehensiveness meant that the plan should encompass all relevant activities of the business organization within an integrated system; i.e., it should be coordinated the way a budget usually is. Ideally, the process of arriving at the plan should also involve fairly extensive horisontal trade-offs by way of negotiations between the various departments (divisions, profit centers etc.) of the firm organization. For obvious reasons, this is the interpretation of planning one would expect to find at CHQ, the place where practically all interviews were carried out. Thus, at other parts of the corporate hierarchy the term "a plan" most probably carried different associations. For the same reason, it is impossible to acquire information on all aspects of planning at CHQ. For instance, in one firm the "long-term plan" consisted of a prolonged (annual) budget for the next two years only. There existed, however, a five-year R & D investment plan compiled annually at the research departments under the auspices of a subcommittee of the Board of Directors *but* outside regular CHQ staff functions. In addition, the sales plan (with some rough profit estimate attached) was revised annually for a ten-year period. Again, this was a planning procedure parallel to CHQ comprehensive planning, even though the planning sub-committee of the Board was the supervising body.

A *second* problem of comprehensiveness has to do with the coverage of group (i.e. parent including subsidiary) operations. The primary purpose of this study has been to investigate the existence and structure of *comprehensive* and *formal* planning systems, in particular among large business organizations. The bulk of the text is devoted to this topic. However, as has been noted already in Chapter I, when such a demanding criterion on comprehensiveness was adopted only the U.S. firms complied fully. A large number of European firms either had no comprehensive long-term plan or it did not cover subsidiary operations.

There are more ways — besides the degree of integration and comprehensiveness — of classifying the types of formal planning setups in large business organizations. A *third* criterion has to do with the length of the planning horizon in time. As always, there is a great deal of overlapping between the two lines of classification; i.e., the necessity for logically-integrated formal systems increases with the length of the planning period. The consequences, at the beginning of the planning

period of activities planned for, then are more likely to take effect within the horizon. However, a fairly solid realization from this study — contrary to original intentions — is to stay away from simple, measurable classification schemes, like lengths of horizons, title of head of planning etc. when trying to understand what planning is all about. Such tabular wisdom is either empty or is apt to lead conclusions astray. Despite the fact that this study is concerned with formal or numerical planning very few tables or diagrams with numbers are presented. It is the ways and means by which numbers are handled and used that matters, not the numbers themselves.

A *fourth* criterion for classification refers to the methods employed in making up the plans; i.e. whether the plan is based on shop-floor sources of information, or is a pure CHQ product or a combination of the two extremes. There is also an important *fifth* way of classification, which we will postpone for later consideration. It refers to the degree of management participation in formal planning. It is imperative to note that this and the next four chapters (from Chapter V) will be (primarily) concerned with the structure of the *formal* planning routines. Not until Chapter IX will an attempt be made to discuss the formal plan in the context of decision-making and firm behaviour. This is where non-formalized routines such as management participation in planning work enter.

Again, there is a need for delimiting the purpose of this study with reference to the character of information available. Subplanning routines below CHQ have been covered systematically only to the etxtent that they enter as inputs in the CHQ comprehensive and formal plan, and only in so far as details of such subplanning routines have been available at CHQ. In addition, the purpose of planning, as stated in the previous chapter and in the chapters to come, refers to the use to which such plans are put or may be put at CHQ level. These delimitations also have a bearing on the classifications to be given below.

1. Plan horizons

A grouping of planning systems according to time dimension provides a first illustration at this introductory stage. Plan horizons, for one thing, are fairly easy to register. They also provide information about the time limit beyond which CHQ does not try to look *in terms of numbers* when planning systematically for the future. To put overdue emphasis on such fixation points as plan horizons, however, involves the risk of misleading conclusions. A close scrutiny of the complete planning setup of a business enterprise will usually reveal the existence of several "horizons", applied at various stages in the work on the plan. If the detail as well as the comprehensiveness of the plan decreases with the distance in time, the notion of a horizon also fades away with time. Besides, good foresight as a rule is no numerical exercise. It is a matter of intuition rather than precision.

U.S. firms (1969 interviews)

In all of the 30 U.S. firms interviewed a short-run plan (budget) existed, encompassing at least the coming fiscal year. In one firm *only* the annual budget was all that existed in the form of formal planning. In five additional firms a comprehensive three-year plan existed, and no more in the form of comprehensive planning. It is interesting to observe that four of the very large corporations belonged to this group. If on a three year basis the plan was usually called a "three year budget". Here and in what follows a comprehensive plan is defined to include at least a complete profit and loss statement and a balance sheet for each of the years of the plan, or — if not explicitly prepared — the data required for such a presentation should be compiled on a routine basis.

The typical long-term plan existing in all other U.S. firms interviewed was completed for a five year or longer, future period.

This, however, does not exhaust the subject. In *a least* ten of the U.S. firms interviewed, the budget and the long-term plan was inclosed in a so-called strategic or prospective plan. The planning periods here varied substantially. The horizons were at least ten years. In one firm some numerical projections were made to and beyond the year 2000. The prospective plans were much less detailed than the long-term plans. Except for the specification of some growth rates, most of them were only verbal in presentation. Policy aspects seemed to have a rather free play and often suggestions as to alternative courses of future development were presented in the planning documents.

Prospective plans were practically never comprehensive, even in the sense of covering (verbally) all relevant activities of the firm organization. Emphasis was on the future environments of the firm, rather than on the firm itself, and its adaptation to expected new lucrative environments. It may be that I have been too generous in assigning a prospective plan to no less than ten firms. In some of these U.S. firms the prospective plan consisted of little more than a carefully worded "policy manual" for internal use. However, when defined broadly, some interesting aspects of prospective planning appeared. In three giant U.S. firms the only projection beyond a three- or five-year extended budget consisted of a few separate investigations on large investment undertakings contemplated. A group of CHQ people had been assigned the task to prepare a report on each particular venture. In two firms, my impression was that the prospective plan only covered investments in research and development for future production. A common arrangement was to have the prospective plan cover all considered (including alternative) investments, involving the opening up of new markets, or the entering of new markets, meaning both the starting of production within traditional lines at a new location (e.g. abroad), the production of new goods and the application of new techniques to modify the qualities of established products.

Prospective planning often seemed to be fairly explicit on the policies adopted as to expansion, i.e. whether the firm should grow internally or externally or in what proportion. In some prospective plans I found the outline of an acquisition program; the areas in which to look for suitable

firms for sale, the extent of dilution of own equity allowed, etc. Negotiating policies etc. might be indicated in fairly precise terms. It is important to observe that acquisition programs as well as policies were normally kept outside of or parallel to both the budget and the comprehensive long-term plan until the purchase was final. It happened, though, that the budget as well as the long-term plan included *provision of financial resources* for potential future acquisitions, although — as it seemed — acquisitions often were on an equity-sharing basis and then did not involve more than minor net transfers of liquidity.

In some instances the treatment of the separate development project plans was quite comprehensive in the sense of including an explicit numerical analysis of the profitability as well as liquidity consequences of the entire project for a very long future period. In two cases the separate development project plans were partially consolidated on a financial resource requirement basis, or rather, the development projects were spaced (preliminarily) over a future period to fit into an estimated total availability of finance frame for the entire corporation.

The budget was normally specified by quarter or by month and the long-term plan by year (see below). As mentioned, the prospective plan was mostly verbal. Sometimes five-year (average) growth rates for basic entries such as sales, profits, investment etc. were entered to support arguments.

Normally the budget was made up once a year. Updating of the budget — partly, more seldom completely — was frequently made during the year; quite often on a rolling basis constantly preserving *at least* a one-year horizon. Normal practice was to revise the long-term plan once a year only. It happened that important occurrences, such as basic errors in the sales forecast or the acquisition of a new subsidiary, made a revision necessary during the year.

The prospective plan — as mentioned — is a fairly recent thing even among giant U.S. corporations. I found regular updating practices only in three cases, where revisions took place once a year.

If any distinct border lines should be drawn between plans when grouped according to horizon criteria, they should be drawn between the prospective plan and the long-term plan; not between the long-term plan and the budget. As we will see later, most differences as to methods of compilation and purpose are to be found between the prospective plan and the long-term plan.

Also, the degree of integration between the three time-layers within the complete formal planning system suggested shows quite distinct properties. As a rule the short-term (annual) plan was quite well integrated into the long-run plan in the sense that the final result of the work on the long-term plan served as a basic assumption for the work on the budget, which had to be trimmed into the long-run trends outlined. However, in several instances the budget was completed *before* the long-term plan and coordination seemed to be almost entirely absent. This was sometimes intentional practice to keep short-term worries away from long-range planning. Most often, however, it was regarded as illogical procedure to be corrected when time permitted.

Coordination between the prospective plan (when existing) and the long-term plan was more loose. The prospective plan was completed before the long-term plan in these three cases where updating was annual. Most often, however, updating took place at irregular intervals only. Usually the long-term plan was expected not to deviate in any important way from the perspectives outlined in the prospective plan. However, the prospective plan as a rule was general and unspecified enough not to pose any particular problems in this respect. If the prospective plan consisted of a series of separate "project plans", there was a good chance that some of these "development projects" (even with no explicit time dimension given) would fall partly within the horizon of the long-term plan. Attempts were then made to account for this possibility in the long-term plan.

The accompanying Diagram III:1 attempts to illustrate the typical structure of a system encompassing all three kinds of plans.

Non-U.S. firms

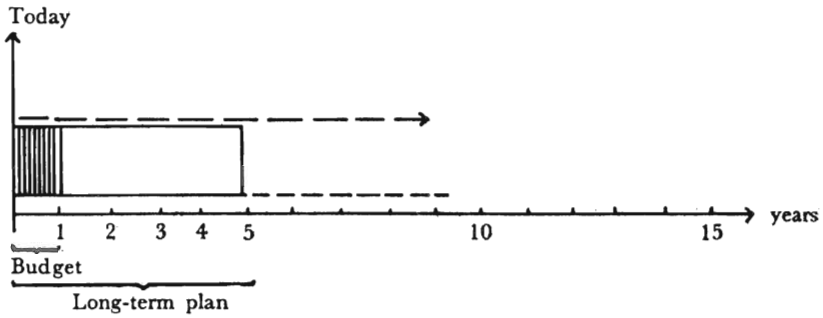
The fundamental difference between U.S. and non-U.S. firms to be accounted for under this heading has to do with the resources spent on planning "as such" and the date of introduction of formal planning routines. Generally speaking, the U.S. firms had started with planning, as described here, five to ten years before their European counterparts. Once introduced, differences in structure and sophistication were more subtle and difficult to pin-point. I will attempt later on (Chapter IX), to give some vague and preliminary indications as to the nature of these differences. Suffice it to note here that two large Swedish firms had no comprehensive formal plan whatsoever beyond the horizon of the annual budget at the time of interviewing (1970, 1972). Five (or perhaps even seven) additional Swedish firms were in the process of introducing a five-year comprehensive plan, but had compiled only partial plans such as "sales plans" or "investment plans". In all but four of the Swedish firms interviewed in 1969 and 1970, planning at the time of interviewing was at the parent company level only while — in contrast — comprehensive planning in practically all U.S. firms covered (controlled) subsidiaries as well. It seems, however, that a rapid change towards U.S. standards is currently taking place among Swedish firms.

By a generous appraisal, two of the Swedish firms put together a so-called prospective plan in a routine fashion with separate staff personnel assigned to it. Of course, several additional Swedish firms had some qualified people appointed to exploring the future development of the production and product technologies with which the firm was currently working. However, by comparison with the U.S. firms this does not rank as prospective planning in a comprehensive sense.

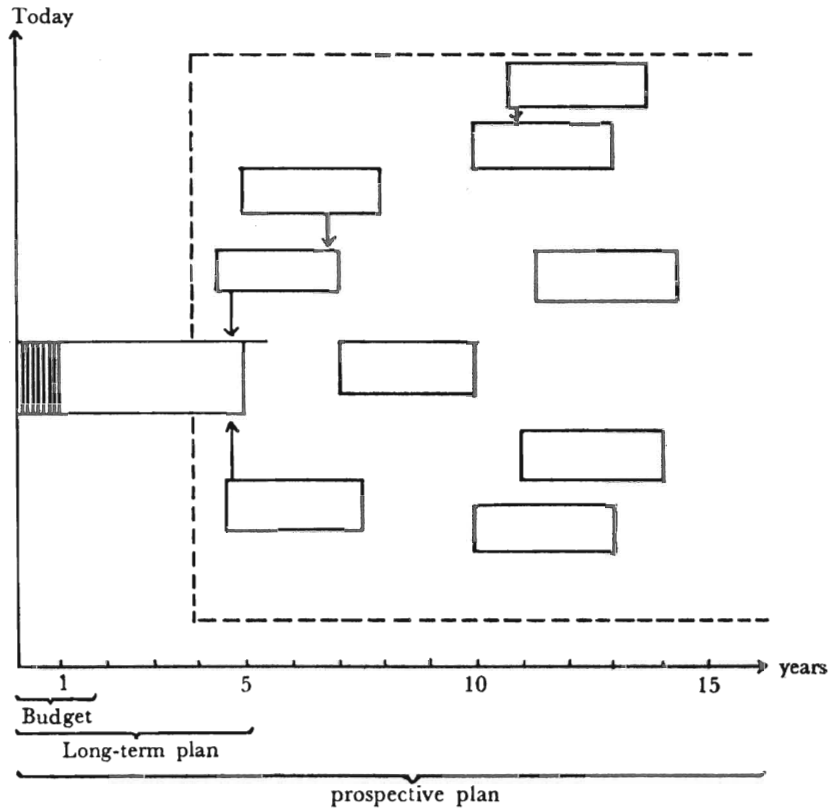
In general, a much more pronounced and systematic scepticism was voiced vis-à-vis planning in numbers beyond the annual budget in the

Diagram III:1 Structure of two planning systems

a) The three-stage, integrated system



b) A two-stage system, with a project based prospective plan attached.



Note: The dashed, open square is meant to indicate the possibility that the various projects (investigations) of the prospective plan may be systematically coordinated.

non-U.S. firms compared to the U.S. firms, whatever significance should be attached to such remarks.

To be noted is, finally, that *in what follows, primary concern is devoted to the long-term plan and the short-term budget.* As will become more obvious in the next section, there is no reason to keep the time dimensions of planning separated until Chapter IX. Thus the account of the structure of the planning system in the next few chapters will be equally valid for the budget and the long-term plan, if no particular comments are made.

2. Planning methods

On the methodological side there are at least two distinct, extreme approaches to the making of a plan. The first approach starts from shop-floor information (estimates) and the plan is condensed by several stages to a consolidated plan for the entire corporation. This approach also carries the name bottom-up planning. In the second case the plan is a pure CHQ product. Sometimes this CHQ plan is a pure "synthetic" product in the sense of being based on a numerical model of the firm — usually quite simple[1]) — in combination with CHQ estimates on the future development of exogenous input variables such as sales, profit margins, etc. Usually there is a breakdown on major divisions, and if the CHQ plan is all there is to comprehensive planning, prior checking with local division opinion on the future is normal procedure.

As a rule, planning routines in existence were a mixture of the two approaches, the degree and character of mixing defining the kind of management involvement to which we will turn in Chapter IX.

In a few U.S. firms two parallel plans were completed, the one based on a pure shop-floor approach, the other being a CHQ estimate for the entire corporation. In these instances the CHQ plan was a modified projection of past trends. The output of the CHQ "confrontation" plan principally consisted of a set of preliminary targets. Before the basic plan (built up from the shop-floor) was submitted to the Board for approval a confrontation with the CHQ plan took place and appropriate adjustments were made.

The shop-floor approach was invariably the method used in short-term budgeting. In 25 of the 30 U.S. cases this was the basic method used also in long-term planning. In 2 U.S. cases a pure synthetic model approach to the long-term plan was the only one; in 21 U.S. firms a combination of shop-floor data collection and synthetic CHQ projections was the method used and in five U.S. firms two separate and complete long-term plans were completed. This exhausts the number of U.S. interviews.

No apparent differences in method could be found between U.S. and non-U.S. firms among those firms that had introduced a full-fledged

---

[1]) I cannot resist mentioning that the methods and structure of these prediction "models" closely resembled those of Eliasson (1967, 1969), the difference being that the coefficients of the model were known to planners from the internal accounting system of the firm; not so in Eliasson (1967, 1969) where recourse had to be made to external estimates or assumptions.

comprehensive planning scheme. Short-term budgeting was almost 100 per cent of the shop-floor, bottom up kind, and long-term planning a mixture of the shop-floor and CHQ top down approaches. At least three Swedish firms investigated had adopted the method of confronting division plans with independently made up CHQ sales and profit targets.

In several firms (U.S. and non-U.S.), I met with the CHQ opinion that the making of long-term plans could not be entrusted with the divisions. "They are all too concerned with their current operations to lift their eyes above the horizon of the annual budget" as a CHQ officer expressed it. As a consequence, the argument continued "you get no more than trend projections of current activities and these we do better up here at CHQ".

Nevertheless, a not negligible amount of long-term planning consisted in little more than passively adding up the contents of filled-in standard forms from divisions and subsidiaries (see Supplements 1 and 2). A preliminary observation is that this kind of passive use of data, collected from lower levels in the organizations, was typical for the long-term planning system just recently introduced. Once the regular collection of data for the plan had been established as an accepted routine, CHQ began to exert pressure on the divisions on the basis of information contained in the same data. This may be one reason why the passive collection and summing up of numbers seemed to me more frequent among the European firms while, on the other hand, the element of informal management involvement, prior to the completion of the planning documents, seemed to be more noticeable among the U.S. firms. Even though the matter of management involvement in planning will not be discussed in full until Chapter IX, we choose to start our case illustration of planning methods with the most sophisticated one where management involvement is paramount and the numbers a skeleton frame within and along which reasoning, decision-making and exhortation is structured. This helps to give an illuminating contrast to the more mechanical number apparatus that makes up the ordinary planning system, that is illustrated in the next case.

A typical CHQ headache is its information handicap when it comes to dealing with division management about operational matters. This headache grows in intensity with the size and degree of diversification of the company. Fairly soon, even the most distinguished figure-memorizing capacity at the presidential level is not sufficient for CHQ to keep divisions within reins. Besides, attempts to rely on mental faculties rather than more remote and formalized control systems, tie down top CHQ decision-makers' time with current operational matters, time that they should rather devote to more significant long-run thinking. The solution in some firms — notably U.S. firms — has been to institute a CHQ intermediary research function to keep both initiative and control within CHQ. The case to be given below in fact illustrates how planning is designed as an instrument of delegation and "automized" operational control to free top decision-makers for those major decisions, that they are supposed to manage, and that are never handled within formalized, comprehensive planning routines. *The case*

is a not typical one. However, many large U.S. firms seem to be rapidly moving in this direction. The European firms are in general lagging far behind on this score.

Case 3: Sophisticated operations planning — a package of features from two U.S. firms, one British firm and (to some extent) one Swedish firm.
We are concerned with operations planning only, covering the entire set of activities of the business organization. Major changes in technology, markets or products as well as acquisitions are *not* handled within the planning sequence to be described. The delimitation of "major issues" is not defined. The planning sequence may spin-off an initiative to investigate further, whether a "major change" of some kind is called for. However, such investigations as well as resulting decisions are outside what we call planning. Once taken, they are fed back as a datum into a later planning cycle.

The planning sequence starts early in the year, say February. The top senior Headquarter directors responsible for financing, production, sales, R & D etc. close themselves up in a two day meeting with economists and various experts from all parts of the company. A loosely structured discussion takes place. The purpose is to pin-point problem areas over the next three to ten years, to bring together views on expected environmental economic futures and to come down with indications of what kind of performance the entire organization and its various parts (divisions) is capable of over the next five years — NB excluding the current year.

The CHQ planning staff then has a month at its disposal to interprete these discussions and to produce a more exact and elaborate document that outlines more precisely performance requirements for divisions.

These specifications are supported by two analytical tools; (1) an environmental (macro) economic model for the domestic economy and (2) a corporate production — financing model for the company.

In the three companies referred to, the models exhibited various features of sophistication. As for the two U.S.-companies — that are very big — the macro economic models were of a kind that by a good margin exceeded whatever in total is available e.g. for the Swedish economy.

These models nevertheless were not capable of indicating more than the basic cyclical outlook over the current and the next year. Five year trends in various macro economic aggregates were put together on a more intuitive basis including the information brought together by extensive reporting on economic conditions from foreign subsidiaries.

The corporate model was specified by divisions. In effect it consisted of a set of division models integrated by a delivery matrix (where coefficients could be manipulated) and a joint financing function. Profit contributions from various production lines were specified. The model "optimized" overall, corporate profit performance by trying out sales growth and profit combinations that pushed up division returns to capital employed.

In principle sales and profit projections were made on the basis of individual market growth estimates that in turn were derived from the output of the macro-model. In two cases the links between market and sales and profit plans were not modelled. Explicit market share strategies were decided outside the model and, once taken, the assumed or estimated profit margin entered together with the market share. Prices were *not* explicit.

In one case a feed-back between the micro and macro model was automatic in the sense that costs of raising the market share were accounted for in the model. Since overall costs were also explicit in the model the optimization procedure to be described made sales growth as well as profit margins endogenous. In the most sophisticated case targets for optimization were both profit contributions in money terms by divisions, rates of return on assets (repurchase valued) and the "net worth" of the entire corporation. Assumptions of an external rate of interest were entered and charged on all contributions of capital from CHQ to divisions. Optimization was stepwise, first within each division and then between divisions, and a delicate number of checks restrained the model from running off into extreme solutions e.g. suggesting that some divisions should

be shut-down immediately. Iterations could always be stopped and intermediate results taken out and analysed. Such analyses sometimes meant that some numerical properties of the model were changed. The model also produced suggestions as to needed external financing and amendments of the financial structure of the entire company.

Finally, CHQ staff had produced a synthetic plan for each division and the entire company.

A smaller more select group of people than before was now brought together; including top responsible directors for all major functions and some members of the *planning* subcommittee of the Board. Their work was to go through this synthetic plan, to modify it — if needed — and to authorize it. Part of the authorization involved a preliminary decision on the financial situation of the company over the next five years and — for the next two years — a standardized view of the cyclical outlook.

From now on division planners were given two months to come up with their own five year plans. In all four companies they were given a financial constraint, in three cases only for the entire company, in one case by division. In all cases the CHQ view on the cyclical outlook was passed on. In two cases the entire synthetic corporate plan was handed down to the division heads, who were asked to use it at a preliminary starting point in the making of the division plan. In two cases CHQ withheld this information.

The next step was a confrontation between CHQ people and division planners. As a rule division management did not accept the output of the model or the CHQ plan. The optimization as a rule meant either that decisive steps towards contracting non-profitable operations were suggested or that good performance in the past meant requirements on continued performance at the same performance level or enlarged operations at the same superior performance[1]). Division managers had to explain *why* they could not meet the standards of the optimizing model.

After a bargaining session CHQ and division management agreed on a set of numbers or performance requirements for the divisions. In two of the firms CHQ people bargained with each division in turn either at CHQ or at the division. In one case representatives from other divisions participated in each CHQ-division confrontation. Once the division performance requirements had been agreed upon, division top management were also responsible for the attainment of these numbers (objectives). In all four firms various bonus and premium systems were tied to their ability in that respect.

The next and final step was to break down these macro division objectives into so-called *targets* compatible with the format of CHQ control by way of reporting.

Time dimension: Reporting in three firms was by month. Monthly specification was only required within the budget which was a one or two year affair in the three firms. The bargaining mentioned above only resulted in annual estimates. Hence, one side of targeting was to accomplish this break down of annual figures into a monthly format.

Control against the long term plan was more informal and took place discussionwise (questions were asked) at the next bargaining session.

A second and more complicated task was to break down division aggregate objectives into more detailed sub-targets.

Here one distinction has to be made between the two U.S. firms and one of the non-U.S. firms. This distinction is also fairly typical of the U.S. sample of firms on the one hand and the European sample on the other. CHQ reporting in the non-U.S. firms was only against division aggregate figures (objectives). The solution as to how to attain these objectives internally and how to handle inter divisional deliveries etc. was delegated below CHQ.

The U.S. firms, on the other hand, did not seem to be satisfied by this delegated control apparatus. They had designed control systems that reached

---

[1]) It may be interesting to note that the method to put pressure on divisions in one case was to require increased volumes at past superior performance rather than — which was much more common — to require past performance plus a small improvement. The basic performance criterion was gross profit margins.

deeply into division shop-floor matters. Division reporting was brought all the way up to CHQ, in full detail, in one firm supported by a delicate network of strategic control strings that made it impossible for divisions to "dress up" their accounts[1]). In one of the U.S. firms the break-down targeting process involved such an intensive management participation in specifying exactly by numbers the distribution of responsibilities that it illustrates quite neatly one case of what I would like to call a full fledged "corporate democracy", a case where no privilege to decide is free from responsibility to meet the performance standard meted out in numbers in the decision. This case follows below.

Each division had been broken down into a very large number of interdependent decision units or cells. Each cell could be characterized in terms of its interdependence in at least three dimensions. Such dimensions were division and/or CHQ financing, production, marketing, purchasing and R & D departments as well as production and supply links to other, neighbouring cells. Division objectives already agreed upon were imposed upon this cell structure. Managers in each cell was to be made responsible for a set of targets (numbers). The targets of all cells were to be made consistent with the targets or objectives already set for the division and for which the division manager was already responsible vis-à-vis CHQ.

Since CHQ reporting was on the format of individual "cellular" targets it was very much in the interest of division management to see to it that a well structured, reasonable and consistent set of cellular targets was achieved. Since cells were dependent upon one another it was in their interest as well to reach a fair agreement on the targets regulating their respective interrelationships. Since such relationships could reach across division boundaries consistency also had to be achieved vis-à-vis division and CHQ allocation of financial resources.

The arrangement was one of deliberate internal or intercellular conflict and mutual interest. Because of that, there was no need — besides designing the cell system and keeping it updated — to regulate the inter cellular bargaining and agreement procedure. Responsible managers in each cell kept watching one another in order not to find themselves in an uncomfortable position with responsibilities someone else had indirectly assigned to them. In fact this arrangement was complemented at CHQ by a system of mixed hierarchical orderings which made many managers each others subordinate in some decision context. Since most functions or decisions at CHQ level are interdependent in one way or another no one was actually in supreme command on any issue and the system kept everyone constantly in a state of alert and slight conflict.

If agreement could be reached the decisions were 100 per cent delegated as long as the *total* conformed to division objectives. If — on the other hand — agreement could not be reached the decision authority was taken out of the cells and settled in cooperation with or exclusively by division management. If interdivisional matters could not be settled CHQ had to be involved. It was clearly in the interest of each bargaining party to come to an agreement on their own. In addition, I was told that this system was extremely efficient in bringing shop-floor information into the open at an early stage i.e. to the attention of CHQ. The whole cell system in fact was designed to make cell management actively disinterested in helping neighbouring cells with deteriorating performance records to conceal this information.

Agreement was 100 per cent agreement in terms of numbers and once settled was directly connected with CHQ (and divisional) reporting. Agreeing parties were responsible for the attainment of these numbers.

---

[1]) It may be of interest to know that division-CHQ reporting (and targeting) usually was in terms of sales plans and profit standards. Targeting and reporting from inside the division to CHQ, however, regularly were in terms of cost-standards. This approach probably reflects the growing realization (1) of the enormous difficulties involved in designing meaningful internal transfer pricing systems and (2) of the fact that when no market separates a transaction profit control is in fact cost control. See further Chapter VIII.6 on cost-shares.

The organization of formal planning procedures vary distinctly between firms. We have just presented a very sophisticated, atypical case that illustrates the importance of the organization of the firm itself, notably the degree of decentralization of decision-making. Different plans are prepared at different divisions and levels within the firm and by different groups of people. However, the majority of planning systems are much more mechanical calculation exercises, albeit extremely complex and hard to survey. Diagrams I:1 A-C introduced already in Chapter I have been designed to illustrate typical differences as well as common elements in the various planning systems met with. They will be used henceforth as a reference guide. Supplement 3 is a formalized and more detailed representation of the planning sequences indicating the most frequent back-checking loops. This supplement ties in directly with the data collection part illustrated in Supplement 2 by a typical set of standard forms used in planning.

Although the following case presentation may appear extremely simple and hardly useful as a management tool compared to the previous one, one has to keep in mind that management involvement is a subtle thing, that takes place around the figures and is difficult to observe. We now turn to the mechanical side of planning.

Case 4: Elements of the planning system — and sample variations around the mode.

As a rule there is one *sales plan* (or projection or forecast), one *profit plan* (or estimate etc.), one *cash-flow* projection, and one *investment* plan. Sometimes these plans are prepared (formally) quite independently of one another. Most often a *recursive* scheme is adopted in short-term (annual) planning without recognizing (formally again) interdependencies in time. Practically always the same recursive scheme is also used in long-run planning, apparent inconsistencies (interdependencies) being taken care of informally on an ad hoc basis (Chart B).

In the typically decentralized organization the planning system was usually organized as a group of separate subroutines — one for each subsidiary, division or profit center. A complete plan in the sense of including all elements of the plan mentioned above was made up for each subcenter. Consolidation of all separate plans to a corporate master plan was the task of CHQ. Various methods of consolidation were employed, varying from almost complete independency in planning at the division level and simple summation at CHQ to systematic headquarter control and participation at all stages in the work on the individual division plans.

In the typically centralized firm, planning at subsidiary, division or profit centre levels was only partial and the complete planning system was to be found at the CHQ level only.

Only a very small number of firms could be classified as having adopted either of the two extreme forms of organization. Not surprisingly, most firms in the sample of 30 U.S. firms displayed features of both and so did the planning setups.

Normally, firms divisionalized according to market criteria rather than by production type or some other method exhibited more features of decentralization in planning routines. In firms where the sales function had been concentrated at CHQ and divisionalization was along production lines rather than product lines, on the other hand, the making of complete division plans was not possible. There are no apparent differences in planning methods between the U.S. and the non-U.S. firms to take note of at this point. One should note, however, that divisionalization of the firm organization along market or product lines was more frequent and more systematically carried through in the U.S. sample than in the non-U.S. sample. Consequently, this also meant that decentralized planning in the above mentioned sense was more frequent among the U.S. firms studied.

This, however, did not mean that the degree of control exercised through the planning system was less intense among the U.S. firms. This aspect will be dealt with in more detail in Chapter IX.

The presence of a sales plan was a prerequisite for the presence of the other three projections (profits, cash flows and investments). It often happened that the sales plan was projected for a more distant horizon than profits, cash flows and investment. For one thing this illustrates the typical sequential property of planning schemes. It is also to be noted that in a firm with a centralized sales function the sales plan consisted in an input datum handed down from CHQ as a basis for division planning (cf. Charts B and C in Diagram I:1).

A profit plan, a complete cash flow projection and an investment plan being compiled meant that data had been assembled to present a complete ex-ante closing of the accounts (profit and loss statement and — given initial data — a balance sheet). If so, the planning system fulfilled the criterion for comprehensiveness in that particular dimension.

As mentioned, the shop-floor approach was the universal practice in short-run planning or budgeting and normal practice also in long-term planning. Even though CHQ — as was the case in a few firms — sometimes produced a numerically-specified five year plan as an "optimum" or "ideal" solution from a number of computer simulations on a formalized planning model, the work on the less sophisticated but much more detailed budget always involved a number of shortcuts which violated the logical structure of the complete planning system. In practice such violations did not mean very much for the final product (the plan) — such was the contention — and further refinements of details were not considered worth either the time or the effort. As mentioned, the usual way to take care of emerging inconsistencies in short-term planning was to adopt a time-iterative scheme of adjustment, revisions being made every quarter or year.

The predominant recursive planning schemes met with had the following rough outline (again see Diagram I:1 B). First a sales *and* profit-margin estimate was determined for the planning period. The sales projection often was regarded as a *growth plan.* Most components of working capital usually displayed rather constant proportions to sales levels in the long run. Given the profit-margin estimate, "normal" cash-in-flow projections thus could be calculated rather mechanically from the sales and profit estimates.

Parallel to or independently of this, investment estimates were collected from firm divisions. In practically all U.S. cases a distinction was made between mandatory projects (in the sense of being necessary for the realization of the sales plan[1]), and other projects giving rise to growth beyond the planning horizon. This practice for some reason was much less frequent among the European firms interviewed. As a rule, budget requests were subjected to negotiations between CHQ and division management. Once the sales plan had been fixed, cut-backs were primarily made among the nonmandatory projects. Sometimes projects were screened on the basis of expected rate of return calculations. Various methods were employed[2]) but I found in no instance that one particular method was systematically put to use all through the firm. One somewhat surprising observation relating to this is that the profitability consequences for the entire corporation or its constituent parts — the subsidiaries, divisions or profit centers — often were not made explicit until at a late stage in the making of the plan. This final analysis, however, seldom resulted in more than partial backward revisions in the formal plan until the next time the plan was revised.

Normally, however, the liquidity consequences for the entire firm of the sales growth plan were made explicit at an early stage of planning in a future cash flow analysis. In the majority of U.S. as well as non-U.S. firms interviewed, the internal cash throwoff served as some kind of long-run constraint on spending on capital account with respect to the making of the plan. At least it served as an information input in the decision to borrow. The nature of this restraint will be discussed in more detail later on (Chapter VII). However, granted that a

---

[1]) Note this way of taking care of the interdependence problem.

[2]) The most common ones being discounted or non-discounted pay-back periods.

decision in the planning process has to be taken on the basis of such a future cash flow analysis, another interdependency factor primarily working in the long run has been imposed on the formal planning system.

Negotiations between CHQ and divisions being completed and the formal plan being passed by the Board, only in a few rare cases were divisions and/or subsidiaries automatically authorized to start making commitments according to the investment plan so sanctioned. In the majority of instances, a separate authorization procedure preceded the actual decision to start making commitments. This last decision was usually referred to as the capital *appropriation* stage and consequently most firms had an *investment plan* as well as a *capital appropriations* plan.[1]) This appropriations procedure was always there in U.S. as well as non-U.S. firms.

To repeat: The box Diagram I:1 B gives a simple pictorial view of the elements of the plan. However, the contents of the boxes are as yet unaccounted for. The arrows indicate the order in which the elements are joined. The arrow scheme stands for a typical ordering of a formal plan. There are several exceptions and the arrows do not account for those numerous, informal considerations (links) that are always present in planning work. Two arrow heads indicate the presence of at least some degree of simultaneity.

Usually the profit plan is a current expense projection, given the sales projection. The content of the investment-plan box varies. Usually, the last two boxes contain only hardware such as investments in machinery, equipment and construction. These entries also go into the cash flow plan, hence the double-pointed arrows. Normally R & D investments, advertising and other non-depreciable expenses that are partly of investment type go under the current expense account and — as a consequence — they are included in the profit plan.

With the qualifications given, Diagram I:1 B provides a fairly accurate although very simplified representation of the *formal* short-term budget as well as the long-term plan; not so for the prospective plan.

Together the budget and the long-term plan make up the basic body of numerically explicit formal planning routines. Because of this it would mean an unwarranted strain on the reader to see the structure of the planning system repeated twice in two separate places; the one dealing with short-term budgeting and the other with long-range planning. For that reason the two types of plans are treated jointly in Part II. Not until Chapter IX do we return to the time dimension in planning. Despite this simplification in presentation the reader is warned that most of Part II will contain a laborious and detailed account of the buildup of a typical plan. *Thus, the previous chapters have been designed to allow the fast reader to proceed directly to Chapter VII.* He may, however, first want to read the brief survey of the literature on corporate planning, that begins on the next page.

---

[1]) Cf. the "capital appropriations" data collected by the National Industrial Conference Board in the U.S.A., e.g. in Cohen, "The National Industrial Conference Board Survey of Capital Appropriations" from *The Quality and Economic Significance of Anticipations Data,* NBER, Princeton 1960.

IV THE LITERATURE ON CORPORATE PLANNING — A BRIEF SURVEY[1])

1. Some concepts

A substantial literature exists on the philosophy, theory and practice of planning at the national level. Although the basic principles of planning at the company level are quite similar, operational practice and tradition differ. Hence, the literature on corporate planning — also substantial if defined broadly — displays contrasting features.

Formal planning at the company level most probably has developed from several origins, each representing a different purpose. One such origin is in large administrative systems, like public bodies, where market price mechanisms cannot be made to serve the purpose of providing signals on performance and where certain public documentation has been enforced legally. As companies operating in a market environment have grown large enough to acquire the same *internal* lack of good market information, the same need for substitute arrangements also has made itself known.

In this sense the planning system of a firm provides the service of an *internal signalling*[2]) system replacing in that sense the market mechanisms that are missing. Reporting against plans and other controlling devices are essential here.

Often planning is considered to be essentially a device for *gathering signals* from the environment of the firm in order to forecast the basic external variables, that constrain the behaviour of the firm.

The mechanical gathering function becomes more of an analytical device when such signals are *interpreted,* reshaped and used as a basis for decision making. There are numerous examples of mechanical applications of the gathering function and the *interpretive use of signals* or both in combination. Econometric demand models used to project a firm's sales plan, being based on externally given forecasts of leading

---

1) This survey of planning has no ambitions of being complete. Like all surveys of such heterogeneous and semantically unstable matters as this one, it cannot even be based on the idea of being correct in any general sense.
In compiling sections 2 and 3 I have found the excellent survey of budgeting literature *Budgetering* (1970) published jointly by Sveriges Mekanförbund and EFI very useful.

2) I have taken the liberty of adopting Arrow's (1973) terminology in his lucid lecture on "Information and Economic Behaviour".

signals such as GNP predictions for various countries, are an example of the first kind. If a financial model, describing the internal costing, accounting and cash flow structure of the firm, is tied on to such an external forecast one has an example of both. Mechanical applications of rate of return calculation procedures are also instances of the interpretive function.

As mentioned, the origin of accounting can be traced to control mechanisms adopted, often by decree, in public administrative bodies.[1]) Budgeting and later planning were a rather natural outgrowth of such a system in the form of "future accounting" the basic purpose being to *emit signals* on the future state of financial affairs of the administrative body in question, rather than serve as a basis for analysis and decision-making. This information purpose is often dominant in long range planning both in administrative bodies and commercial entities of to-day. The purpose may be to provide internal as well as external information signals.

The signal emitting function, however, can be made more sophisticated and be combined with both the internal signalling and the interpretive function into a guidance, control and coordinating instrument. Signals are gathered and analysed and shaped into *targets* that are in turn imposed upon the organization to serve as guidelines or performance requirements for similar, repetitive procedures at lower levels. These procedures put together in turn result in plans (ex-ante decisions) against which performance is later checked. Once targeting enters planning we have to reckon with the possibility of biased information (signals) and deliberately introduced elements of conflict. With some effort targeting can be likened with a second aspect of the market mechanism, namely competition.

The various functions listed above have been emphasized in various combinations in the literature. The very diversity of combinations met with may be due in part to the apparent lack of empirical information on firm behaviour and a consequent need for a priori speculation. This may also explain the manifest tendency towards normative, advisory economics in literature, in the sense of setting up criteria for decision-making that are "rational" in some well defined sense within the framework of a synthetic and restricted economic environment. Confused terminology may also be part of the explanation. There is no good all purpose definition of planning. There is not to be found a commonly accepted definition of planning even when a commonly accepted purpose of planning has been described.[2]) Planning is a

---

[1]) See e.g. Hofstede (1970, p. 20).
[2]) See the derisive Appendix A on management semanties in Anthony (1965).

design to facilitate desicion-making and the two concepts are hopelessly confused until some arbitrary dividing line has been introduced.[1])

There does not seem to exist any kind of professional conjecture about what is the purpose or the purposes of planning. There is the problem whether concepts and purposes should be defined with respect to some ideal model of rational behaviour or be delimited by operational criteria. At times articles or even books have been written on planning with no definition of the concept attached. Understanding then presumes some subconscious, common experience between reader and writer. We will not require such faculties here, but some mental capacity of the kind undoubtedly has been of some help already, and will be.

2. History

The concept of planning appears in all branches of theory; organization, administration, financing, accounting, information theory, operations analysis as well as in pure economic theory. It is a concept with loosely defined limits of usage. In Fayol's classical grouping of management functions into "planning, organization, command, coordination and control" it essentially takes in attention of the future. However, planning in the sense used in earlier chapters covers virtually all the five functions listed by Fayol.

The functional classification along the lines of Fayol was very dominant in the development of budgeting theory during the fifties. Planning was most frequently viewed in a narrow sense as part of budget classification problems. Normative rules of calculation and measurement constituted the essential ingredients as is obvious from much European literature on the matter through the fifties. In German literature budgeting was rather regarded as predictive accounting, one of the four categories of accounting together with "book-keeping", "calculation" and "statistics" and planning was thought of in a physical or technical sense (production scheduling etc.). This notion of planning is also found in Madsen (1959).

3. Mechanical decision systems

By degrees a more analytical approach is entering into literature. Budgeting as a control and coordination instrument is being more and more emphasized and the idea of budgets as administrative systems

---

[1]) By Eilon's (1969) definition planning is the early part of the decision process that he defines. Planning then covers all intellectual management activity within a firm and winds up with a resolution which is the more popular notion of a decision.
An interesting conceptual arrangement — not well substantiated by this study — is given by Starr (1966) as a prelude to presenting a class of "planning models". Starr introduces a generally defined class of decision-models that "can be divided into plans and policies" and proceeds to argue that when the "same type of unit decision problem occurs repeatedly it can be categorized as a policy situation" (p. B-118). Policies are then well structured, preplanned decisions that can be automatically activated when the appropriate situation repeats itself.

for the solving of various management problems gradually develops — first on the U. S. scene — into theorizing in terms of generalized guidance and control systems. Practically oriented rules-of-thumb give way for theory. The astonishing development of computer technology during the sixties has stimulated philosophising about computer programmed piloting systems that mechanically optimize behaviour of business organizations such as e.g. in Glans etc. (1968) and even in March and Simon (1958). At times, such as in Simon (1965), human beings are predicted to be replaced by computers in the near future even when it comes to complex business judgements.

Little understanding for the presence of limits to informed analytical decision method as contrasted with intuitive judgements is exhibited in such works on the well structured future ahead of us. As we shall see in later chapters business beliefs and management practice of to-day are, however, far off such future scenarios. "Mathematical models of programming and optimization are increasingly used for" solving technical problems at the level of the production line, in inventory handling etc. but definitely not as argued by Rapoport & Drews (1962) in any operative sense to inform and guide top decision-makers at the level of the entire business organization. This is at least one of the conclusions that comes out of this study (cf. Supplement 6). Literature on the matter is typically concerned with how to build such models and how to use them in theory, while practically no experience on their actual use in conjunction with decision-making has been reported on.[1])

Formalized systems theory typically presumes extensive availability of business external information, reliable environmental forecasts and the efficient internal handling of such information at no or small costs. Theoretical literature on planning hence concentrates around the purpose of well informed and optimal decisions. The idea of budgets or plans as instruments of control tends to be suppressed. It should be mentioned here that such systems theories with mechanical optimizing schemes have found very fruitful applications in restricted business applications, where uncertainties can be handled elsewhere, and where risks are controlled by repetitive experience such as in production scheduling or inventory planning. Less sophisticated systems theories at more aggregate levels have been applied less fruitfully. Mechanical planning systems in the form of financial models e.g. as described in Gerschefski (1968) are instances of this. It should be mentioned also (see further Supplement 6) that as of to-day the major volume of computer use outside production and technical applications is devoted to the mechanical handling of numbers and accounts, routine reporting and control procedures, but very little to analytical use.

Several trends have been emerging during the sixties contributing to a richer conceptual framework for planning theory but also to

---

[1]) Cf. Starr (1966). In fact, experience from the use of so called corporate models is not on the positive side (see Supplement 6). The most fruitful application of such models seems to be as a CHQ-support in its bargaining with divisions as described in case 3 on p. 58.

confusion. Planning is more and more becoming the general concept and budgeting a narrow accounting-forecasting routine being part of planning. To some extent this usage may be due to planning being considered an activity of high status and "closely associated with top managements' interests" (Starr (1966)); a contention that will not be substantiated in this study.

Planning in theoretical writing is conceived of as a generalized information handling structure upon which a multitude of goals and value restrictions can be imposed. Planning is often introduced as a "constrained maximization problem" (Heal 1973, p. 5 ff), where the objective is to maximize a "welfare", a "preference" or an "objective" function. From such abstractions stems the now frequent emphasis of strategic thinking, goal formulation and targeting in management literature as e.g. in Ackoff (1970).[1]) On the other hand literature, reporting on actual practices in business organizations, is much more concerned with operational procedures to determine objectives or targets. In fact, the idea of doing the best within some constraining circumstances and to be as precise as possible when formulating objectives or targets are common sense notions, that have always been useful in every trade life. If we do away with the optimizing side the notions also make operational sense in a measurement context.[2])

Ansoff (1967), however, summarizes the reasons for scientific and numerical decision methods being relatively successful *only* when applied to limited sub-problems within a business organization[3]) by referring to the difficulties of "structuring the problem" and above all — or rather as a consequence — to the lack of an operational theory of the firm. A well structured problem is often seen as a problem that lends itself to numerical specification.

Theory — as the concept is normally understood — usually has a numerical content or is designed at least in principle with a view to possible numerical application. With no relevant theory at hand — Ansoff argues — success in structuring complex business decision problems in a numerical format is less likely.

However, — as he puts it — restricting the concept of theory to what potentially lends itself to numerical specification would be to put the theorist to graze in an enclosure beside the road that all decision-makers have to travel. At the same time it would be an undue downgrading of the large body of theorizing in social sciences that is predominantly verbal and intuitive. Thus the "quasi-analytic" method

---

[1]) Again, see Anthony (1965), in particular Appendix A.

[2]) Cf., case 3 on p. 58, where an optimizing model is used in planning. However, also cf. Section 12 later on, and Supplement 6, where the question is asked what sense the concept of an optimum makes when the optimum is indeterminate.

[3]) Such as inventory control as contrasted to the absence of success when it comes to the more judgemental decisions forced on top level management or when it comes to adjusting the entire business organization to changes in its external environment.

of planning, that Ansoff suggests, should be allowed to carry the status name of both analytical and theory.

Going one step further in the direction Ansoff has taken, it becomes, however, too easy to accept the position, that the traditional micro theory of the firm is of little or no use as a theory for the business organization, both of the past and of to-day. When noting the basic lack of a relevant and rigorous theoretical body outlining the principles of operation of the present day business organization as in Ansoff (1967), Simon & Newell (1958), and others, one simply puts the requirement on theory above the level of what is possible. This is so even though Simon & Newell (1958) and Simon (1965) profess "optimism" about eventually and even soon (Simon 1965) replacing intuition by analytical method in decision-making — (NB) to the benefit of the decision.

In this terminology formal, comprehensive planning may be likened with a procedure for structuring a set of CHQ management decision problems and operational planning practice will define to what extent this has been possible. We will find in this study, that formalized planning is predominantly concerned with repetitive, decision-problems at the operations level. So far major decision-problems of the unstructured, unique type in Ansoff's sense, have not been comfortably introduced neither in the comprehensive planning system nor in the computer or — for that reason — theory.

If theory is considered in a positive sense and restricted to repetitive operations behaviour in the above sense, I would be inclined to conclude from the chapters following this one, that a formal presentation of the algorithms making up a typical budgeting procedure, together with some rather simple algorithms, representing the judgemental decisions entered here and there in the budgeting process, would make up a better explanation of business behaviour than any microeconomic theory of firm behaviour existing as of to-day. As the reader will soon notice, there is a certain similarity between a typical, formal planning system and the Cyert & March (1963) type of firm model. The main difference lies in the importance of extraneous ad hoc information and decision inputs that go into the planning process and the circumstance that planning is a management excercise in future time, while the distinction between ex ante and ex post is seldom systematically entered in the theory of firm behaviour. One should not allow planning and decision making to be identified with behaviour. Very little in the way of combining formal systems theory (with potential numerical application) with judgemental, ad hoc and intuitive interactions with the decision process is to be found in literature. Such approaches are difficult for the book-writer. Yet — as we will see — this interaction is exactly what constitute typical planning sequences within business organizations.

For a discussion of planning, decision making and behaviour in conjunction with the literature on the theory of the firm the reader is referred to Chapter XI.

4. Synthetic, internal market mechanisms

It is quite fashionable to view planning as an administrative signal system that replaces market price signals. This way of looking at planning conforms well with modern price theory. However, the competitive market function performs two services to the business organization. It provides information signals to react to, but it also forces firms out of business if they do not respond to these signals. The first "analytical" aspect of planning, to gather information, dominates literature on planning. There are, however, several cases in the sample of interviews here to be reported on, where planning systems have been purposedly designed as administrative stress (tension) systems. There, the intent to force people to perform according to preset standards is more important than the intent to provide a better information input in decision-making.

There are of course numerous links between earlier and parallel developments in economic theory and the literature on business administration. There are close links between market and price theory and the theory of planned economies as illustrated by the development of economic doctrine from Walras (1926), Pareto (1927), Lange (1935—36) and so on through the theorizing of to-day as in Malinvaud (1967).[1] Thinking of such a nature shows up in the development of transfer pricing methods e.g. in Gordon (1964), Hass (1968) etc., methods that are in turn essential (1) for gathering information of where in the organization profits do in fact originate and (2) for the efficient application of profit control instruments. (Also see Section 12).

The idea of determining shadow-prices from company wide econometric models for use as allocation instruments appears in literature as well as in the development of methods to decentralize integrated organizations into profit centers and to exercise profit responsibility on the basis of such prices. In effect, much of the application of these methods has to enter already at the early stage of reorganizing the firm onto a profit center or division basis as demonstrated by Hirschleifer (1956).

The emphasis in planning put on targeting and control rather than analysis and implementation mentioned in Chapter II underlines the application of the planning system as a substitute for competitive, market control that would otherwise be lacking within the business organization.

5. Planning and control

The larger the organization the larger the need for a system rather than individuals to hold its parts together. There is almost a saying that aggregate capacity to perform of a large business organization is larger than the added performance of its parts — if the right coordination system has been found. To achieve this end in a decentralized

---

[1]) The mathematical techniques used here are explained verbally in Sections 11 and 12, where models of business-planning using the same principles are discussed.

organization the span of responsibility almost by definition must exceed that of authority, since division or profit centre managers must associate themselves with goals that are not directly linked to and do not directly benefit their own unit of authority. Planning is often (not always) a system to make far-reaching decentralization possible, yet exploiting the synergy effect mentioned above. This can be accomplished — as in Vancil's (1972 c) account of procedure in Texas Instruments — by superimposing a hierarchical structure of goals on top of the decentralized structure of organizational units. Goal formulation is the task of CHQ and the goals "force" the profit centre manager to exercise responsibility for activities over which he has only partial authority (control).

Such a system of course has to be supported by an incentive system; a combined incentive and control system (as in Texas Instrument) or a pure command-control system.[1])

The by far most practiced way to solve these problems is to break down overall corporate goals or objectives into reasonable targets and apply an elaborate reporting system to these targets.

This is again something different from the "contention" system illustrated by a case in Chapter II.3, designed to shake out information for the benefit of CHQ and to see to it that the organization and the planning system are structured so as to force a particular negotiation-responsibility pattern onto the people involved. The contention system should rather be described as a pluralistic control system that has much in common with the many dimensions of control listed in Hofstede (1970 p. 11—12), where pure "hierarchical authority" is replaced by other control devices.

While early literature tended to associate planning with the technical problem of how to do it (implementation), it is now common as in Vancil (1972 b) and Anthony (1965) to describe planning and control systems in terms of deciding *what to do* (planning) and assuring that decisions have been carried through ("control", see Anthony 1965, p. 10). Even here the distinction is not clear and many writers tend to regard control as part of planning which includes also budgeting (cf. Anthony 1965, Appendix A). Furthermore, if we regard the decision of what to do as the determination of required goals or targets, as is prevalent practice in comprehensive planning, the how to do it aspect fades completely into another dimension of planning.

It is usually so, that general concepts like control, planning etc. are

---

[1]) The incentive system in Texas Instrument (TI) is partly built around individual profit-centre management performance and partly ties in all high level management in a bonus system that gives everyone a standard benefit that in turn is linked to aggregate. T.I. performance. In T.I. much emphasis is said to be devoted to achieve a desired balance between attention paid to short-run (operational) profit performance and the long-run profit prospects at hand. Vancil (1972 c) does not tell how the incentive system contributes to this purpose and *how* the negative impact on the attention paid to the long-run prospects — experienced in other firms (see Section V 7 b) — is avoided.

useful for conveying a set of associations in a context, where precise understanding is not required and the discussants put their own intuition to use trying their best to understand. However, semantics reach a new level of sophistication when general definitions are attempted with no operational context attached. Control within an organization according to Hofstede (1967 p. 11) is "The process by which one element (person, group, machine, institution or norm) intentionally affects the action of another element". This statement would probably pass reasonably well as a definition of "decision-making", "planning" and "management" or "administrative procedure". It does not help much as in Drucker (1964) to distinguish between "controls" as the process of arriving at the end results, the ultimate arrival or outcome being called "control" without "s". "Controls" would then be very close to the old usage of "planning".

Maybe "controls" should be chosen as the general concept, a terminology adopted by Arrow (1964) and in the collection of essays in Bonini-Jaedicke-Wagner (1964) of which Drucker (1964) is a part. However, this terminology again conflicts with the even more general concept of management or management systems of which planning and control is by some tacit understanding a part (Anthony 1965, Appendix A).

Any non-operational set of definitions of these concepts will necessarily be almost identical and/or quite empty. We will find — also — that advanced control systems are in practice linked to planning and budgeting systems. Common semantic practice among firms, furthermore, seems to be to let the term planning cover the whole sequence targeting — reviewing — reporting, which is the dominant aspect of comprehensive planning. Planning hence basically operates as a control system. Planning is in turn a sub-set of practices of a more comprehensive decision or management-system, that stands for "everything else" that ultimately manifests itself in what is called behaviour.

Fortunately, phraseology is only an instrument to facilitate understanding. It can be thrown out when of no help. The purpose of this study has been to investigate the character of the process of making numerical projections into the future that takes place at CHQ in large corporations and to evaluate, if possible, its significance for decisions and firm behaviour. This process is often called comprehensive, formal planning within the firms themselves and we adopt the same terminology. It is, however, not defined until we have described it.

6. The time element

The modern trend in theorizing, and to some extent also in business practice (as illustrated by the emerging presence of a so called strategic or exploratory planning function), seems to be a devotion to analyse and determine business long run desires (targeting) and to find methods of securing that decisions are consistently made and the organization constantly heading in the desired direction.

One typical feature of most decisions is that they are not reversible, once implemented, and that it takes time to adjust the development of the organization from an undesired to a desired development path, once that path has been determined at an earlier moment. Incomplete or erroneous information guarantees that the organization will constantly be off the desired path and that changes will be constantly required. Decision-making under risk and uncertainty (or incomplete information) has been handled very skillfully in theoretical literature, however, predominantly with a view to making the best decision on the first hand. Many pages have been written about the need for flexibility and for alternative planning in literature, but also here the matter of making the best choice to begin with is dominant. Surprisingly little consideration has been given to the fact that most major decisions are taken within a very narrow range of alternatives, that alternative planning is very rare (see following chapter) and that the considered range of uncertainty is most commonly between success and failure. However, the substitute for alternative planning, namely methods to device "plans" to correct undesired developments with a minimum of economic disturbance to the firm has found surprisingly little coverage in literature.

Theorizing with a view to explaining economic behaviour, based on time reaction structures, began to appear within the so called Stockholm School of Economics (Wicksell, Myrdal, Lundberg, Svennilson, Lindahl). Such thinking was beautified by Hicks (1946) and has been developed into a rigid structure of mechanical time-lag functions in the literature of applied economics of the sixties. In an interesting piece of theoretical research by Modigliani-Cohen (1958, 1961) the fact that some decisions meant more commitments for the future or more difficulties for speedy corrections than others were analysed.

Yet, one has to go far to meet with any kind of operational consideration of such phenomenae at the level of firm management. In an interesting document Cole (1969) argues that it in fact makes more sense to concentrate on finding reliable methods of *recognizing* at the earliest possible moment, where one is heading rather than devoting the time to assessing what is the desired long-run direction or predicting where the potential obstacles to success are located. Ansoff (1975 p.4.) amplifies this contention with reference to major discontinuities in economic activity, such as the recent "oil crisis", and "the failure of decision makers to act on information available in advance of" such events. The ability to take early corrective action according to Cole may be more important than trying to pinpoint an ever changing optimal future. This is one side of the application of the plan as an internal, *early warning* or detection system. Cole's argument may be interpreted as an argument for better control rather than analysis, the presumption being that we will always be bad forecasters and badly informed planners. This proposition is also supported by the low correlation found in Vancil (1970) and Eliasson (1974) between plans and realizations on such basic plan-input variables as e.g. sales. In

fact, this study will lend empirical support to the proposition of such "myopic rules of thumb" as those assumed in a business firm model of growth by Day-Morley-Smith (1974).

7. Linkage between plan and budget

In earlier literature a plan was a narrow concept covered by the term budget. In recent years the plan has gained the status of being the general concept incorporating the budget as the short-term plan. The budget is more of a forecast or an action plan for the future than the long-term plan. Planning is often seen as the evaluation of the options presented by the future and the process of selecting one out of several options. We have already made the distinction between short-term (annual) budgeting, long-range planning and prospective planning (Chapter I). We have also taken note of the various and often conflicting purposes often associated with planning. Since the long-term plan as to basis, structure, format and organizational relations — as will be seen in Part II — is very similar to the short-term budget, the problem of how the budget and long-term plan relate to one another emerges.

The normal feature of long-range formal planning is that of an extended budget (see Part II). As a rule "the analysis of the future" approach often attributed in literature to long-range planning was not of frequent occurrence among the firms interviewed and (if present) largely non-formalized and prior in time to the formalized planning procedure (Chapter II). Hence, as a rule fairly strong links were found between long-range plans and budgets. Normally, the budget was a blow-up of the first year of the long-range plan.

However, many writers like Shank (1970), on the basis of interview material, emphasize the dangers of too strong such links. The budget myopia extends to long-range planning. Long-range plans grow too rigid and turn into action plans and control instruments rather than analytical tools.

Many recent writers like Ackoff (1970) and Drucker (1972) sweep by the down to earth art of budgeting, so much written about in earlier literature, with a derogatory smile, concentrating on the analytical design of major top management decisions. On this matter can be mentioned, that this study will not picture the presence of comprehensive long-range planning as an analytical basis for major decisions. If at all existing, such formal analysis seems to take place outside or on top of the framework of comprehensive planning.

The bulk of formal planning routines, whether long-run or short-run, whether comprehensive or not, seems to be oriented towards targeting, coordination and control and "financial forecasting". Then a fairly tight linkage between the long-run and short-run plans becomes natural and there is much support for the arguments *for* tight linkage, also listed in Shank (1970). The commitment to planning by management required by these purposes also requires some sort of realism and coordination between the figures and various pieces of the plan. In large firms the tendency towards myopia and rigidity in long-range

planning is to some extent allievated by having different sets of staff personnel make up the different plans and perhaps a third set of people coordinate the plans.

8. Planning versus forecasting

The question of linkage is intimately associated with the purpose and definition of planning. There is a rich sample of vague definitions of planning and some sort of controversy over the issue where planning departs from forecasting. The most commonly accepted definitions seem to be the almost trivial ones, that a forecast is an estimate or inference about the future based on observations of the past as in e.g. Johansen (1970) and that a plan is a forecast over which one (read the firm) exercises some sort of control as e.g. advocated by Theil (1966). Thus there are two "economic mechanisms" involved that separate the past from the future. There is the method of forecasting and the method of control (read the planning system).

In the systems approach terminology of e.g. Cyert-March (1963) the alternative way of consolidating the two concepts would be to identify forecasting with estimating the future, environmental input assumptions relevant to the firm and its planning system (the "model" of the firm), that specifies how the firm adapts to this expected environment. Adopting this conceptual approach one would be inclined to advocate a strong linkage between budgets and long-range plans. The analysis and evaluation of the future have already taken place at the forecasting stage and the business (planning) system is expected to have the needed built-in adaptive properties. There would then be a reason to expect forecast, environmental assumptions and plans to be accurate if forecasts and plans are based on good methods. Forecast (or plan) versus outcome comparisons furthermore should be a method of measuring the degree of perfection attained in forecasting and planning. The arguments presented in the chapters to follow will be that this may be a valid thing to do in a short-term business cycle context.

However, such a mechanical measuring instrument entirely passes over the essentials of a properly installed and well functioning planning system — well functioning according to the purposes of planning most often stated to be the valid ones. It overlooks the trivial fact, that forecasts are always extremely conditional and — as a rule — cannot even be labelled the most probable future development. Often they are nor intended to be accurate, even on the average and over time, and the planning system often is designed to accomodate substantial environmental forecast errors with *no* consequent adjustments of final results having to be made (see Chapter IX). Mistaken environmental expectations errors are — within reasonable limits — assumed to be absorbed by internal corrective mechanisms not explicit in the planning system. Unchanged profit margins, unchanged prices, wages and productivity are often found assumed simultaneously even in long-range plans. Since firms manage surprisingly well to stabilize profit margins and since productivity is the variable, of those four mentioned, over

which they have most control, the typical firm planning model is a numerical system of the "soft coefficient" type.

Both forecasts and plans may be deliberately biased and plans, as a rule, are made up to accomodate a host of different interpretations of environmental circumstances at various hierarchical levels, as part of a decentralization scheme. Hence, if planning is viewed as a management information system, as in much of the theoretical literature, the issue of consistency is brought to the fore. The above discussion also relates to the concept of "Moral Hazard" introduced from insurance theory by Arrow (1964). It is almost impossible to separate the external influence on an organization from the efficiency of the organization itself whether it is an insurance case or something else.

The distinction between forecasting and planning is drastically approached by Drucker (1972, p. 3—4), who argues that "long-range-planning is not forecasting". He states rather categorically that "human beings can neither predict nor control the future" and concludes that "long-range-planning is necessary precisely because we cannot forecast". Finally, he resolves the issue by defining "the end result of successful long-range-planning" as "a capacity to take a greater risk".

9. Contingency planning

Even though this may not have been the exact interpretation intended by Drucker, his statement ties in conveniently with a conclusion to be reached later, namely that long-range plans, among the sample of firms interviewed, (1) exhibited a strong financial bias and (2) were — if anything — designed for the purpose of assessing future cash inflows and requirements and deciding upon the proper time to replenish financial capacity by recourse to external sources of funds. In this sense, long-range planning may be thought of as a device always to be financially prepared and hence a "risk reducing" instrument by providing for needed financial reserves.

This purpose, however, is also coupled with another feature observed throughout the sample of interviews, that rather contradicts the purpose of enhancing the capacity for financial risk-taking, namely the predominant presence of singlevalued plans. This is observed by Donaldson (1969) who notes that "planning in its present form is largely an exercise in converting an unknown future into a known — and therefore manageable — future". Rigidities — he argues — tend to be built into the planning system "that work *against* quick and effective response to the unexpected event". Thus Donaldson stresses the need for contingency analysis in planning, and he is supported by Ansoff (1975) who notes that firm decision makers often fail to act on advance knowledge of major events.

The conflicts of method, that originate in the many purposes of planning, found embedded in planning systems in operation, surface again. An effort to gain and maintain a commitment to the targeted sales and profit levels may in fact depress considerations (in formal planning) of what to do if the company falls short of its targets.

However, targeting and the implicit bias towards maintaining a "subconscious" organizational compulsion to perform well will be observed here to be one of the main purposes of planning, among the companies interviewed. The important issue is what is considered most important *by company executives;* targeting *or* contingency planning. The two purposes cannot easily be blended in the same system and the "usual result" that Donaldson criticizes, namely that contingency planning is "driven underground" may even be a deliberate method.

In effect, what should most properly be labelled contingency planning hardly exists among the tasks alloted to corporate planning departments. If existing, it takes place at a very high level or in parallel staff functions and this again tallies neatly with the conclusion reached in this study, that both budgeting and long-range planning is a method of (1) delegating operations management and (2) providing top management with grass root information; i.e. a two-way communication system that (a) frees and (b) informs top management for major decisions aimed at restructuring the company and providing time for such action to be taken. One should not forget the fact that early and reliable information from bottom all the way up is a major risk reducing factor and that the background of major decisions — quoting Ansoff (1967) again — is seldom well structured enough to be based on a formalized comprehensive planning apparatus.

Thus — contrary to Donaldson's (1969, p. 18) argument — among the subset of "smaller" problems usually taken care of within the formal planning and budgeting apparatus, the method to "make a new plan" or rather updating the plan may be a quite satisfactory formal handling of the contingency aspect. Furthermore, one has to recognize one typical feature of comprehensive planning systems, namely to allow for the accumulation of slack (financial, efficiency etc) to be activated during lean years. This buffering that constitutes the "soft coefficient" system that we have referred to frequently is a version of contingency planning if interpreted broadly.

Also, I am not so optimistic as Donaldson (op. cit. p. 20) about the possibilities of using computerized simulation models to enhance the potential for analysing the alternative financial outcomes under various sets of environmental assumptions for the purpose of adding a contingency planning scheme to the planning set-up. For one thing any major such alternative must (as a rule) incorporate a different organisational, financial etc. structure. In practice such structural changes cannot be simulated by models of the traditional kind. Second, most — probably all — models built so far are too crude to accomodate the degree of specification needed for a meaningful contingency analysis aimed at assessing the impact on the company of major, less probable events (see Supplement 6).

Also computer based planning requires interaction between management and "the model" in the form of intermediate decisions that take place — as we shall see — in a routine fashion during the course of corporate budgeting and planning. Hence the closest one can get to contingency planning within a company is a fully computerized

budgeting and planning system that allows speedy up-datings of the budget and the plan. The need for such automated planning systems is well illustrated by the frequent comments met with during the interviews: "We are still working with the old plan. Even though it is way off our present plans, since a couple of months ago, we won't have the new figures for another month".

10. Business cycles in business planning

Drucker's (1972 p. 3 f) categorical statement, that the future cannot be predicted, may have some truth in it. It dismisses, however, the entire science of business cycle forecasting and will hardly be well received — if read — by the large number of professionals engaged in this trade. It also bypasses the question whether the kind of information produced in such forecasts, even though less than 100 per cent reliable (by definition), still does not possess some information, that can be put to some use for the benefit of the company.

For some reason company planning in a business cycle context is an almost blank page in the literature of planning. At the same time the very existence of a business cycle is evidence enough of the difficulties involved in and/or the incapabilities present, among business firms, when it comes to foretelling the twists and turns in macroeconomic activity. Firms themselves are to a large extent the vehicle of the business cycle. Furthermore, they suffer large losses by being off the cycle in their planning and stand a good chance of reaping substantial profits from framing the business cycle problem properly in their planning. One interesting observation made over the five year period 1969—1974 — covered by this study — is that the "revival" of the business cycle, during the last years of the sixties, has meant a sudden growth of interest in business cycle forecasts for planning purposes, among the firms interviewed (see Chapter V:5).

The tendency of investment spending among business firms to surge ahead when demand is peaking or in the downswing phase and the new capacity to produce no longer needed is a global phenomenon. Business sales plans furthermore tend to overshoot systematically and substantially in the downswing phase of the cycle and vice versa. In effect the predominant feature among a sample of large Swedish firms studied was that sales plans from the annual budget tended to be a point on the sales (trend) of the five year plan which was in turn (roughly) a tangential extrapolation of the current situation (Eliasson, 1974 p. 16 ff). Results from this interview study suggest that this is a phenomenon equally present among U. S. firms. It is fairly easy to demonstrate, that as long as beliefs are held that the demand cycle of the firm will turn upwards again, there is (as a rule) a systematic ex-ante profit benefit to be gained from taking the risk of investing too early and a substantial loss is guaranteed (ex definitione) from being too late (Eliasson, 1974 p. 27 ff). The need for getting a better grasp of the business cycle problem in planning thus seems well established. And the failure of business decision makers to act on the basis of advance knowledge but rather wait, referred to earlier, is most peculiar

in this context since we are concerned with a repetitive phenomenon and a wealth of experience of how to react to draw from — in combination with a large potential remuneration.

Throughout the literature on corporate planning a warning for too much preoccupation with the immediate future, called "myopia", is currently raised. This kind of myopia by definition is to be found in the short-term planning routine usually called budgeting. However, proper and beneficial consideration of the business cycle also requires a cycle to be built into the long-range (usually five year) plan. This again brings back the question of linkage between planning and budgeting systems (see Section 7) and the question: What are the purposes of planning?

Is *the* all-purpose planning system, that incorporates all the aspects of planning, brought up so far, a feasible option for the future? Such a system has not been found among the firms interviewed in this study, although purposes will be found to be quite mixed in the planning systems observed. Do academic economists and business practitioners talk different languages? Do they not recognize each others objectives? Who is ahead if there is a difference? One thing is crystal clear. The thing called planning will definitely get more and more confusing as we proceed.

11. Efficiency and planning

One is inclined to believe that planning should be devoted to the ultimate purpose of improving "efficiency" in some sense. The literature of planning, both at the national and at the firm level, abounds in terms signifying "efficiency". Also the purposes of planning introduced in Chapter II all do carry the implication, that if successfully strived for, they contribute in the end towards some super objective indicated by the term "efficiency". The problem is to define what we mean by efficiency.

To do that we need at least a vague idea of whether a more efficient solution to something exists to-day or in the future, preferable an optimum or best solution. If we are concerned — as in this book — which empirical problems we have to relate this description of something better, or the best, to operationally meaningful concepts.

Second, there are many dimensions of efficiency. Both an individual firm and a national economy can be very efficient production-wise in fabricating outputs that are not in demand. Similary, by international comparison, both firms and national economies can be producing exactly what consumers want, at a low rate of productive efficiency. A firm, for instance, may be very profitable, still using obsolete, low productive, production technologies capable of substantial improvements in performance at low cost.

This would perhaps suggest that profitability is a good measure of efficiency at the firm level *if* it is compared with maximum obtainable profitability. Accepting such a statement, we immediately get involved in all major academic disputes in economic theorizing. We have to define what profitability is! We have to give a time dimension to

optimum profitability. We have to accept that maximum profitability at the firm level is by no means necessarily consistent with maximum efficiency at the national level, if markets are not competitive and free from various hindrances to entry etc. And — most difficult of all — we have to pin-point by numbers the most and maximum profitable composition of firm activities over time that exists. This solution is something — as we shall see — that any firm has only a very vague idea about, even in retrospect.

On this score we may bring in some information from later chapters and conclude that "profits" indeed is a key concept in planning and that planning undoubtedly is concerned with a least maintaining profit performance and possibly improving it, the MIP-Principle as we have called it.

The term "Profit performance" carries different meanings between firms, and the information needed to optimize profit performance (whatever its definition) by making the *most* efficient use of the market environment of the firm is generally lacking. The information needed to optimize internally profit performance, conditional on some environmental assupmtions is *also* missing. The idea, furthermore, of investing in research to acquire new information (internally or externally) to the extent that certain key circumstances surrounding the decision are under control, certainly is not the dominant idea in business planning. Internal slack and pockets of inefficiency are normally allowed to develop even within the most sophisticated planning and control systems. Externally, major choices on kind of activities are often made before investigative research on technical matters starts.

To get to grasps with the efficiency aspect of firm planning we have to break the concept as such down. We have to study the efficiency of control, of information handling, of coordination, of forecasting and so on. This can be done in operational terms at the firm level. However, all these efficiency dimensions are conditional upon one another in various ways. If unreliable information is communicated extremely efficiently and feeds into well coordinated decisions the overall outcome, call it profitability or efficiency, may diminish.

A further result of this study is that the information to accomplish all trade- offs in a manner consistent with reaching a maximum level by some definition does *not* exist. However, a large stock of intuitively stored experience permeates a firm organization. It can be individually activated under normal, repetitive circumstances to the benefit of total firm performance. However, it cannot, under normal circumstances, be communicated even within a company to a "central" information clearing agency capable of optimizing the use of such information. This is in fact a case of the Pelican (1969) idea of "specific" languages as a limiting factor in optimizing the use of information — in his case in centrally planned economies. In the extreme case, of course, intelligibility is restricted to one individual who can receive information, process it and make use of it without being able to communicate his experience to others. This is probably a base element in what we sometimes call entrepreneurial talent. And we should not underestimate the

importance of this phenomenon called intuition.

In this section we will discuss how efficiency has been defined in literature in the context of economic planning in general. In the next section we will add the factor organization and decentralization to the discussion. Then, in Section 13 we manage to turn the conclusions at least partly upside down, by asking the questions what is information, what particular information is good for what particular decision and is it really information in the conventional sense that is handled in planning.

We have tried one break-down of efficiency dimensions in Chapter II by listing a number of "purposes" of planning that, if pursued, should be likely to step up overall performance measured e.g. by profitability.

Several of these purposes overlap with a list of conventional dimensions of efficiency used by Lindbeck (1971) and others in describing the efficiency of a national economy, whether planned or governed by markets. These aspects are;

(1) (Static) allocative efficiency, signifying, broadly speaking, that resources are allocated in the short run to produce goods and services at minimum costs (within a firm, relative to alternative outputs) and in proportions that conform to consumer preferences for the same products.

(2) (Static) technical efficiency, meaning, that even though it overlaps (1), the best "attainable" production techniques in an absolute sense, available in the short run within the firm, are put to use.

(3) (Dynamic) allocative efficiency (overlapping (2)) meaning that information available is put to maximum use to raise productive efficiency *over time* and to obtain the most renumerative differentiation of the product mix.

(4) (Dynamic) technological efficiency, overlapping (3) somewhat, and implying that new and better production techniques and new products are developed and/or introduced at maximum speed, compatible with demand preferences. In a context like this, the concept of "production" of course has to include distribution as well as "management", planning methods etc.

(5) Efficiency in information and coordination, stating that the right people get to know the right things as fast as possible to be made use of in the best way.

One would be inclined to believe, that conditions (1)—(5), being satisfied in a firm, should be consistent with maximum profits defined suitably and discounted to some particular moment in time. It would be difficult, anyhow, to disagree. Even though the efficiency concept has been broken down into five dimensions frustration, however develops when one tries to relate these dimensions to something that can be measured or observed.

If one discards the optimum aspects of the conditions — which are not so useful here — one may say, however, that points (1)—(5) are already covered in more operational terms by purposes (a)—(g) listed in Chapter II.

Condition (5) above may be related to purposes (a) control and coordination (= internal information), (b) forecasting (= external information) (c) targeting and motivation (= information processing), and (d) performance measuring. We have noted already, and will continue to do so throughout this study, that this purpose of planning is clearly dominant, and that sophisticated planning, illustrated already by cases, means that targeting, performance measurement (reporting) and control are looped together.

We will note later that planning as a method to facilitate an optimum allocation of financial resources [purpose (e)] is perhaps synonymous to attempts to reach dynamic allocative conditions [as stated by (3) and (4)]. This purpose, however, has not been revealed as a very obvious purpose of comprehensive, formal planning. In fact major decision making, with a heavy impact on long run firm behaviour, are not handled in a coordinated, integrative fashion in planning routines. A dogmatic observer may feel inclined to conclude that this will make the firm less likely to perform well in terms of conditions (3) and (4). For reasons to be given later this does not have to be the case, and probably is not.

Static allocative efficiency in the sense of (1) and (2) may be joined together under the heading of activity planning (g). It is not part of comprehensive planning studied here, but is frequently employed as sub-planning routines at a lower level (production scheduling etc.) sometimes based on the output of the comprehensive plan, sometimes not. If comprehensive planning is sophisticatedly employed in the other dimensions mentioned, it probably also means that it constrains sub-planning routines at lower levels to the extent that it approximates over time a pursuance of the objectives stated as conditions for static efficiency according to (1) and (2); that is in the "soft" sense of improving performance rather than optimizing it.

Thus by "softening" up the conventional criteria for efficiency to mean "improving" rather than "optimizing" we have found that formalized, comprehensive planning seems to be geared towards improving efficiency in the short term. We will conclude later (especially in Chapter XI) that this may be a "most efficient" way of freeing top entrepreneurial talent from day to day matters to pay attention, in a less formalized way, to the long run aspects of the firm future, called "dynamic efficiency" in the listing above.

Perhaps it is appropriate to add exactly here that the intended purposes are fairly self-evident. On the other hand we know very little about whether the intended benefits have materialized or not. To a large extent formalized planning techniques have been introduced to meet certain pressing management requirements. The growing need for formalized budgeting, reporting and control systems the larger the organization is an instance of this.

Only when a planning system has been designed and implemented with the express purpose of improving some particular performance characteristics it becomes possible to make reasonably informed assessments of the beneficial effects. Even though one should observe

(cf. Thune-House (1970), Gershefski (1970) and Camillus (1975)) that companies that operate formal planning systems also perform better, experience from this study suggest that one should not add hastily that this is because of formal planning.

12. Decentralization and efficiency

The so called decomposition technique was originally developed to help first and second generation computers of the fifties to solve complex, numerical programming problems [see e.g. Dantzig (1963)]. Decomposition in essence means breaking down a larger problem into sub-problems that can be solved individually, under the constraints of the original "master" problem.

This technique was found to offer an analogy, or a model, for describing the *decentralization* of organizations, or more particularly in this context, for the decomposition of a firm into divisions (or profit centres or subsidiaries) tied together by a corporate headquarter (CHQ) master function. It was also recognized, as in Baumol & Fabian (1964), that the process of solving a programming problem by this method imitated the introduction of a synthetic, internal "market" between profit-centres in a divisionalized company (cf. Section 4, this chapter).

As Godfrey (1971) quite correctly points out, however, it is doubtful whether much autonomy or decentralized decision-making exists in such a "decomposed" system. The allocation of overall resources that emerges as the overall, optimal firm solution will be centrally determined anyhow. Hass (1968) tries a somewhat modified approach. He makes his model more realistic through changing into a non-linear (quadratic) formulation of the programming problem. Thereby, for one thing, "market imperfections" can be taken into account. The more complex solution of the non-linear problem is interpreted by Hass as an iterative exchange of information between divisions and CHQ. The role of CHQ is to find the "transfer price" for each internal market that equates supply and demand and is consistent with joint profit maximization. Divisions are handing in plan after plan to CHQ, that, however, exercises the right to decide when this iterative submission process be terminated. Phrase-wise this description of the model has something in common with actual planning practice described in Chapters II and III and to be elaborated later. However, Godfrey (1971) is right when noting that the Hass (1968) model does not really provide more division autonomy than what was allowed in Baumol & Fabian (1964).

Godfrey then proceeds to formulate his own solution by recognizing that there is a conflict between autonomy and "optimality" and argues that "optimality" might not be desired at the cost of autonomy. There are several stages in Godfrey's planning model. On the one hand, divisions submit to CHQ "forecasts of its expected operations for the next period". On the other hand CHQ solves its company wide model on the basis of these forecasts to determine for each division
(a) amount of "total resources" allocated

(b) minimum profit requirements and
(c) a *suggested* plan of operation.

The only mandatory CHQ directive is the amount of resources allocated by the "master model". On the basis of this restriction, divisions are free to change their "operational strategies" compared to their original intentions to *raise,* if possible, their profit contribution to CHQ. If they do, the final outcome will not be "optimal" in terms of the model. This result in turn must rest on the assumption that CHQ has full access to "all relevant production function information about each division" and that this information has been made use of in the CHQ model.

For one thing we may conclude, in passing, that this "full information" assumption is entirely at variance with the actual state of affairs in all business firms investigated in this study and — more important — that sophisticated planning techniques have long ago bypassed the impossible ambition of ever, even coming close to such a state of full information of internal data of CHQ. Secondly, Godfrey's conclusion raises the problem of what "optimality" really is. Divisions have initially provided forecasts (information) on prices, variable costs, suggested product mixes etc. The master-model optimizes on the basis of these data and full information on the production structure. This results in a *mandatory* CHQ allocation of resources. If divisions now change their operational plans under these resource constraints and improve their individual profit performance, then overall profit performance is better than CHQ originally concluded from the "optimal" solution provided by its master model.

However, the assumption of optimization has changed, since divisions have changed (by autonomous decision-making) their forecasts. A new model run on this new information would result — of course — in a new "more optimal" allocation of resources. If this process is allowed to go on for a while it will converge inevitably to the centralized solution of Baumol & Fabian (1964) and Hass (1968). The iteration is a matter of information exchange where divisions are assumed to provide the information they have. Thus, autonomy in Godfrey's (1971) model has been achieved by cutting the number of iterations, that make up an overall master-optimal solution, down to *one*. By this definition, some autonomy would of course be maintained even after two, three, four etc. iterations.

In Rasmussen (1974) a modified version of Godfrey's model appears. Rasmussen takes over the idea of a two level central and division planning model that interacts so that iterations converage towards an overall optimal solution. Rasmussen concentrates on the idea of two-way information exchange and CHQ is not assumed to possess — as in Godfrey — all "relevant producting function information". Iterations are terminated when "top management has gathered sufficient information to reach an acceptable plan". This — in our terminologi — is a variation on Baumol & Fabian (1964) and Hass (1968) and in effect a centralized decision scheme, provided divisions cannot arrange to withhold information to gain autonomy. This possibility is, however,

assumed away.

If divisions still do withhold information, iterations will converge — I suppose — towards a less than optimal master solution. However, no one will ever know the location of that solution and this is the problem with most optimum economics.

Blackorby-Nissen-Primont-Russel (1974) get to grasps with the decentralization issue by making their system "recursive". Their use of "unit cost functions" to guide the allocation of resource outlays associates nicely with the approach in planning that will be described in later chapters. However, by basing their cost-functions on a recursive production "function" or system they have in fact defined away the issue at stake above in Baumol-Fabian (1964) through Rasmussen (1974). With a recursive build-up of final output you don't need the iterative dealings between CHQ and divisions described above to bring division information up to CHQ. When a one-to-one corresponding recursive decision structure is mapped onto the production system it is difficult to find any divisional or sectoral decision autonomy left in the system and — as well — of decentralization. I presume then that by definition some kind of autonomy is required for a decision to be taken in a decentralized manner.

It is of interest, as a contrast, to note Mesarovic-Macko-Takahara's (1970, p. x) excuse for dealing with optimizing systems in developing a theory of hierarchical multilevel systems. It is a "mathematical convenience", that makes decision problems well defined and simple and makes it possible to study the "proper hierarchical questions". They also take care to avoid such concepts as autonomous or decentralized decision-making.

One may say that the models discussed provide a strictly argued pedagogical demonstration of one circumstance that comes through as a strong empirical conclusion from this study, namely that divisional autonomy must be based on the possession of information, or the competence of making use of information that is not available at CHQ. Of course, this is also a reason for a division to monopolize information deliberately. Nonavailability of information at CHQ, as a matter of consequence, includes incompetence or lack of methods to make use of available knowledge or even to notice it (see next section).

This same issue is again the core of the eternal conflict between philosophers of economic planning on the one side and on the market system on the other. Is it really possible through a planning system to (1) gather and (2) efficiently use all the million and million bits of information that are needed for an "optimal solution" at the national level and come closer to the optimum than a market system is capable of?

Except for some extra mathematical sophistication, the principles of the divisionalized firm models discussed above date back to Pareto (1897) and even before. Since then economists have developed the standard view, that a whole capitalist market economy in toto operates according to working principles that are quite similar to those of a planned socialist economy. This, however, constituted the core of a

heated academic controversy 40 years ago about the relative merits of a planned versus a market based *national* economy. A trial and error calculation method that simulates the market "tâtonnement" process in the Walrasian (1926) sense was described already by Taylor (1929). Lange (1935—36) countered Hayek's (1935) contention, that such calculations could not be done in practice, by arguing that they are done already in the market by firms, by income earners and by "Professor Hayek" himself, who has to solve "at least hundreds of equations daily, for instance, in bying a newspaper or in deciding to take a meal in a restaurant" (op. cit. p. 67). No higher mathematics is needed for that and the solution, according to Lange, was to design a system that imitates a market, without being a market.

Maybe that is what we should call a "planning system"; a method of imitating a market where the market process is lacking, cannot operate, or is not desired. And so we have closed a loop of reasoning and are back in Section 4 of this chapter on "synthetic, internal market mechanisms".

We may conclude, that a mathematical property of a fully informed solution to such a planning problem, given a CHQ objective function or set of targets, means that no divisional autonomy is allowed. We have "one set of prices which satisfies the objective equilibrium conditions, i.e. that equalizes demand and supply" (Lange 1935—36, p. 63) and we also have a strict hierarchical ordering defined by this set of prices.

However, in the context of a business planning system, this is not a fair description either, since the basis for planning is to allow division people to exercise some well disciplined autonomy on the basis of its own, unique information or competence. The idea is that CHQ will never know better and had better concentrate on making use of its own comparative advantages, that is (1) to keep major decisions that affect the entire company for itself, (2) to keep control of key activities at division level and (3) to keep applying pressure on division managers to improve performance, on the general assumption that this can be done.

Essentially, the conflict between centralization and autonomy cannot be broken as long as CHQ goals (or targets) are forced onto divisions in full, as they are in the theoretical constructs discussed above. In an empirical setting, this is, however, an odd way of delimiting the problem. Division management will always be concerned with more details than CHQ. *One only has to recognize a limit to the amount of detail the CHQ master brain or model can handle to conclude, with great confidence, that there will always be operational solutions that are outside the reach of the CHQ master model, because of the absence of information at CHQ.*

If the division is concerned with whether to produce recordings by "Bach" or "Blood, Sweat and Tears", or what not, and the CHQ model only accepts records, prices and quantities, one realizes immediately that there will always be a limit where CHQ has to delegate the decision *how* to do it. Furthermore the levels at which this delegation takes place may vary a lot through the organization.

Thus, in dealings between CHQ and division there will always be an element of arbitration and negotiation involved that is so typical of the *pluralistic decision systems* studied in this book. This observation shifts emphasis away from information and optimal decision making. In fact it illustrates beautifully March & Simon's (1958) argument that organizations react to conflicts, either by using "analytical processes" or "bargaining processes". Bargaining takes over when the organization (read CHQ) recognizes that it is no longer economical to pursue the analytical ambition.

There is, in fact, a very obvious methodological difference in using the planning apparatus to gather information, that divisions willingly part with and to use it systematically in a sequence of iterations to optimize the "planning solution" on the one hand, and to force monopolized lower level information to surface at CHQ, on the other. The first approach is the analytical one, described by the models above. In the second approach, which seems to represent a more frequent purpose of planning, we are concerned with control, and the "analytical use of information" does not have to be part of the planning process. It is definitely difficult to describe such a planning apparatus in mathematical language. A related idea that also brings in the bargaining aspect of planning is found in the "dialectical inquiring systems", introduced in Mason (1969) and Mitroff (1971). In this truly Hegelian approach the argument is that one can only understand an issue properly "by witnessing the strongest possible kind of debate take place on that issue" (Mitroff 1971). The scientific management information systems are too passive information conveyors. An element of confrontation and conflict is needed for the user to understand his own problems.

Planning ultimately resolves into an agreed upon offer on the part of the division to perform in a way that has been accepted by CHQ. CHQ is now more concerned with checking that this agreed upon performance actually takes place, than to engage in the impossible task of finding better solutions of division problems that it is not competent to handle. This is control, and control is easier than decision-making to describe in terms of a more or less centralized, hierarchical structure.

In fact, any intelligent, but unprepared outside observer prejudiced by theorizing, of the kind described above, should be stunned when confronted with the immense numberflow that constitutes a modern economic planning system of a business organization — until he realizes that these figures of extreme and impossible detail, that he sees, have been gathered to meet a control purpose (see below).

There is one further complication with the programming analogies discussed above. They have all been formulated as one period problems. If trade-offs over future time are allowed — as they should be in planning — the problems soon become insolvable if convenient short-cuts are not resorted to. Even though Day, Morley & Smith (1974) argue that one period decisions are very typical of firm behaviour we have to conclude with one observation. The planning process is a typical iteration process *in time,* and there is no guarantee that any optimal solution will be approached. No one knows. However, planning also

takes place *over time* (by month, quarter or year) on the basis of changing, *time dependent* information. Even though, also here, the optimum solution (the plan) will always be a secret to everybody, this time-iterative process perhaps is the most efficient one to keep the firm heading in the right direction over time. Day & Morley & Smith (1974) have set up a model that describes firms as cautiously groping into an unknown future, one period at a time. Under certain simplifying assumptions they will still be heading "towards an unknown equilibrium". Thus we are back again to Coles (1969) argument that it may be better to have a good detection or control system than a good forecasting system.

In the making of the plan the iteration process, that has been described above, roughly speaking, is what goes under the name of *reviewing* (see Chapter IX). We have described it as part of the control system, since its ultimate purpose is to arrive at set of numers (a plan or a set of targets) against which a reporting apparatus can be tied. Reporting is also part of the control system. Both reviewing, targeting and reporting are activities that are quite well defined in organizational terms. A suggestion ventured is that this in effect is what planning consists of when it reaches an operational level.

Suppose — for a while — that we can abstract from the informational value of the numbers of the plan and look at reviewing as a method of arriving at numbers (targets) whatever they say and however realistic they are. This bargaining may take place in two ways. CHQ may bargain with division management and they in turn may bargain with sub-management within the division *or* CHQ people may be involved in the bargaining procedure all the way down *into* the division. Similary reporting may be a division — CHQ affair or CHQ may require reporting against plans of divisional details. Since borderlines are so obvious (these do not depend on the number of iterations) we have in fact described a centralized and a decentralized *control system*.

Suppose planning and decision-making is basically founded on the realization that information and insights are either missing or uncertain (to the extent that they are approximately missing) and/or that most of the information scattered around in a business organization is most competently made use of at the place where it is located.

Then we may conclude that a highly centralized control (reviewing targeting — reporting) system may exist in symbiosis with a decentralized decision system. The optimal design of this *Pluralistic decision* system depends on how authority to make decisions is optimally combined with the existence of information, the competence to use it and the feasibility to plug in a well defined pattern of responsibilities and controls. Such systems may appear extremely complex. In practice one finds big together with — at least seemingly — small decisions taken at the very top of the corporate hierarchy, and vice versa. Sometimes CHQ controls minute division details through reporting while, elsewhere, considerable leeway to carry out innovative activities without supervision is allowed. Such phenomenae are to some extent illustrated by case 3 given on p. 58. Marschak-Radner (1972) in their theory

of teams have analysed some complications that occur when different decision-makers in the same organization have access to different amounts of information about the external world. Since I have not found the distinction between decision authority — availability of information — competence to use it — responsibility and — control made in literature on the decentralization issue, I have taken the liberty to conclude this section with a chain of my own reasoning.

13. Information and efficiency

The whole discussion on decentralization and efficiency took one thing for granted; all needed information exists. The only problem is to compile it or extract it and to put it to use. This is a common assumption in much theorizing even when uncertainty is concerned. Uncertainty can be reduced to the extent desired at a cost. After the lofty discussion of the earlier sections we may create a more comfortable feeling if the question of information and efficiency is approached in the highly operational way of Ackoff (1967) — even if it takes the air out of some earlier arguments. Maybe the core problem is not to find the information you need, but to notice the bits, that are useful, in the information flows around you and to know *how* to use them. Ackoff lists five fallacies of management information systems that make them — he argues — into "misinformation systems".

(1) The critical information problem is not the *lack of relevant information,* it is an *over-abundance of irrelevant information.*

(2) Do not take for granted that the decision-maker himself knows what information he needs for his decision.

(3) If a decision-maker is provided with all the information he needs, there is no guarantee that he will know how to use it.

(4) It is seldom so that a manager will make better decisions if he knows more about what other managers around him are doing — even if they are working on the same problem.

(5) If a decision-maker uses an information system without understanding how it works he is in fact delegating the decision to the designers and operators of the decision-system, who, supposedly, are less competent than him to make the decision.

Obviously, these 5 points are central to the theme of this whole book and — at least on the surface of it — it runs counter to most theorizing in this chapter.

In fact the points made by Ackoff have only recently surfaced in the theory of information. The first point also made by Arrow (see e.g. (1973)), basically contradicts the idea of an all purpose information system. Receiver-stations that filter the information and make it relevant for particular decision-problems are normally lacking. Business cycle forecasts, for instance, are normally very complex information flows, not in the least, when the problem is to make it useful in business planning. One may safely conclude from this study that good receiver-stations for business cycle information are, with a few exceptions, missing in Swedish firms. Large U. S. firms, that have realized what enormous, potential profits there are in timing their plans better to the

business cycle, have begun to tackle this problem by instituting separate departments of highly qualified economists, to digest this kind of information and to tailor it for the company environment and their own budget and planning practices.

The knowledge (second point) of what particular information is needed for a particular decision-problem has a direct bearing on the centralization issue discussed in the previous chapter. It defines to what hierarchical level decision-making is most efficiently delegated. The other side of this is point (3). *The optimum location and use of information is by no means necessarily CHQ.*

Point (4) in turn is an argument for competition. It may actually be in the interests of sub-managers to inform one another in order to reduce the external pressure possible to exert upon them on the presumption that they don't know how badly their fellow collegues perform. If the planning system has been designed to shake-out information, as in the case reported on in Chapter III:3, the isolation of departments and procedures from one another may be deliberately instituted. Several, independent sources of information have a particular user value when decision problems are so complex that they will never be fully understood.[1]) This brings us directly back to the "dialectical inquiry" method devised by Hegel long ago but reinvented in a business decision-making context by Mason (1969) and Mitroff (1971) and discussed in the previous section.

It is easy to exemplify how firm managers fail to realize the danger involved in violating "rules" 1 to 5 and Ackoff does. In effect, he rules out the "black box", "rules of thumb" or "intuitive" method when the complexity of the decision rises above a certain level. However, it is also easy from this study to illustrate how sophisticated planning in practice avoids repeating such mistakes by making formal procedures inoperational in a decision context. As for point (5) mechanical rules of thumb, like profitability calculations at the investment object level, are seldom taken seriously at figure values when it comes to making decisions of any importance. The overall planning system is never designed to handle major decisions at the CHQ level. Consequently such decisions are taken largely on the basis of information outside the planning system.

As for point (1), the planning systems of U. S. companies seem to be producing an enormous amount of numerical detail. The figures are often misrepresentations of what they are supposed to stand for. At least, they are quite unintelligible for an outsider, who does not know how to adjust and correct the numberflow. This extreme detail makes no sense at all, except in combination with a remote and automized

---

[1]) This is probably one reason why so little effort is spent on consolidating budgeting, long-range planning and other planning activities, but rather have reports enter CHQ independently. The principle of multiple sourcing of information is not new and unique to business management. See for instance Schlesinger's (1973, p. 222 and 408) comparison of the Kennedy and Roosevelt information systems, on the one hand, and the Nixon method on the other.

reporting and control system. This is also exactly the idea many planning systems are based on.

Concepts like *efficiency, information, coordination, decentralization* and *optimality* all relate to the problem of *rationality* in decision-making. Rationality may be interpreted restrictedly as the profit maximizing objective that underlies most model approaches discussed above. It may as well be applied to any arbitrary goal function that is operationally defined and imposed, systematically top down on a firm organisation. In fact experiments with solving synthetic decision problems reveal that individuals tend to behave rationally when the situation is "simple and transparent, so that the subject can easily see and remember when he is being consistent", but under more complex, realistic circumstances "he becomes much less consistent" (Simon (1959, p. 258)). It then becomes an empty question to ask whether he behaves rationally or not. As Winter (1969, p. 232 f.) quite correctly points out (with reference to testing the maximization postulate on the basis of evidence relating to the internal workings of firms) irrationality can always be renamed rationality by the introduction of an auxiliary hypothesis that restricts the complexity of the problem to a simple and transparent one. Such modifications, however, bring concepts like optimality, rationality and profit maximization very close "to a tautology, which of course deprives it of any refutable implications".

In a scientific management context the operational question is whether the formal (planning) system has been designed to facilitate *understanding* of the decision problem or to help organizing a macro decision process that no one understands or controls in full. Piecewise understanding combined with control organized through a system may be the most efficient solution and it suggests the epithet macro. While the analytical objective of understanding dominates literature, this second interpretation seems more adequate in the context of planning and it also explains the description of the planning system frequently used in this book; namely a rehearsal of a macro decision process.

A question asked in Argyris (1971) is whether external effects created by too rigidly applied, goal oriented management systems may not work against the purpose of the system. How will "individuals react to increased rationality in their lives?" he asks. Argyris' conclusion is that if "management information systems achieve their designers' highest levels of aspiration" the system will tend to make all the important decisions and individual participants will experience "psychological failure", restricted autonomy and other frustrations that will tend, in turn, to inhibit initiative and lower personal aspirations. Tension will develop. It will be more difficult for lower level managers to identify themselves with departmental goals and responsibilities, since departmental objectives are rigidly tied together into a CHQ goal function. "Feelings of essentiality" will diminish at lower levels. On the other hand leadership will be based "more on competence than on power", because of the increased availability and use of valid information, and the higher analytical and intellectual competence required to manage a more informed organization.

It is difficult to tell exactly how Argyris' results tie in with the observations of this study. Maybe the sophisticated planning systems observed in this study (see e.g. Case 3 in Chapter III) means that a very delicate balance between negative and positive sides of a systematically structured management information system has been struck. We will observe a tight reviewing — targeting — control apparatus imposed on repetitive, operations decisions through the comprehensive planning system. At that level initiative and similar qualities may not be essential. Still, even at this operations level very elaborate bargaining approaches have sometimes been deviced that should produce at least a feeling of local participation and restricted "democratic" procedure, and there are always — even in the most tightly run organization — big pockets of monopolized information that CHQ cannot, or does not desire to, penetrate.

At the same time "major" decisions are typically handled outside the comprehensive planning system at the CHQ level. As implicit in Argyris, one would expect, as a consequence, a downgrading of competence requirements at the level of operations management and an upgrading at the CHQ level. In effect this observation could be made a parallel to a phenomenon already noticed frequently at the production plant level. If production is mechanized, requirements on skills and training of those directly engaged in production is lowered while requirements are raised on those engaged in advance, preparatory functions, work scheduling and servicing etc.

14. Planning and organization

By its very nature the method and purpose of planning chosen has to be intimately linked to method of firm organization adopted. The planning system almost by definition has to be based, at least on a partial purpose to help joining the pieces of the organization together. Coordination of decisions thus is a key function of planning, however not necessarily with a view to obtaining more consistent decisions as advocated by Back (1973). This, however, does not preclude the quite plausible argument by Back that a more consistent coordination of interrelated decisions would improve performance in some sense even though some scepticism on this issue by Ackoff (1967) and Rhenman (1969) was communicated in the previous section. The observations to be reported on in the following chapters do not support the conclusion that more "consistency" in the sense of making the numbers of the plan mutually compatible is a prime goal of planning. Coordination in planning is rather viewed as a means of CHQ to manage and control, at a distance, the various units of the organization. By a proper choice of relevant "strings to pull" from CHQ this could quite well be used as a method of increasing the degree of decision autonomy, and the more decentralized decision-making the more secondary the problem of consistency. This is what we have vaguely defined as a *pluralistic* decision system in the previous section.

Formal planning as a method to achieve standard profit control in the organization is a related matter. We are then partly concerned with

methods of combining autonomous decision-making with centralized control of relevant variables, and partly with methods of finding substitutes for market mechanisms to guide and control internal transactions.

Recent literature abounds with treatises on the proper use of ROI and other performance measures to improve aggregate firm profit performance as in e.g. Schiff & Schiff (1967), Henrici (1968), Henderson — Dearden (1966) and Robbins-Stobaugh (1973). This was also the topic discussed at a higher theoretical level i Sections 11 and 12. Also most of the planning systems, described in literature and observed in this study, include the processing of data required for *ex-ante,* interdivisional performance comparisons and we will be able to report on the actual use of such methods in planning later (see in particular p. 158 ff. and p. 244 ff.).

At least three sub-problems relate to the issue of interdivisional profit comparisons. The first has to do with methods of organizing the firm with a view to making autonomous decision-making meaningful. We have discussed this problem to the extent possible in Section 12. The method (second) for applying decentralization is to define some measure of performance to exercise distant (decentralized) profit control. This is a highly technical and controversial matter. We leave it for later consideration in Chapter X when the technical concepts needed have been introduced.

This is where the need for a consistant measurement system is often felt. However, it tends to be ignored that the importance of consistency lies in the use of information not in the information itself. Hence, one needs not be overly concerned with the fragmentary, loosely defined and distorted number flows that meet the eye in many companies.

Formal methods as a means to achieve a decentralized decision structure immediately (third) raises the question of *manageemnt participation.* It is quite true that "managers and academicians alike have tended to treat formal planning as an essentially impersonal, self-contained and rational process which is "systematic", "objective" and "scientific" (Greiner 1970).

In contrast to this observation one of the conclusions to be drawn from this study is that an essential prerequisite for formal planning to figure *importantly* in the decision process of the business organization is (1) extensive management involvement, not only by top decision-makers but also way down in the management hierarchy, and (2) that such involvement requires open, "nonanalytical" planning systems that can be manipulated with from within. This contrast between practice and academic advice is probably explained by the multitude of purposes allotted to planning. Purposes like targeting, control and coordination are definitionally linked to the human beings who inhabit the cells of the organizations. These purposes seem to be dominant in the planning process. To secure participation of those affected, involvement in the making of the plan is needed. If not achieved, planning is normally shifted aside into a rather isolated CHQ staff function The closed, analytical planning systems of the model type described in Section 12

do not allow this kind of involvement. They rely basically on the information available at CHQ and the method of planning consists of systematizing this information, either by concocting a numerical structure on historic data, or by adding up, in a routine fashion, plan data requested from the various parts of the organization. These methods also figure with some frequency in the interview sample. The material collected can be handled in a "scientifically" detached manner at CHQ. A numerical planning model of the kind described in Gershefski (1968) and Boulden-Buffa (1970) is an extreme case of this method.[1]) However, this method defies the purpose considered important, namely to extract new information from the bottom up to CHQ and to exercise some kind of coercion the other way. To do so, human involvement in the making of the plan is needed, and the figures gathered take on a different character. If the planning system is deliberately put to use for some coercive purpose the figures will also be biased and inadequate to handle in the traditional, analytical sense. If the extraction of *new* information otherwise monopolized is the primary reason, the figures gathered will be more informative than those obtained by way of detached studies at CHQ. However, the emphasis is on *the planning system as a method of extracting information rather than analysing the information,* the latter being the typical objective of the scientific approach to planning. Depending on the purpose and method chosen the sets of numbers obtained will be different. This must be an important "conceptual" problem for planning theory. Even though every writer on the subject emphasizes the need for management participation I have found very little of substance on this matter in literature.

Much of the confusion experienced when screening the literature on planning probably can be traced to the fact that planning has become an all purpose "status" concept with less-restricted usage, and an existing dichotomy has developed between advisory economics on the one hand and empirical practice on the other.

There is a fairly well delimited, observable, phenomenon sometimes called comprehensive formal planning and budgeting, sometimes being given other labels, that will be studied here. This is no all-purpose planning system. As will be seen in what follows several short-term operations plans like production planning, inventory management and recruitment plans use the comprehensive plan as an input forecast and no feed-back to the comprehensive plan is allowed. Many important activities such as acquisitions or large scale new undertakings are not planned for in a formal sense but taken care of outside the comprehensive planning system. Other functions like forecasting or goal-fommulation and targeting precede the planning process and may be of a quite informal, ad hoc nature.

The basic point is that formalized, comprehensive planning, despite

---

[1]) Cf. the report on why financial models in two U. S. companies are no longer operated in *Budgetering och Planering i USA* (Sveriges Mekanförbund), Stockholm, 1973 (s. 26 ff).

its complexity, is a skeleton performance model of the business organization that can be said to be capable of simulating ex-ante decisions on a set of hypothetical assumptions at the "macro-level" of the entire firm. Hypothetical consequences for the entire firm are thus made available for immediate analysis. This is the definition of planning that will be adopted in what follows. However, this simulation process, as it is usually practiced each time the plan is updated or revised, involves numerous ad hoc judgemental inputs that are not explained or regulated by the formal planning procedure.

All-purpose, integrated, corporate planning systems are probably an absurdity that will never find useful applications. Various purposes of planning are handled by separate planning functions within the business organization. They may be formal or not and they do not necessarily have to be coordinated. Nevertheless, the typical, comprehensive planning systems observed in this study are multipurpose tools replete with inconsistent calculation procedures and biased numerical information.

A problem, furthermore, is that by asking a library computer to round up everything written on the code-indicator "planning" one is liable to come up with everything written on the management of organizations. Maybe this brief survey will help to avoid this kind of confusion.

15. Recent developments

During the last 5 to 10 years a number of empirically oriented studies on planning in a modern sense have been published. They may be grouped into three categories. The first (1) is oriented towards targeting and goal formulation and an attempt to an *operational* analysis of business objectives. Several of these pieces of work appearing in business journals like Kami (1969) or Jantsch (1968) are replete with jargon or of a loosely phrased semi-philosophical type that is not easy to comprehend by the non-insider. I will not attempt a review here.

Despite the non-operational appearance of such writings, however, we have seen already in Chapter II that targeting in a broad sense often is very much emphasized in planning, by planners themselves. The reason for this of course is the difficulties involved in describing what is exactly done in planning and what this or that particular feature is good for. These are difficulties that we will meet with in abundance in the chapters to follow. It is easier to report in general terms on the desired purposes of planning and leave it as such. The policy handbooks, published or distributed internally in firms and collected in large numbers during the course of this study, excel in such terminology. However, planning actually carried out is something way off from these pieces of literature.

The second (2) category is more of the business advisory type. Numerical methods from economics and business administration like, how to estimate demand curves, how to project trends, how to solve a linear programming problem (in the form of a numerical example)

[1]) Also cf. Hammond (1972) and Boulden-Buffa (1970).

or how to apply mini-max reasoning are framed in a planning context. Typical examples of this are Hetrick (1969 a, b and c) and Rapoport & Drews (1962). The conclusion of this study is that such methods have found very few applications within *comprehensive* formal planning at the CHQ level so far, and that prospects that they will, are not overwhelmingly on the positive side. The applications met with are in the form of corporate financial models of the input-output simulation type such as e.g. Gerschefski (1968)[1]) that are in fact simplified versions of the typical formal budgeting process.

The most promising development is to be found (3) in a series of attempts to observe and measure in a detached way the various features of corporate planning as it is actually practiced in firms. This is a laborious and intellectually nonchallenging work that, however, in the end will turn out the information needed for the outsider to comprehend what is going on within the large business corporation. As can be expected the locus of observation to begin with is the *formal* side of *corporate planning*. Formal planning is at least capable of observation and measurement. This study hopefully belongs to this category.

There are the not-so-ambitious articles that describe (case by case) the practices of individual companies like Pinnell (1969), Smalter (1968), Lloyd-Jacob (1969) etc. and some larger studies like Henry (1967), Hussey (1974) and Baynes (ed. 1973). However the most informative research output so far originates in the ambitious project "formal planning systems" of Harvard Business School that has resulted in a series of mimeographed editions of working papers[1]) several of which have been referred to earlier. The overall impression from these studies is that there is a grand step between formal, operational planning practices and verbal and theoretical counselling in literature. There is still a long way to go until we get a fair grasp of what is actually done in terms of planning, a full account of which even responsible planners have difficulties of giving for his own company. In fact, a researcher having his mind prejudiced by some particular, abstract notion may not be able to notice what he is looking for.

An understanding of planning means knowing the formal side of planning. From this end attempting to acquire some knowledge of the informal, ad hoc judgemental side that links formal planning with decision-making and together makes up what is often called management technique is a step so far hardly attempted.

---

[1]) Vancil-Aguilar-Howell (1968, 1970)
Vancil-Aguilar-Howell-McFarlan (1969)
Vancil (1971, 1972)
Other studies of a similar quality are: *Langtidsplanlegning* — fem praktiske eksempler fra norske bedrifter, Oslo 1969 och *Långsiktsplanering i medelstora företag* — sex praktikfall i ett perspektiv, Stockholm 1972.

16. Conclusion

Thus it is quite logical to end this brief survey of the literature on planning with March's (1965, p. XIV) conclusion that "organizational technique" has far outrun "management theory". Since very little empirical evidence is available in literature on the exact nature of this "superior" organizational technique we can delimit quite nicely an operational purpose and reason for this study, namely to trace down the nature of these techniques in so far as it is possible by observing organizations at work. As in the Harvard study the *presumption* is that comprehensive planning systems are elements of such organizational techniques and an answer to the question whether this presumption is valid will be attempted.

If superior organizational technique is the reason for success, a sufficiently large number of successful organizations should be included in the observation sample. Since literature yields few clues as to how operational hypotheses should be formulated, the final outcome of this study will be a set of hypotheses and not a test for the validity of some a priori set of suggested hypotheses. The reader is adviced to keep this in mind as he proceeds.

As said already, planning is not decision-making and decision-making is definitely not behaviour. There is — as we have seen — a literature on business planning. There is a huge literature on firm behaviour that treats firm decision-making and behaviour jointly or synonymously. There is a vast and uncomfortable no-mans land to travel between these two sets of literature. The final outcome behaviour can be statistically observed. Methods of planning can be observed if *formally* organized. The content of planning is normally nonavailable information for the outside observer and non-comprehensible information for everyone who does not know the purpose and the method. Similarly, decision-making is a phenomenon that is hardly observable. It is unintelligible without reference to a relevant theory of decision-making *and* behaviour. This study is based on the presumptions (1) that formal planning can be observed (2) that formal planning imitates the macro decisions process of the business organization and hence (3) that there is a way of bridging the marshland between planning and behaviour. No attempt to build this bridge will be made in this study. However, a blueprint and places of location for the bridge will be suggested for others to investigate further, if willing. These are also the more interesting and most unreliable parts of this study. They have been saved for the very end.

PART II
PRACTICE

"Pour bien savoir les choses, il en faut savoir le détail, et comme il est presque infini, nos connaissances sont toujours superficielles et imparfaites".

Francois de la Rochefoucauld

V SALES AND PROFIT PROJECTIONS

1. The market environment

The basic concern of any business organization is its current adaption to an usually unstable economic environment. All decision-making carries with it consequences for the future. For some decisions only the future immediately ahead has to be reckoned with. Very often, however, a decision finally enforced, constrains the range of alternatives open to a firm for a number of years.

Little or no information about the characteristics of the economic environment some time ahead of to-day can be foretold with perfect accuracy or the probability of one. The most relevant aspect of the economic environment facing the business organization is its product markets. Not only the pure demand factors have to be taken into account but also potential competition on the supply side.

It has been maintained in some theorizing that full information on the future of the economic environment can always be acquired if more effort and cost are applied at collecting additional information. This can be proven true only in a world without some relevant characteristics facing business decision-makers. Information gathering about the future is not only a straight forward inquiry into the records of history. It has to subsume the decisions and the results of the decisions taken by all other agents in the market, facing the same situation, but interpreting it differently. In an empirical context it is a gross simplification to assume that the relevant information about the future can be ascertained to-day even at the application of infinite effort and cost. Even with a complete knowledge of all reaction patterns of firms, consumers etc. such problems must have several solutions in an ex-ante context. One factor often forgotten is time. By the time the extra information has been gathered and analysed, the information may already be irrelevant for the decision at stake. Whatever theoretical position taken on this matter, this seems to be the one taken by business men facing the future and it is all too obvious from the methods of gathering information that he practices.

Within the context of formal planning systems there are several open ends where planners are confronted with the economic environment of the firm and where *expectations* as to the future have to be formed. The first and fundamental confrontation involves the appraisal of the product market. This chapter is concerned with the methods adopted

in fixing the sales and profit projections and the ways the two estimates interact.

2. Market appraisals in general

In all firms interviewed the *market* or *sales* forecast coupled with a gross profit projection or a gross margin estimate served as prime input variables in planning work. The sales forecasts as compiled at CHQ were predominantly in terms of values rather than volumes. As a rule there was a parallel *production* forecast based on the sales forecast.

Sales and profit projections were normally completed at the division level to be submitted as "final products" to CHQ to be used there in the drawing up of the comprehensive CHQ plan.

Present productive capacity was a prime variable considered in short run planning (budgeting) on an annual basis. In some — less sophisticated — planning systems an aggregate projection of potentials of individual production lines constituted the sales projection. However, in the majority of cases the marketing as well as production departments of the divisions were involved. Apparent inconsistencies between potential sales estimates and present productive potentials were usually evened out at division level before the (usually single valued) sales plan was decided upon.

The shop-floor bottom-up approach in collecting forecasts was 100 per cent present in the context of budgeting and mostly in long range planning. However, one frequently heard views such as: "The division marketing people are not capable and imaginative enough to look beyond the calendar year. We have no use for their sales plan data. We can do a much better job here at CHQ".

a) *Orders, sales or rentals*

In what follows I will be concerned mostly with sales projections. In budget work — which extends as a rule over at least a complete year — and in long term planning, covering several years, this was also the typical variable CHQ planners were concentrating upon in the first stages of drawing up a CHQ plan. There were exceptions, however. In some heavy machine tool industries for instance *order placements* were the appropriate variable to look at[1]), order placements being the initial variable from which both sales-profit projections, profit plans and investment plans originated. As soon as the plan (budget) for the next fiscal year had been broken down on quarters or even months — which was common practice in U.S. firms — the order variable becomes more important. Usually order projections were explicit in short-run planning (budgeting).

A similar problem arises in the case of firms which rent rather than sell their products. This time, of course, the projection of rentals instead of sales is the main concern. Still the principal methods employed are the same in the context of aggregate comprehensive planning.

---

[1]) Ship-yards, with order books sometimes filling most of production capacity as much as three years ahead, is a case in point.

b) *No aggregate price data*

The almost complete absence of price data for the past as well as the future, as soon as work on the sales forecast reaches the level of aggregation defined by a division or a profit centre, does not necessarily mean that the conception of alternative price-output-cost combinations to choose among has never entered planning. Even though prices and volumes cannot be traded against each other at that level, division management normally had a quite good control of the cost structure as well as capital requirements for individual product lines. Rather than settling for the sales value that could be expected to yield a satisfactory profit (in some sense) the common procedure seemed to be to estimate the *sales value range, that was compatible with a satisfactory profit margin* i.e. (implicitly), the margin that gave by experience a satisfactory (average) return on invested capital[1]). This range was normally conceived of as rather wide. Then considerations of competing products within the firm, their demands on total available production capacity and supply and market conditions in general entered in the final fixing of one single valued sales plan. This process took place in a stepwise fashion and was largely informal. It was at times very elaborate with extensive management involvement. The point is, however, that such an important input variable in planning as the sales plan was fixed rather definitely at a very early stage in formal planning. Thus one feature of long-range planning as well as annual budgeting was the pervading practice of working with *single-valued* plans, that — once decided upon — rather heavily constrained further work on the formal plan.

c) *Single-valued plans — the typical feature*

There are many reasons for the well established practice[2]) of working with single-valued estimates only, all through the planning routines. The very complexity of coordinated planning routines, met with in U.S. firms, often made this a matter of necessity rather than convenience. In addition a multi-valued approach would be rather meaningless when formal planning schemes are basically designed to function as incentive or control instruments in the firm. The dual or rather many-sided approach to planning is well demonstrated by the frequent practice of viewing the profit-sales projection as a reasonable or desirable "objective" rather than a narrow "forecast". In those instances, where this projection consisted of a projection of past years' experience only, this policy objective was emphasized rather than the other way around. Past experience sometimes served as a starting point for negotiations between CHQ and divisions. Sometimes it was used as a reference to ask questions such as *why* past profit performance could not be maintained in the future.

---

[1]) A frequent comment was that sales-asset ratios are very stable over time for division or firm aggregates as long as the overall product mix does not change radically. For an analysis of the relationship between the profit-margin and return to invested capital see Chapter VIII.1.

[2]) The exceptions are few. Cf. Chapter VIII.7.

d) *Forecast or target*

In some rare cases the *final* sales-profit projection constituted a CHQ decision as to how to join *two independent* market appraisals; one aggregation of detailed division estimates and one aggregate projection at CHQ on the basis of past division performance. Usually the goal or target aspect was related to the setting of the gross profit margin instead of the sales level for a division. In some instances the responsibility of setting the target was partly delegated to the division manager. Sometimes a fraction of the salary of division managers was tied to their ability to (1) present reasonable plans and (2) to realize them.

3. The sales forecast — established products

The methods employed in projecting future sales vary widely, not only between firms, but also from division to division within one firm. This variability refers not only to the level of sophistication of techniques used. The length of the planning horizon is one factor and the techniques applied are very much related to the type of products for which market forecasts are made. Still another important line of distinction has to be drawn between market planning for *new* products and already *established* products.

Forecasts originating at division level were — with hardly any exception — very detailed on individual and well defined products. The shop-floor bottom-up start of planning was always the method of short-run planning (budget work) for the next fiscal year where division forecasts invariably served as the basic input datum. In most of the long range plans beyond the fiscal year, studied in U.S. firms, division estimates were again the basic source of market information for further corporate planning. Normally only aggregate data on major product groups or divisions are submitted to CHQ in a routine fashion.

Except for large scale producers of bulky or homogenous products (aluminium, oil, steel, etc.). I found surprisingly little evidence on the employment of sophisticated statistical methods in sales forecasting. This result, of course, might be due to the fact that sales forecasting was not typically taking place at CHQ and that the methods of sales forecasting were not always familiar to planning people at CHQ.

The application of sophisticated statistical techniques in forecasting, however, was by no means of rare occurrence. Most firms in the billion dollar category, and several firms below that level, had at least one professional economist or a group of economists currently occupied with forecasting and analysing the future trends in the U.S. economy as a whole as well as the future development in world markets. Modern econometric techniques were frequently employed and one large firm referred to its econometric model of the U.S. economy as superior to any existing university model. One reason for this apparent duplication of research efforts mentioned was that *long-term* forecasts of the U.S. economy did not exist, and that whatever existed in the form of numerical predictions into the more distant future either was wholly unsatisfactory or inadequate for the firm in question (cf. on Business Cycle Forecasting in Section 5).

a) *Growth potential of market*

Work on the sales forecast usually started with an appraisal of future growth potentialities in each individual *product market* defined in an operational sense. The overall outlook on the future growth of the economy presented by the group of corporate economists — if such a prediction was made — might serve as a basis for this forecast. The results of such predictions were normally available at a fairly early stage of planning and distributed throughout the firm. My impression, however, was that this *sophisticated* prediction work quite commonly was a rather isolated activity being parallel to, rather than integrated with planning work. I found very little of this kind of activity among the European firms and some among the U.S. firms. Usually the "Economic department" or the "Economic planning department" was something relatively new among the U.S. firms at the first series of interviews in 1969. Many firms, however, revealed plans to start up activities of such a kind in a near future. And the 1973 and 1974 return visits to U.S. companies revealed what I interpreted as a very keen interest in business cycle problems. (cf. Section 5.)

There are two initial stages in the making of a market forecast for established products at the division level. Sometimes only one is represented; most often both. Usually the devision managers start (the first stage) by requesting information on market prospects for individual products from sales agencies and/or individual sales men. My impression from those few instances, where I had the opportunity to discuss this matter in full, is that estimates on what *volumes* can be marketed at current (present) prices are asked for as a first step. It should be recalled that at least during the last decade up to 1968 or 1969 most U.S. firms had been accustomed to moderate price increases only. This circumstance made the starting assumption of constant prices not unreasonable at the time of interviewing in 1969. However, many firm officers questioned expressed frustration about not being able to handle the steepening up-ward drift in U.S. domestic prices. In later call-backs in 1973 and 1974 and in European firms I frequently found that division market planners were told to estimate volumes under the assumption of "competitive prices". The interpretation of that term was always left with the division. Vaguely, "competitive prices" could be defined as "expected prices" with no change in firm pricing policy, given known production increases and behaviour of competitive producers and the volume the division planned to market. (Also cf. case at the end of this section).

Coupled with this information gathering there is a second appraisal (second stage) of the future growth potentialities in each individual *product market*. Typically this is a joint result from a series of meetings between marketing people and division managers (planners). *As I was told the usual assumption was that the firm itself cannot affect total market growth.*

b) *Market strategy*

Suppose this joint appraisal results in an estimated annual x per cent

growth (exogenous) during the next y years in demand for products, which can be put to *one* particular use. The firm produces one such good. Its present market share is z per cent. The sales people may now be asked to state, whether they believe they can maintain or increase this market share charging present prices. This estimate should include considerations of potential competition from established as well as new products and possible substitutes. In some firms this was all information that went into formal planning. A next step could be that some restrictions as to productive capacity were submitted to sales people from division management or from CHQ. "At present prices we are willing to produce so and so much. If you can increase sales *volume* (number of items, tons, etc.) to x by lowering price not more than y per cent it is OK with us. If volume z cannot be marketed at prices above p the product should be gradually taken out of the market or production is to be discontinued." Such limitations given from division management were often based on past experience and knowledge of the present "profit set-up". Typically throughout the sample was a focussing of attention on the "market share". It was often considered a desirable end in itself in planning to plan for an increase in the market share.[1])

c) *Pricing*

A characteristic thing to notice is that price estimates for individual products concealed in product group, sales values delivered to CHQ were usually regarded as no more than "good" or "informed" guesses. In these firms, where this problem came up for discussion, the definite fixing of individual product prices often was a top management policy matter. This policy aspect — and this holds for short term planning (budgeting) — was more pronounced the more diversified the product mix and the larger the range of substitute products (automobiles of different sizes and designs, etc.). Corporate planners were not always present at such policy discussions, and the aggregate corporate plan ready to be submitted to the Board for approval, might constitute an important source material for such final price-policy decisions. *As a consequence price policies decided upon might be at variance with the details of the sales plan.* It did not seem to me to be common practice to revise the sales plan all the way from its base in the light of these new price decisions.

---

[1]) Proxy goal variables like this one, applied — as it often looks — rather arbitrarily, may appear less rational at first sight. However, there is often some fairly solid empirical experience in the background. A desire to attain a larger market share of course always means striving for a better control of the market and a higher degree of monopoly pricing. It is also obvious from the study of Schoeffler-Buzzell-Heany (1974) on 36 corporations and 350 profit centres that a high market share is very advantageous for profit performance. Supporting results were recorded already by Collins-Preston (1969) who observed a significant association between the price-cost margin and the level of industry concentration.

d) *Profitability considerations at this stage*
If the sales projection extends beyond the next fiscal year the growth estimate usually involved capital expenditure requirements, which were at least implicitly considered in deciding upon a sales forecast. However — and this must be important — as far as I could understand profitability considerations as a rule did not enter explicitly at this stage. Ususally the setting of capacity constraints entered already at the level of the production line, where capacity potentials and requirements were well known to production management. Sales plans consistent with maintained or improved sales-profit relationships were approved. Consequences on the capital spending side again came up for approval in the cash flow audit (Chapter VII) and in the appropriations procedure (Chapter VIII.4). As will be seen later (Chapter VIII) this is in practice the same as to apply a profit margin rather than a profitability requirement. Of course — and this was stated frequently — if sales-growth projections deviate substantially from past patterns and/or imply a marked increase in capital spending requirements, a dialogue with CHQ is common practice before numbers are fixed. It has been mentioned already that the division sales budget in some firms has to be authorized by CHQ.

As will be elaborated upon in what follows this emphasis on the first stage in planning — the making of the market forecast — not only indicates its importance; it was also regarded as some kind of a guarantee that no sizable surprises would be turned out from the final analysis of the plan, which should ideally comprise a solution to a simultaneous and consistent system, but for convenience has been broken down into a recursive or iterative calculation procedure. *The more of a fixation point the sales plan in comprehensive planning and the more of management effort and attention put in at this stage, however, the more of a mechanical calculation procedure will be the rest of the planning process* and the less its analytical value for management (see Chapter IX.2).

In two instances the verbal dialogue mentioned above had been replaced (quite recently) by current telegraphic transmissions of numbers between divisions and Headquarters to make possible an iterative solution to an almost completely simultaneous planning system. These two cases will provide a convenient framework later on for analysing formally the structural properties of the typical planning process.

The following might serve as an example of the kind of instructions handed down to the division planning manager prior to the making of the sales plan:

(1) Define the market (current size, expected growth trend, competitive position etc.).
(2) State future objectives (desired market penetration, new products desired, etc.).
(3) Strategic plan for attaining objectives (change in marketing techniques, advertizing programs, price policies, productive capacity, capital requirements, etc.).

(4) Present (a numerical) sales plan by product, etc. ((4) represents the result of the analysis under (1), (2) and (3). Usually standard forms are used for the presentation. See Supplement 2.)

This set of instructions is quite typical for both the long range market projection and the short run forecast for the budget. As a rule the short run market forecast was an explosion of the first year of the long range market projection.

In so far as the sales plan is a long-range plan covering several fiscal years a fifth paragraph may also be found among the instructions.

(5) If major differences between (4) and last (years') sales plan; *explain!*

Case 5; *Sales planning criteria for established products*
Large U.S. firm (somewhat modified for reasons of confidentiality)
This firm operated a one and a half year *(short-term) market plan* with a financial budget structure attached and a *long-term market plan* 10—15 years with a long-term financial plan attached. The short-term market plan was specified by month and was rolled on once a month for 18 future months. The long-term plan was specified by half year and was rolled on every half year. The horizon was kept fixed for 3 to 5 years. At the time of the interview it was set to 1985.

Short-run planning at division level: On the 10th of each month there is a so called preforecast meeting lasting up to one day. At this meeting an estimate of the future demand potential of the relevant markets made by the corporate economics department is presented for discussion. The staff of economic forecasters meet the marketing people.

Market specifications are very detailed to match a high degree of product differentiation on the part of both this company and competitors. Into this market forecast a sales plan suggestion for the company is fitted under the presumption of what is loosely phrased expected "competitive prices" on each product. A preliminary sales plan in much detail, by month for the next 18 months is decided upon.

On the 20th this preliminary plan has been read by the "supply people" and a one day confrontation is routinely scheduled. This time, market and production people meet and only a few persons from the economics staff are present.

The supply departments inform about capacity enlargements scheduled and the degree of flexibility available in the production facilities. A compromise decision on the sales growth potential is reached.

On the 28th an almost definite so called *management forecast* for sales is finalized and studied by top division management. To this management forecast profit estimates by month are attached as well as a cash flow analysis. The final result is then authorized at division level and furthered to CHQ for approval and consolidation.

Business cycle considerations were entered by the economics staff in the first round of negotiations. However, the marketing department people — as I was told — had a strong inclination to "push estimates upwards". In the second session with production department people, these somewhat exaggerated plans were modified again to fit into the limits set by production capacity. Top division management finally tended to even out "performance" variables like sales and profits in an upward direction to "please CHQ". The end result usually was a sales growth plan "slightly above" the capacity to produce and a profit plan "slightly above" what was deemed feasible. These figures were then systematically entered as reference numbers in the reporting and control procedure for appraisal of achieved results. As a rule very little of the business cycle was left in the figures handed in to CHQ but — as I was told — the "information got there anyhow if not by way of numbers so by way of the people involved and in parallel documentation."

Long-run planning at division level emphasizes investment and capacity enlargement. Basic policy guidelines from CHQ are available before work on the

plan starts. A fairly aggregated sales plan for the next 10—15 years is made up every half year, first (again) by the economics staff. It is then discussed together with marketing people and then the supply departments provide the necessary technical information to estimate needed capacity enlargements. This time production and supply departments play a predominantly advisory role. Information from a parallel R&D spending plan is entered and a long-run sales, investment, profit and cash-flow plan with half year specification up to 1985 is completed and sent to CHQ. Before CHQ approval, division planners go to CHQ (or vice versa) for a preliminary "confrontation". Revisions are frequent. A new version is put together for final approval at CHQ. It happens that the final authority — a subcommittee of the Board — requires further amendments before authorization is granted. The consolidation of all division plans is used at CHQ to estimate overall financial needs and this analysis may at times result in non-approval even though CHQ intentions are known in principle before work on the long-term plan starts.

Finally, the investment plan decided upon (being also a necessary input assumption for the sales growth plan) never means general authorization to start making commitments on capital account. Projects above a certain level in terms of costs have to be finally OK'ed in the so called appropriations procedure before commitments can be made.

4. The sales forecast — new products

In the previous section the presence of new products has been deliberately suppressed in my account of forecasting methods. To leave things at that, however, would be not only a representation in apparent violation of reality, it would also mean to neglect one of the most important analytical stages of planning. In most firms interviewed, every year meant the marketing of several new products; new in the sense that past market experience was lacking even though past production and cost experience could be put to use. The more distant the planning horizon the larger the portion of new products in total forecast sales. Hence, sales forecasting for new products gains in importance when we move from short-term budgeting to long-range planning. In several firms, operating predominantly in the markets for consumer durables and specialized business equipment (instruments, electronic components, etc.) the average length of a product cycle was substantially below the horizon of the long-range plan. As a consequence, very few of the products in the market at the time of planning could be expected to remain there at the end of the planning period. Quite typically also the more stable over time the product pattern the less sophisticated seemed to me the plans; the level of sophistication this time being "measured" by the ability of the plan to channel information rather than by its degree of elaboration and numerical detail.

Unfortunately, the series of interviews reported on here only allows a very rudimentary account of the methods employed in forecasting new product sales. The relating of a few cases will have to be sufficient.

The initiative to market new products and/or to enter new markets may originate at any stage in the corporate hierarchy. The larger the venture and the more alien to the current product mix the closer to CHQ the decision and the more pronounced policy considerations. This is what can be judged from roughly one third of the total of the U.S. interviews, where this topic was covered in some detail.

In two interesting U.S. cases CHQ was currently trying to shift the

innovative initiative from the production lines to he Headquarter marketing section. The idea was that instead of relying upon the rather erratic and random creation of new product designs by the engineering departments only, the marketing section of CHQ was to take a comprehensive view of future market potentialities and announce as a result of their analysis what desired direction the innovative process should take; thus accomplishing some kind of a market steering of R & D efforts directed towards creating new products. On the other hand there are also two cases (also U.S.) at the other extreme. Here (1) the importance of not unduly constraining the innovative process and (2) the general incompetence of market people in understanding and seeing the economic potential of technological information were emphasized. These two firms maintained a not small but rotating set of R & D people who were allowed a rather free scope of action to experiment with own initiatives and ideas not necessarily related to the present product set-up.

a) *New markets*

New market penetrations were very seldom handled within what we have called formal short-term or long-run planning. However, in some large and at least in the past highly successful firms the long-range, comprehensive, numerical plans was incased in a prospective or — as it was sometimes called — strategic plan. The main purpose of the prospective plan was to investigate future market potentialities. As mentioned already in Chapter III the "long-range" plan in 5 of these firms consisted of a projection of the annual budget for two additional years only. The reason given for such a short planning period was the one mentioned above, namely that sales could not be *forecast* with *required accuracy* for more than a few years. In these firms — most of them in the category of process industries — experience was that forecasting up to three years could be achieved with "good" accuracy[1]) and a three year budget — once fixed — was looked upon as an uncertain estimate of the future.

The prospective plans I encountered were not comprehensive, mainly verbal and not standardized as to exposition. They typically consisted of a number of separate investigations the time horizons varying from investigation to investigation but always stretching far beyond the horizon of the extended budget or long-range plan; sometimes into the next century. In two U.S. firms prospective planning had been started during the previous year as one instrument in a planned diversification program. During the last decade these two firms had been very successful in a rapidly growing but rather narrow and — now — highly competitive market. The firms had by now grown to such a size that they felt an urgent need to diversify in order to sustain their past growth rate. The prospective plan not only provided for internal growth but also

[1]) Note that regular experience was that sales plans would normally have to be revised substantially anyhow in the next annual planning round (see Chapter IX.1b).

included an acquisition program — acquisition programs being typically absent from comprehensive numerical planning.

Case 6: *Prospective planning of the early warning type*
Successful U.S. firm
In this firm the prospective plan was part of basic firm policy making. It was regarded as an instrument to broaden the outlook into the future compared to the restricted choices imposed by necessity in comprehensive numerical planning. The prospective plan was considered far more important than the comprehensive numerical plan. This time the whole hierarchy of corporate management from the division level through the layers of CHQ staff to the top executive level was involved in the making of the plan. Reports were submitted according to an elaborate time schedule and after a series of meetings specific courses of action were proposed to a sub-committee of the Board. If accepted — maybe after several revisions — the strategic outlook so defined served as a basis for the making of the long-run numerical plan. One comment was that this arrangement was an excellent *early warning* system making top management aware in good time of relevant problems in a complex corporate organization (cf. the case of a "contention system" reported on under Chapter II:3, p. 41 f. Also note that this analytical use of the planning system with full management participation is very rare in the sample. It is, however, the design of a planning system frequently recommended in recent literature, see Chapter IV.)

My impression was that prospective planning on top of long range planning and on a sizable scale is a rather recent development. In one of the very large U.S. firms a separate department for prospective planning had been instituted less than a year prior to the interview in 1969. Prospective planning was rare among the non-U.S. firms at the time of interviewing. A word of caution, however, is appropriate at this point. Prospective planning in the sense indicated above is a very loose concept. At one extreme it is simply a way of "thinking ahead of time" which certainly has always been a necessary feature of successful business management. Secondly, prospective planning might very well take place in less organized forms than within a special CHQ-staff unit. If so it has not been well covered in my interviews. Thirdly — and to my surprise — I noticed quite often that prospective planning, long-range planning, annual budgeting and other forms of planning were performed by different groups of people, the channels of communication between the groups being all but well developed. Consequently, the persons interviewed might not have been able to supply correct information on the extent on prospective planning. Finally, I also found an inclination to name, what we have called long-range plans, strategic or prospective plans.

In two U.S. and one Swedish firm in the typical process industry category future market appraisals had a markedly dual purpose. In these three firms separate research groups had been organized. Their purpose was (1) to estimate the future market potential for the type of services rendered by the type of products now manufactured by the firms in question (e.g. energy) and (2) to estimate the future market potential for the same products employing basically the same raw materials and production technologies as of to-day. These three firms were facing severe competition from new substitute products manufactured by new techniques. The important long-run problem was to decide whether the firm should compete in the old market by

adopting the new-type products and technologies or whether it should open up new markets where its "old" production technology could profitably be applied to produce some new product.

b) *New products*

When viewed in the light of new market appraisals the planning for new or modified products to be introduced on established markets becomes a matter much more manageable in numerical terms. It is usually incorporated in the comprehensive long-range plan and much more elaborately so in the short run operational plan or budget. In the budget, numerical appraisals on market possibilities may be gathered from the field. In any event, division management is usually required to deliver detailed sales values and profit margin estimates for the next fiscal year. Normally the launching of a new product is coupled with the gradual phasing out of an old and "technically" less developed product.

Nevertheless, the more distant the horizon the larger the problems for numerical planners. Market uncertainties increase. Past production experience grows less and less relevant for decisions and close to the horizon the "control" of costs is more a matter of imagination than knowledge. For one thing new productive equipment to produce these new products will have to be acquired or at least committed for some time in advance. Here we may find one reason for the apparant tendency among many firms interviewed to rely on CHQ estimates rather than market forecasts at division level and below in long-range sales planning as against annual budgeting. I often met with statements like "the sales people in the field are very good at appraising next year's sales of the products they are selling now. When it comes to looking 5 years ahead our crude rules of thumb seem to be much more reliable".

Case 7 : *New product planning. Gap analysis in U.S. firm*

One solution to this planning problem met with in one U.S. firm (household electronics production) may serve as an interesting example. The procedure was described in detail in the planning manual and standard forms for numerical estimates were enclosed. The gradual increase in emphasis on targeting rather than forecasting with time was apparent. The first step was to compile the sales plan (forecast) for all established products over the planning period. Since the average life of products in this firm was just below three years, very little sales of established products were planned for the final, fifth year. Next an inventory of new products, the introduction of which had already been time-planned, was required. The sum total each year was then compared (for each division) with a trend projection of past years sales values. Since we are dealing with post-war experience for a highly successful firm this is, of course, a growth projection.[1]) Maybe, in addition, the growth projection was slightly steepened upon suggestion from CHQ. Usually the sales plan for established products and time-planned new products quite well filled out the trend projection for the fiscal year nearest ahead. Beyond that, however, a widening gap emerged, which even in a five year plan became quite sizable on the horizon for divisions producing commodities with short life spans. The final stage was to *require* from division management a plan or a strategy as to how to close the gaps (what products, what markets, etc. and *why*). This presentation had to be both verbal and numerical. In the case referred to no more numerical details

[1]) I want to mention this since a past experience of sales contractions and declining profits quite certainly would call for a different procedure.

were entered into the "sales plan". As long as a satisfactory strategy to close the gaps could be presented the trend projection was the one used as input variable in the comprehensive numerical plan. The targeting and motivating element in such a procedure is all too obvious to need further comments (cf. however, targeting on the profit side below).

5. The business cycle in planning

The follow-up interviews in the U.S. in 1973 and in 1974 and my current intercourse with large Swedish firms over the years 1970 through 1974, whether in the form of systematic interviews or sporadic contacts (not listed in Supplement 7) yielded some insights as to how substantial changes in the economic environment of firms also brought changes on to planners and the focus of planning. Late in the sixties (U.S.) and in the beginning of the seventies (Europe) the stable growth trend in economic activity of the sixties, with minor cyclical interruptions, was "unexpectedly" brought to an end. A severe downswing was coupled with a substantial upward shift in the rate of inflation and a dramatic monetary turmoil on the international scene. The uncomfortable break-down of accumulated, repetitive experience was continued by the consequences of the so called oil-crisis in 1973 and 1974. These environmental events suddenly hit three weak spots in corporate planning routines; (1) allowing for the business cycle (2) allowing for inflation and (3) allowing for capital gains and losses, occasioned by parity realignments. The impact variables hit by such environmental changes were of course sales and profits.

Predominant practice in the U.S. and elsewhere was to operate planning systems in terms of current prices, where volumes and prices were mixed in ways that made data more or less incomprehensible at CHQ when inflation and the business cycle did not stay within repetitive patterns. This practice (1) made it necessary to bring the analysis all the way down to the level of individual products to handle inflation (see Section 3c this chapter), secondly (2) firm planners found it difficult to decide where to plug business cycle considerations into the system. The bottom-up approach, where division people supplied the forecasts would be most compatible with the emphasis placed on negotiations in many U.S. firms, CHQ being more concerned with exerting top-down pressure regardless of cyclical conditions (cf. p. 115). However, divisions, as a rule, did not have the staff to produce business cycle forecasts of any quality. Besides, such a practice would mean that a highly differentiated set of business cycle assumptions would go into the comprehensive plan, a circumstance that was somewhat disturbing to CHQ planners. Thus interviews in 1971 and later in the U.S. and elsewhere revealed a markedly increasing concern at CHQ to produce a centralized, standard business cycle forecast and feed that into divisions as an assumption or a suggestion at a very early stage of planning.

However, already in 1969 and before many of the large "giant" U.S. firms I visited maintained a small staff of corporate economists either parallel to or within the corporate planning department. The task of these economists was to assess currently the short term economic outlook of the U.S. economy in particular and also to watch for significant trend

changes in important growth variables. Some firms were regular subscribers to the services of such institutions as the Wharton Econometric Associates and the University of Michigan Conference on the Economic Outlook, that regularly presented short-term forecasts on the basis of large econometric models for the U.S. economy. A few firms had their own econometric models for the U.S. economy (cf. p. 104 and case 3). Several firms with international operations furthermore required their foreign subsidiaries, as part of their reporting system, to supply CHQ (anually, semiannually or even quarterly) with assessments of the current economic outlook and the 1 to 5 year future of the economy in which operations took place.

This description was adequate for a small number of the giant firms interviewed in 1969. Among the other firms such environmental surveying was predominantly vested with the marketing and sales departments and entered the planning system predominantly by way of the making of the sales plan. With a few exceptions in the sample, this kind of systematic macroeconomic surveying does not yet exist among the European firms interviewed, although the tidings in economic activity since 1970 has witnessed a rapidly growing interest in business cycle forecasts among Swedish firms[1]). In fact, excluding the exceptional cases mentioned above, business cycle forecasting at the firm level, if existing at all, was of a crude, mechanical type confined to studying cyclical patterns in the markets particular to the firm. If too much emphasis is placed on the current situation — which seems to be prevalent methodological practice (see below) — the forecasts may do more harm to than benefit the company if taken seriously. If, in addition, too much emphasis is placed on past repetitive patterns in particular markets the method is liable to go wrong, when changes in patterns take place, which is the most relevant information in a business cycle context. Such information can only be obtained from a more nationwide or global analysis of the cyclical outlook. Such information is effectively blocked by the prevalent "do it yourself attitude" in combination with non-professional staff personnel that is unable to assimilate and read critically experts business cycle information and transform it onto a format that suits the company. In part this may partly be due to the politically infected forecasts that come out of many business cycle research institutes that are partly Government controlled. Only very big companies can overcome and adjust such flows of biased information by instituting their own *professional* research institute.

As for the U.S. firms a substantial shift in attention towards business cycle and inflation problems could be observed between 1969 and later, among the firms visited in November 1973 and in 1974. In one giant firm the economic department had been drastically reduced in size up to 1969 when the company was unexpectedly hit by a recession in demand that — as it was phrased — "cost the company a lot of money". The department was now well above its previous "peak" size. In another

---

[1]) The only part of the sample for which a systematic checking of this issue has been made.

company the very day I visited the company the chairman asked for a briefing on the current business outlook scheduled routinely three weeks later to be given the next day. As can be judged from my small sample of follow-up interviews the new attention paid to businesss cycle problems had (so far) basically manifested itself in the form of a more frequent interchange of information between the corporate economic staff and the top decision making level, rather than by the more explicit incorporation of business cycle predictions in the planning and budgeting routines. In all U.S. companies visited after 1969, I was told, however, that the "business cycle people" now played a much more important role in the final reviewing procedure of the part of corporate planning that took place in CHQ. Much more attention was in fact now paid to business cycle assumptions forecasted and circulated to the staff of planners prior to the start of planning. These observations again emphasize the conclusions drawn in Chapter II.6 that major environmental shifts of a "contingency nature" tend to be handled outside the formal planning routines and very "high up". This is so, at least until the problem has become understood and structured well enough to be routinely handled within the comprehensive, formal planning apparatus. There seems to be a long way to travel until the business cycle and inflation can be handled that way.

There is also some fairly strong evidence that recognition of the business cycle in formal planning is not frequent. The long-term (5 year) sales plan is normally a flat, exponential trend with no fluctuations allowed, and the sales budget for the next year is often a point on this trend. The strongest evidence for the presence of business cycle considerations in formal planning is to be found in the tangential character of those trend projections; bad years meaning pessimistic long-term forecasts and vice versa.[1]) The common explanation to this peculiar feature is, that business cycle matters are handled outside and on top of planning. Another equally common explanation given was that "we are not allowed by CHQ to plan for a slow-down in sales and profits. Plans have to be geared towards maintained or improved performance". Again, this is probably a manifestation of the dominant motive of targeting and control in planning, referred to already in Chapter II.

The fact that short-term plans were normally broken down into quarters and months in U.S. firms should not be confused with explicit allowance for cyclical variation. At times, seasonal variation patterns over the year were used to spread annual figures by month over the year but quite commonly a simple linear method was used. The express purpose for this degree of detail in time specifications was control, and plans were regularly made up on a format consistent with the reporting format, that in a large number of U.S. firms was by month. (See further Chapter IX.2. Also cf. case 5 in Section 3 of this chapter.)

Up to around 1970 most firms interviewed argued, that product price increases were small enough not to require a separate attention in sales

[1]) Cf. Eliasson (1974).

planning at the CHQ level. In the U.S. and in European firms operating predominantly in export markets inflation rates on identical products up to 1968 or 1969 as a rule had stayed below 2 or 3 per cent. In fact, aggregate product price indexes were seldom used in CHQ planning.

However, during the last few years inflation has become a global phenomenon and sales growth in most companies to a large but very variable extent consists of price increases. In interviews carried out after 1970 I have not found any apparent move away from the prevalent practice of working with sales value (rather than sales volume) plans. However, attention paid in planning to the inflationary problem certainly has increased, but in a way that does not disrupt past planning practices. We therefore defer the treatment of inflation to a more adequate context in Chapter VIII after having introduced the problem of asset and debt structure and to Supplement 4 for a formal analysis.

6. The production plan

Few things about corporate planning should be more disturbing to the neoclassical economist than the suppression of the "production side". Men are fairly easy to aggregate and aggregate man-power requirements seem to be one of the few variables reaching the Board of Directors which would ring a bell in production function men. Data on investments and assets can always be found in the corporate plan but — alas — expressed in values; not in volume-terms. The concept of an aggregate *volume* (quantity) of output or productive capital never surfaced in the interviews without direct and repeated questioning.

Again, this is just another facet of the recursive structure of formal planning systems. Aggregate corporate planning at CHQ, as mentioned, has a distinct financial proneness. Division sales forecasts are its basic source of input information. Production planning (or scheduling) starts at the same roots but branches off in another direction. Finally man-power projections, investment proposals, inventory requirements, etc. reach CHQ by different routes and are worked into the comprehensive plan.

Costing is what links production technology to aggregate corporate planning and this will be discussed at length in the next section. Besides that, any formal recognition of the production structure seems to be an isolated engineering problem, data on which only occasionally — and referring to particular cases — reaching above profit center management. For obvious reasons detailed questioning on such matters had to be left out and for equally obvious reasons well digested information on these matters was not available at corporate Headquarters. To corporate planners — and to me — the production side often appeared as a "box" of unknown content. Details on sales aspirations were fed into that box and out came details on man-power and investment requirements, etc.; men being classified by numbers and skills and investment by machine types and technical capacities. For each product line these factors are then priced within the profit center and aggregate values —after a series of reviews and revisions — then passed on to CHQ (cf. the costing pocedure in the next section).

It is inevitable that some kind of a screening procedure enters already at this stage. Even though not always formally explicit some kind of rate of return considerations are usually applied to keep e.g. budget requests within reason and past experience, before data delivery to CHQ takes place. Marked deviations from past profit margins computed usually set-off a series of questions and revisions within the profit center. In some very large firms there were "policy" hand-books (manuals) which spelled out in detail how various categories of investment proposals should be evaluated and traded against each other (see further Chapter VIII).

In order to establish a sales — and a production plan — particular attention should be paid to finished goods inventories. In a growing market production not only has to provide for current sales, but also for the accumulation of inventories. The determination of *desired* levels of finished goods inventories was a problem normally delegated to the marketing people. A roughly established ratio to expected sales levels — sometimes revised from year to year — was a common criterion. However, in a few firms very sophisticated optimizing schemes were used for arriving at desired (maximum acceptable risk) inventory levels (see further Chapter VI.1). As a consequence, once the sales projection had been determined for the plan, this component of working capital could also be estimated. Similarly, once the production plan had been established, very little leeway was left in determining needed stocks of raw materials and intermediate goods, etc.

7. The profit and expense projections

a) *Ex-ante costing*

Quite naturally profits appeared in many places in formal planning routines. It entered importantly into the central cash-flow analysis present in every budget and long-term plan (see below) as the major source of financing. It appeared in every future performance analysis of the business organization. However, as mentioned several times already, in most firms (U.S. and others), the profit estimates that entered the plan were fixed (for the plan) as the result of a trade-off between a sales and profit projection at a very early stage of the planning procedure. Experience from the interviews was that a major part of planning effort was spent at this initial sales-profit fixing and that backward revisions of these estimates were seldom made in the light of results turned out from later analysis of the plan.

The first distinction to be made is concerned with the directness of approach in projecting profits, i.e. whether the profit projection *used in overall planning* was a direct estimate or derived indirectly from a current expense projection. To a not unimportant extent the method adopted also indicated the importance of targeting in planning. The more direct the method the more paramount seemed the element of targeting as against the more mechanical procedure of starting with elaborate ex-ante cost calculations.[1]) The second distinction has to do

[1]) It should be noted again that this statement refers to the figures that enter the planning document that ultimately ends up at CHQ. Ex-ante costing for other purposes e.g. pricing is something quite different.

with the methods applied when directly estimating profits. As mentioned, there seems to me to be a fairly direct link between the modes of estimation and the dominant overall purpose of planning as expounded in a previous chapter.

All firms, of course, had adopted quite elaborate schemes of ex-post costing along individual product lines. The first distinction refers to the question whether this information basis is in fact put to use in formal CHQ short-term and long-term planning routines to estimate future profits. This was not invariably so and various reasons for that were put forward. The more diversified and the more rapid the change in the product mix of the entire firm the less reliance was put on *detailed* ex-post information both in forward expense projections and profit predictions. Thus (for example) process industries working in well established markets with gradually and slowly changing production techniques were most apt to put this information to systematic use.

Related to this observation is another important difference in planning techniques between the short-term (annual) budget and the long-term plan. Over the next year planned or expected changes in the product mix were normally considered rather small. Consequently data on past unit or standard costs were considered applicable to a large portion of total output or total sales. The relatively larger effort spent on elaborate ex-ante costing in short-run planning (budgeting) compared to long-term planning is also one of the distinctions between the two time-dimensions in planning to be stressed further in Chapter VIII.

The content of the expense account varied. Usually it was divided up in two sections; the first containing current costs only ("cost of sales") and the second various overheads. The first current cost section was normally estimated for each production line. Subtracted from the sales value it gives (by definition) an estimate of *gross (operating) profits*. Estimates on overhead costs as a rule were compiled at the level of the division or profit centre only. The timing of overheads did not seem to be carried through systematically. My impression was that normally only overhead entries depreciable on capital account according to Federal Taxation rules were properly timed. In fact, I observed no exceptions to this rule. This, however, may be due to the circumstance that I did not have the time nor the opportunity to go into the details of costing in more than one third of the interviews.[1]) This meant that advertising expenses, non-depreciable investments in distribution net-works, goodwill, education, etc. and above all, most of R & D investment, were allocated to the year when incurred or planned to be incurred. These are normally sizable entries and returns from such

---

[1]) It is interesting to notice for a Swedish reader that in U.S. firms often no distinction seemed to be made between book depreciation and "calculated" economic depreciation. In several interviews in 1969 I found that life-length estimates of capital equipment from "Tables of Useful Lives of Depreciable Property", Bulletin F. United States Treasury Department, Washington 1942 or the updated version "Depreciation Guidelines and Rules" (U.S. Treasury Department Internal Revenue Service, Publication No. 456 (7—62), July 1962) — were applied rather than internal estimates.

investments are spread over a large number of future years.

When overhead expenses so determined are subtracted from gross profits, one obtains an estimate of net profits or pre-tax income. For U.S. firms this measure — on an ex-post basis — usually coincides with the corresponding estimates in income tax statements filed with the U.S. Treasury once a year.

The fact that the various aspects of production technology employed were invariably taken care of at the division or profit centre levels has already been emphasized. Firm planners are all too well aware of the intricacies involved in giving the production structure of the entire firm organization a formal representation. As a consequence, no such thing as a "firm production function" was ever presented to me as something seriously considered in formal planning. The substitute — ex-ante costing — was always carried out at the profit-centre level and on a very detailed product basis. Existing production structure and expected changes in production structure then automatically entered the expense projections and were later transmitted to CHQ in financial terms and aggregated to the level of the profit-centre. This seems to me a very elegant way of cutting through one of the interdependencies that must plague any a priori researcher into formal planning systems. More of this in a later chapter. The outcome of all this is that the basic input datum in overall firm planning at CHQ *is a numerically specified relation between sales and profits for every single period considered — a profit function.*[1])

As mentioned, the exploitation of ex-post costing information was very common in short-term budgeting, but less frequent in long-term planning. When met with in long-term planning it was usually confined to process industries that expected to continue their operations for a long time in rather stable markets. In conglomerates operating in a large number of different markets CHQ-planning was apt to stick to one standardized procedure for all subsidiaries and divisions. I.e. even though elaborate ex-ante costing procedures were put to use in separate profit-centre planning routines, CHQ again was inclined to adopt a more simplified but standardized approach (see below).

Again, my impression was that firms producing largely for well established, rather homogenous markets (oil, steel) and — at the same time — relying on elaborate costing schemes in their long-term planning also tended to emphasize two particular purposes of long-term planning; namely control and forecasting in the sense of numerically mapping out the future; the targeting purpose being less pronounced. The small number of firms interviewed, however, suggest that I stop further elaborations on this point in this empirical context in order to avoid the impression, that this is a well established empirical observation. Nevertheless, the matter is important enough to deserve further comment later on in a more suggestive context.

---

[1]) I feel an inclination to make the reader aware of the fact that this is exactly the approach adopted in Eliasson (1967, p. 75 and pp. 206 ff) and (1969, pp. 40 ff.).

The fact should also be mentioned that some large firms relying heavily on detailed ex-ante costing in their long-term numerical (five year) plans sometimes had one or two "parallel" layers of planning routines for the same planning period but serving different purposes.

b) *Profit targeting*

The alternative to elaborate costing procedures in *long-term* CHQ planning is a more direct approach. This direct approach usually means that planning work proceeds on the basis of a direct *estimate of the gross profit margin* exclusive of charges on capital account. Sometimes this estimate is made at CHQ on the basis of past profit-centre or division performance. Division managers are asked to present only sales plans that are consistent with this profit margin requirement. Sometimes such estimates are made at the profit-centre or division level. One common argument was that "the division manager knows the profit-set-up of his product lines well enough. We leave the responsibilty with him to present a reasonable estimate. After all he is paid for that". The awareness of the hazards involved in such numerical specification was all too apparent in the interviews. "After all, there is much beyond the numbers. When we don't believe in them, we change them or disregard them", was a frequent remark.

The more distant the planning horizon the larger the proportion of new products in the final year and the more important changes in production technology and factor and product prices. Hence, the less reliable elaborate estimation methods and the more adequate a more intuitive fixation of the numbers involved. For that very reason, as a rule, there were several stages involved in the estimation process. Normally, the individual product-profit-margins for divisions were the subject of several joint sessions between divisions and CHQ management.

Nevertheless, whatever hazards and efforts involved the final product to be fed into the overall CHQ-plan, arrived at in all instances but a few cases *were single valued* estimates.

If present, the targeting and motivating purposes in planning enter most importantly at this very stage of planning. Whatever side-conditions and constraints being applied the "making of money" was an ever present goal in formal planning. Even, given various constraints imposed upon operations, this purpose was never presented to me as identical to the making of as much profits as possible but rather staying above certain standards, and if possible *improving* performance.

A few persons interviewed expressed sympathy with the objective of maximizing present net worth to shareowners but could not — at least at present — make much operational sense out of the concept. The notion of *improving* performance and the "profit performance" in particular made much more sense to them.

Targeting entered the estimation of profit margins in short-run budgeting as well as in long-run planning in several ways. Profit-centre or division estimates could be adjusted at CHQ; usually slightly upwards. CHQ might extrapolate past performance in terms of profit margins into

the planning period, sometimes adjusting these extrapolations slightly upwards and then compare with division estimates, the final fixing of a "number" being the result of one or several joint negotiations between CHQ and division representatives. I sometimes met with some gloomy retrospective feelings in U.S. companies about the excellent profit performance recorded this current year. "Now they (CHQ) will only raise profit requirements for the next year, which we know will mean a slow-down in business."

Another method was to present the division or profit centre manager with a series of minimum profit margin criteria on various product lines and the requirement not to start production of goods not expected to fulfil these criteria or to take such goods out of the market. The reader should not be lead to think that the adoption of such criteria meant a disregard for the presence of capital and overheads in the production process; quite the contrary, the setting of gross profit margin criteria usually (even though not always) was based on careful, even though not always numerically specified, considerations of capital requirements for the production line in question. We will return to this matter in another context in Chapter VIII. The last feature of profit-planning has to do with the institution of profit-sharing-incentive arrangement that I met with in a few firms.

Case 8: *Profit-sharing incentive systems*

In four firms it was volunteered to me that the setting of profit margins and sales plans — given certain standards — was largely at the discretion of division management or the division manager. The responsibility to realize the "plans" or "goals" so presented also rested on the division in the sense that management remuneration (salaries) was largely tied to its ability in that particular respect. In two cases the arrangement was somewhat like bidding in bridge. The better the performance planned for compared to past performance the higher the potential personal gain to management, however, the larger the potential loss if standards planned for could not be met. Performance was measured by (inter alia) planned growth in sales and planned returns on total capital invested. There was also a factor ("a discount rate") favouring profitable long-run growth in order to avoid the temptation with profit-centre managers to become too myopic in their outlook and to exploit the opportunities always there to reap short-term profits at the cost of losses in the long run. To enforce such long-run responsibility, division bonus systems were split, part of the bonus was tied to division performance and part to aggregate firm performance.

Furthermore — in at least two cases — about half of the bonus was paid out with a delay over some years, also for the benefit of long-run accountability. This arrangement had the additional benefit of offsetting the occasionally large negative bonuses, that were also part of the system. Ex-post improvements of performance on top of planned — and thus "officially promised" — improvements were remunerated at a lower rate than if such improvements had been properly planned for in advance. In two instances in particular I was assured that such ex-post performance ratings were made "net of the influence of factors outside division management control". The presentation to me of these incentive schemes was verbal. I was given only one opportunity to look into the exact specification of such incentive formulae.

In this firm — a U.S. firm — each division manager was responsible for the performance of his division on a rather far-reaching delegation basis. Roughly the method was as follows. Bonuses were tied to sales growth and profit margins at division level as budgeted for. If realized sales and profit margins fell short of budgeted entries the division head suffered a reduction in his bonus and vice versa. In order to secure good budget discipline, the bonus element attached to

above budget performance was determined at a rate substantially *below* the rate applicable, if this performance had in fact been budgeted for, and vice versa. Deviations from the budget due to circumstances outside the control of the responsible manager could always be subjected to negotiations. Similarly long-term investment undertakings the returns of which did not materialize until after several years were normally kept outside the bonus system. Since it was possible, in practically all operations, to squeeze out short-run profits at the cost of less efficient performance in the long run (possibly with a new manager) the conflict between the short run and the long run was the area where most difficulties with this incentive system, had been met with. These problems had in fact been considered serious enough to call for a temporary suspension of the system. At the time of the interview a much cruder arrangement was used, until the above mentioned difficulties had been taken care of.

c) *RoR standards*

It has been mentioned several times that the most common profitability indicator, put to use in planning work, was the profit margin on sales. In the majority of firms interviewed a profit margin criterion was used in fixing the sales plan for the budget or the long-run plan. Since profit margins on division sales are not a very good proxy for the rate of return at division level this is one of the more important examples of ex-ante sub-optimization in planning work, that may lead to substantially less than optimal results if applied indiscriminately to guide decisions. This was, however, seldom the case. We will return to this matter in Chapter VIII. Suffice it to mention a few cases in point at this stage. For one thing, 8 of the 62 firms interviewed (4 of them U.S.), that had very recently begun to calculate the rate of return consequences of the budget at division levels, had experienced "surprise" results compared to what they had expected from their profit margin "rules of the thumb". The reason in all 8 instances had been found to be that the set of "differential profit margin" criteria used for product lines or divisions in planning had not been changed for 5—10 years and were quite obsolete because of substantial changes in some sales-capital utilization ratios. For several years some divisions, in fact, had suffered extremely demanding *profitability* requirements from CHQ while others for the same reason had had an easy time under slack attention from CHQ. It should also be mentioned again that only a small number of the interviewed firms did calculate the ex-ante RoR consequences of the budget at the level of divisions or profitcentres. In 14 of the 62 firms interviewed only, future profitability was calculated at division or profit centre level *before* the sales plan was finally fixed (see further Chapter VIII.2).

d) *Transfer pricing*

Some of the largest U.S. corporations interviewed represented production and distribution systems of a size comparable to some of the smaller European, industrial economies. Such business organizations have to cope with internal problems that are comparable both as regards type and scope with those of planned state economies.

The more vertically integrated the business organization and the more tailor-made their products the less market price information is available to asses and to compare performance of the various parts of the organization. We will return to the centralization issue in a later

chapter. However, it has to be pointed out here that the methods applied in pricing internal deliveries are of crucial importance for the quality and character of the information, that reaches top management by way of the planning system. This problem is of particular importance when it comes to assessing relative performance of various divisions.

Three features are well worth mentioning already here. When available (1) external market price information was normally put to use in internal pricing. Second (2), when not available the principles of the shool of economics typically honoured in planned economies were normally applied; i.e. various methods of cost-plus-pricing. Third (3), transfer prices were often deliberately biased by various policy adjustments to secure certain objectives. To this we will return in more detail in Chapter VIII.

8. Summary

To illustrate what has been said in this chapter let us present a simplified standard form with basic data requested by CHQ for the making of a five year plan.

As a rule each profit-centre was required to hand in completed forms in at least this detail to CHQ at a predetermined date for the unit as a whole.

Normally the forms were more elaborate. Quite commonly a break-down of the first 6 entries on product groups ("markets") was requested.

At this stage entries were invariably in terms of values. Often profit-centre management had compiled these aggregate data from much more detailed work-sheets containing quantity estimates (numbers, tons, etc.) for every single, identifiable product. To these quantity data were added price estimates sometimes decided preliminarily in joint "policy" sessions with CHQ.

This procedure was very often the case in short-term (annual) budgeting but less systematically so in long-term planning. Individual product specification in long-term plans was normally restricted to the identification of product groups and "gaps" in terms of productive capacity to be filled in by new, as yet undefined or unknown, products.

Table V:1 *Profit projection at the division level*

Year	1	2	3	4	5
1. Sales forecast — established products					
2. Sales forecast — new products					
3. Planned sales, total (= S^P)					
(—) 4. Cost of sales (= C^P)					
5. Gross profits					
6. Gross profits in per cent of sales (Gross profit margin)					
(—) 7. General and administrative costs, including depreciation					
(—) 8. Selling expenses					
(—) 9. Research and development expenses					
10. Operating income (net profits)					
11. Net profits in per cent of sales (net profit margin)					

VI SPENDING PLANS — DEMAND FOR FUNDS

As has been emphasized already, sales (value) plans and profit plans are the prime input variables in CHQ planning. From these variables two subsections of the plan structure branch off to be closed again at a later stage (see Diagram I:1 B). The profit variable generates an internal cash-inflow variable. This side will be a topic of the next chapter. The sales variable generates a demand for working capital stocks as well as *part of* an investment spending plan. This side is the topic of this chapter.

A substantial portion of total demand for funds is generated from three, clearly distiguishable subsections of the balance sheet. They are:
a) Working capital requirements
b) Investments in production equipment
c) Financial investments.
In addition to this comes a not negligible "capital requirements" entry;
d) Investment in non-depreciable assets.

The methods of determining spending plans under each of these headings are basically different, and they are treated in four sections in the order indicated above. The classification has not been made for didactic reasons only. Both firm planners and decision-makers tend to keep the four components on the financial uses side apart. In fact one of the interesting observations to be made is the conspicuous attention paid to "hardware" on the capital spending side i.e. on investments of type b.

The results of all spending on "capital account" are not activated in the books of the firm — neither externally as required by law, nor internally. A not negligible portion of the total application of funds is plowed into non-depreciable assets such as internal education, the organization of distribution net-works and research and development (d).

One conclusion, that emerges from the text below, is that investments in working capital (type a) are to a large extent considered to be of a *mandatory* type in planning routines. Such investments are needed for the realization of sales plans and in short-run planning the relationship between the bulk of working capital (outstanding trade credits and inventories) is regarded as a given datum. To some extent this also holds for parts of the regular investment plan (b) and parts of investment spending on non-depreciable assets (d). However, for several reasons to be expounded below, capital spending of types b and d contains a larger

portion of investments, the time planning of which is considered flexible.

1. Working capital

The components of working capital that fall under this heading are inventories, trade credits given (accounts receivable) and liquid assets of various kinds. The last component, denoted "cash" for simplicity, plays a very particular, but nevertheless important role in planning routines. In fact, it could equally well be classified under the heading of "Financial investments".

A close association with the current level of sales is a characteristic feature of aggregate working capital stock. It is not uncommon that investments in working capital amount to twice or even three times the amount spent on capital account (machinery and construction). It is also surprising that so little attention has been paid to this heavy investment item compared to the massive intellectual concentration on hardware spending as reflected in current economic literature and empirical inquiries.

a) *The cash position*

Common practice in annual *budgeting* was to regard the cash position as a residual that adjusted itself automatically when all other financial decisions — and then most notably the decision to borrow — were final. The exceptions to this practice were few among U.S. firms. Although methods of planning were similar, some distinct features in this respect were found among Swedish firms. This did not mean that the implications for firm liquidity were disregarded in deciding upon other variables in the plan. Quite to the contrary, the overall financial position of the firm, and for the next budget period in particular, was often stated as an "assumption" before work on the plan began, and spending plans tended to adjust accordingly. However, given this approach the cash position also fell out as a "consequence" or a residual in the formal planning routine. One possible explanation to this practice might be the frequent arrangement of "amply spaced" and seldom more than partly utilized "credit limits" (bank-lines) with one or several commercial banks. Cash management so described is indeed a very important concern in this study. It is, however, most adequately handled in a later chapter, when the overall spending and financing plan are to be consolidated.

In *long-term planning* the cash-position entered in a somewhat different way. All other entries on the spending and financing side (next chapter) except long term borrowing being completed on a preliminary basis, the change in the cash position — as before — could be derived as a residual from a cash-flow chart. This result (transformed into a series of future cash-positions) often served as an information variable in deciding whether or when the firm had to turn to the capital market in order to prepare financially for the carrying out of the long-term plan and/or to what extent cut-backs should be made in the plan proposed. Also the treatment of this matter is postponed to the next chapter.

b) *Inventories*

Inventories constitute one erratic element in firm planning. Raw materials, intermediate goods, goods in process and finished goods are each sizable entities compared to sales and at times exert a not unimportant strain on overall financial resources of a company. The decision to invest in inventories before the production stage often involves some kind of speculative element. In so far as this speculative element is *not* present, or if nonspeculative inventory investments can be isolated out, remaining inventory components entered into plans usually show quite stable proportions to planned sales in the immediate future *or* so it seems at least from the methodological approaches taken in formal planning.

Finished goods basically serve as a buffer between production and sales. Quite often, and in firms working in seasonally unstable markets in particular, plans are geared to stabilizing the level of production intentionally allowing for wide seasonal swings in finished goods inventories. There is always, however, the extra uncertainty created by the business cycle and firms constantly plan to maintain a certain safety margin, not only in order *always* to be able to meet *expected* demand, but also to be able to take advantage of unforeseen market upheavals. The result is that the plan involves explicit recognition of substantial swings around planned for levels. This recognition is again normally geared towards maintaining financial stability. Unplanned for finished goods inventory build-ups usually exercise a great strain on the short-term cash position and there is usually a direct link between the experienced stability of inventories and the ex ante desired cash position that is entered into the plan (see Chapter VII.3 c).

In short and long-term formal planning the determination of desired levels of inventories typically takes the form of applying a vector of predetermined coefficients to sales levels of various products; the coefficients normally being determined on the basis of past experience. Such individual coefficients are usually "reestimated" from time to time and besides, the aggregate firm relationship between desired or planned for inventories and expected sales is rather sensitive to changes in the product mix.

The exact methods applied in determining the individual coefficients used in projecting desired levels of stocks were a matter usually handled in separate subplanning routines outside the CHQ planning department. Most often these methods were said to be "crude" but varying in degree of crudeness from production line to production line. In some firms working in highly volatile markets characterized by short product life-spans active work was being done in reducing planned for and "safe" inventory levels. In fact one U.S. firm in the below $ 500 M size class (1969) had found it profitable to establish a separate section at CHQ employing no less than 30 (professional) people full time on inventory management.

c) *Trade credits given*

Trade credits given (accounts receivable) usually make up the dominant portion of working capital stock. Accounts receivable constitute a component of working capital that varies significantly in importance between product markets and as a consequence between firms as well. Quite naturally it plays a relatively larger role with producers of heavy capital equipment and of durable household goods. In some firms the financing of sales had been surrendered to a separate financial intermediary (a factoring institute). If so, accounts receivable did not show up properly in the firms' balance sheet nor in their planning routines. In larger firms (sometimes) it had been found convenient to establish a separate financial intermediary within the firm organization. This intermediary often did not restrict its operations to the financing of the sales of its parent company only.

All firms interviewed had a stock of outstanding accounts receivable large enough to warrant separate handling in formal planning routines. As a rule these routines were quite elaborate. In the same way, as with inventories, projections of stocks of accounts receivable were tied to projected levels of various components of sales. A typical feature of individual product markets is that a stable and accepted practice on payment terms has developed. This practice may be subject to changes, in particular during temporary periods of changing conditions in the credit market. Nevertheless, the important thing is that terms of payment are quite well known to corporate planners. This is true, in particular, for the making of short-term (annual) plans and less so — of course — in the context of long-term planning. Thus, the projection of stocks of accounts receivable was a rather straight-forward, albeit numerically cumbersome procedure.

An example of the amount of detail involved is that two U.S. firms took care to account for the fact that payment terms were different (for each product) between commercial sales and sales to Government. Government payments usually were in cash with a few days delay. The two U.S. firms thus entered, in their projections of sales and accounts receivable, assumptions as to the relative importance of sales to Government. An important thing to bear in mind is that *accounts payable* provided an important neutralizer as far as the financing requirements of trade credits given were concerned. The methods applied in projecting accounts payable were analogous to those described above; the difference being that this time the estimate was tied to projected purchases of intermediate and investment goods. However, in five U.S. firms I found that the projection of accounts payable was obtained by a rough application of a predetermined coefficient to sales as well. The result of such a practice is that the planned for net asset or debt creation originating in the trade credit section of the accounts is roughly proportional to changes in the projected level of sales.

An unforeseen prolongation of the *average* credit period with a day or two in most firms would mean a sudden and sizable impact on the demand for funds. As a consequence much attention was paid to the current position of accounts receivable. Delays in collections were

frequent and usually meant that large amounts of capital were tied up at zero returns.

Since planners were required to adhere to established payment practice in the various markets, such delays immediately turned up as divergencies between budgeted and (ex postly) registered stocks of accounts receivable. In those firms — about half of the U.S. sample — where an analysis of such divergencies was carried out currently (i.e. from month to month or from quarter to quarter), systematic deviations from budgeted amounts were immediately detected and could be corrected — if possible — at an early stage.

2. Investments in machinery, equipment and construction

a) *The investment plan*

There are at least three links between the investment plan and the comprehensive CHQ plan that should be mentioned. The first one ties part of the investment plan to expected sales over a number of future years. The second link is between expected sales, working capital requirements and the accumulation of productive capital (investment). Working and productive capital accumulation together makes up the dominant component in the demand for finance in most firms and consequently has to be trimmed to available finance, which, in turn, is composed of expected internal cash-throw-off (dependent upon profit margins and expected sales) and borrowing. With this in mind there is little room for "investment functions" leading a life of their own within the budget or long-term plan and neglecting all other facets of the firms' sales, asset and debt structure.

The basic factors determining investment goods demand are to be found among the factors determining the production and sales plan. The information needed to derive capital requirements from production and sales plans was only to be found at the level of the individual production process. Thus the methods used tied in with the detailed production and sales plan. Whenever the investment plans were elaborate in terms of project specification — which was always the case in budgeting and usually the case in long-term planning — each project could usually be identified with a plan to e.g. expand capacity at a particular production line at one particular location and with elaborate technical specifications attached. In about 6 of the 30 U.S. firms and 7 of the 32 non-U.S. firms the long-term plan was based on a crude projection of sales. Assets on the balance sheet were projected by the application of predetermined proportionality (constants) to sales. In this case the derivation of financial requirements from various alternative growth paths of the firm was the basic purpose of the long-term plan.

Normally, however, the investment plan originated at the profit centre level or below. The usual procedure was to work through the details of the sales plan to see what new investment objects were needed, where and when. Lists of individual object proposals with much technical detail attached were forwarded to CHQ as budget requests. Estimated prices of investment objects were specified together with planned purchase and delivery dates etc. At the profit-centre level such

prices were aggregated to values for various investment goods categories and periodized.

It should be mentioned that entries 5, 6 and 7 in Table VI:1 by no means contained minor requests for funds. Under these headings were also classified a large number of *not definitely time planned* investment activities which — for that reason — had no exact counterpart in the sales plan. Entries 6 and 7 also contained lump sums allowing for the fact that a complete listing of every single investment object properly to be classified under 1 to 5 could not be made.

Requirements to motivate individual objects above a certain size (value) were normally rather strict. An account of this is, however, most appropriately deferred to Chapter VIII on "Rate of return considerations in planning".

A standard form prepared at CHQ and sent to each profit centre might contain the following entries:

Table VI:1

Year	1	2	3	4	5
Investment needed or desired 1. to keep plant operating 2. to meet sales-plan requirements; old products 3. to meet sales-plan requirements; new products 4. to reduce cost (rationalization) 5. for production to materialize beyond the planning period (horizon) 6. others 7. contingency allowance					
Total:					

Completed forms of the type indicated in Table VI:I as well as the lists of individual investment objects were then handed in to CHQ and subjected to detailed checking. *Usually a number of projects were weeded out on the basis of the experience that budget (investment) proposals were normally exaggerated.* Comments on the apparent lack of a systematic procedure to trim "exaggerated" investment requests to meet available financial resources will, however, also be postponed to Chapters VII and VIII. It sometimes happened that such a screening procedure necessitated a corresponding reduction in the sales-growth plan. However, as far as I could understand, this was of rare occurrance, since consequences of this nature had been taken into account already at the early stage of fixing the sales plan.

b) *The appropriations plan*

With practically no exceptions specification in and approval for the investment plan *did not mean* authorization for division or profit centre management to go ahead making financial commitments according to

the approved plan.[1]) After approval of the plan an *appropriation* preceded each commitment to start spending on capital account. The *appropriations plan or procedure* was a matter of regular occurence each month, or more often and was carried out at several stages in the firm hierarchy. It was normally regulated in written documents. Large projects had to go all the way to the Board for final appropriations to be made. Medium sized projects were finally authorized by senior officials at CHQ. Smaller projects could be authorized by the profit-centre manager and minor projects at the production line. In essence the appropriations procedure meant that the final decision to spend on capital account was left pending as long as possible.

An interesting thing to notice was that objects included already in the approved plan (except for very large ones) were normally carried through the appropriations procedure as a routine matter. New projects outside the original investment plan coming up for appropriation sometimes had to be motivated in two ways. First on their own merits then as a reason for revising the original investment plan. Projects needed to realize the sales plan were always put on the priority ranking in the appropriations procedure irrespective of their merits in other respects relative to other projects.

In general (and using our terminology) the *investment plan* and the *appropriations plan (budget)* are two different things. The investment plan is a *solution* to the comprehensive plan when all relevant factors have been taken into account (see Diagram I:1 B). It defines how large a portion of total funds, expected to be available, that is planned to be allocated on capital account. It cannot be determined until the financing side has been considered. This will be done in the next chapter. The appropriations plan comes *later* and is designed to finalize the selection of individual projects within the so determined frame. It is final and means authority to start making commitments. Normally, however, some individual project specification takes place already in the making of the investment plan.

3. Financial investments

The subject of financial investments of a more long-run nature did not come up for discussion in all interviews. In about 15 interviews I got the

---

[1]) In 4 U.S. firms and 2 non-U.S. firms out of a total of 62 interviewed firms the existence of an appropriations procedure parallel to or separated from the budget procedure was not recognized. I was told that preparation of the investment plan of the annual budget was very elaborate. That it in fact included the appropriations procedure *and* that capital spending commitments could be delegated up to a year ahead of the project start. During the course of these interviews it appeared, however, that a variation of the appropriations procedure existed anyhow. Projects, and particularly large projects, could always be reconsidered and often were. However, one important difference with these firms was that the initiative to reconsider projects within the investments plan lay with either CHQ or with the responsible division manager. No initiative being taken from either side spending according to the plan required no further authorization.

opportunity to ask detailed questions on the matter of financial investments. The interview results should be evaluated accordingly.

Three different types of financial investments will have to be kept apart.

1. Investments in short-term or liquid securities
2. Investments in stocks as part of an acquisition program
3. Investments in long-term securities (including stocks) as an alternative to investments in productive capacity.

Invariably 3. was regarded as an irrelevant consideration for the firm. 1. was considered a matter of cash-management (next chapter) including temporary accumulation of cash in order to finance future investments, and 2. a proper question on a highly relevant matter of frequent occurrence.

It is hard to judge how the negative reaction to question 3. should be interpreted. The only exception conceded was repurchases of own stock in the market, which is allowed in the U.S. In those formal planning documents that were shown to me I found no evidence of explicit plans to invest long term in securities other than — as it happened in two U.S. firms — as part of an acquisition program. These plans consisted of no more than the provision of readily available funds for such purposes.

The distinction between 2. and 3. may seem less sharp. A planned acquisition programme of course could be considered as an alternative to a plan to expand productive capacity internally or as a way of buying technology and/or capacity in new or neighbouring fields. The explanation to the negative reaction to question 3. perhaps is that there are always intentions of this kind in the background, when stock purchases are considered. Some kind of mutual benefit is envisioned. In the conglomerate case, for instance, large systems management techniques were sometimes supposed to join production technologies and market knowledge together in a total that performs better than its ingredient parts one by one. The activities of an investment institute (thought of under point 3.) in a way is a special case of a conglomerate business, where central, management pressure — from the basis of some superior insights — is exerted indirectly by selling and bying stock in the market.

However, when classified as an acquisition program the purpose normally was referred to as a long-term policy to diversify business activities (production) or to spread risks rather than deliberate plans to shift emphasis between plowing funds into pure financial investments and investments in production capacity in order, say, to support a higher rate of return than possible when restricting the options to one type of investments only (cf. however, the discussion on cash management in the next chapter).

This being a relevant observation it certainly provides an empirical basis for cutting through the maze of interdependencies plaguing the a

priori theorizer in monetary economics.[1]) And, indeed, if formal planning on this point has a bearing on decisions made, and actual behaviour, the observation is consistent with the typically stable patterns of self-financing ratios in manufacturing, observed in many empirical investigations. Excluding the option of long-term purely financial investment as a potential alternative to direct investment in planning leaves plow-back of total available funds into productive investments and acquisitions as the only alternatives besides the possible financial leakage represented by the paying of dividends. Maybe this observation is not so surprising, after all. There is still the option of balancing the timing of productive investments against the cash position (under 1.) and this may be the important consideration for firm management. The observation made also confirms the impression, from many interviews, that most firms operate under self-imposed constraints as to choices of activities open. Very often internal policy documents voiced restrictions related to raw materials, markets, present type of technology or skills or simply "traditional lines of business". These constraints may be lifted occasionally but a reasonable hypothesis would be that it takes both much time, much effort and long sustained management tension to transform an oil company into a producer of electronics equipment and that intentions of such a nature are not likely to be made explicit in the long term plan.[2])

4. Non depreciable assets

A substantial portion of financial resources is currently allocated to the accumulation of non-depreciable assets in various forms. Examples of

---

[1]) The a priori exclusion of any possibility to balance investments in securities against investments in productive capacity except as a short-term timing arrangement, in Eliasson (op cit. 1967 p. 70 ff and op. cit. 1969, chapter 2), was out of convenience rather than empirical intuition. The observation above, however, lends support to this assumption whatever its original motivation.

[2]) It is not a coincidence that Beckman Instruments Inc., Fullerton, Calif., that started as a producer of an acidity meter for the vineyards several decades ago is still producing instruments for an expanding market, however, now mainly for other purposes. In this case a fundamental change in the product mix had taken place on the basis of a given technology.

In 1969 Xerox Corporation purchased Scientific Data Corporation (SDS) in order to diversify into joint data processing and reproductive techniques. Plans to diversify in this direction had existed for some time. A similar diversification scheme but in the opposite direction was in the plans for IBM at the time of interviewing. This time reproduction technology was developed internally. Similarly one U.S. firm in the sample with conglomerate features had developed very sophisticated scanning techniques to decide upon the areas (markets, technologies etc.) to enter upon and where future acquisitions should be made. One such area considered by the U.S. firm at the time of interviewing was "Education" very broadly defined. To be noted again is that these issues were not considered in the context of the long-range plan but as part of the prospective or strategic plan, or in no systematized context at all. Successful implementation of plans, however, is a quite different thing. The "education program" was soon abandoned and Xerox has recently (1975) dropped its computer acquisition.

this are spending on R & D investments, in marketing, internal organization, education, goodwill etc. More than half and probably close to two thirds of the U.S. firms estimated that "investments" of this kind exceeded investments in production equipment (machinery & constructions) by a wide margin. In one electronics firm (U.S.) R & D spending only was three times that in production equipment. We also know from OECD statistics that R & D spending in U.S. manufacturing (inclusive of federally sponsored defence and space R & D in industry) was as high as between 50—60 per cent of investment spending on capital account in the late sixties. Similarly R & D spending in total Swedish electronics industry exceeds spending on capital account somewhat.[1])

With these figures in mind it is interesting to note that practically all firms interviewed (U.S. and European) treated such investment expenditures as current costs also in their internal budgets and long-term plans. The standard form in Supplement 2 (B. Profit-plan) is typical in this respect. This means that gross operating profits are practically always calculated net of a heavy spending entry that should most appropriately be allocated on capital account. With such accounting methods the difficulties involved in calculating company rates of return to capital and making meaningful intra company profit performance comparisons are easily understood (cf. Chapter VIII). This may even be *the* reason why such calculations are seldom carried out above the individual investment project level.

On direct questioning several reasons for these inadequate accounting methods were put forward; (1) the difficulties involved in keeping separate books for taxation and other purposes; (2) tradition. Such investments were of minor importance not long ago. (3) "The data are of no use. It is impossible anyhow to put a dollar value to such an esoteric thing as the accumulated asset of being established in a market or accumulated stocks of internal education or spending on "goodwill account"."

The above remarks refer to comprehensive budgeting and planning. In keeping with the frequent practice of maintaining several subplanning routines more or less attached to the comprehensive plan, normal procedure was to have a separate (for instance) R & D cost plan within the budget or within the long-term plan. Sometimes practice was to decide on the size and time-shape of this R & D cost plan separately from all other planning work. Sometimes a total of R & D money was allocated as a CHQ planning decision the matter of distributing the total being left outside comprehensive planning work. In one European and three U.S. firms very sophisticated techniques to decide when to terminate R & D projects were experimented with. The methods used were to decide at what future date costs incurred could not be recovered even if the project should prove successful given two or three alternative discount rates.

---

[1]) Eliasson; Forskning, investeringar och utveckling, *Affärsvärlden/Finanstidningen,* Nr 47. 1971.

As far as can be judged from the interviews R & D spending was often on the "priority list" when budget slimming was needed for liquidity reasons (see Chapter VII.2). Separate planning routines for market investments, education etc. were seldom met with at the level of CHQ planning. Such matters seemed to be delegated to the division or profit centre level. This, of course, does not exclude that major policy decisions, such as the penetration of or building-up of a new market or going abroad, are studied in detail and subjected to extensive investigations. Such research, however, is normally separate from and on top of comprehensive planning (cf. the presence of separate "project plans" in Chapter VIII. 9).

5. Summary

Summarizing so far, planning routines usually revealed some kind of priority ranking on the spending side. Net trade credit extension, part of investments in production equipment and in inventories were normally looked upon as *mandatory for the realization of the sales plan* fixed already at an earlier phase of planning work. Since the sales plan was seldom revised in the light of later analysis of the plan, also these spending components, in principle, were not tampered with in the negotiating process between CHQ and divisions aimed at trimming spending proposals to available finance.

VII THE FINANCING PLAN

The previous chapter was devoted to an account of the stagewise fixing of various spending plans within the firm. In this chapter the financing side, or rather the financing plan is introduced. The separation into two chapters emphasizes the current practice of keeping the two sides (spending and financing) as two separate sub-routines within the total, comprehensive planning system. This chapter closes the accounts. This holds for short-term planning (budgeting) as well as long-term planning, whenever comprehensive.

The closing of the accounts may reveal apparent inconsistencies between the various sub-routines of the total plan. Inconsistencies, which ultimately depend on the fact that the sub-routinized or sequential structure of the formal plan, do not allow for a number of relevant interdependencies, at closing time show up inter alia in a residually-determined cash position. Sometimes revisions in the plan are found to be necessary and a number of backward iterations may follow. In a few U.S. firms, where *all* numerical calculations were performed in a computer, such iterative "runs" were a matter of routine in order to reach a more "optimal" and consistent solution. As a rule, however, the fixing of values at the several substages of the planning routine (e.g. sales levels and profit margins) involved a well-experienced and implicit recognition of important consequences for the solutions at later sub-stages (investment requirements, external financing requirements, profitability, etc.). This was at least the answer always given at repeated questioning.

1. Internal cash-throw-off — gross saving

A crucial input variable in planning that is arrived at with much judgemental effort (see Chapter V) is the gross profit projection. The expected internal generation of funds then normally can be derived directly and with minor difficulties from the gross profit projection. This derivation was much simpler for the U.S. firms than for other firms within the sample, since fiscal depreciation rules applied by U.S. tax authorities to investments in production equipment roughly approximate what may be termed the useful life of a depreciable asset. As the result of a grand effort to arrive at reasonable estimates of the rate of economic depreciation of various kinds of productive assets, the U.S. Tax Authorities (U.S. Treasury Department. The Internal Revenue Service) have produced a fairly complete survey of the

manufacturing sector.[1]) These rates serve as guidelines for the income assessment. Besides, as I found during my interviews, it was frequent practice among U.S. firms to use the same guidelines in their internal accounting. Where this is done there is normally little room for the creation of hidden reserves in production capital within U.S. firms[2]) beyond what comes as a result of inflation. In European firms, calculation procedures were not as simple.

I often met with the following rough approach to a gross saving estimate:

Table VII:1 *Source of Internal Funds (U.S. case)*

Year	1	2	3	4	5
1. Gross profits net of overhead *expenses*					
2. Other income (net)					
3. Provision for federal taxes (= 50 % of gross profits plus other income less depreciation and interest expense)					
4. Dividends					
5. Amortization					
6. Gross saving (= 1+2—3—4—5)					

Dividends were determined from year to year independently of the work on the plan, usually according to a traditionally established policy.

2. The external financing decision

We have now arrived at a crucial juncture of sub-routines in the overall planning system. Last time planners had to face the world external to the firm organization in an important way was at the very beginning of the work on the plan; namely the product market contact when the sales- and profit- (or profit-margin) projections were fixed (see Diagram 1:1 B). The external financing decision is a second and highly critical confrontation. The problem is to close the possible gap arising from a divergence between the total spending plan and the projected cash-throw-off from current operations. To make the plan comprehensive a plan to borrow (the most common case) has to be made up. Sometimes, such a borrowing plan is not completed. Since the rest of the plan has usually been fixed or approved by CHQ the result may be presented as a "gap" or a derived demand for external sources of funds whatever their origin finally may be.

---

[1]) The so called Bulletin F from 1942 and updated versions. For exact references see note on p. 118.

[2]) The possibilities of accelerated depreciation to stimulate investment for contracyclical purposes allowed during the sixties of course are exceptions to this practice.

At this point a distinctly different approach appears in long-range planning and short-term budgeting. Total spending plans and estimates of internal cash generation from the long-term plan were normally put to use to determine *when* need for large lumps of external funds may arise; or rather to determine how long such borrowing decisions could be postponed before — given spending plans — liquidity problems begin to appear. As for the long-range, *numerical* plan this analytical exercise may be its most important application (cf. Chapter IX).

The annual budget on the other hand was more oriented towards determining *how much* borrowing is needed next year. This decision necessarily gets very much involved with the problem of determining the required stock of liquid assets during the next year. The question, however, still remains whether the cumbersome numerical procedure, that makes up the budgeting and planning process is really needed to secure that kind of information. I was told, quite often, by people not directly associated with planning or budgeting, that needed external funds could be estimated more reliably by much simpler "back-of-the-envelope" methods. However, I was also told very definitely and repeatedly in one U.S. firm that short-term borrowing had been substituted for a large, long-term loan with a fixed interest rate (already decided upon by the Board and partly negotiated) on the basis of a series of simulation runs on a corporate financial model. This analysis had demonstrated, that under the assumptions adopted in the long-range plan, and within all reasonable ranges of uncertainty, the money (intended to finance an accelerated growth program) would not be needed after five years at the most. This presentation — I was told — was what was needed to convince the Board.

Usually some ex-ante decisions or plans exist as to how to solve the external financing problem in more detail than determining total borrowing needed only. For the time being we disregard the possibility of making use of negotiated banklines and day-to-day cash management. This is a matter discussed in Section 3. The financing decisions, that are part of the planning sequence, are rather concerned with negotiating a new or larger bank line, deciding upon what short-term liquidity buffers that should be accumulated over the planning period or to size up the present and future credit market situation with a view to timing borrowing on longer terms than a year. (Empty box Diagram VII:1.) Such borrowing often meant the tying of present interest rates for most of the amortization period. At the time of my U.S. interviews (1969, 1973 and 1974) this problem was considered quite acute. Current interest rates in the U.S. credit markets were on all occasions considered extraordinarily high compared to past postwar experience and credit-market conditions were generally deemed unfavourable by firm planners, despite high rates of inflation. Especially in 1969 expectations were in favour of an "easing" of the credit market in a not-too-distant future and decisions were to reduce borrowing as much as possible and resort to internal sources of funds and/or to restrict spending. As a rule all management staff involved in planning all the way down to the profit center levels had been informed about the

position taken vis-à-vis external financing at an early stage of the planning process; the implication being that spending proposals should be trimmed down voluntarily as far as possible.

There were exceptions, of course. Available to planners and decision-makers at this stage were (as a rule) a complete investment spending plan for the next five years and a plan in much more detail for the next 12 months. Each object in the spending plan of the annual budget was normally accompanied by an extensive documentation as to its purpose; in several instances this included quite elaborate and numerically specified rate-of-return considerations. Sometimes these motivations were convincing enough to override inhibitions vis-à-vis the current credit market situation. It is important to note, however, that expected returns on proposed investments were not reported as dominant criteria in such decisions (cf. Chapter VIII).

This observation is again consistent with the presence of a "quantity restraint" in external financing decisions as far as corporate planning is concerned. The reason for such considerations was that a credit contract written today was expected to be charged above market rates of interest for a long time ahead if interest rates were considered "high" and vice versa; a "closing in" effect on the borrower's side. If borrowing is postponed and if this cannot be temporarily compensated for by drawing on liquidity reserves, the short-term effects on the timing of investment and growth of some firms are obvious. Cutbacks in spending plans will be necessary. Also cf. the consequence of debt-equity considerations discussed in Section 4.

The "aversion to external finance" hypothesis has a long standing as a subject for academic disputes among economists. It was very interesting for me, of course, for this and other reasons to inquire about the ways by which such an aversion could be observed in formal planning routines. However, such a touchy and never well-defined matter was hard to approach directly in an interview. As far as important details go, quite often the interviewer and the person interviewed speak different languages. Besides, direct questioning, to be understood, had to be rather free from intricate reservations and possibilities, and consequently was apt to be somewhat leading. There is the apparent risk that the person interviewed supplies the answer inherent in the question. On this, as well as throughout the interviews, my approach to begin with was to let the interviewed person volunteer information, then try to shift the conversation without any obvious purpose from subject area to subject area. The major subject areas being covered or time running out I usually rounded off with a series of direct questions, partly in order to check my earlier impressions.

On the internal financing subject or aversion-to-debt hypothesis I think I can produce some tentative conclusions. This topic was covered systematically only in the U.S. interviews. In slightly less than 25 per cent of the U.S. firms interviewed it was clearly stated that whenever "good" projects or opportunities were at hand, finance, including external finance, presented *no problem*. In about 25 per cent of the cases the official policy of the company was said to be not to make use

of any external funds for any long-term purposes. In some cases this policy was even stated in internally circulated documents or planning handbooks. One could also observe from annual reports that long-term external financing had not been resorted to. As for the rest the answer was: "it depends".

However, there are reservations to be made to these observations. In the non-aversion case the definition of an investment opportunity was a non-tangible matter indeed. If the definition of an investment opportunity cannot be specified, the meaning of "no aversion to debt" is equally unspecified. On a direct question in a few "no aversion firms" as to what were the required rates of return, the answers ranged between 20 and 40 per cent before tax. It was said to me and/or shown to me that this (policy) rate was again officially documented for internal use in planning (cf. Case 12 in Chapter VIII.3).

The next qualification refers to the "complete averters". My direct question, why the company did not resort to external funds in order to raise return to equity or to grow faster, was often not understood. In several of them I found out during the interview (and in some afterwards) that not only was profitability very high but annual growth rates in sales during the past five or ten or more years ranged on the average well above 10 sometimes around 15 per cent. When pursuing this matter further in one particular firm it appeared, after a while — the time taken being due to semantic confusion — that the firm simply could not grow faster. Even though new products and techniques were flowing out of the R & D departments it took time to get them on the market, it took time to erect production facilities and — not least important — it was hard to get the right people to manage all new operations. In short, the organizational structure could not sustain higher growth-rates than those easily sustained by internally-generated funds (even after 50 per cent of net income had been distributed as dividends) without starting to disintegrate in an alarming way. No extra funds were needed to speed up production and sales, since this was not possible for other reasons. This firm had adjusted to some kind of an *internal plow-back equilibrium growth plan* and had gradually adopted this financing pattern as an official firm policy.

There is also the peculiar feature of capital spending decisions, that most of the financing concern exhibited in planning and decision procedures as well as being voiced in literature on the matter, refers to hardware investment decisions (construction, machinery etc.). Investments in R & D, marketing etc. often having a longer gestation period and requiring more financial "funding" than hardware investments were covered, as a rule by different, separate, less elaborate and less CHQ controlled management routines (see further Chapter VIII).

Whatever our conclusion as to the existence of debt-aversion, external financing was no paramount feature among the "blue-chip" companies realizing high rates of return but more predominant with the average and below-average performers. Those firms which could speed up their (sales) growth rates above internal financing capacity and (at the same

time) benefit from it *were* the average and below-average performers provided prospective returns to marginal investments stayed above borrowing rates. This particular feature of financing has been further elaborated in a formal context in Supplement 4.

3. Cash management

a) *Ex-ante fixing of the cash-position*

A preliminary determination of the "required" cash or liquidity position normally preceded the fixing of needed external financing in the budget. However, once the extent of external financing had been entered into the budget or the plan together with other entries like dividends, interest, and amortization payments, the cash-position of the plan by definition had been determined in a residual manner. There is no logical conflict involved in this procedure. It only illustrates the step-wise planning methods normally adopted and how outputs from earlier "steps" are used as inputs in later steps. It should be noted that cash management involves here as well the decision to vary the utilization of bank-lines.

It is a quite well known feature of U.S. manufacturing industries that external financing has played a relatively unimportant role at the aggregate level. Marked changes in financing patterns in U.S. as well as European firms have taken place during the 60ies and in the 70ies. However, when all external sources of funds (excluding commercial credits) on the cash-flow balance have been summed up they usually represent small figures compared to internal retentions.

Again, this pattern fits well into the picture of business financing sketched in the preceding sections. Borrowing long term in the organized credit market is usually a lump-sum decision, put into action now and then when market conditions are favourable and a future need can be foreseen. Available cash, including liquid assets, bank deposits and bank-line facilities then provide plenty of financial leeway for a number of years ahead. As already mentioned, a basic purpose of long-term planning seemed to be to provide an information basis for borrowing decisions to maintain such liquidity reserves. This practice was prevalent financial policy in the majority of firms (U.S. and others) interviewed and the plan was an instrument to predict financial needs in the long run to make the firm independent of erratic developments in its credit environment in the short run. Against the background of this "finding" it is not hard to find a reason for the current distress of general monetary policy, organized through the markets for credit and directed towards manufacturing investment.[1]) One basic purpose of long-term planning is to make the firm independent of random demands for financing, unforeseen strains on the liquidity position and (probably) monetary policies in the credit markets.

---

[1]) See e.g. the reports from the commission on money and credit, and *impacts of monetary policy* (Englewood Cliffs, N. J. 1963) in particular. Also see Eliasson, (1969).

If so, any attempt to approach the problem of business cash management by way of a simplified inventory theoretic model is doomed to failure from the beginning if the purpose is to explain observed behaviour as registered ex post. Adequate consideration of bank-line arrangements and business liquidity provisions for the future has to be made and this makes for a rather complicated theory if the theory aims at explaining statistical time series data on the liquidity position of firms.

We have already noted that basic conservative traits mark the work on the formal plan from its initiation to its final authorization (if any) by the Board. Numerous sessions, meetings, telephone contacts, etc. guarantee that no final "fixing" of plan variables allows any crucial parameters of firm planning (like investment or borrowing) to stray off past patterns in any substantial and uncontrolled way. By this method also the residual determination of the demand for internally accumulated funds (liquidity and external finance) is quite well controlled. Surprises are normally expected to be minor and well contained within the margin of liquid reserves. If not, a series of backward revisions in the formal plan will usually be initiated before final authorization is granted. Final authorization of the annual budget also normally involves an explicit numerical estimate of the *ex-ante* cash (liquidity) and bank-line utilization position — this time as it has been residually derived in the budget.

One could argue that the rough and step-wise procedure adopted in cash or liquidity planning should be capable of substantial improvement in the direction of cutting costs for maintaining excess reserves. This was a question that I always brought up during the interview if the reasons or answers did not come forward voluntarily. Practically no one questioned considered the precision of the annual budget good enough to make it useful for more elaborate attempts to cut down on cash requirements. The reasons always given were that input variables in budgeting were surrounded with wide margins of uncertainty. The numerical structure (the "model") of the budget was too unstable and — more important — the step-wise "suboptimization" procedure regularly applied made the annual budget inappropriate even in principle for overall cash-minimization analysis.

This did not mean that efficient cash management was impossible or absent. Quite in keeping with the step-wise procedure of planning already described, cash management comes in separately after work on the plan is finished. Cash management is a good example on how actual decision-making is based on and interacts with the plan — this time the annual budget.

Cash management will be covered under three headings. First, it has to be recognized that most companies except the very small ones fulfil *internally* several functions that one normally tends to associate with a commercial bank. Second, the basic purpose of cash reserves is to serve as a buffer-stock function. Part of cash management can be accomplished by making adjustments in the budget itself. Also, the cost for maintaining liquidity buffers is an insurance premium for unforeseen

financing demands. However, (third) in some industrial nations and in the U.S. in particular, there exists an alternative to elaborate cash-minimization procedures; namely the option to earn an income on excess cash reserves by short investment and borrowing operations in the money markets. Even though well-developed domestic money markets are lacking or hampered by regulation in many European countries, recent years have witnessed the creation of a quite efficient substitute in the form of the so called Eurodollar market.

b) *Corporate banking*

Economies of scale is a concept that has most often been considered with reference to production activities. Without engaging in an extensive discussion of the merits of the concept as such, it is easily recognized that, when interpreted broadly, typical benefits from economies of scale on the financial side can be derived within the large business organizations of today. Most firms of medium size and above consist of more than one production establishment. This holds for all firms interviewed in this study, and in several firms interviewed the number of production establishments exceeded one hundred. The contrast between the large, western business enterprise and the classical notion of "a firm" (= a production unit) probably could not be made sharper.

A remarkable development of recent years is the extent to which the typical functions of commercial banks and investment institutes have been merged with the more traditional functions of the manufacturing company. The financial function is normally concentrated in CHQ and this tends to isolate the separate entities of the organization from the financing side of the market environment. To some extent, long-range planning may serve as a substitute for the investment-institute function, that one would find in a different world with only small firms identical with production units. Small, one plant firms normally grow intermittently by big steps under great external financing pains. Large multiplant enterprises can pool internal resourses to one or a few such investment leaps at a time, smoothing out its aggregate growth pattern and virtually isolating itself from external vagaries of monetary authorities. Plans, consequently, also serve as an instrument to coordinate financial data for the company. The banking function enters when it comes to deciding on how, when and where to distribute funds, or rather available resources, within the organization. In some U.S. firms, that I visited, the use of money as an internal medium of exchange (within domestic U.S. operations) had been drastically reduced. All payments (outgoing and ingoing) were centralized in CHQ, or funds were immediately transferred to CHQ when received, except for minor cash balances. Even wage payments could be centralized. Internal sales and purchases within the business organization were cleared automatically by way of CHQ accounts and interest on internal credit transactions was calculated for the purpose of obtaining proper profit records on a division basis only.

Cash requirements of such an organization are of course drastically reduced. The firm can make use of the law or large numbers in the same way as a commercial bank. Few externally-imposed liquidity requirements apply, and except for the effects on the corporate organization as a whole, the firm is virtually isolated from credit market policies. If internal deliveries within the organization are extensive — and this is often the case in multiple product firms that are vertically integrated from the market and distribution stage and far down into the production process — the well known credit multiplier of a commercial bank may be strong indeed although not easily observable. In such a firm one should also expect high self-financing ratios for the simple reason that external financing, except for CHQ-borrowing, takes the form of "internal credit extensions". To a varying degree the description given above is valid for the U.S. firms; less so for the Swedish firms partly because they are smaller and partly because of the prevalent feature of more independently managed subsidiary companies in Sweden compared to the U.S.

c) *The buffer-stock function*

The residual determination of the cash position in the plan also indicates its function (ex post) as the basic financial shock-absorber. The history of most firms, at times, reveals quite violent swings over time in certain crucial variables such as sales, investment, and, still more so, profits. To an important extent, account of such swings has already been taken ex ante in the short-term plan or budget by providing ample cushioning on the liquidity side. Once finally authorized, a not unimportant degree of rigidity has been imparted to the budget and to some crucial elements in particular. Over the span of one or two quarters at least, the production plan is fairly rigid in most firms. Raw materials, intermediate goods, and man-power have been contracted, and the production plan usually has to be carried through even if sales projections turn out to be seriously off the tune of the market. The decision may have to be either to lower prices and dump the goods on the market or to pile up finished goods inventories. Whatever combination of market strategies chosen, both an unplanned-for decrease in the cash inflow and an unplanned-for increase in the demand for funds is involved and the impact as a rule is transmitted in full to the cash position.

d) *Cash-management*

What is usually referred to as cash management is the day-to-day management of the buffer-stock function that has been described above. Cash management is the responsibility of the treasurer's office of the firm. As already mentioned, the short-term plan or the budget of the firm is normally broken down on a monthly or at least a quarterly basis. Cash management involves the careful watching of the current realization of the short-term plan (budget) in its most updated version; to keep funds available for spending as planned for, to keep a satisfactory margin for unplanned-for surprises, and finally to keep

what is left invested as profitably as possible. This involves, for one thing a very delicate balancing of amounts to be drawn from the bank-line and investments (and disinvestments) on the day-market for money. Practically every U.S. firm in the medium or large size group reported that it made extensive use of the moneymarket on a day-to-day basis. Whenever large enough sums of excess cash have accumulated, they will usually be invested in treasury bills or in commercial bills as soon as possible, and quite often for very short periods of time. Most probably due to less developed money markets and perhaps also differences in size, this kind of cash management was less developed among the firms outside the U.S.

Two observations are worth making in this context. The Eurodollar market was mentioned by several European firms as providing day-to-day facilities far more speedy and efficient than those at hand at home. This was an advantage not only for firms with production establishments abroad but also for firms engaged in foreign trade in general when short-term trade credit financing was needed. Secondly, several Swedish firms resorted to the "non-institutional" so called "grey credit market" when it came to earning a return on excess cash. This term is defined to cover all direct inter-firm credit transactions with or without a link to a simultaneous sales transaction.[1]) The typical feature of this market as of today is the relative absence (compared to the U.S.) of intermediary credit institutions and hence a relatively inefficient market performance, in particular in short-term transactions.

Investments in treasury bills provide a convenient way for U.S. firms to bridge gaps between the inflow and outflow of money over seasons within the year. As a rule the *extra* profits reaped from these day-to-day operations are negligible compared to profits generated from current productive activities. However, the firm being large enough, it was usually considered well worth while to employ one or more persons (professional) to manage this particular detail. Again, cash management of the kind decribed above is another example of the step-wise or recursive decision process within large organizations. In theory one could argue that optimal policy would be to take the entire budget set-up into numerical consideration when deciding upon optimal (i.e. minimum) cash balances required. Given the basic inaccuracies of the budget as such and in particular the difficulties involved in estimating the residual impact of errors on the cash-position, a different approach seems to have been taken; ample excess cash reserves are deliberately maintained. However, the costs of maintaining such reserves are reduced by short-term lending and borrowing operations in the money markets. Unlike money, there are no such temporary market opportunities for stocks of inventories. Here, instead, emphasis was on calculating minimum inventory levels to reduce storage and other costs (see Chapter VI. 1 b).

---

[1]) cf. Eliasson (1969, Chapter V).

It should be mentioned in addition that in some firms[1]) collections and payments are higly centralized to CHQ. With the help of modern computer technology centralization has become a flexible and remunerative management instrument. For one thing, it allows a more efficient use of liquid resources; and secondly, the overall manpower requirements in the treasurer's departments are reduced. As a consequence, it also involves the concentration of large amounts of money to one administrative unit, which in turn makes it worth while to apply more elaborate day-to-day investment routines. In short, even though the ex-ante determination of the cash position in the budget or the plan seems to be a matter quite free from intricacies, an explanation of the development of the cash position ex post not only requires the proper specification of all relevant components of firm liquidity (cash, bank deposits, bank-lines, short-term investments and interest rates) but also various data from the comprehensive corporate budget at various stages of realization.

4. Asset and debt structure

Although the formal planning procedure normally includes the projection of a cash flow balance, a complete income statement and a balance sheet for a sequence of future periods, balance sheet considerations typically enter as external, ad hoc constraints. As a rule some "policy statement" as to the availability of financing for growth is issued from CHQ prior to the start-up of the planning cycle. The first, preliminary consolidation of the plan results in a preliminary estimate on the future appearance of the balance sheet. This may — or may not — prompt a backward revision of the plan in order to trim spending plans and sources of financing into a desired balance sheet structure.

There is no automatic procedure or no formulae to adhere to for planners except rather loosely stated guidelines that may be adjusted as a result of the preliminary plan.

This is the confrontation of the plan by decision-makers depicted by the empty square (broken lines) just below the centre of Diagram VII:1. As mentioned comprehensive planning has a typical financial bias, and the dominant purpose of long-range formal planning seems to be to serve as some kind of guidance for the timing of decisions to borrow. Since quite obviously debt and asset considerations are of importance to firm decision-makers, the adjustments made within the empty box in Diagram VII:1 have a bearing on the final appearance of the corporate long-run and short-run plans, even though the exact nature of the constraints imposed is decided *outside* what is called formal planning. It should also be noted that the 5 year cash-flow analysis that regularly is performed within the 5 year planning cycle takes better care of what is generally understood as "balance sheet

---

[1]) The frequency in the sample is impossible to determine, since this matter only came up for detailed discussion in about one third of the interviews.

considerations" than what insights can be gained from looking at often arbitrarily defined balance sheet data.

The importance of debt-asset relationships for the behaviour of share prices of the firm, however, was emphasized frequently as an important consideration. One U.S. firm in the sample, for several years, had been transforming itself from a semi-public utility status to a manufacturing company oriented towards commercial markets. This transition necessitated a gradual lowering of the leverage position of the company to a level more in keeping with a typical manufacturing business. This further involved a deliberate policy to pay off debt and hence a restriction on the capacity to finance growth. Stock market investors were often said to apply different debt-asset rules-of-thumb to public utility and manufacturing companies irrespective of risk and profitability prospects. Hence, this market feature had to be considered in planning by a company concerned about its capacity to aquire external funds both of the equity and nominal type.

5. Foreign subsidiaries and foreign currency planning

The planning and management of foreign subsidiaries have not been systematically covered in the interviews. However, most firms interviewed (and the European firms in particular) had a large part of their current operations outside the country of domicile and a substantial export trade. Similarly, the build-up of an extensive international credit system during the sixties meant that most firms also had acquired not negligible amounts of debts and assets in foreign currencies. Hence, the stability of exchange rates was of some concern to planners in most companies already in the first interview series of 1969 and this concern was of a quite alerted kind in later interviews during years characterized by international monetary turmoil, floating exchange rates and rapid rates of inflation. A few scattered observations from the interviews will therefore be entered here.

For one thing, long-term plans after 1971 usually included some kind of assumptions as to the future development of exchange rates. In most big U.S. and European firms visited after 1971, at least one person (often within a so called economics department) had been assigned the task of watching the international monetary development and of preparing assumptions for the future in this respect.

The immediate impact of a parity change is in the form of capital gains or losses on assets and debts in foreign currencies in the consolidated balance sheet of the firm expressed in the domestic currency. Once the parity change has taken place, this change in capital values cannot be avoided although rules differ between countries as to how fast the corresponding adjustments have to be entered in the books of the firm. As to the effects on current profits (and costs), the impact can — if considered commercially wise — be softened by corresponding price adjustments in terms of foreign currencies.

This meant that concern about foreign currencies entered planning (1) in the making of price assessments for the future and (2) in the structuring of the balance sheet of the firm. As a rule, both these tasks

were handled outside what has been currently termed formal planning. Practically all firms in the "giant" size class[1]) maintained a so called economics department that handled the analytical and forecasting side of these matters in close cooperation with the planning and treasurer's department.

An interesting and prevalent precautionary arrangement in handling the foreign currency accounts is worth taking note of in this context. Once the over-all financial budget for the next few years had been approximately decided upon at the corporate level, the people at the treasurer's department started planning the details of the asset and debt structure. Part of their concern at this phase was to achieve a matching combination of in- and outgoing payments and assets and debts that was approximately neutral vis-à-vis the domestic currency with respect to those currency realignments that were envisioned as most probable. If long-term sales or credit contracts were stated in dollar values, attempts were made to sign purchase contracts or borrow also in dollar denominations or to move into currencies that were expected to move in phase with the dollar. In a company operating subsidiaries in many countries, local borrowing was normally a possible option. Since many companies operated large production subsidiaries abroad, the assets of which were valued in local currencies and entered the consolidated group balance sheet at current exchange rates, the overall outcome could be a very complex fabric of precautionary arrangements.

One should keep in mind here that such arrangements are in fact identical to the services that a well-functioning market for forward currency transactions is supposed, in theory, to perform. So far such market facilities have not been satisfactorily developed. Nevertheless, firms operating in many countries can in practice provide the same kind of hedging or insurance internally if they are large enough.[2]) If expectations as to future parity changes are systematically in one direction, the company can of course bias its arrangements with a view to earning a profit from the expected parity change. In a forward market such one-way expectations would be reflected in the costs for forward coverage, often making such coverage prohibitively expensive for all except those who maintain a set of expectations that differs from those of the market.

The complexities involved on the risk-taking side are well illustrated by a Swedish company thinking of borrowing medium term on the Eurodollar market. The company was offered the choice of shifting

---

[1]) A dozen U.S. firms and 3 or 4 of the non-Swedish Europeans.

[2]) Incidentally, some large firms in the sample operated similar internal "insurance" schemes for buildings, machinery, cars and other equipment. When ten or more production plants were being operated insurance costs had been found to be so high as to suggest that the company plan to absorb the risk internally, only identifying major risks to the entire corporate entity in their insurance contracts.

between six currencies (at the market interest rate) every sixth month. However, it had to decide *now* in what currency to terminate the contract five years from now.

Case 9. Exchange rate assumptions in budget (Swedish multinational company). In keeping with the purpose to use the budget as a reference and control instrument the exchange rate assumption in this company was kept throughout the budget year. Each subsidiary budgeted in its local currency. The exchange rate assumption was made as realistic as possible, but then was left unchanged until the next budget round a year later, despite the fact that partial and fairly complete updatings of the budget were made each quarter.

However, in updated versions a separate adjustment entry for parity changes was booked over capital account when subsidiary accounts were transformed into Swedish kronor. This practice only codified the main principle that current operating performance measured should not be affected by a parity change as long as operations were confined to local markets, and hence should be based on the local currency. The effect of a parity change was regarded to be of a more long-term concern that affected relations between CHQ and the subsidiary only and hence should be accounted for accordingly. If, for instance, CHQ found that the parity change had occasioned too large capital losses in the consolidated accounts in Swedish kronor or that profit contributions were now too small compared to the engagement or alternative production possibilities, pressure could be brought to bear on the subsidiary to raise prices or to cut down on investment spending etc. Still, this was regarded as a CHQ problem and should not be allowed to mess up the local operating accounts of the subsidiary.

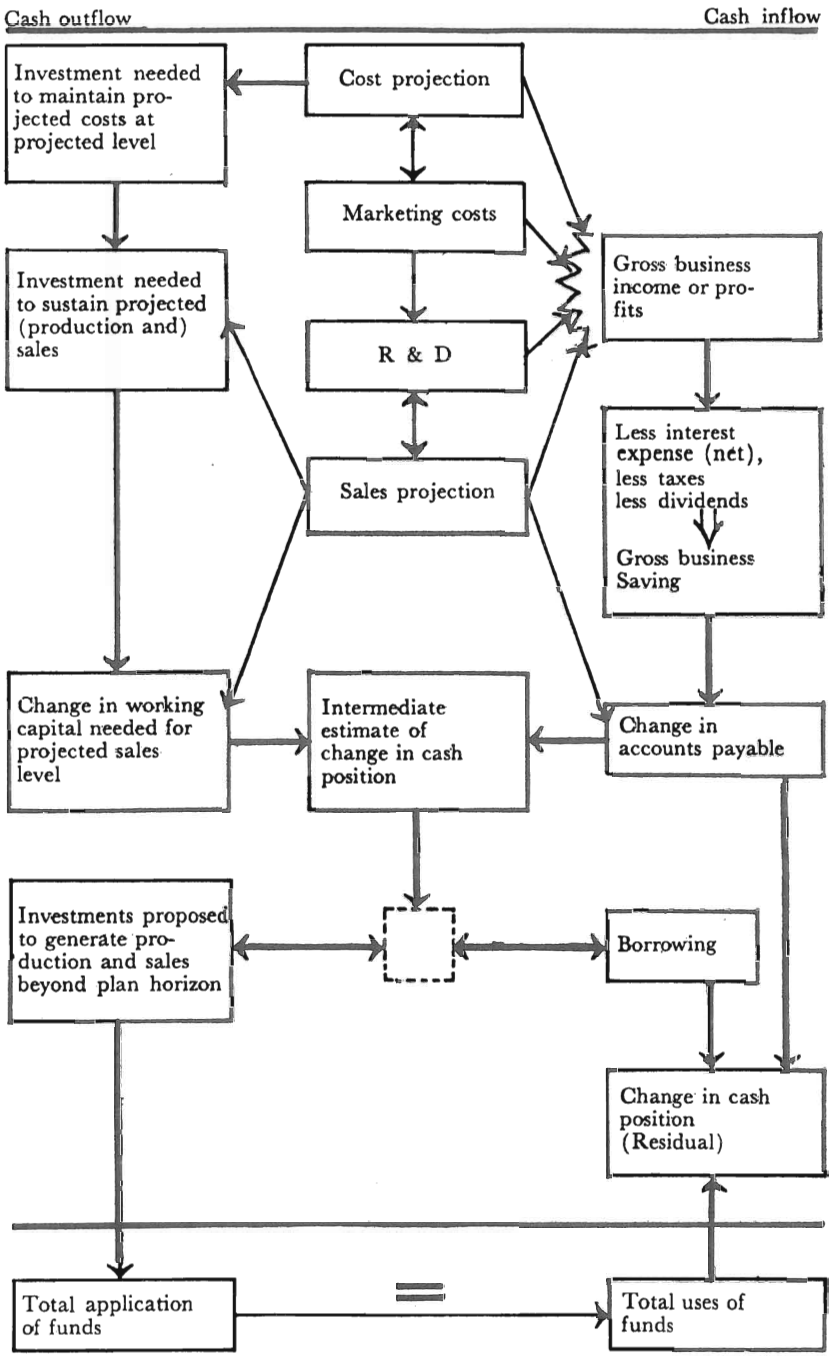
6. Closing the future accounts — the investment budget

We have now accounted for the determination in the plan (short term or long term) of all entries necessary to close the accounts on the planning horizon. In order to straighten out, somewhat, the conceptual framework of planning, I intend to extract from the comprehensive plan an element often met with in management literature, namely the investment plan. The observant reader will have noticed already that within the comprehensive plan properly closed and consolidated in the way described above, no investment budget or plan can exist as an entity independent of all other elements of the plan. Also, the concept of an investment plan is often confused with the appropriations plan or the appropriations procedure, which is something quite different.

Overlooking the fact that the final determination of the plan is often an iterative process sometimes involving several steps (trials), we repeat here the causal approach in reaching a first approximation to the plan. Diagram VII:1 provides the blueprint for our analysis. It is in fact a further breakdown of Diagram I:1 B in Chapter I.

The initial step taken in work on the plan — the most frequent one met with — is the determination of the sales plan by a proper balancing of the cost-sales relationship for various sales-level alternatives. Once this "decision" is taken, planners proceed on the basis of a fixed, single-valued sales and cost projection. This was the initial confrontation with the world external to the firm. Then followed a number of endogenous steps based essentially on internal data on the mechanics of the firm's organization. To the right in the diagram, gross business profits appear as the difference between sales and costs. After provision

Diagram VII:1 Ex ante flow-of-funds chart



for taxes and dividends etc.[1]) has been made, gross business saving (plowback, internal retentions) is arrived at.

To the left in the diagram the sales and cost projection gives a preliminary investment plan including the net accumulation of trade assets and debts (to the right and to the left).

All these elements of the plan tie in with one another quite rigidly. This is usually the core of the plan, normally left untouched by later revisions. Sometimes this part of the spending side (the left hand side) is termed *mandatory* in the planning documents.

Rather independently of the cost and sales projections, additional spending proposals are entered with the purpose of providing capacity for production and sales growth beyond the formal planning horizon. They obviously bulk larger on the spending (cash-outflow) side the closer at hand the horizon, and the difference is apparent if comparison is made between the budget and the long-term (usually 5 year) plan.

For one thing, this last bundle of spending proposals is a flexible element on the spending side. Secondly, the sum total of spending proposals — at least in the first iterative step — has a tendency to exceed available internal resources expected to be generated on a current basis; i.e. gross saving.

To equate the two sides, provision for external finance or a reduction in liquidity has to be planned for on the financing side, or a reduction in spending has to be enforced, or both.

Again, this is a confrontation with the world external to the firm. We noted already in the previous section that external financing, for one thing, was a matter normally settled outside the planning department. Secondly, it was a decision much influenced by the current situation in the markets for credit and balance sheet considerations. There were exceptions to this rule, of course, but common practice was to establish a certain minimum cash position and to make known to planners in rough terms the amount of external finance available for allocation to the divisions. Then followed, as a rule, a series of dialogues between planners and profit-centre managers until investment proposals had been fitted into the frame of available finance. The nature of this trimming procedure and the methods applied will be further described in Chapters VIII and IX.

Sometimes, this trimming procedure involves the employment of rather sophisticated and numerically specified rate-of-return considerations, but normally various rules of thumb constitute the basic method. This is probably a rather convenient and labour-saving device for running the planning system if management is confident enough — or rather if there are reasons for management to be confident enough — in the future; i.e. if there are no reasons other than management and technical ones to bother about which opportunities should be exploited,

---

[1]) We overlook the fact that some tax-deductible interest payments will result from later borrowing decisions. This interdependency was usually overlooked in the formal planning routines, I had the opportunity to study.

and in what order, since they all yield returns above required rates. This is all fine for firms happening to be located in booming product markets. The same method may be disastrous in the long run for firms operating in stagnating markets, if not discovered in time by other means than a faulty planning scheme. And above all, such a deficient planning scheme is devoid of one of the important prerequisites for the proper functioning as an efficient allocation guide into the future — and yet its presence is all too common.

In conclusion then, a basic investment program can — and usually is — derived from the sales projection, which is fixed at an earlier stage in the work on the plan. On top of this investment program there is an additional investment plan primarily affecting capacity and sales beyond the plan horizon. If revisions have to be made, investments incorporated in the production and sales program are usually the last to suffer. At the same time we have indicated the sensitivity of the additional investment provisions for the future (beyond the horizon) to the expected (or planned) availability to the firm of external finance. The closer the plan horizon, the larger the relative proportion of such provisions for the future, and hence the larger the possibility of postponing such investments beyond the plan horizon, without jeopardizing the realization of the core of the plan.

PART III
ANALYSIS AND COMPARISON

"Das industriell entwickelte Land zeigt dem minderen Entwickelten nur das Bild der eigenen Zukunft."

Karl Marx

VIII PROFITABILITY AND PLANNED PERFORMANCE

So far we have only touched upon the ways in which rate-of-return considerations enter planning. The reason is that such considerations, if *formal,* normally fall outside or have not been systematically integrated with, comprehensive planning. Usually, systematic rate-of-return considerations enter the formal planning scheme indirectly by way of proxies. We noted, for instance, in Chapter V that the sales plan frequently was fixed on the basis of profit margin criteria. The first section of this chapter will be devoted to an analysis of the implications of this procedure.

In a comprehensive plan the ex-ante data collected may be used for a more elaborate ex-ante profitability analysis of various product lines or entire divisions within the company organization. In some, not many, firms such an analysis was used as a basis for consolidating the total plan instead of fixing certain planned variables through profit-margin criteria. In section two of this chapter we demonstrate how such trimming was performed in two cases and compare the implications, for allocation with the earlier profit-margin method.

Still, formal or numerical rate-of-return considerations occured most frequently in respect of individual investment projects and within the appropriations procedure in particular. Even though these matters were in fact peripheral to this study they have to be commented upon for one very particular reason. One may argue very convincingly — as I will later on — that the elaborate attention paid to investments in hardware is a reminiscence of those days when such decisions embedded practically all major decisions and commitments of the firm. It is not so any longer. Still it is all pervading practice to leave hardware investment spending commitments (machinery, acquisitions, constructions etc.) pending for the final so called apropriations procedure. At least for large capital spending projects they illustrate the typical feature of comprehensive, numerical planning to keep preparation of and final say on major ventures where intuitive business judgement enters more importantly than numerical analysis outside routine planning, often until final go ahead has been signalled.

The different ways in which various types of investment proposals were treated, as far as rate-of-return considerations go, are important for an understanding of firm policies woven into planning routines. The peculiar emphasis placed on investments in machinery and construction as evidenced by the appropriations procedure, is at times hard to

understand in full. For instance, in one firm where a $ 10,000 machinery purchase had to go all the way to the Board for authorization, at the same time 10 highly qualified persons could be hired to work for a year or two on a R & D project, without any persmission being asked outside the division or profit centre. Two sections are devoted to matters like these and the chapter winds up with sections on alternative planning, transfer pricing and the frequent practice of treating large investment proposals separately from comprehensive planning.

1. Profit-margin criteria

The particular emphasis which the majority of planning routines place on profit margin criteria when fixing the sales plan deserves special mention. The parallel and frequent practice of informal management interaction with the formal planning processes and backward revisions at various stages of planning (see Chapter IX) make systematic observation on this practice almost impossible. However, a few notes on formal procedures operated can be given and some conclusions as to the rationality of these procedures can be offered.

One argument frequently met with was that the profit margin is a satisfactory measure of or proxy for "profit performance" or *profitability*. We have noted already that the fixing of the sales level for the plan is a matter often decided at the level of an individual product line. At this level the profit margin is defined before all overheads. Normally, however, the "profit set-up" of production, or the amount of capital tied up in production, as well as the amount of intermediate deliveries in the sales value is well known to the division or profit centre manager. For him it is fairly easy to evaluate — within the range of his experience (the division) — from the gross profit margins, the prospective rate-of-returns to be derived from allocating resources to various lines of production. On the other hand, his experience and his position normally do not enable him to make the same evaluation vis-à-vis other divisions.

His sales plan suggestions, however, are seldom passed through the CHQ planning department without some scrutiny and it may be that CHQ management has the ability to provide a proper ranking of divisions by profitability from the knowledge of gross profit margins only. At least some notion of this kind must be implicit in the frequent practice of using different and numerically specified gross margin criteria for each profit centre when determining the levels of sales for the plan. By these standards we can talk of allocation decisions in planning; one between product lines within the division and one between divisions at CHQ. However, we report already here (see next section) the experience from those firms going one step further and producing proper rate-of-return estimates, that such a proxy approach by way of gross margins may lead seriously astray if the ultimate purpose is to improve overall profitability.

There is, however, a more theoretical justification for the application of gross margin criteria. The proposition is best illustrated for the case where the decision is to vary the level of production without having to apply any new equipment but only currently available factors

(material, man-hours etc.). Irrespective of whether the original investment was a "good" or "bad" investment, the proper decision of how to make the best use of the equipment already installed should be based on its capacity to cover currently incurred costs. If initial capital stock does not require maintenance or replacement investments before the date of scrapping, the decision is easy enough and gross margins provide a satisfactory indicator of the marginal rate-of-return on variations in the rate of activity of the firm.

If such unlikely conditions do not prevail the proper measure would be the gross margin (after correction of sales for intermediate deliveries), gross profits being defined net of repair, maintenance or additional investments needed to maintain or to increase the level of production. I found some variations or partial approaches to measures like these in firms (usually small ones) placing heavy emphasis on profit-margin criteria in *intra firm comparisons* to fix division sales levels for the budget or the long-term plan.

When applied at the level of a subsidiary, division or profit centre, profit-margin criteria sometimes were designed to approximate average returns to total assets. For one thing profits at this level of aggregation often were computed on a net basis, i.e. net of overheads and depreciation. (See Table V:1 in Chapter V.) If total assets grow in proportion to the level of sales — which was often said to be roughly the case — and equipment life is the same between divisions, the two rate-of-return criteria yield identical rankings. It might be helpful to have this demonstrated formally. Let Π represent gross profits. S the level of sales and A total assets. Assume that:

$$A = \alpha S \tag{1}$$

where α is a proportionality factor, defining the relative amount of capital (assets) tied up per unit of sales *value*. Define:

$$\Pi = \beta \{ \ldots . \} S \tag{2}$$

where β is the gross profit-margin. $\beta \{ \ \}$ is identified as an action parameter for each production process and (consequently) for each division or profit centre. It may be dependent upon the level of, as well as the change in, sales and numerous additional factors.[1]) Our observation is that firms try to estimate the sales growth, sales level combination that yields a desired β.

Also define a measure of the current rate of return (RoR) to total assets as the ratio between *net* profits and total assets:

$$R = \frac{\Pi - \rho A}{A} = \frac{\beta - \rho\alpha}{\alpha} \tag{3}$$

ρ is the fraction of A (the depreciation factor) that is used up in each period. Evidently the level of sales (S) can be eliminated from R. However, if β is dependent on S, so is R. The algebra behind these formulae is developed in more detail in Supplement 4, section B and onwards.

---

[1]) We overlook the possibility that β can be raised by the application of more production equipment per unit of output or sales. This of course, would raise α as well.

It is fairly easy to demonstrate that if ρ and α are the same for a number of production lines or divisions and if $(\beta - \rho\alpha) > 0$ then a ranking by β would be identical to a ranking by R. The same is true for the net profit margin $(\beta - \rho\alpha)$ if α (these asset sales relation) is the same between production lines or divisions.

Obviously, both measures β and $(\beta - \rho\alpha)$ disregard variations in capital requirements per unit of sales value (α) and the life of capital equipment between production lines and divisions. Where such measures are used as criteria on where to invest in order to speed up production — which was reported during several interviews — this neglect may be important.[1])

If ρ and α are known numerically, however, it is fairly easy to adjust the margins according to (3) in order to attain a more reliable ranking yardstick. One only needs to know the approximate numerical properties of ρ and α between divisions. In several firms adjustment formulae like these were in fact put to use, and when planners said that they knew the profit "set-up" of the division they must have had something similar in mind.

For *comparisons over time* for one division, rather than between a number of divisions at one point in time, the profit-margin measure might be more useful. If one can argue that ρ and α remain approximately constant over time for a product line or a division, the gross profit margin would be a near but still biased index of average net returns to total assets over time. For positive R a change in β will underestimate a change in R up or down by a factor $\beta/(\beta - \rho\alpha)$[2]).

Still, any criterion like β, $(\beta - \rho\alpha)$ or R involves a comparison between *average returns to invested capital.* Past low-profit investments will keep the average down even if new investments on the margin yield very high returns. If the factors β, ρ and α vary significantly over time this is liable to affect the usefulness of the profit margin as a proxy for profitability. Furthermore there is the intricate problem of how vintages of equipment invested in the past should be valued in money terms and compared with purchase costs for new investment in a measure like R. We will return to this subject later on.

To understand the frequent use of profit margins as a decision criterion it is important to understand the basic purpose of planning. Are we concerned with allocation decisions in the context of formal, comprehensive planning, and hence with rate of return comparisons across the business organization? Most evidence presented elsewhere in this book says no. Major allocative decisions are taken outside and on top of and not even on the basis of this kind of planning. The key purpose of formal, comprehensive planning is control and the exercising of top

---

[1]) Note the resemblance between profit-margin and "pay-off period" criteria.

[2]) From (3) $\frac{\Delta R}{R} = \frac{\Delta \beta}{\beta} \left(\frac{\beta}{\beta - \rho\alpha}\right)$.

down pressure, and this puts emphasis on comparisons *over time* of individual responsibility units within the business organization.

It is in fact easy to demonstrate that the rate of growth in firm net worth (a rate of return measure) is a weighted sum of individual production line profit margins plus a *sum* of additional factors that contribute additively to growth in net worth (inflation, the leverage factor, etc) but that are normally managed separately from routine operations management concerned with "operating" profit margins. This formula, (exhibited and derived in Supplement 4, section E) called the *separable, additive targeting* formula, for one thing establishes a direct link between the profit margin and a major firm target variable, namely growth in net worth, and, hence, also establishes the rationale for using profit margins as decision criteria. The profit margin is also much easier to handle conceptually than a corresponding rate of return measure. One bypasses the difficulties involved in defining and measuring "capital invested".

Secondly, the separable, additive targeting formula allows a break down of the same major target variable into a set of additive, contributing factors, that correspond to *different responsibility areas* within a business organization.

Thirdly, the same formula also establishes *the profit margin as a real profit rate* concept. Furthermore, on the profit margin side, past profit margin history is frequently put to use to assess possible future profit margin performance. We call this *feed back targeting*. The rationale for this procedure, exemplified in many places in this book, is that CHQ does not possess the knowledge and the competence to evaluate potentially feasible performance at the shop floor level and hence has to resort to some substitute instrument. The criterion frequently imposed was that division or profit center management *maintain or improve past performance* as estimated through some feed back targeting formula. We call this the *MIP principle*.

The above concepts will all be put to use in Chapter XI when we ask what the observations may mean for firms behaviour and universal theorizing around the firm. The reader will also find a mathematical treatment of the principles involved in Supplement 4, section E.

One final comment is at place here. We noted above — and will prove in the supplement — that the financing (leverage) decision can be treated separately from short run profit management in the targeting procedure. Similarly, inflation — or rather price change — can be shown to affect overall CHQ target fulfillment as additive contributions or reductions. Under conditions of persistent inflation, like the post war period, price movements are likely to add to the *value* growth in firm net worth. If CHQ management is primarily concerned with value growth rather than some price deflated growth in net worth, as it commonly is, we should expect to observe a tilting of attention paid to profit margin management on the one hand, and to financial management through the leverage factor, on the other. Again, this is further discussed in Chapter XI and mathematically treated in Supplement 4, sections D and E.

Case 10; Net profit-margin criteria (large non-U.S. firm)[1])

The profit margin method employed in a large non-U.S. firm provides a good illustration of the different profit concepts involved and an introduction to the topic of the next section. Profit margins were calculated here at division and subsidiary levels by stages. The first stage was to calculate gross profits [Π] net of currently incurred variable, operating costs in the sense defined by (2) above,[2]) and divided by sales to obtain gross profit margins. Next CHQ overheads including R & D spending etc. were apportioned to divisions and subsidiaries by some distribution formula to arrive at what was called operating income (cf. Table V:1).

Step three included the subtraction from operating profits of depreciation charges (D). The depreciation charges were calculated on the basis of life length estimates ($1/\rho$) on the repurchase value of individual equipment (A). Net profit margins are consequently defined as:

$$\text{Net profit margin} = \frac{\Pi - \rho A}{S} \tag{4}$$

In the fourth step an internal rate of interest charge was subtracted from net profits defined as above. This interest charge was also calculated on total capital employed at division level including an allowed proportion of CHQ overheads. Capital was estimated at repurchase values (A) and a uniform interest rate (r) was applied to all divisions to make interdivisional comparisons possible. r was linked to the expected long-term borrowing rate. The new *net* profit margin (m) consequently is defined as:

$$m = \frac{\Pi - \rho A - rA}{S} \tag{5}$$

Introducing (3) above we obtain:

$$m = (R - r)\frac{A}{S} = (R - r)\ \alpha \tag{6}$$

Consequently the sign of the net profit margin m will indicate whether planned profitability of the division is above or below the interest rate applied. However, m is still not a perfect indicator of relative profitability since the factor A/S usually varies between divisions. As long as both m's are positive a higher one might very well correspond to a lower rate-of-return R if capital input requirements α are high enough.

Three further comments may be appropriate at this stage. First, implicit in formulae (5) is a capital cost definition:

$$(\rho + r) \tag{7}$$

per unit of capital input A applied. Since, however, (7) has been defined with respect to A valued at current replacement costs this formula is slightly misleading. Capital costs should be adjusted each period by the inflationary upgrading of already invested capital and the proper capital cost charge per unit of a A employed should in fact read;

$$(\rho + r) - \frac{\text{percentage price change}}{100} \tag{7B}$$

as it in fact does in the calculation procedures applied in the firm chosen for illustration. This, *however, also means that R in (6) has been defined as a real rate of return* net of inflation since no corresponding addition to profits of inflationary capital gains realized on A has been made.

Third, with this method of calculation, for the net profit margin m (in 6) of the entire firm to be positive, the *real* rate-of-return (R) must be at least as high as the nominal (inflation dependent) long-term borrowing rate r.

---

[1]) The description has been somewhat modified for didactic reasons.

[2]) Incidentally, sales levels (and consequently also profits) at this first stage were calculated under the assumption of "normal" capacity utilization rates. At the next step a cost correction factor for the expected capacity utilization rate was entered explicitly. We pass over this feature in order not to blur the point to be made.

It is very likely that many profit centres report systematically negative (R—r). Since R and r are incompatible measures and since comparisons of m across the zero-line may easily be misinterpreted the case is a good illustration of the intellectual control needed to use a semi-sophisticated but nevertheless systematically biased management tool (see further Supplement 4, sections C and D).

2. Rate-of-return criteria — the division level

We concluded in the preceding section that ex-ante gross-profit-margin criteria were commonly used for fixing sales-level estimates to be entered into the budget as well as long-run plans. Common practice was to couple this estimation procedure with a later screening of individual investment projects by way of sometimes elaborate but normally rather crude ex-ante rate-of-return estimates. At the profit centre level in about 25 per cent of the U.S. cases some additional criteria were put to use, at least partially, by way of sub-routines either before profit centre sales levels were finally fixed or before capital requirements were determined. This holds for formal, or numerically specified, procedures within the routine planning system. Instead of such formal sub-routines in at least another 50 per cent of the U.S. cases, *informal reviews* were superimposed upon the formal planning system in order to attend to the above matter.

In a quarter of the U.S. cases the liquidity consequences arising from a certain sales growth plan were analysed *numerically* before the sales levels of the plan were definitely fixed for the planning period. This liquidity or rather flow-of-funds analysis being completed, the data needed for a rather satisfactory ex-ante profitability analysis at the division level were as a rule (already) compiled. However, such a final ex-ante rate-of-return analysis was very seldom followed through for the purpose of fixing the planned sales level.

Instead, the usual reason for carrying out the profitability analysis at the level of the division or profit centre, was to estimate rather passively the capital requirements arising from the sales plan (already fixed) and if possible to trim them down to pre-set profitability standards. This was fairly systematic practice in about a quarter of the U.S. firms interviewed as long as we refer to the budget. In long-term planning this practice can be reported on in 3 U.S. cases only (1969 observations). Only in two of these was the numerically estimated long-term profitability outlook for the profit centre put to use systematically as a criterion for channelling total available funds to various divisions in the *short-run plan*. I found evidence of partial approaches combined with ad hoc considerations in 3 more U.S. cases (of the above 6). More than three of these firms produced goods having an average life span shorter than the long-term planning period.

As far as I could gather in 17 U.S. firms interviewed no *ex-ante* rate-of-return estimates at the profit centre level were carried through within the long-term plan until after all relevant variables (sales, investments, etc.) had been more or less definitely fixed for the long-term plan as well as the budget. If carried through they appeared as a consequence calculation of the assumptions and judgements entered into

the plan. Sometimes the results of such a calculation had come as a surprise to planners out of the work on the plan, and I took note of several remarks on the necessity to improve matters in this respect.

As for the remaining 13 U.S. firms I got no information, vague information or I cannot tell from what I got to know. As for the non-U.S. firms interviewed, evidence of systematic ex-ante rate-of-return calculations at division level as a means of making decisions on input and output variables of the plan was even more rare. The same holds for rate-of-return calculations in general at division level, including the determination of the rate of return consequences of the plan already fixed.[1])

Normally, spending proposals delivered to CHQ from profit centres to be entered into the plan were exaggerated to a varying extent. Normal practice in trimming down such spending proposals to "adequate" levels was to use non-formalized experience on past behaviour of profit centre management to decide upon various "cut down" ratios for the different divisions. One division might be told to "get investments down by 20 per cent", and to come back with a new proposal. The choice in the plan on where exactly to exercise the "cuts" was normally left with the profit centre manager. Within such a routine the problem to allocate resources between divisions and to account for peculiar reporting biases of profit centre managers were mixed in a to me rather confusing way. Surprisingly enough, most planners felt that — nevertheless — this procedure "worked out all right". By investments in this context I mean investments in machinery, equipment and minor structures. In the plan (short-term or long-term) working capital components were usually derived by the application of predetermined ratios to sales and purchases.

However, in 4 U.S. and 3 non-U.S. cases, ex-ante profitability estimates for the profit centre were applied as guide-lines to slim down total spending proposals until "satisfactory" levels of ex-ante profitability had been reached. The first stage was to demand from profit centre management a proposal or account for how this could be achieved. Note here that fixed sales levels were usually left untouched at this first stage. As long as excess spending proposals had been delivered, profit centre management in two of the U.S. cases also had to take all the extra trouble to explain in detail and in writing where and how cuts could be made. Besides, the constraint of leaving the sales plan untouched they were also urged to leave proposed investments for future production (beyond the planning horizon) untouched in this first step. Proposals submitted might involve a speeded-up collection procedure or delayed replacement investments etc. These procedures were comparatively new in all the (4+3) cases cited. Experience was said to be that a few planning cycles after the introduction of this method,

---

[1]) It should be mentioned here, however, that the interviews span a period of 5 years. In three of the Swedish firms interviewed after 1971 I found that some very sophisticated ex-ante rate of return estimation methods at division level had been introduced recently. So far, however, for two of these firms difficulties were reported (by planners) in getting these methods accepted — or rather understood — at the level of the decision-makers (see case below).

CHQ planners had noticed a remarkable increase in the "sense of realism" in the making of preliminary plans and spending proposals at the profit centre level. If satisfactory RoR standards could not be met in the first round of cuts in the total investment "plan", a next step might involve a revision of the sales projection and/or postponements of investments for production beyond the planning horizon.

In the first two years after the introduction of this method, CHQ planners were content not to apply pre-set standards too rigorously. After the introductory years, it was found that there was no need for any second step nor even for the first step, since profit-centre planners had learned, from the extra labour imposed upon them by the revisions, to present realistic plans from the very beginning.

Before leaving the problem of aggregate ex-ante rate-of-return measurements there are some additional things to comment upon briefly. Only in a couple of cases, where such RoR measurements were performed, were the calculations *marginal;* i.e. the return on the additional capital accumulation (including replacements) planned for was not related to the extra generation of profits from that particular application of capital. We conclude this section with a case description of such a "marginal" calculation at division level. However, the calculation was instead an average one relating total profits generated (ex ante) to the application of initial capital and planned additions including investments for production beyond the horizon. A number of cogent reasons for these seemingly unsophisticated methods can be listed. First, and maybe most important, a systematic appraisal of returns on investments, on the margin, at division level not only requires a grand calculation effort. It also presupposes that a meaningful alternative investment plan is defined for reference. *The alternative "do nothing additional" is utterly meaningless at the aggregate level of a division* (cf. the case below). Since average RoR measurements have a rather doubtful information content, this in combination with the apparent ambiguity of methods to *measure* capital may be the major reason for the apparent rarity of such measurements. Second, one should not forget that marginal considerations do enter informally and in an ad hoc manner when plans are discussed and decided upon. Third, the profit margin may be looked upon as being closer to a marginal RoR estimate than the average RoR traditionally computed, in the sense that it "disregards" past investments or interdivisional differences in capital requirements. Fourth, individual investment project evaluations of course involve a kind of marginal analysis (see next section) and the rather frequent practice of taking large investment projects (groups) out of the comprehensive plan for separate study is a good example of a particular kind of marginal analysis at the level of aggregation of a profit centre or division where not only the investment object is considered but also additional capital requirements such as inventories, trade credits etc. (see Section 8).

As well shall see in Section 4, the typical way of carrying out marginal comparisons is by way of calculating returns on individual projects. The problem is, however, that this procedure is seldom consistent with

the formal procedures adopted in the comprehensive plan.

Another problem relates to the ever present application of informal considerations on top of the formalized planning routines. This was one of the ways by which subjective rate-of-return criteria and other non-explicit considerations entered planning routines as additional constraints. This usually took the form of *joint reviews* between CHQ and profit centre management at various stages along the completion of the formal plan. As is easily understood, it was impossible for me to appreciate in full the significance of these reviews even for the formal plan and still less so for final decisions. This internal reviewing process was regarded as very important in most U.S. firms and I will return to it in Chapter IX.

Thirdly, in two instances I entered upon a long-winded discussion about the proper methods for comparing performance between new acquisitions (firms) with existing profit centres. In both cases the amount invested valued at purchase costs was used as the base in the rate-of-return measure. In one instance in particular, a recent acquisition figured very favourably in the comparison, simply because the acquisition had been a "good buy". The denominator of the performance variable (the amount invested) was "too low" and estimated by a method different from that applied to existing profit centres.

Case 11; Marginal profitability analysis at profit centre level (one U.S. and one Swedish firm)

The basic problem of marginal profitability analysis is to find a meaningful reference alternative with which to compare the results of the decision contemplated. Above the level of a well defined investment object the alternative "no change" usually has no operational meaning. Substantial changes in product prices, product mixes, factor prices (e.g. wages) and production schedules take place currently and are prompted by changes in the external environment of the firm. To compare a planned course of action with a case where no such changes occur, or where no action to counteract such changes is taken, was not considered very informative. The case now to be accounted for in a somewhat modified form (met with in one U.S. and one non-U.S. firm) refers to a division within a multidivision firm. For some years division products had been subjected to severe competition and profit performance had deteriorated sharply. A large share of total firm capital value was tied up in and a very large number of workers were employed by the division. For a number of reasons discontinuing operations altogether over a few years were considered out of question. Two alternatives were compared. The first consisted in a long-run strategic solution in the form of a large scale investment program aimed at recapturing a competitive lead in the market. Quite in keeping with what has been said already, *this was the alternative decided for the long-range plan even before the analysis below had been carried through.* The reference alternative chosen was a minimum-cost operation of the entire division and a gradual phasing out of its dominant production plant over some 10 years. This "minimum" alternative required substantial amounts of new investment spending over the entire 10 year period, not least in the form of large replacement investments. The typical feature of the minimum alternative was that very heavy losses on a current basis would be incurred in a matter of one or two years if a rapid modernization of production facilities did not take place all the time. The minimum, reference alternative chosen meant no profits whatsoever on already invested plant capacity. A somewhat less than satisfactory rate-of-return was expected on currently undertaken new — and replacement — investments.

In contrast to this, the new, strategic investment program selected for the long-range plan meant heavy losses over the next two or three years and *at least* (to quote the risk evaluation) satisfactory returns on total capital (past and new) invested after five years. The financial strains on the entire firm would be substantial and the two primary purposes of working with two alternatives seemed to be to evaluate the impact of the large strategic investment solution on the entire firm under its gestation. Could the financing be accomodated? How would the firm's overall profit performance look during the gestation period? What would happen if the recovery took two extra years beyond what was planned for or did not take place at all. Both possibilities were regarded as "not unlikely".

It should be mentioned, finally, that building up these two alternatives for the entire division was no small planning effort. It meant putting a large number of technical staff on the problem of drawing a detailed blue-print of the minimum alternative, even though this was not seriously considered. To enter these kinds of calculations into long-range planning in a routine fashion was not regarded as "feasible".

3. Inflation in planning

The numbers in the comprehensive plan, whether from the annual budget or from a longer-term projection, invariably stand for values. To separate prices from volumes, one as a rule has to probe below the data set available to CHQ planners. Preparing and working with price indexes for product groups is very uncommon both as regards the past and the future (in planning) at CHQ.

On the output side, price assumptions enter into the preparation of the sales plan but these data as a rule stay at the profit centre level or in the sales departments, except in firms producing only a few products (pulp and paper etc.). On the input side, prices enter explicitly into costing, but disappear again at the aggregate division or profit centre level, where they give way to comparisons in terms of aggregate incomes and costs. Capital stock or capital cost estimates that enter balance sheet projections or RoR estimates usually consist of a delicate compound of apples and nails of various vintages, the composition and the valuation standards being for all practical and analytical purposes unknown at CHQ. Under such circumstances my insistent questioning as to how, exactly the problem of inflation was taken care of in comprehensive planning regularly turned into an embarrassed joint effort to figure out how.

Price assumptions regularly enter into the sales plan in much detail as shown in Chapter V. They are as a rule explicit — in particular when it comes to wages — in costing. Corporate economists often provide "forecasts" as to the general inflationary outlook prior to the start of planning and such considerations of an ad hoc nature regularly enter into the various stages of reviewing that are part of the making of the plan. However, I have met with no numerical analysis of the impact

on the accounts of the corporation of changes in relative and absolute prices of a kind similar to that illustrated formally in Supplements 4 and 5 although the data for such an analysis are in practice always available at the cost of some statistical research. One reason for the absence of this kind of analysis may of course be that no useful prototype methods have been developed at the academic level.[1])

A second reason may be found in the frequent practice, reported on throughout this study, of working with numbers as "targets" or "guidelines", rather than as the results of measurements according to some well-defined method. Such methods are put to use — as we have seen — but if they yield numerical results that are considered "unreasonable", "undesirable" or simply "wrong" at various judgemental stages in the planning process, the figures are simply adjusted in an ad hoc manner without consequent adjustments at earlier computation stages. This is one further illustration of the typically inconsistent manipulation of numbers in the planning process. This does not mean that the final estimates of the plan are necessarily deprived of essential information. The numerical methods applied in planning may be regarded as too crude or biased. The numerical outputs at various stages of planning are supposed to have an operational significance. Hence, data that are regarded as distorted or biased are moulded, into "plausible" estimates by the people who man the numerical mill, producing in the end a different kind of "bias" in the numbers.

The handling of inflationary assumptions may be a good illustration of this. If inflation threatens profit performance and planners are gradually growing aware of this from work on the plan, something will have to be done about it before the plan is finalized. Adjustments are made. Most of the details of these adjustments are hidden in the costing procedure and this together with the frequent practice of imposing profit-margin targets in planning, means that the exact nature of inflationary considerations in planning will not be tractable for observation. As mentioned already, it is quite common to assume in planning that it will regularly be possible to compensate wage increases above product price increases with improvements in productivity. If this can be achieved without altering appreciably the sales-asset ratio, both the profit margin and the RoR will remain roughly unchanged.

Thus the problem — and the dangers — of inflation appears most importantly at the early profit-targeting stage, rather than in the numerical guiding of the planning process. Very few of the firms interviewed had developed systematic methods for determining profit targets to apply in planning, and if anything was obviously missing at most of the CHQ's visited in these interviews, it was an agreed upon philosophy of how to look at — not handle — inflation. Fortunately,

---

[1]) My frequent contacts with firm managers in Sweden through 1974 and in 1975 (*not* counted as systematic interviewing in this study) has revealed that much experimentation with methods to incorporate inflationary considerations explicitly in plans and ex-post accounts is taking place. See further supplement 4, section D.

inflation is not an altogether negative phenomenon for skilfully managed business organizations. This immediately brings in a number of problems, treated at various places in this study, like transfer pricing methods, how to measure capital balances, what discount rate to use etc. The cases in Sections 1 and 3d. illustrate some of these problems. There is also a partial, formal analysis in Supplements 4 and 5 with relative and absolute price changes made explicit.[1]) The case given in Section 4 d, finally, elaborates on a method of linking rate-of-return requirements at the investment project level with the corporate target of maintaining a minimum rate of growth in equity net of inflation.

4. Investment project evaluation

a) *The appropriations procedure*

We observed already in Chapter VI that Board approval of the investment plan within the budget, with one or maybe two exceptions, did not mean authorization to make commitments. Commitments relating to the investment plan were controlled by way of the appropriations procedure. This is the link within the comprehensive planning system where rate-of-return considerations — if there were any — entered in an orderly (methodological) manner. This is also the part of business planning systems that has been best covered by empirical investigations, so far. Superficially, all the appropriations procedures met with appear to fit similar, standardized frames. At first glance they also seem to fit neatly into the overall comprehensive planning system. This, however, is only the surface of the matter, and not until the details have been studied can the significance of the appropriations budget be evaluated.

As pointed out in Chapters VI and VII, the investment plan (using our terminology) indicates the fraction of total future available funds planned to be allocated on capital account. The appropriations procedure in turn involves the final decision as to which individual projects are to be selected for the next planning period under the constraints imposed by the investment plan. The field work of this study being completed and an analysis of the comprehensive planning system having been carried out, however, one has to ask why this sub-routine has been hooked on at the very end of the comprehensive plan, instead of being carried through simultaneously with the work on the annual plan or budget. In a few firms this was in fact the case. In some additional cases it was partially so, in a fashion to be described below. However, general practice was to have a second investment "plan" employed after, and separated from, the comprehensive planning sequence; a second plan closer to the actual decision and hence of greater operational significance — as it seems — than the comprehensive plan.

When looking back into the history of the firms one is certain to discover that, besides market projections, the appropriations procedure represents the first step towards a short-term plan or the annual budget.

---

[1]) Inflationary expectations in investment decision-making have also been analysed in Eliasson (1974 p. 27 ff.)

Its purpose originally was to constitute a late management control mechanism before final, capital spending decisions are made. So it seems to have remained.

However, by degrees a comprehensive annual budget and later a long-term plan have been added before the appropriations procedure. This means that numerous inconsistencies — some may be intentional — characterize the link between the annual budget (in particular) and the appropriations procedure.

Furthermore, the rapid technological advances and structural changes within the economies of industrialized western nations during the post-war period have radically changed the relative importance of the various components on the asset side of the balance sheet, again — as it seems — without bringing about any substantial change in the selection of spending proposals to be channelled through the appropriations procedure. The marked emphasis on "hardware" like machines and structures in the appropriations procedure was indeed surprising in some large firms where R & D investments ranged from once to twice the amount allocated to capital account. Similarly, investments in working capital may be as large as twice or three times the amount spent on capital account. The diminishing relative importance of "hardware" investment spendig is further illustrated when one adds the vast sums invested by many firms in such "nondepreciable assets" as marketing or various types of "goodwill".

I can find two reasons for the lingering importance of the appropriations procedure. The first and most probable one is the impact of tradition and a feeling of insecurity when a traditionally established and well-known control mechanism is delegated out of reach at an early stage of the decision process. The second reason is that CHQ management wants to have a final say before commitments are made and before production consequences cannot be reversed. In the case of large, lump-sum investments in new plants etc. this control mechanism probably is very efficient. As far as large investment projects are concerned it can also be interpreted as an instance of the pervading practice to prepare, handle and conclude major ventures outside comprehensive planning routines. However, this does not hold for the ever-present attention paid to minor investment spending proposals and to the, nowadays, frequent cases where major and often irreversible production decisions are tied down long before decisions to invest in production have to be taken.

In, at the most, five firms interviewed the appropriations routine was taken care of within the annual budget; the only requirement being, that later *changes* in the capital spending budget — including the timing — had to be authorized again by CHQ. Within these five firms a very careful, individual project evaluation was carried out before the final authorization of the budget. As for the remaining U.S. and non-U.S. firms practice varied substantially. In all of them the appropriations procedure was levied on top of and after the budget. As a rule each profit centre had a fraction of its investment budget, say 20 per cent, reserved for free disposal for minor investments. Sometimes this fraction

was characterized as a contingency appropriation and also carried this name (cf. Table VI:1).

b) *Rate-of-return calculations*
As a rule the appropriations procedure is a typically bureaucratic process carefully regulated by written instructions. Elaborate standard forms have to be completed for every single project. With a couple of exceptions a rough "payback period" estimate, at least, had to be entered on this form. Quite frequently, for larger projects, a complementary "capital value" or an "internal rate-of-return" estimate was required as well. Several times I found that project evaluations by different methods were required as a routine for each project. The purpose of such elaborations, however, was seldom, altogether obvious.

In about one third of the 62 firms interviewed these standard forms had to be completed already at the budgeting stage. Economic conditions remaining unchanged, these estimates only were submitted for an additional review at the appropriations stage, together with new or revised project proposals.

Delegation in the appropriations procedure was well routinized. Final say on minor projects often rested with the profit centre manager. Medium sized projects were authorized at the vice president level at CHQ. Sometimes there was a series of intermediate decision layers. Large projects went all the way up to the President and/or the Board. In four U.S. firms (one very large) and two Swedish firms I discovered that every single, independent construction project, regardless of size, had to pass by the scrutiny of the Board at least as a token ceremony.

c) *Cut-off rates*
Usually, each firm had settled for one or a series of "cut-off" rates. The numerical range between firms was substantial. A 20 to 40 per cent, pre-tax rate-of-return requirement was the normal range. However, I even met with some on 50 per cent. Even tens seemed to be preferred.

The base on which rate-of-return calculations are made and the kind of criterion chosen obviously are important for the determination of the "cut-off-rate". Common practice was to base the calculation on the purchase value of the investment project itself, *excluding* all further capital bindings such as inventories and trade credit extensions associated with the later productive use of the equipment considered for investment. A frequent argument was that this disregard for working capital requirements motivated high "cut-off rates" (see case below).

Cut-off criteria, however, were seldom applied rigorously to screen spending proposals. In several firms I found that a number of additional rules for evaluation and project screening entered into planning manuals — and in much detail. Priority ranking should be given e.g. to projects promoting growth in markets and technologies traditional to the firm. Investment proposals leading to expansion into new product lines or being loosely associated with existing lines should be reviewed with extra care. Sometimes these "constraints" on the choice open to planners and management were formalized in terms of differently sized "cut-off rates".

I found six U.S. cases where investment proposals considered necessary for a sustained long-term growth within a well-defined range of technology traditional to the firm should be passed at rate-of-return standards substantially below those required for other projects. The stress was here on *long-term* growth. It seems to me symptomatic that such criteria were most common in very capital-intensive firms producing a set of homogenous products, or in firms characterized by a typical joint production set-up.

There is nothing illogical in a valuation practice like this. For a firm emphasizing long-term survival as an organizational unit there are apparent reasons for treating investment proposals supporting this motive more favourably than others. The length of the planning period (decision period) involved and the increasing uncertainty with time provide another argument for the same practice. It is easy to see that a rigorous application of a high "cut off" rate over a prolonged boom period, i.e. by reaping short-term profits at the cost of neglected basic investments for the longer-term future, involves a serious risk of loosing out on the "survival premise."

On the other hand the danger faced by the firm rigorously promoting the basic survival idea by intentionally restricting the options open to planners and decision-makers is the inflexibility built into the decision structure of the organization. If available financial resources are currently (and by decree) plowed back into the firm with the purpose of expanding and improving existing production technology, the firm at the same time rids itself of the option to exploit alternative and perhaps more profitable long-term opportunities *at least as far the options open to planners are concerned.* If the firm happens to be in the "wrong" market or technology the consequences may be serious in terms of survival as well as success. A conclusion I would like to draw from the interviews is that such constraints are commonly imposed *upon planners.* They often appeared in writing in planning manuals.

There is one additional argument for a low cut-off rate for basic long-term investments combined with high cut-off rates for short-lived investment projects. A basic long-term investment can be, and usually is, designed to accomodate a series of later, complementary investments, sometimes involving a piecemeal expansion of productive capacity; sometimes highly profitable cost-reducing improvements. Appreciation of this beforehand can of course be systematized in terms of a series of appropriately sized (dimensioned) "cut-off rate" criteria.

Case 12; Profitability requirements at CHQ level and cut-off rates at investment object level (large Swedish firm)

In one large Swedish firm CHQ planners were attempting, at the time of the interview, to enter a new way of thinking about the appropriate cut-off rates for project rankings by relating them to required rates-of-return on equity capital. The method, which will be presented in a somewhat simplified fashion, clearly

demonstrates how cut-off rates in the neighbourhood of 30 per cent can be made compatible with a 3 per cent real rate of return made available to share owners *after* corporate income taxes but *before* personal income taxes. As far as my interviews go, the case represents an exception to corporate planning practice. Also, experience in the Swedish firm was that it was difficult to make the method understood and accepted as a planning tool among top management.

The starting point is that a rate of return requirement on equity capital is fixed. In this case this requirement was composed of two parts:

(a) a (minimum) preserved, inflation-corrected "market" value on equity as shown on the balance sheet. The consumer price index was used as price deflator.

(b) a minimum dividend pay out in per cent of equity valued as in (a).

The demonstration — which is somewhat involved — is based on the fact that investments down at production lines normally represent only a minor fraction of the capital requirements that follow an expansion of productive capacity and sales. Profits generated at the level of the production line would have to cover a risk premium, corporate taxes, overhead charges for administration, marketing, R & D etc. and costs for maintaining inventories and other assets (such as trade credits extended) that often yield no income.

By adding corporate taxes and a small risk premium to the dividend and inflation requirements mentioned above, we arrive at a rate of return requirement on total assets of roughly 13 per cent. To cover costs for CHQ and sales and financing functions this requirement had to be raised to 22 per cent at the level of the division. Down at the individual investment project level the RoR requirement had to be boosted to 28 per cent for screening investment proposals in order to be compatible with the overall firm profit target defined above. The following algebraic representation gives the outline of the calculation procedure.

The two requirements on protection of equity from erosion by inflation and on dividend pay-outs mentioned above can be formulated:

$$a)\ \frac{\Delta W}{W} - \frac{\Delta P^*}{P^*} \geq 0 \qquad (8)$$

$$b)\ \frac{DIV}{W} = d \qquad (9)$$

W stands for the current value of equity, P* for the relevant price deflator (the consumer price index) and DIV for dividends.

There is the problem to decide whether the "value of equity" should refer to a market valuation or be the nominal value shown in the external accounts. To make the calculation exercise reasonably transparent we relate it to the book

value of equity and assume (a) that fiscal and economic depreciation rates are the same and (b) that the firm applies a cautious formula and only brings half of the inflationary gain in construction and equipment into the open to be taxed and shown as dividends or retained earnings[1]).

Using formula (17B) in Supplement 4 we get:

$$\frac{\Delta W}{W} - \frac{\Delta P^*}{P^*} + \frac{DIV}{W} = R^{WN} - \frac{\Delta P^*}{P} \geq d \qquad (10)$$

R^{WN} stands for the nominal rate of return on equity. Suppose the firm wants to distribute 3 per cent of the value of equity so determined (d is 3 per cent) to shareowners each year. Assume furthermore that the consumer price index (P^*) increases by 5 per cent per year. From (10) then R^{WN} has to be at least 8 per cent to satisfy (8) and (9) even before taxes have been considered.

To raise book equity through internal retentions (ΔW) and to distribute dividends (DIV) the sum ($\Delta W + DIV$) is subject to corporate income taxation, in Sweden of just above 50 per cent. On an after tax basis and under our assumptions the before tax R^{WN} requirement consequently has to be raised to at least 16 per cent. (Also cf Supplement 4, section F).

We also know from (17A) in Supplement 4 that:

$$R^{WN} = R + \underbrace{(R^N - r)\frac{D}{W}}_{A} + \underbrace{\frac{\Delta P}{P}}_{B} \qquad (11)$$

P here represent an investment goods price index and R and R^N the real and the nominal rate of return on total assets respectively.

As a rule companies apply a cautious policy when it comes to upgrading book values on assets for transitory capital gains due to inflation. Such gains will disappear again when equipment etc is worn out or taken out of production due to obsolescence etc. For this company with widely fluctuating profit margins over the business cycle a cautious valuation of assets as well as a cautious dividend policy was deemed desirable and highly appropriate in this context since long run rate of return requirements were to be independent of cyclical phenomenae.

Suppose that the inflation rate associated with P is also 5 per cent and that the leverage factor A is on the average 5 per cent (which is an exaggerated figure). Assume furthermore that the company regularly upgrades book equity by half of the combined leverage and inflation effects (A + B). The requirement on R in (11) is then residually determined as 16 — ½ (5 + 5) = 11 per cent.

---

[1]) In the short run this is certainly an erroneous assumption to make. In the long run it is not restrictive at all for production equipment and inventories which dominate the part of assets that appreciate in value due to inflation. It should rather be called a precautionary delay mechanism. In the long run production equipment wears out or is taken out of production anyhow or is replaced by assets purchased at the higher (or lower) prices. In the meantime all profits to be associated with the old equipment (now taken out of production) have appeared in the profit and loss accounts.

Since the firm is concerned with determining its *ex ante* rate of return requirements a risk premium of two percentage points is added at this stage and the real rate of return requirement is increased to:

$$R \geq 13 \text{ per cent}$$

This is already a R requirement that is far above the average recorded rates in Swedish manufacturing.[1]) Besides the fact that this firm was an above average performer in terms of R there is another, even more important, factor that we neglect here but which would motivate an even higher R requirement than the above 13 per cent.

The decision formula implicit in (11) is a marginal one. Usually current investment budgets include projects that are additional or complementary to an existing "basic" production facility. Normal experience is that such marginal, additional investments yield much higher prospective returns than average returns realized on total operations, even in terms of a R that includes all new assets tied up with the new investment. Such higher returns are sometimes conditional upon the fact that a large production set-up already exists. Sometimes the reason is that the existing production set-up has gradually become technologically obsolete while new investments represent modern technologies and, hence, can be applied at high returns. Thus, the normal state of affairs probably is that average R can also be improved by applying more debt to marginal investments. If this is true, limited access to external, financing sources restricts the firm's *ability* to meet its requirement on dividend distribution and protection for inflation. Considering this, the presence of very high cut-off rates defined as R would not be consistent with rational behaviour on the part of the firm as long as marginal investments yield a return higher than the borrowing rate r.

Suppose furthermore that the firm is divided into three divisions organized predominantly as production divisions. The sales, marketing and administrative function is vested with CHQ. 30 per cent of total current costs are normally charged on CHQ. Besides 40 per cent of total financing requirements originate in the building-up of trade credits that earn no interest income. Since

$$R = \frac{S(\text{ales}) - C(\text{urrent costs}) - D(\text{epreciation})}{A(\text{ssets}) \cdot 100} \geq 13$$

we know that minimum rate of return requirements at the *division level* will have to be;

$$R^D \geq \frac{S - 0.7\,C - D}{0.6\,A \cdot 100} = \left(\frac{10}{6}R + \frac{1}{2}\frac{C}{A}\right) \geq \left(\frac{10}{6} \cdot 13 + \frac{1}{2}\frac{C}{A}\right) > 21.5$$

Suppose furthermore that all inventories are kept at division level and that they account for 20 per cent of total assets. Furthermore all R & D expenditures are charged on the divisions. They account for 10 per cent of total costs applied. Inventories as well as R & D costs will have to expand proportionately to sales and costs as the firm invests to grow. Suppose the firm considers an investment project that would expand total operations of the firm. What R requirements should be applied to that project considering risks involved and taxes?

---

[1]) Which have averaged 5—6 per cent on a before tax basis and using the measurement technique defined above over the last 25 years. See Eliasson: *Profits and Wage determination,* Economic Research Report 11, (Federation of Swedish Industries 1974, Supplement).

Applying the same procedure again raises the ex-ante R requirement on the individual project to roughly 28 per cent. Thus for the type of investments that expand the capacity to produce and to sell of the firm and that carry with them a cascade of overhead requirements within the firm organization, after consideration of risks and corporate taxes, a cut-off rate of at least 28 per cent would result in a real rate of return to equity before personal income taxes for the share holders of no more than 3 per cent in the long run if now and then investment decisions go wrong. This is so as long as the firm insists on distributing dividends at a rate of 3 per cent counted on an equity base that is currently indexed upwards for inflation.

If share owners, on the other hand, either disregard inflation and "asks for" a lower nominal rate of return than the sum of the dividend payout rate and the inflation rate, or if they prefer, for tax reasons, to see profits plown back into the firm before tax to appear again, hopefully, as a higher future valuation of equity, the consequence will be a *reduced internal, pretax rate of return requirement*. Hence tax barriers that reduces internal rate of return requirements, helps to keep funds within the firm and to keep the firm financial organization together. See further Supplement 4, Section F.

5. Project rankings

There are of course many important objections to the rigid application of screening procedures for individual investment projects by way of standardized rate-of-return criteria. We observed earlier that normal practice was to fix one single valued sales plan or sales projection in the short term (budget) as well as the long-term plan. This fixing normally took place long before planners had had the opportunity (and seen the data necessary) to appreciate in full the profitability and (sometimes even) liquidity consequences that would follow from the realization of the same plan. We noted furthermore that gross profit margins were standards commonly applied at this stage. The very realization of a plan normally required a number of commitments to be made at an early stage. As far as commitments on current account (inventories, accounts receivable etc.) go, authorization is automatic whatever the amounts involved once production has been started. Commitments on capital account, however, mostly had to be cleared through the appropriations procedure.

It happened often that projects mandatory for the fulfilment of production and sales plans would not be passed by appropriations standards when rigidly applied. Since these standards — as we shall soon see — were not always consistent with those applied in fixing the sales and growth plan, apparent logical conflicts are emerging in the planning process. The first is concerned with the decision as to what standards are most appropriate. To my knowledge no firm interviewed had resolved this intricate question in any definite way. The second conflict refers to the very fact that once completed in numbers (even at a preliminary stage), an appreciable amount of work has been invested in basic planning. To revise the plan all the way back to its roots — the components of the sales projection — is something only undertaken for manifest reasons and — even so — only in those firms that had managed to get all their numerical planning routines into the computer. In other words, plan revisions, caused by late discoveries in the light of a final

analysis of the comprehensive plan, tend not to go all the way down to the basic input data of the plan but to stop somewhere on the way. Consequently an appreciable portion of investment spending proposals measured by the amount of money involved (not necessarily the particular selection of objects) is tied up simultaneously with the fixing of the sales growth plan.

A common device adopted to make such projects pass through the appropriations procedure is to list them under a heading such as "mandatory" or simply file them by purpose such as; necessary to keep plant operating, to meet sales requirements or to maintain planned profit margins (cf. Table D in Supplement 2). What is left for a more rigorous screening by way of rate-of-return criteria (besides projects "necessary" to realize the sales plan) are those entered into the plan for purposes of future production beyond the budget or plan horizon — normally the end of the next accounting year. In other words, *there are numerous ways of bypassing road blocks in the formalized management system when formal criteria conflict with intuitive "good" business judgement or already made commitments, etc.*

In some U.S. firms part of the appropriations procedure had been shifted into the comprehensive short-term plan (budget). This meant that individual project proposals including required motivation had to be submitted already at the planning stage and furthermore that part of the screening procedure was completed before the investment budget was properly decided. This again usually took place *after* the fixing of the sales plan. It meant, however, that the later appropriations procedure was fairly automatic as far as authorization of already considered projects was concerned and tended to concentrate on additions or revisions in the budget.

16 Cost-shares

A control practice met with in budgeting routines in several both U.S. and Swedish firms was to review cost-shares such as salaries, wages, EDP, R & D or even office equipment expenses in per cent of sales. Often this cost-share analysis was very detailed and when some such cost share moved above a targeted or a previously experienced level, frequent practice was to order cut-backs to the original level[1]). When all current costs have been added up this practice is of course synonymous with the application of profit-margin criteria in the way we have already described. When applied at lower levels of aggregation, its usefulness, however, is subject to much more severe limitations. If applied rigrously it means that improvements or plans that involve a changing cost structure are disallowed even though such changes may result in reduced overall costs per unit of output. It was reported in several firms that purchases of overhead office or computer equipment had generally been held back regardless of the reason for wanting to acquire this equipment when cost-shares suddenly went up in a business downswing because of

---

[1]) This is one example on how the so called MIP principle may be imposed. See further Chapter XI and Supplement 4, section E.

slackening sales. In several firms I was told that in periods of slackening sales growth and shrinking profits, requirements to keep previously established costshares could be voiced when the new budget was to be drawn up.

There is, however, a rational justification behind using a cost-share approach in targeting and control when a meaningful transfer pricing system cannot be designed. Cost-shares relate to operationally defined activities in the firm. Many such activities are often multiplied within a firm or are anyhow comparable[1]). Hence cost-shares can also be compared with one another. Costs add up to a sizable portion of total sales and the total cost-share is often more stable than its mirror image, the profit margin, that picks up the influence of all the unexpected, erratic events that affect the firm. With the arbitrary transfer pricing systems that are usually operated, internal profit measures between internalized "profit centres" usually have a very capricious information content. It may be more difficult to *learn* how to use them even in a strict targeting — reporting context than to work directly with cost-shares instead. Thus profit targeting and control may branch off along two methodological lines. If the firm is separated by markets to the extent that divisionalization by external market criteria can be used, direct concentration on the profit variable is mostly considered appropriate. If not, it was fairly common to design a system of internal cost-comparisons as a substitute. Such systems met with in the interviews displayed many differing features as to degree of standardization and detail. In effect, such cost control systems represented various, partial approaches to designing a system of transfer prices. The fact that the optimum principles of transfer pricing are a difficult chapter in management economics became obvious from in several interviews.

7. Alternative plans

Common practice was to work with single valued plans at most levels of aggregation in comprehensive planning. Choices between machine types etc. were often considered within the appropriations procedure, after the need for a particular kind of machine had been established. The choice between alternative rates of sales growth at division level was made before fixing the single valued sales plan. In so far as growth in one division was traded for growth in another division, a definite decision was practically always made before the sales plan was fixed. Even though sales prospects were generally considered uncertain, normal practice was to settle for one single valued plan, although a few large U.S. firms that had computerized a large portion of planning work had introduced probability estimates for certain crucial input variables like sales. In some firms so called *financial models* were used as an instrument parallel to budgeting and long-range planning work.

---

[1]) Also, cf. in section 8 (case 13) the practice adopted by a big multinational company to attain a method of measuring relative efficiency between profit centres joined together by a biased transfer pricing system.

These financial models — usually an extremely simplified version of planning routines — could be used for simulation on alternative set-ups of input data.

Even though simulation in principle could be applied on budget routines, the amount of detail involved practically always made such simulation practices impossible. A well-managed planning system in a U.S. firm in the size class of the interview sample meant that hundreds of people were involved at various stages to look at, to assess and to adjust the numbers that passed through their offices. These people would have to take part in each simulation. In those few firms where *all* calculation work had been computerized, simulation runs on alternative input data were nevertheless made difficult by the circumstance that the processing of numerical information was not centralized to one place and that routines were organized so as to allow judgemental external inputs at a large number of places. To repeat the whole process for the sake of a simulation experiment was not considered practicable (see Supplement 6). In case a firm planner boasted that an extra, complete budget or planning sequence could easily be stimulated in a short time it usually signified that *active* management participation in planning was low. This also meant that targeting by negotiations and detailed responsibility control by way of reporting was a relatively suppressed purpose of planning.

Thus the plan or the budget very seldom contained any specification of alternative actions to take if input variables went off forecasts or expectations. In this sense the budget or the long-term plan was no analytical tool for decision-making. The final, single, valued plan rather constituted a decision in itself or a series of more or less integrated decisions. Frequent revisions of the budget (often by quarter or even by month in some U.S. firms) and annual revisions of the long-term plan were normally considered sufficient for analytical purposes. If unforeseen events of sufficient importance took place between revisions, partial updatings were made. Cut backs in the investment budget or the application of higher profit standards in the appropriations procedure are examples.

Two examples of the employment of alternative plans should, however, be mentioned at this point.

First, on the basis of the fixed, comprehensive plan a number of "partial" plans or decisions are made up. The sales plan is a basic input variable for production planning. For large firms many optional allocations of production between plants (and within plants) and delivery structures were possible given the comprehensive plan. Several firms employed very sophisticated programming and scheduling techniques for the purpose of minimizing costs and securing a steady output flow at low levels of "slack". Inventory and cash management are other examples. Common to them all is that they constitute sub-routines within a fixed "numerical environment" (the comprehensive plan). The outcome of such "suboptimization" is always at variance with some basic structural data of the plan. Furthermore, the profits to be gained from reducing such slack are always minor to the potential

losses from being less well adapted to the environment of the business organization as a whole.

Second, rate-of-return calculations on the basis of plan data were normally of the "average" type and not particularly relevant to decisions as to what to do next with the plant and equipment set-up existing when plans were made. We have noted already that profit-margin requirements and knowledge of past sales/asset relationship were used as substitute indicators for such decisions. In a couple of U.S. firms and one (maybe two) Swedish firms an intermediate method of marginal analysis was applied partially. The most clear-cut example met with in two firms has already been accounted for in case 11 at the end of section 2 of this chapter. In principle the method involved comparing the outcomes of two alternative decisions; (1) when the contemplated investment-growth decision was realized, (2) when a minimum investment program was adopted and operations continued at present productive capacity allowing in principle for maintenance and cost-reducing investments only. The two data set-ups then allowed the calculation of the marginal rate of return or outcome of the new investment project planned.

8. Transfer pricing

A basic purpose of formal planning seems to be to build a system of responsibility accounting and measurement for control purposes. Hence the methods of transfer pricing adopted, become more and more important the larger the organization and the more insulated its internal parts from direct external confrontation with (competitive) markets. Then planning cannot be treated separately from control. Transfer pricing as well as the organization of the firm become part of the planning system, at least with the definition of comprehensive planning adopted here.

For practical reasons the details of transfer pricing methods have been left out of this study as far as the empirical side goes. Some scattered evidence will however be reported on.[1])

One particular observation is the large variability of internal pricing methods that I found in use even within the same organisation, suggesting that measures of divisional performance are seldom of the unbiased kind suggested as proper in theorizing on the matter. Rather the interpretation of the numerical signals emitted from a typical comprehensive corporate planning and control apparatus indicates that a very delicate, intuitive screening and correction device is needed back in the head of decision-makers for the planning system to be of any use to them.

Whatever the rate-of-return criteria, the character of any evaluation of performance between integrated parts of a business organization rests importantly on the methods applied in pricing intracompany

---

[1]) Some further thought on this matter is found in my study on taxes and capital transfers in multinational corporations. See Eliasson (1972, Chapter IV).

transactions of goods and services. If the difference in productive efficiency between internal and alternative external production varies a lot from plant to plant or from division to division then the application of, say, cost-plus or arms-length pricing methods will mean two widely different allocations of profits within the firm. This must be of importance in planning as well as in ex-post profit control — *if* (NB) — the numbers have any impact on the decisions taken.

Cost-plus pricing, in the sense that internal prices are measured as total unit cost plus a prefixed "profit margin", automatically means an income (profit) redistribution from high-efficiency parts of the firm to low-efficiency parts. Arms-length prices (if at all applicable) put a premium on being efficient that is shown in the internal accounts. If prices are negotiated prices between internally trading parties an entirely different method of interpretation will have to be used. For CHQ the allocation of book profits within the firm is of interest only in so far as this information is put to use in decision-making. If this information is put to use either for cutting down on or reorganizing unprofitable activities or for deciding on where to invest, the quality of the information immediately becomes very important. Cost plus pricing tends to hide information in the example given above. Arms-length pricing tends to bring out some information if relevant, external prices are available.

A common obstacle to "efficient" transfer pricing is that comparable products or services traded in external markets do not exist or that such markets are too small or too monopolized to reveal the desired information. Various substitute measures such as profit margins in comparable, external transactions etc. are often put to use.[1]) Alternatively, various techniques of so called shadow pricing have been devised and suggested for this purpose (See Chapter IV). The optimum internal trade-off ratios are defined when the organization operates under profit maximizing, cost minimizing conditions. When these conditions are "operationally" known, the optimum set of transfer prices ceases to be of interest as information to determine the optimum points. Thus the basic disadvantage of such methods is that in practice they will have to be based on the existing income-cost structure of the firm and the method boils down to some kind of cost-plus pricing method anyhow, which will be off the optimum point to an extent that cannot be determined.[2])

Generally speaking the best transfer pricing method to use can only be determined with reference to the purpose the price information is supposed to serve, and prices should be biased accordingly. For a CHQ management wanting to apply pressure on the organization adequate transfer pricing methods normally means profit-cost projections based on the most efficient action alternative *in the plan,* that reveal ex post *where*

---

[1]) For a survey of this discussion and (in particular) an account on arms length criteria applied and tested in courts by the U.S. internal revenue service, see Eliasson (1972 a). Also see Arvidsson (1971).

[2]) cf. the criticism levied at mechanical interdivisional methods of comparison in Henderson - Dearden (1966).

profits in fact originated. If a competitor possesses the most efficient production technique his cost data should be used for computing internal prices for the plan. Accounts are distorted if prices levied on internal transactions involve an element of subsidization between profit centres. Such subsidization is involved if transfer prices on identical products differ between, say, different sales outlets. External, reference pricing seems to be recommended procedure in literature. However, applying a mixture of external and other pricing methods may be even more hazardous a method for inter profit centre comparisons than using some arbitrary calculation procedure that is well known to managers.

The purpose of *internal* profit control is often — in effect — synonymous with internal *cost control.* If that is the case, matters become less intricate. The problem now transforms itself into finding comparable references, within the firm or outside, to make cost comparisons. This may be much simpler since there are usually duplicate production lines, or approximately so, in large firms, and the elaborate costing methods developed most often make it possible to build up synthetic references for cost comparisons (see also section 6, this chapter).

In fact, if efficient cost control can be arranged by other means, there is no other reason except the "psychology of profit making", not to have the planning and accounting system arranged so as to pool all profits at CHQ. This method was practiced in some firms with a centralized sales function. (Cf. case c below.) It may be perfectly rational from the point of view of planning and control to have a zero profit pricing system applied to pure sales companies[1]) (also cf. case e below). Mysticism, however, pervades when only profit control is practiced in combination with a mixed method internal pricing system.

Case 13; Transfer pricing methods

Case a. U.S. firm

If substitute products were externally traded, divisions were required to pay internal production up to *the market price plus an additional mark-up* of say 10 per cent. If internal suppliers were not willing to go below that upper margin purchases from external sources were allowed. The reason for applying such a mark-up requirement was stated to be the importance of maintaining this kind of internal production in the long run, the importance of securing a stable flow of deliveries etc. and — in addition — the gains in the form of reduced storage costs since vertical integration made efficient production scheduling methods possible. In effect this meant a form of internal subsidization of less efficient production performance to obtain a positive productivity effect in the organisation and a whole (cf. case 14).

---

[1]) There is some evidence that European companies may have tilted their transfer pricing system so as to have profits accumulate in the parent company rather than in foreign subsidiaries. See Eliasson (1972 a, p. 44 ff.). Also compare Eliasson (1972 b) where foreign *production and sales* operations were found to show a lower profit performance than domestic operations, while in Swedenborg (1973, p. 106—108) the reverse result was obtained for foreign production companies only. These observations support the hypothesis that deliveries to subsidiary sales companies are priced so that profits accumulate in the parent organization.

Case b. Swedish firm

In this firm the profit margin allowed in internal transactions was applied as a policy parameter. The following transfer pricing formula was used:

$$\text{price} = \left\{\begin{matrix}\text{unit}\\ \text{production}\\ \text{costs}\end{matrix}\right\} + \left\{\begin{matrix}\text{common unit}\\ \text{overhead costs}\end{matrix}\right\} + \left\{\begin{matrix}\text{allowed}\\ \text{profit}\\ \text{margin}\end{matrix}\right\}$$

If CHQ wanted to support some activity it allowed a high profit margin (raised the transfer price). If it wanted to discourage some internal business e.g. because of high production costs the allowed profit margin was slimmed down (price reduced). However, the "profit centre" had virtually no say as to how to make use of these profits. Neither were divisions allowed to choose between external and internal sources of supply. CHQ figured importantly in these two types of decisions. It is hard to find what came out of this approach to transfer pricing besides distorted profit accounts.

Case c. Large company (U.S.)

This company operated a large number of subsidiaries and divisions performing similar production services. Production facilities were joined together by a complex vertical distribution network. For various reasons it had not been found practical to operate a standardized transfer pricing system on internal deliveries. External markets were almost 100 per cent spotmarkets for marginal transactions and hence price information from these markets was not useful as reference measures. Standardized cost-plus pricing methods were not considered adequate. Instead various ad hoc costing methods were applied. This meant that the same return to assets employed in two identical production processes estimated by the same formulae could mean two entirely different things. Besides, subsidiaries had no freedom to shop for inputs where prices were lowest to improve their profit records. They were all tied together in a centralized logistics network. The result was that recorded profitability at various places in the company was no reliable indicator of relative profit performance of the various entities of the business organization and hence of economic efficiency in a broad sense. In essence the hierarchical decision structure of the organization meant that the part of efficiency managed and controlled at profit centre level basically was restricted to efficiency in production. Hence, in order to have a control apparatus for this performance aspect of the company, at CHQ level, a complex system of cost comparisons between production processes had been devised.

Case d. Several U.S. and European firms

In several firms (U.S. or others), among mechanical engineering industries with a wide spectrum of complementary products, the ability to provide customers with a full line of qualities and specifications often required that several lines of unprofitable production had to be deliberately maintained. Sometimes production profit centres were allowed to charge full unit costs plus a mark up and losses showed up on the sales side. Sometimes sales profit centres were allowed to pay no more than for substitute, external products (possibly with a required mark-up) and losses showed up on the production side. Sometimes mixed methods were applied depending upon whether external prices were available for comparison or not. A good portion of intuitive adjustment capabilities was needed for profit records based on such pricing methods to make sense or not to be misleading.

Case e. Swedish and U.S. multinational company

In these companies the low information value of a mixed, ad hoc transfer pricing system had resulted in the adoption of certain accounting principles that allowed the separation of information for *long-run* CHQ investment considerations on the one hand and short-term operational information on the other. The system had not yet been introduced but discussion with subsidiaries had begun, together with some experimental implementations. The question was whether identical, transparent prices should be applied throughout the company for the same deliveries or whether prices should be trimmed to allow a "reasonable rate

of return" in each subsidiary. Market conditions differed enormously between the subsidiaries in a large number of countries. In addition the "breaking in" of a new market took considerable time (upwards of 10 years), and in the meantime profit performance as a rule was low or in the red. Sometimes it was deliberate CHQ policy to subsidize a market by low profit performance simply to be in the market.

The use of an identical, transparent pricing system throughout the company had met with strong opposition from those subsidiary managers who had to show "bad profit records" year after year for reasons that were outside their control. This reaction was not only based on the psychology of the numbers. Subsidiary managers argued that the maintenance, over long periods, of a low profit subsidiary was a CHQ investment matter. Such decisions did not rest with the subsidiary manager who should concentrate on operating his company as efficiently as possible given the economic conditions at his location. Once the decision to go on or to contract operations had been taken a transparent pricing system did not yield information to CHQ neither (1) on his operational performance nor (2) on matters relevant to the long-run investment decision already taken. The information was mixed and not relevant for either type of decision.

The system now developed involved tailor-made prices for each subsidiary and was based on the criterion that profit performance with the best and most comparable local competitor was required of the subsidiary and that shipments were priced as close as possible to externally available, similar products at the location. These prices were entered in local currencies.

At CHQ a parallel, transparent pricing system had been developed in the parent company currency. When subsidiary accounts and budgets had been translated into the parent company currency the losses or excess profits earned by operating that particular subsidiary according to local, best standards could be measured. Note here that also parity changes were channelled through the long-term accounts.

Since import prices for intra company deliveries had been tailored to local conditions, and since performance data on local competitors were currently analysed, the local subsidiary accounts yielded data to allow a relevant, between-subsidiaries, operational performance comparison and a corresponding comparison of "local" market performance.

The basic crux of the matter was that CHQ had to rely heavily on subsidiary information as to relevant, local reference data. Attempts to collect such data from sources external to the subsidiary had not proven successful although *no* objections had been raised from subsidiary management. In fact this was part of the "deal" in the U.S. company, when the system was agreed upon. The solution resorted to was to use a small group of very well trained and experienced CHQ people to carry out the auditing. In fact, in the U.S. company, the conviction was that a skilled CHQ research staff, in combination with a fairly long experience of working with budget data and reports and frequent reviewing, were able to extract and interprete satisfactorily all the relevant information that was available locally.

In most large firms, financing was a centralized CHQ function. An important transfer price then was the price charged to divisions or profit centres for capital contributions.

On this point methods varied substantially. Some firms applied an arbitrarily fixed interest rate to all contributions from CHQ that had not been changed for years. At the time of interviewing, when the rate of inflation both in the U.S. and in Europe had been on an upward drift for a few years, the rate applied often seemed very low (4, 5 or 6 per cent). Sometimes an externally determined interest rate for medium term borrowing plus or minus some correction factor was applied. Sometimes this rate was the same as the cut-off rate applied in

investment project selection; often not. Sometimes CHQ applied such an interest rate on all capital employed by a profit centre, sometimes only on accumulated contributions from CHQ, while profit plow-back at division or profit centre levels carried no interest charge. In some instances the profit centres made up their own income statements and balance sheets with "equity holdings" by CHQ entered. I met with several (both U.S. and European) firms that had followed this idea to the very end and in fact had made divisions or profit centres into fully owned subsidiaries with CHQ legally a holding company that charged subsidiaries for its services. (Also cf. case 10 reported in section 1 of this chapter.)

A general impression from the restricted group of firms questioned on this matter (about half the number of firms interviewed) was that whatever principles of transfer pricing that were applied these principles were usually very *mixed and had been adhered to for a long time.*

Long usage is also what one would expect as a necessary requirement for the mazy transfer pricing methods adopted in large companies to be intelligible. Profit centre or division profits seldom gave what is sometimes called a "true reflection" of profit performance. Long usage and (consequently) long experience must be needed for decision makers, at all levels, to correct the data on the basis of experience and to interprete the information concealed in the book-figures.

Two mutually offsetting conclusions can be drawn. For large business organizations that apply such unsystematic pricing methods either (1) centralized profit control is absent or (2) stability of method is a must for CHQ management to get used to the misleading information signals they receive. Any short-term manipulation with transfer prices, meaning changes in methods of pricing, must be utterly confusing for those who use plans, budgets or accounting data to guide or to control decisions. As a corollary to this observation it might be of interest to note that a couple of firms interviewed maintained two books with internal accounts, transfer pricing methods being designed for each book to yield information pertinent to two different purposes.

9. Investment project groups

In section 4 we were concerned with the selection of individual investment objects as manifest in the appropriations procedure. One of the unsolved problems in designing a general procedure for the "optimal" selection of investment objects is the interdependency problem. It all boils down to the question of how to apportion income and expenditure streams to one particular investment object that belongs to a group of projects joined together in one or several production processes. The wide-spread divisional or profit centre organization of U.S. firms is a rough approach to a method of segmenting the whole organization into fairly homogenous components by some criterion such as production technique or type of final output.

However, this method does not solve the problem of isolating the extra profit flows generated from additional investments each year.

The *investment budget* of the individual division is the investment project (group), the prospects of which should be compared with those of other divisions. We found earlier that rate-of-return considerations at divisional level — if existing — were rather unsophisticated and usually consisted in the application of some kind of profit-margin criteria. We also found that the methods of transfer pricing put to use, often — not to say normally — yielded profit allocation patterns in ex-ante planning as well as in ex-post control functions that did not reflect profit-performance as "truly" as would be desired for a proper ranking of various aggregate activities according to profit performance. Both profitability evaluation at the investment project level and interdivisional profitability comparisons seem to suffer from this bias, if intuitive and informal adjustments cannot be made when the data are interpreted.

There are, however, intermediate decision problems between the level of the individual investment objct and the division or profit centre. In several large firms interviewed the problem had been approached by way of an intermediate type of planning between long-range planning and individual investment project evaluation.

The approach sometimes taken was to work with an extended comprehensive budget covering 2 or 3 years in detail combined with a number of *special* project "investigations" instead of a long-range comprehensive plan. In these special investigations *a very distant future* was usually covered. Sometimes the special investigations were coordinated in terms of a "strategic" or a "prospective" plan. A special investigation or a special project usually consisted of a new plant, the development of a new product or the penetration of a new market etc. including all activities considered from the development and production end to the final market. The technique was to investigate this project on its own merits as if the decision was to start a new firm.

What is new with this planning pattern is that the financial and profitability consequences of the "project" for the entire corporation were not taken into account until a fairly late stage; i.e. when spending commitments or necessary financial arrangements fell within the horizon of the extended budget. I feel inclined to call this approach a rather sophisticated application of marginal reasoning in comprehensive aggregate planning at the firm level. The practice — in its simplest form — in fact means that larger additions to the total activity-set of the firm organization are evaluated in isolation on their own merits and viewed against the background of a very distant future. At the same time traditional production lines were consolidated and planned in a much more nearsighted fashion. Such a dichotomy in planning is fully adequate if planners and decision makers feel confident that no drastic and unforeseen changes in the economic environment of existing activities will take place just beyond the horizon of the existing

comprehensive long-term plan.[1]) In fact, this stagewise approach illustrates both how *major* decisions and problems are handled outside comprehensive planning *and* how they may be integrated with comprehensive planning *when* a time plan for their implementation has been decided.

10. Allocation

In the introductory Chapter II we noted as one of the possible basic purposes of planning, the motive of allocating total financial resources of the firm in an "optimal" way by some chosen definition. Contrary to the other purposes listed this standard of classification was not suggested by the interviews but rather stemmed from the a priori view taken in literature on planning and the theory of the firm. The phrase "allocation" was used frequently in the context of planning, mostly in an accounting sense sometimes in the sense of fitting decided or contemplated investment spending into the financial grid of the plan, but seldom in the sense of using the planning system to spot, select and decide on where and when to invest and allocate funds. Comprehensive, formal planning systems are simply not designed for such purposes as we have concluded earlier.

When we talk about allocation in an economic sense we should restrict our discourse to the ability or the systematized desire of the firm to plan to "shift" or reallocate its activities in order to attain certain specified goals on the planning horizon as *defined to-day;* i.e. against the background of planners' appreciation of the future development of the economic environment of the firm. Such goals of a business organization are liable to be associated with purified notions like maximizing profits or returns on invested capital. As should be apparent from the preceding chapters there is very little to be found of optimization procedures of this kind in the *formalized* comprehensive planning systems. In effect the numerical information flowing out of the budgeting and planning system did not possess the quality and was not arranged in such a way as to allow any mechanical optimization rules to be applied. Besides major decisions were neither taken within the framework of comprehensive planning nor based on the information processed within the comprehensive planning system, and large investment ventures, the entering of new markets, the development of new production techniques etc. are the supreme determinants of long run profit performance, not routine operations management. The special project plans of the previous sections are one illustration of this.

In a small number of firms systematic, but partial, optimizing devices had been attempted within the formal planning routines to *improve* performance in terms of profitability *in the short-term* plans (budgets).

---

[1]) In those (very) large firms working with horizons below 5 years in their comprehensive plans, however, this was *not* the reason stated for keeping the planning period short, but rather that the planning period chosen was the longest they could envisage within which existing markets could be foreseen with "satisfactory accuracy".

Similar practices were almost entirely absent in the long-term planning routines. This of course does not mean that such considerations do not enter indirectly and informally and we will return to this in the next chapter. This conclusion primarily rests on the observation that the character and quality of the numerical information assembled during the course of planning do not allow an assessment of what are the *best* future activity paths to gear the firm onto, given known initial circumstances. Such judgements might very well enter informally but they fall outside the scope of planners' responsibility or competence. Also, optimization in comprehensive planning should be viewed with respect to the entire operation of the firm and should not be confused with the large number of subplanning routines that precede comprehensive planning or are based on the comprehensive plan. In such sub-routines formal optimization routines are sometimes applied. Inventory planning and production scheduling have been quoted as examples.

At best corporate planning and budgeting systems are devices that help to "automate" CHQ operations management and if well-designed also to improve profit performance within the domain of traditional operations. If so, it also performs the useful purpose of freeing top executive management from short-term operational problems.

There are planning systems which are very efficient in shaking out information at lower management levels that would otherwise surface at CHQ much later. The very circumstance that CHQ has a system to communicate with the rank and file of lower level management, often scattered over the entire globe, means an element of exhortation that would otherwise be absent.

Control seems to be the fundamental purpose of formal planning. An efficient control system must be viewed as a crucial element in a management system aimed at maximum performance in some short-term operational sense. "Control" enters in the making of plans ("reviewing") as well as when it comes to checking the final realization of plans ("reporting"). Planning then serves the same allocation purpose, as a generator of good quality information always does.

However, major decisions that wrench a business organization into new markets or production processes, the major allocation problem, take place outside and on top of what we have called formal, comprehensive planning. A well designed, comprehensive planning system that routinizes and makes delegation of repetitive decision making possible then means that top management may devote more time to such major decisions. Still, one may very well argue, that if the special talent needed is missing at the top, efficient operations management may in fact make major changes more difficult to envisage and bring about. This paradoxical suggestion brings us over to the later sections of the next chapter.

11. The system and its parts

We have emphasized several times that a firm as a rule can be viewed as a joint operation of a number of production lines. A big firm may

as well be seen as the operation of a number of small firms held together by a centralized financial function (see e.g. Chapter VII.3.b. on corporate banking). The planning systems that we have discussed to a large extent are instruments to join together the repetitive, operational activities of that system — not (NB) to prepare and facilitate decisions to *change the structure* of the production-delivery-distribution and financing system of the firm. Such "major" decisions — as we have seen — are handled outside formalized, comprehensive planning routines. It should be obvious from what has been written earlier that there exists a potential for enhancing the efficiency of the total system by means of comprehensive planning without, necessarily, improving operational efficiency of the individual parts.

There are several levels of coordination involved. Much of academic discussion and research has so far been restricted to the production side, or the shop-floor problems of mechanizing production and speeding up material flows at the level of individual production lines or plants. At this level new methods have been applied with great success and we have observed the use of well structured systems analysis (optimization models etc.).

The next (second) level is concerned with joining together several geographically scattered plants by a system of delivery flows and stocks of intermediate products. This can be done by a combination of open market purchasing, the build up of a more firmly structured sub-contracting system (sometimes with very elaborate multiple sourcing arrangements), or by outright vertical integration within the legal firm entity. Each firm, each time represents a particular solution in that respect. There is an enormous number of solutions to choose from in each case and they are changing constantly over time.

The next (third) level has to do with a more elaborate structuring of firm operations along division or subsidiary lines with more or less financial autonomy but where CHQ is almost universally concerned with financial coordination, exerting distant pressure through this medium to step up performance at the production and distribution level.

Formal, comprehensive planning is concerned with coordination at the two upper levels mentioned. Financial coordination at CHQ is a typical macro decision process and we have likened comprehensive planning several times with a *rehearsal* of that macro decision process.

It could also be presented as an analogy to mechanization of the shop-floor or plant-level production process. In one sense such systems make it possible to run big firms without having to rely on solving subsidiary problems by placing scarce, highly qualified entrepreneurial talent to run such operations. This was quite drastically formulated by one European firm officer when he remarked that: "The Americans are very good at running complex operations with low-grade people".

In a sense — and to the best of my judgement — a *sophisticated* comprehensive planning operation means a fairly high degree of "mechanization" or "automation" of operations management. It makes it possible to delegate such matters away from CHQ and it creates a

potential for concentrating entrepreneurial talent to solving unstructured and "major" problems at CHQ-level. It is of course an entirely different matter whether such a hierarchical ordering along types of problems is an efficient solution as far as the "major" decision problems (now isolated at CHQ) are concerned. I have not gone into that. I simply note two things. One finds a parallel presumption adopted as a selfevident circumstance in the science, philosophy and practice of planned national economies and more recently among western industrialized countries under the heading of "Industrial policy" or "Incomes policies". At this, even more aggregate, national level one finds, curiously enough, that Government interest is occasionally focussed on operational matters at a lower level, than I have found at CHQ in some large U.S. firms.

Second, experience is that a great efficiency benefit can be drawn from efficient planning at the operational level. I have heard this stated frequently. This can be illustrated by a simple example, based on a discussion within two companies interviewed.

Case 14; Efficiency of coordination

These companies operated several production plants. Some production lines were vertically integrated. The companies could also be divided into independently operated production sectors joined together by a centralized sales function. Some intermediate products and some final products were purchased externally.

CHQ knew that a large number of the individual production lines (plants) performed one by one at lower efficiency levels than those of directly competing firms. Thus, taken one by one, cost and productivity data did not compare well with outside competitors. A few of the company products were unique and could be sold at high prices but this was not the point.

By a very extensive on the job-training program workers had been instructed to solve — on the spot — arising shop-floor problems and disturbances. There was a specially designed piece rate system that stimulated them to do so. By integrating all operations into a comprehensive sales-delivery plan it had been possible to reduce intermediate inventories and the frequency of work stoppages due to lack of spare parts, intermediate products and — most importantly — *advance* signals from the top of what products and specifications were demanded.

It had been estimated that only the reduction of work stoppages, interruptions in production flows (because there was no information what to do next) and the reduction in inventory levels compensated for a 20 per cent, flat rate, lower efficiency at each individual production line when performance was summed up in terms of rates of return to invested capital at CHQ-level. This estimate was restricted to those parts of operations that were enclosed in the comprehensive planning system. Similar coordination effects were much more difficult (or impossible) to achieve vis-a-vis external subcontractors. The coordination effects were considered very important for the possibility of maintaining profitability in some foreign subsidiaries where production facilities were a prerequisite for permit to be established and where the benefits of large scale production were not available.

In this case much of the marginal efficiency lies in the system, not in its parts. It provides a good example of how any standard transfer pricing formula may turn out distorted information. Whether based on an arms-length or cost-plus method, low profit sectoral performance should not necessarily be interpreted as a signal to do something about that sector. Larger benefits may be derived from improving the macrosystem. In a system with these features profit control should be based on some other standard than inter-sectoral profit comparisons. This may be one reason why we have found such frequent recourse to a combined bargaining — responsibility budgeting — reporting system in large U.S. firms rather than mechanical measurement and comparison.

IX PLANNING AND DECISION-MAKING

There are three activities that should not be confused in a context like this; (1) *formal planning,* which as far as the results go is a method of compiling and interpreting numerical data, (2) *decision-making,* which may or may not be based on information from the plans, and (3) *behaviour,* which needs not conform with either plans or decisions although it certainly is affected by the decisions taken.

The link between formal planning and decision-making will be discussed in this chapter under four headings; the time dimension of planning, management participation in planning, remote guidance and control through planning and corporate policy making. For obvious reasons the discussion becomes more fragmentaric as we proceed, and the more we leave matters that can be subjected to some kind of "objective" observation. The onward link to *behaviour* is left for the final chapter.

We should recall here that our definition of formal, comprehensive planning is fairly restrictive. Formal planning has been viewed as the interaction of comprehensive numerical planning with business judgement the end result being a well defined numerical plan. With this definition we have found formal, comprehensive planning to be limited in application to well structured, repetitive decision problems. The definition includes formalized, nonnumerical procedures that relate to the planning process such as reviewing. However, it excludes formalized procedures that do not relate to the numerical comprehensive plan, that are essentially qualitative in content and format and that are sometimes designed to handle unstructured, unique and major decisions. Sometimes such formal procedures are given names like strategic planning etc. They are of very frequent occurrence and range from elaborately designed high level confrontations and brainstorming meetings to a set of calendar dates for future meetings only.

Many of these procedures reach, as we shall see in this chapter, a high level of sophistication *because* they are linked to what we have termed formal comprehensive planning and hence are all the time disciplined within a consistent numerical framework. As such they also constitute "formalized" and observable activities that link planning with decision making.

1. Time dimension of planning — The horizons

It may seem odd to account for the time element in planning in this late chapter. There are reasons, however, and they all hinge on the validity of keeping too such integrated concepts as a short-term and a long-term future in separate sections of the book. It is indeed a very artificial procedure to chop up calendar time in a near and a distant future by arbitrarily inserting a borderline, say, one year hence. It is done, in formal planning, but more from practical necessity than on purpose, and the borderlines drawn vary substantially between firms. Actually, when looking at those firms that apply the complete three-stage planning apparatus of rolling one to three year budgets, rolling five to ten year plans and superimposing some prospective or strategic planning device on top of all this, the horizons rather tend to fade away as the degree of detail and comprehensiveness in coverage gradually diminishes into the future. Besides, the methods applied in making up the short-term and the long-term plan have so many similar characteristics as to make a separate treatment an unduly repetitive exercise. So this is the place to let the problem of periodization enter.

We start by describing the different kinds of planning horizons entered into formal planning systems and procede to account for the frequency in revising plans of different kinds.

After that the two main control instruments — reviewing of the plan and reporting against the plan — are discussed. Here the question of management participation in formal planning enters in a natural way. After this loop the two basic, iterative processes of formal planning have been treated. The first, referring to the sequence of subroutines, that makes up the structure of the plan, has taken up most of the previous chapters (cf. Diagram I:1 B). The second iterative process refers to the continuous onrolling of the plan characterized by planning, reporting, revising and the making of the next plan.

a) *Links between budget and long-term plan*

In some firms the difference between the distant and the near future was a matter of mere planning detail, the annual budget being simply an explosion of the long-term plan. On the other hand, in several firms, the two plans were in fact two separate things, made up by different groups of people, their activities being loosely coordinated or not coordinated at all. As a rule further work on the annual budget meant deviations from the first year of the long-term plan. In some firms ("observed cases") the short-term (annual) budget was completed *before* the long-term plan.

Normally the operational content was more pronounced in the budget than in the long-term plan, the budget being concerned with the immediate future. However, this distinction is only a matter of degree. The budget practically never meant automatic CHQ authorization to go ahead with decisions organizationally vested with CHQ. The second, third etc. year of the long-term plan contained many consequences of decisions that had to be taken now. Nevertheless, current operations

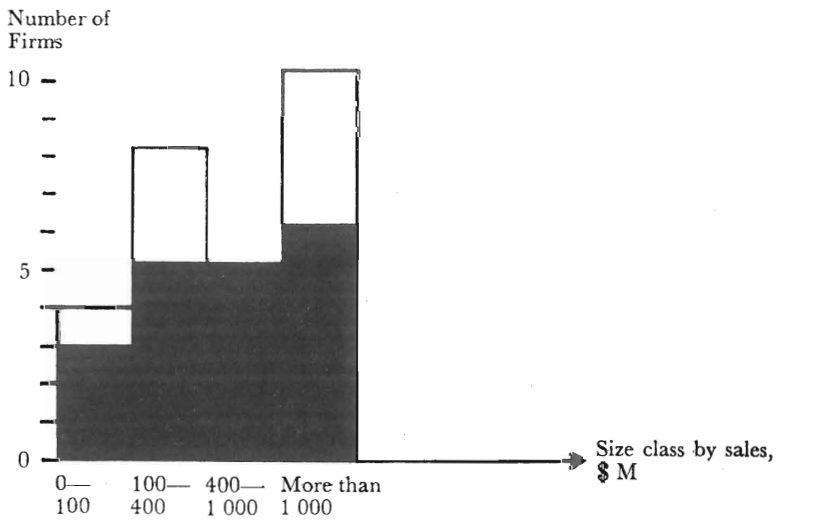
management (on the presumption of given production facilities) was the dominant concern of the budget, and long-term investment and financing problems were key issues in long-term planning. Thus, numerical consistency between the annual budget and the first year of the long-term plan was seldom considered important. The argument often was that if such consistency had been enforced in planning, the "myopic" concern with the next year would spread to the five year plan as well. Thus for instance several firms (U.S. and European) reported that the sales people, making up the short-term sales plans for the budget, were bad planners when it came to projecting sales for the long-term plan. Hence, this task had been taken away from the budget department and been vested with a separate, divisional staff-group or with CHQ. In one large firm, with very frequent updatings and on-rollings of the budget, the long-term planning input in budget work was a plan that was between a half and one year old, even though a new long-term plan was made up two times a year. In another large European firm with a two-year budget, long-term planners were asked to start from the third year and not concern themselves with the current year and the immediate future.

It may be useful to recall here the three types of purposes listed in Chapter II. Formal, comprehensive planning as it has been described in this study is neither an analytical instrument for deciding on what to do nor an implementation program. Control, including targeting, performance rating and coordination on a well-structured, numerical reference basis, is a prime purpose. When so, a slight "myopic" inclination and emphasis on adherence to past patterns of performance (stability) should be expected. Furthermore major decisions, requiring far-sightedness and bold new approaches are practically never part of or even imitated in the formal planning process. These two circumstances in combination may explain why procedures in budgeting and long-term planning are so similar. It also explains some of the difficulties experienced in previous chapters of pin-pointing exactly what useful purpose long-term planning in fact serves. It exists, however, as an empirical phenomenon and we proceed to describe some of its features.

The typical long-term plan in a U.S. firm is made up under a five year horizon. A comprehensive plan with a five year horizon existed in 21 of the 30 U.S. firms interviewed and within 17 of the 32 non-U.S. firms studied. The distribution of long term plans on size groups by employment and sales for firms interviewed before 1974 is illustrated in Diagram IX:1 for the U.S. firms and Diagram IX:2 for the non-U.S. firms. The frequency of (at least) five year comprehensive plans is somewhat higher in the U.S. than in the non-U.S. sample. Also the requirement of coverage for the comprehensive plan, in practice, has been set higher for the U.S. firms, a circumstance that makes a mechanical comparison between the diagrams misleading. In fact, making full coverage of subsidiary operations a requisite of comprehensive planning would reduce the frequency of such plans drastically in the non-U.S. sample, but not so in the U.S.-sample (see further next chapter). To this comes the circumstance (not shown)

Diagram IX:1

The frequency of comprehensive long-term plans; U.S.-firms (1968)

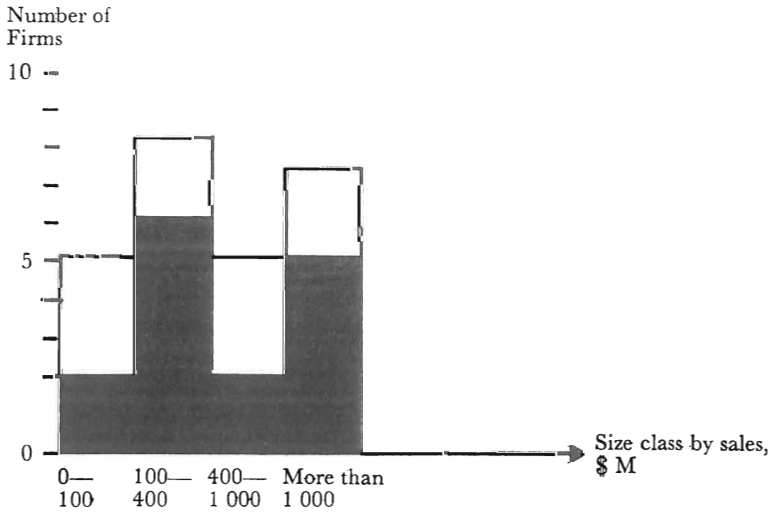


With a comprehensive Long-term plan covering parent company and controlled subsidiaries. Minimum horizon five years. Revision at least one a year.

Note:
Only firms interviewed in 1969 included. Cf Supplement 8.

Diagram IX:2

The frequency of comprehensive long-term plans; Non-U.S.-firms



With a comprehensive Long-term plan covering at least the parent company. Minimum horizon five years. Revision at least once a year.

Note:
As in the corresponding Diagram IX:1 for U.S. companies all data refer to the year 1968. The sample does not include Adam Opel AG, which is a subsidiary of GM, Detroit and firms interviewed later than 1973. Cf Supplement 8.

that non-U.S. five year plans were of a more recent origin.[1]) We repeat, that the definition of "comprehensive" is that a complete profit-and-loss statement and a complete balance sheet for the entire business organization including controlled subsidiaries should be projected for each year up to the five year horizon. The presentation not being complete, the necessary data for such a presentation should be compiled and easily available. Among the 21 + 17 firms, that operated comprehensive long-term planning systems, however, the amount of detail entered into the formal plan varied substantially.

Besides, when looking at the process of building up the formal plan, at least two different categories could be separated, one involving participation of all organizational units of the corporation, the other being a pure CHQ product. These features are of importance for an appreciation of the links between planning, decision-making and behaviour to be considered in section 2 and Chapter XI. Besides, it should be emphazised again that the very circumstance that a long-term (say a five year) plan is "comprehensive" does not make it a "good" plan. There are more important aspects of planning to take into account than the amount of detail in presentation.

A typical five year plan usually shows the accounts on a consolidated basis for *each* of the *five years*. The preceding Chapters V—VIII give a fairly accurate account of the order in which the elements of the typical plan are put together. As far as individual entries go, the plan is normally more detailed than the sketchy presentation of the preceding chapters might indicate.

In most cases the long-term plan is completed several months before the end of the fiscal year. The work on the annual budget often starts from a preliminary or completed projection for the next fiscal year as it appears in the long-term plan. Sometimes this was all there was to it. The annual budget was completed simultaneously with the long-term plan and constituted its first year, usually with some extra detail added. If not, the basic first year entries of the long-term plan were normally treated as input data (assumptions) for the work on the budget which was completed one or two months after the long-term plan.

The basic difference in format between the budget and the long-term plan lies in the time specification and the amount of detail. These differences also corresponded with differences in purpose between the two types of plans. The entries of the budget were usually specified on a quarterly basis and sometimes on a monthly basis. However, there were exceptions, notably between U.S. and non-U.S. firms. In three (not small) European firms specification in the budget was by year only. If the long-term plan and the annual budget are well integrated the work on the budget — after completion of the long-term plan —

---

[1]) The number of five year plans in the non-U.S. sample should in effect be reduced by three to account for the fact that all U.S. interviews took place in 1969 while non-U.S. interviews have been spread over the period 1969—1973. These three planning systems were started up after 1969.

mostly consist in the further breaking down of various entries and the timing of planned activities within the fiscal year. In addition the analysis of the consequences of the complete budget for liquidity, rates of return on various activities, etc. may be carried one step further than was done at preliminary stages. It appeared to be a rather uncommon procedure to revise the budget in the light of such further analysis. As a rule surprises were understood to be few.

b) *Plan revisions*

Normal procedure is to revise the long-term plan *once a year* for an additional, complete planning period. It is also normal practice to revise the budget once a year only. In most cases this practice, however, was combined with a current *updating* of some crucial entries in the budget for the rest of the fiscal year. Sometimes this was made on a rolling basis, always maintaining a one year horizon. This two-way approach in budgeting was always explained in terms of the various purposes of planning. Revised estimates on budgeted entries were needed e.g. for a reliable numerical re-appraisal of current liquidity demands from the operation of the entire corporation. E.g. the treasurer's department needed such updated figures to perform its cash-management function in an efficient way (cf. Chapter VII). Here the forecasting purpose of planning enters. At the same time widespread experience was that a *stable* standard of comparison is needed to exercise efficient short-run control. It was repeatedly emphasized that responsibility could not be exercised on the basis of targets and agreed upon numbers that changed frequently. A distorted but interpretable yardstick was better than no yardstick at all. This is the reason for the common practice of "living with" the original (annual) budget throughout the fiscal year whatever the ex post outcome of the original, basic assumptions of that budget. The original budget process was an elaborate and well-rehearsed exercise. Assumptions and responsibilities built into it were well understood and managers were experienced in reinterpreting its data content with respect to changes in environmental assumptions.

There are some notable exceptions to the above descriptions that will be summed up in the next chapter. The difference was large between the U.S. and the non-U.S. samples, the U.S. firms exhibiting, on the average, more detail in their budgeting routines and revising their budgets more frequently. In at least 22 of the 27 U.S. firms interviewed in 1969 budget specification was at least by quarter. Among them 12 were by month. In at least 9 U.S. firms an almost complete up-dating and on-rolling of the budget was made every quarter. Three U.S. firms revised and rolled their budgets 18 months ahead *every month*. In one giant U.S. firm the entire budget was revised every quarter for a future 36 month period with monthly specifications. There was no non-U.S. firm even in the proximity of these last four examples.

In most U.S. firms deviations between originally budgeted amounts and ex-post outcomes were currently analysed and their causes established in terms of the budget. This is in contrast to current practice in external analysis, namely to analyse firm records in terms of data for

the *previous year,* i.e. in terms of growth rates, percentage changes in profits, investments etc. As mentioned, experience also was that to analyse these deviations against the most recent updating of the budget would create more confusion than insight. In firms where the updating was made on a monthly basis the number of time-dimensions involved towards the end of the year would make such an analysis impossible. A person travelling back and forth over the U.S. continent in one day having one meeting on each datum line provides a good illustration. He would not think of having his wrist-watch currently set on local time and all appointments as well.

One might of course ask what all these compilations of data at this kind of extreme detail is good for. Common sense suggests that there is no "detached" method available to lend any kind of realism to most of these figures. The answer — as far as the author's judgemental capabilities go — is that "realism" is no prime objective in planning. In a well-managed planning system — as we shall see in the following sections — much of the numerical part consists of negotiated figures. This again high-lights one important feature of the number game called planning, namely a systematic method of making people responsible for numbers, responsibilities that are exactly defined and require compliance that is easily and exactly measured and checked. Such a reference-number system must be fairly stable so as not to create confusion. Compliance furthermore requires participation in the fixing of responsibilities by those who are later to be made accountable.

2. Authority, control and participation

a) *Management participation*

Even though top executive decision makers were often said to be actively exercising the control function with the help of formal reports, reporting is not the only instance of management participation.

I was repeatedly told during the course of interviewing that it was not the final planning document that mattered so much but rather the process of arriving at it.

Very often I met with the statement: "You have to look beyond the numbers." The plan should be a management tool, not an objective in itself. As a tool it was liable to be replaced by other means of gathering information if it did not "work properly". One frequent reason for this was that top decision makers did not "believe in" or "like" the numbers. Besides, as we have noted frequently, the planning system is more and more becoming a system of negotiations the final compromise of responsibilities being recorded in the planning document. This gives the numbers a meaning quite different from what one would expect if planning was a more analytically oriented information handling instrument.

The *attitude* to formal planning as such varied a lot between firms as well as (within the firms) between the kind of firm officer interviewed. During the course of interviewing I gradually acquired some experience in classifying the person(s) interviewed as to his

particular attitude. To take the second kind of variation first, it happened in one fairly large U.S. corporation in particular — and also in a medium sized firm — that the person interviewed did not concede the existence of a fairly comprehensive long-term plan until rather late during the interview. Again, this concession was accompanied by the remark that the long-term plan was more of a play-tool than a decision instrument. It was not of "very much use" but the firm could afford it. It should be added, that the person interviewed in both cases carried a high rank in the organization and definitely belonged to the group of top decision makers.

The variation in attitudes to planning between firms was of a somewhat different kind. Its basic feature had to do with the amount of management participation in the making of the plan. My conclusion -- which is neither surprising nor remarkable — is that the importance of the formal plan as an instrument for decision-making is directly linked to the degree of management participation in the making of the plan. However, in appraising the degree of management participation one has to distinguish between *CHQ management involvement* (including the top decision makers) and management participation in general. The first kind is usually a prerequisite for the rank and file middle management to be actively involved and "interested" in the planning process. Furthermore, the more of an internal bargaining system, planning, the more intensive (of course) management involvement and the more actively involved top CHQ management as well.

First and most important, the degree of management participation in short-term planning was closely associated with the emphasis placed on the *control purpose.* The control function was exercised in two ways: (a) during the course of planning work through so called *reviewing,* and (b) way of *reporting* against the plan. Both activities will be discussed in detail below.

Similarly and secondly, management participation was important in the *appropriations procedure,* where final decisions as to individual investment projects were made.

Third, management participation as a rule was much less obvious in long-term planning and exploratory planning, even though some notable exceptions can be reported.

As already mentioned, most comprehensive planning systems investigated had a strong financial bias. However, only when planning was made to interact in a systematic (integrated) fashion with operations management did it seem to impose a leverage on actual financial decisions. One instance of this is the use of the budget as a "forecast" for cash-management and the long-term plan as a forecast on the basis of which major borrowing decisions were taken.

Obviously the more of management involvement and the more pronounced the control purpose the more important the plan has to be as an information and decision instrument. However, it takes time to "break in" the routines of a comprehensive planning system and it is not until such routines have become established within the organization

and become familiar to firm officers that the planning system begins to function as a guide of any importance for decision-making. Again, I have to emphasize the particular character of "information" when we are concerned with numbers that more or less, and sometimes largely, stand for negotiated responsibilities.

Most U.S. firms have had a comprehensive budget procedure at least since the end of the war and the appropriations procedure as a rule was still older. As for the non-U.S. firms short-term budgeting dated back to the early fifties or before. On the other hand long-term planning and planning of the "loose" explorative kind (in particular) are very recent things even in the large U.S. firms. Consequently, the practice of thinking and working in terms of a systematic and numerically specified long-term plan has been established only in a fairly small number of firms, the U.S. firms typically being ahead of the Europeans. An example may illustrate the point. Several firms having started on a long-term plan recently still had difficulties in making division management understand the point of completing numerous standard forms for the long-term plan. This was so, even though no complaints were heard when even more detailed forms for the budget were sent out. In the beginning it was equally hard for division management to understand why and how to complete the form for the annual budget process.[1])

As already indicated in Chapter II, methods of putting the plan together vary a lot. To a large extent these methods also define the character of management participation. The typical shop-floor approach, where CHQ collects plan-input data and estimates from the bottom up, normally places the responsible planner-manager at each hierarchical stage in an upward negotiating position. Since the allotment of funds (in the budget) for investment and growth is always decided at the top it is in the interest of each planner-manager to present as convincing budget proposals as possible. A shop-floor build-up of the plan invariably, and for practical reasons, meant large management involvement at all stages at least in the passive sense of putting together the data input for the planning process. This was the only method applied in budgeting and in most cases in long-term planning. A pure "synthetic" CHQ plan was the *only* long-range planning instrument in 2 U.S. and 2 non-U.S. cases. This invariably meant that management participation was low and restricted to a small group of CHQ people who were not authorized to make decisions of any consequence.

However, the degree of involvement is still determined by the degree to which budget and plan data figure as an information input for decisions at CHQ. If the attention paid by top corporate decision makers is great, extensive management involvement and interest far

---

[1]) An instance of this is provided by the giant U.S. firm which asked for three probability estimates for three alternative outcomes for sales, profits etc. Since 1962, when this kind of specification was introduced, a number of management staff members amounting to almost 1.5 per cent of total present employment had completed an extensive course in mathematics and statistics in order to acquire the competence needed to understand the questions posed.

down in the corporate hierarchy is an automatic consequence. The extensive CHQ attention paid to ex-post reporting against the budget in U.S. firms was in itself enough to spur substantial management interest in budget work. This was even more so in those firms where CHQ as a matter of routine prepared a separate and sometime quite detailed CHQ plan in order to improve their bargaining position vis-à-vis divisions. This is an example of extensive planning practices that one would expect to find only among the very large business corporations that figure in the U.S. sample. However, the results from call back interviews in the U.S. during 1973 and 1974 suggest that formal procedures similar to this — although much simpler than the method described in Case 15 below — are now gradually being developed in a large number of firms in the U.S. sample.

Some large firms also had constructed so called (financial) models that simulated the comprehensive planning sequence in a *very* simplified way. Such model work was practically always supplementary to the comprehensive planning process and tied in with it at times in a systematic fashion (cf. supplement 6).

Case 15; environment interaction with simulation model (large U.S. firm)

Many of the U.S. firms interviewed had reached a size making it impossible for them to operate without interacting with their environment in a substantial way even at very high levels of aggregation. In one such firm a corporate planning — financial model that interacted with an econometric environmental model of the U.S. economy had been constructed. The interview did not allow a satisfactory evaluation of the importance of this joint model in planning work. However, the presence of the model is interesting enough to warrant a brief description of its supposed place in the planning process.

The environmental model was a modified version of a model of the U.S. economy provided by a well-known consulting firm. An up-dated version of the model was always kept easily accessible on a time-sharing system.

During a five year period an elaborate imitation of the planning and budgeting process had been built up in the form of a corporate model. This model was specified to the detail of the set of profit-decision units that made up the organization of the firm and also the organization of the planning procedure. This firm model was integrated with the economy-wide model and stored in the same computer. Impacts from specified exogenous environmental changes on the firm could be simulated in a routine fashion from a terminal at CHQ. Similarly the impact on the U.S. economy of some substantial changes in the operation of the firm could be simulated in the same routine fashion. The most important interactive features had to do with the demand side. Price/quantity trade-offs on established product markets could be run through the models.

The environment model was of the input-output type with demand functions specified for end products of each sector. The corporate model was a simplified replica of the planning set up. There was a separate input-production-profit model for each profit centre and the model could be instructed to simulate an optimum five year plan for each profit centre under a minimum profitability constraint.

The use of this model structure in planning was described as follows. Early in the year top executive people (chairman, president and all VP) sat down in a two day meeting to decide on their preliminary environmental beliefs for the next few years. Planning people then started to work on these preliminary thoughts in order to come up with an operational specification of environmental assumptions. In a second meeting in February an agreement was reached on these

environmental assumptions and (furthermore) a number of strategies were suggested for each profit centre.

From these sessions two parallel planning sequences followed: Each profit centre was asked to provide suggestions for operations planning on the basis of these strategic suggestions. Second, CHQ planning people sat down to work out an operational formulation of the environmental assumptions and the suggested strategies for model simulation purposes. From these data a set of simulated plans was produced by the model.

The next session at the administrative level consisted in a confrontation between profit centre plans and simulated plans. From the CHQ view-point the simulated set of plans served two basic purposes; (1) as a reference point to ask questions from. It improved the negotiating position of CHQ vis-à-vis profit centre planners; (2) a means of testing the consistency of profit centre plans.

The experience was that simulated plans as a rule were way off profit centre plans. The reason usually was (a) that profit centres neither wish nor can plan to adjust to an optimum economic structure at the rate the model prescribed. Second (b), even though this may be possible at times, the very simple representation of reality that the model represents makes it produce unreasonable or extreme results as a rule. Third (c), since basic environmental assumptions have a tendency to change substantially from year to year, it is never "optimal" in terms of the complete planning system to plan to adjust in a hurry to new optimum levels even though the model may advise so.

The confrontation between preliminary profit centre plans and simulated plans, however, normally resulted in compromise decisions as to how exactly profit centres should revise their plans. These revised plans were later approved tentatively as the long-term plan for the next five years.

With and without separate CHQ plans at least half of the U.S. firms applied — as a matter of routine — very elaborate informal procedures of imposing CHQ views on the final plan. Normal practice was to have a small team of CHQ planners circulate among the divisions each quarter for one or two day sessions at each stop or to bring division planners together at CHQ at regular intervals or both. With or without such meetings extensive telephone contacts between divisions and CHQ were always practiced before any formal documentation was completed. Often such telephone contacts meant that a CHQ planner tried to bargain down budget requests from divisions.

It should be noted that so far we have only been talking about the efforts spent on fixing the entries of the planning document before presentation to the Board for approval. It should also be remembered that approval of the Board is not the same thing as a decision to start making financial commitments.

Most often (in U.S. firms) some responsible person at Board level was actively engaged in planning work at CHQ level with the authority to fix certain overall guide-lines for planning. Often a separate sub-committee of the Board had been instituted particularly for supervising planning work. If not, CHQ planners normally checked upwards for guidance if the need arose. Thus, when conforming to the above description, the basic assumptions of the plan had been checked, approved and ground into the plan in all their details before being finalized. If so, the passing of the final planning document at a Board meeting was normally just a matter of form.

As far as work on the *annual budget* goes this description of management participation seems to be relevant for most U.S. firms interviewed (at the time of the interviews). As for the European firms interviewed, even in budget work, top management participation at an early stage was less obvious and in several firms absent. Hence, the importance of the formal budget was smaller than was normal in U.S. firms and presumably also management interest and participation at lower levels. This conclusion is further strengthened by the much less stringent reliance on formal reporting and control against the budget in non-U.S. firms observed. Hence, again, the importance of budgeting as a tool for decision-making diminishes.

Even for most U.S. firms the above picture of active management involvement becomes less relevant when we leave budgeting and look at *long-range planning* or extended budgeting. For many non-U.S. firms *active* management involvement in long-range planning beyond the passive filling in of standard forms and presenting the figures in a CHQ memorandum was absent (at the time of interviewing). One reason may be that the interval between the long-range plan and the time when decisions to start making commitments have to be taken is much longer than for the budget. It seems to be an ever-present circumstance of corporate life that current operations management and the immediate future take up most or all attention even among those who carry titles that suggest otherwise.

The long-range plan is normally geared towards the compilation of an information basis for long-range financing or investment decisions but these decisions are normally delayed or shifted away from the planning people. The final investment decision is practically always taken within the so called appropriations procedure — which always (within U.S. as well as non-U.S. firms) attracts great top management attention. Long-range plans are seldom put together in a form that makes them suitable for decisions regarding where — within the business organization — to allocate available funds. The main use to which long-range plans are put seems to be to estimate the future need for long-term financing and among several Swedish firms I met with overt scepticism as to the need for plans even in this context. Two Swedish firms had begun work on planning beyond the budget horizon at the peak of the business cycle 1964/65. However, the outcome in 1966 and 1967 was so "far below" the figures in the planning documents that they outright abandoned all planning of this kind for several years. Similar experiences were reported in both U.S. and non-U.S. firms during the recent inflationary years, and the international monetary turmoil of 1971 and 1972.

In contrast to this experience several executives in large U.S. firms interviewed expressed the opinion that without the five year plan regularly made up and revised every year it was very difficult both to *coordinate preparations* for major investment decisions and to keep top management informed in sufficient detail of the directions in which the various parts of the gigantic organization were heading and as to what problems lay ahead.

Also, in a few of these giant U.S. corporations, planning even beyond the five year horizon was as involved as budgeting work in many of the smaller firms interviewed. In some of these firms the long-range plan came very close to what one could call a *remote steering instrument,* through which top level policy decisions were imposed upon the organization, allowing at the same time a far reaching delegation of decisions and incentives to divisions or subsidiaries. Typically enough, the control motive in these firms was central also in long-range planning. Each time a new long-term plan was to be worked out divisions were always subjected to intensive, detailed and systematic questioning about the *reasons why* the previous long-term plan had been changed. As we have noted earlier long-term plans were normally revised substantially. Many firms reported the experience that divisions systematically tended to bias their long-term plans in an "optimistic direction" with a three or four year success lag, success being postponed one year with each annual revision. However, only very few firms interviewed had developed procedures or methods to put effective pressure on division management on the basis of this information. To achieve such results an enormous effort had had to be spent on standardizing and organizing the data flows from bottom and upwards and vice versa and checking through an elaborate reporting system, that departures from the plan, was always under current CHQ control. Here the adoption of an adequate or at least stable transfer pricing system was of paramount importance. In addition not only substantial but also very high quality research and management inputs were required.

In a way the planning procedures, adopted in the two U.S. firms I have in mind when writing this, represent a peculiar mixture between the detailed ordering of outputs characteristic of eastern planned economies and the remote and general policing of mixed, industrial nations in the western hemisphere, where much of the incentives and taking of initiatives are left far down in the economic system. The principal difference seems to be that top corporate policy makers have better tools (methods) and are much better informed about the "economy" they are manipulating. They possess data for coordination and control of a far superior quality, and this instrumentation allows top CHQ management to detach themselves from shop floor matters of "their economy" without loosing control. In one of these U.S. firms the planning system was referred to frequently as the instrument by which top management "communicated" with the organization.

b) *The reviewing system*

Informal authorization schemes in budgeting usually carry the name *reviewing.* To some extent the same reviewing is applied to long-term planning as well. Reviewing is the part of the overall control function that takes place *before the numbers of the plan have been decided on.* Reviewing is also the typical way of imposing informal constraints on the formal planning routines. The formal planning routines are normally organized to accomodate reviewing as data

compilation proceeds (cf. the "blocks" in Supplement 3). Reviewing is essentially the same thing as bargaining. Reviewing is basically informal and to a large extent consists of a large number of confrontations of different conceptions and numerical estimates on the future, representing partly different appraisals, partly conflicting interests. These conflicts cannot be resolved without extensive recourse to information that is not routinely handled within formalized planning. The more of management involvement the more intensive and important bargaining and the more dominant the nature of the plan as a set of agreed upon and numerically specified responsibilities. This is also the main reason preventing the use of the plan or the budget for computerized simulation experiments. It is also difficult to envisage the concept of "alternative responsibilities" as a practicable and useful management tool. The importance of the control motive in comprehensive formal planning may be the important explantation for the striking absence of so called "alternative" or contingency planning *at the CHQ level.*

It will have to suffice in this monograph to indicate the main steps in the work on the plan where reviewing is most typically imposed.

We restrict our attention here to reviewing practice at the stage of planning and postpone to the next section the control function exercised at the later reporting stage. Reference is made to Diagrams I:1 A—C in Chapter I. A distinction is made between a centralized and a decentralized CHQ control of planning by way of the reviewing procedure. The concept of centralization of reviewing used here has to be kept apart from the degree of centralization of decision-making and of the organization. As we shall see, a centralized reviewing process tends to be associated with a decentralized decision system.

We begin with the *centralized system,* which here means that CHQ reviewing is imposed already at the early stages in the making of separate division or profit centre plans.

An arrangement frequently met with was to have a series of reviewing sessions between CHQ and division people; one division at a time. Sometimes a group of CHQ people did the travelling, sometimes division management was brought in to CHQ. In at least two firms practice was not to close the reviewing session until a final division plan had been decided.

The fixing of the sales and profit projections is the first and prime focus of CHQ attention. One person at CHQ was usually responsible for several divisions. The larger the firm, however, the larger the number of persons involved and the more difficult coordination between divisions at this first stage. The next CHQ reviewing stage took place when data for a cash-flow analysis had been prepared. At this stage a consolidation for the entire organization usually took place. The result might be a request to make cut-backs in the investment plans. As already mentioned, revisions seldom went as far back as to the sales projection.

A third stage (seldom met with) was a performance (profitability) analysis for the entire division. Comparison this time was with past

division performance as well as with planned performance between divisions.

The fourth reviewing stage is defined by the appropriations procedure. Cut-backs or revisions this time only concerned spending on capital account.

The typical feature of the *decentralized planning system* is that coordination between divisions at CHQ level does not set in until the stage when data have been fixed and compiled for a complete cash-flow analysis of the entire business organization. Revisions again seldom go back as far as the sales-profit projections.

In the decentralized system, divisions or profit centers or subsidiaries are authorized to make up a complete plan on their own. CHQ reviewing starts at the cash-flow analysis and — more seldom — at the performance rating stage. Formal consolidation of the future accounts usually takes place, but in several instances a simple summation is all there is to it before the completed plan (budget) is handed over to the Board for approval. Usually, however, some kind of CHQ authority was exercised.

The liquidity position of the entire corporation or the result of the performance (profitability) analysis might give rise to recommendations to revise e.g. cash flow demands downwards in some divisions. It seemed to me that current practice in a planning arrangement like the decentralized one was to leave it to division management to decide where and how to exercise the cut-backs.

Two consequences from the application of the two types of reviewing methods are apparent. They both refer to the coordination potential of the two approaches. The early grass root involvement in the centralized procedure means that CHQ management exert their influence from the very beginning, when the final outcome of planning in all other divisions is unknown. Complete CHQ coordination is impossible without a number of trial and error iterations since it has to be based on incomplete information. Such iterations normally take place over time, each time a plan is revised, but not within each planning sequence.

The decentralized reviewing system has the potential of good coordination at the consolidating stage either by way of sending out guide-lines or directives prior to the start of planning or by having division management revise their plans on the basis of one or several consolidations of the plans.

In practice, however, decentralized reviewing seems to mean the same as a passive CHQ involvement in planning with a more or less mechanical summing up of division plans. The "plan" has not been properly worked over and cannot be used effectively as a reference for reporting and control. *Some other means of steering and control are needed as a complement.* This description is more representative for the European sample of firms than for the U.S. sample.

Early shop-floor reviewing on the part of CHQ almost by definition means extensive management involvement and a more accepted system of numerically specified responsibilities that facilitates effective control by reporting. The decision process of the next year or years has been

well rehearsed for the time being and top management can delegate a larger portion of current operations decisions, relying more or less on the final and automated control through reporting for compliance with the "agreed upon" plan. This is what was meant by the carlier statement that centralized reviewing often was associated with a more decentralized or delegated decision structure.

c) *Reporting*

Among the U.S. firms interviewed, detailed reporting and ex-post checking on performance were 100 per cent present. Reporting against the budget was probably the most important use to which the budget was put. This practice also explained the surprising degree of detail of timing in the budget of U.S. firms. Normally all major entries in the budget were broken down on a monthly or a quarterly basis. This was so regardless of whether information of sufficient quality was available to plan in such detail. Forms for requesting advance budget data, budget presentations and forms for reporting were quite often standardized 100 per cent to allow automatic computer handling. In several firms computers were programmed to signal by month ex-post deviations from budgeted entries and pre-set criteria and responsible division managers sometimes were required to report and explain, currently, major deviations *before* such signals reached CHQ.[1])

One of the manifest differences between U.S. and European firms met with during the interviews concerned the extent of reporting and control. Although all Swedish firms had an annual budget, at the time of interviewing it normally covered the parent company only, while subsidiaries (including 100 per cent controlled ones) made up separate budgets. Group control frequently was by way of Board representation only. The very fact that comprehensive budgets at group level were not made up, made systematic group control by reporting against the budget impossible in the majority of Swedish firms at the time of interviewing. Even within the parent company numerical reporting up to CHQ was far less frequent, less detailed and less comprehensive than in the U.S. firms interviewed. In one large Swedish firm no comprehensive numerical information on the state of affairs was available until the final closing of the accounts at the end of the fiscal year and controls mainly consisted in a hierarchical informal procedure where good memorizing capabilities, especially at the very top, played a crucial role. Probably a large part of this difference is explained by the enormous difference in size between most of the U.S. and Swedish firms interviewed — but not all. Even the smallest U.S. firm interviewed revealed formal control and reporting systems much more thoroughgoing than in larger Swedish firms studied. The impression of not unimportant differences in business philosophy is strong. The degree of intrusion into division affairs through reporting furthermore was far more frequent among U.S. than among non-U.S. firms. CHQ often required current reporting against details of

[1]) Also cf. the control linkage procedure reported for Raytheon Corp. and General Mills in Dix — Kaffenberger — Withers (1969, p. 171).

division plans. As we have mentioned already early and extensive CHQ involvement in division matters at the reviewing stage normally also meant that a reporting system of the same degree of elaboration was connected. However, this also seemed to mean that decisions to carry out plans could be delegated and CHQ felt satisfied to supervise this at a distance through what they considered to be a reliable alarm and control system. We will return to this again later.

d) *Authorization stages*

Planning methods and degree of management participation both have a bearing on the stages of authorization imposed on the plan. The structure of the plan, type of management participation, the reviewing system, the authorization steps and the reporting procedure are all different sides of the same multidimensional thing: planning. They all reflect the purpose to which the plan is geared and they also to some extent (such is the author's contention) mirror the decision process in the firm. In principle authorization is the formal part of the reviewing process.

In most instances the prospective plan was not subjected to formal authorization at the top executive level at all. It was rather considered as an informative document containing an appraisal of the very long-term outlooks — usually shaped in terms of alternative courses of action open to the firm and including no or little in the form of numerical specification. The few exceptions to this rule were those few U.S. firms in which the long-term plan was well integrated as a temporary choice from a prospective plan.

Usually, at least one final authorization by the Board or a sub-committee of the Board was required for the long-term (3—10 year) plans. Often, a formal Board member clearance was needed at several stages in the work on the long-term plan (see below) and the frequency of Board contacts at several check-points increased with the degree of precision and comprehensiveness in the plan and the shortness of the planning period. This probably reflects the fact that some decisions that involve later commitments may be taken on the basis of the long-term plan, notably on the long-term financing and investment sides.

Again Board authorization was not involved in 2 of the U.S. cases where long-term planning consisted in the application of a numerical model simulation or some simple trend extrapolations at CHQ only. In these cases the final plan was regarded as a document (like the prospective plans) to be presented to the Board members for information only.

In short-term budgeting, decision-making is much closer in time. Here the authorization procedure consequently was much more elaborate. Various members of CHQ top management were normally responsible for different stages in budgeting. Vertical contacts were frequent and travelling extensive in the large firms with world-wide operations. Even though final authorization of the budget document was normally a token ceremony, it reflected the fact that the Board had also accepted the budget procedure that led up to it.

3. Hierarchial ordering of remote guidance and control

a) *Autonomy, optimality and responsibility*

We have observed that the structure of numerical routines within the comprehensive planning systems looks very much alike between firms. When we reach beyond the numbers and try to see how such routines tie in with decision authority, "spans of responsibility" (to use a standard phrase), the ordering of the remote control system etc. we meet with very different solutions between firms. Such systems are delicately structured and balanced. They are based on individual qualifications and the character of management interaction in planning. They change gradually over time but are sometimes subjected to drastic restructuring in conjunction with top management changes or crisis-situations. Such structures or hierarchical orderings are very difficult to observe. A complete overview is available nowhere in the corporate hierarchy itself, except in the sense of a good "grasp of" or "feeling for" the workings of the organization. Such a system cannot be run without what was frequently referred to as "experience". And this may be the reason why the system was often changed when there was a change in top management. A prime criterion of a well operated planning system (whether in the short or long run) adopted in this study is that it is an integrated part of such a management participation system and not a separate, staff apparatus. If of the second kind — more prevalent in Europe than in the U.S. — the planning document was typically made available to top management when ready, printed and bound and was read by the intended beneficiaries — time permitting.

This informal planning — or rather management system — has been "observed" in the interviews to the extent possible. Consequently, this section (as well as the following sections and chapters) is based on very fragmentary pieces of evidence. The author has had to resort to common sense judgement and imagination to join the pieces together. Hopefully the provisional conclusions or suggestions arrived at will be interesting and provocative enough to stimulate further empirical enquiry.

If we stick to informal activities closely related to numerical planning routines we will observe several common denominators between the firms, together with a multitude of particular arrangements. As mentioned several times (maybe in different words) the planning system is to a large extent an instrument for CHQ to pull strings at a distance and to know what string to pull where and when. We are here concerned with the design and hierarchical ordering of this string-system between top CHQ management and the shop-floors of the firm.

Authority is exercised by CHQ in many dimensions. Some decisions are prepared (or planned) exclusively at CHQ. Some decisions are prepared at lower levels (divisions) but final commitments are left pending as long as possible (for instance, the appropriations procedure). Other decisions are prepared (planned) at lower level but under top-down imposition of certain standards (reviewing, targeting). Responsibility accounting is later exercised through the reporting system that — like reviewing — may be more or less dictatorically structured.

Finally, top CHQ management always has the means to change the rules by which authority is exercised. A mixed "pluralistic" decision structure like this is very fittingly referred to as a *remote* guidance and control system, although the concepts guidance and control tend to mingle.

One common feature of all planning systems mentioned several times is that major decisions are not handled within routine, formalized comprehensive planning. It is in fact convenient to define "major decisions" negatively, as matters not being handled within formal planning, until finally committed. We have to overlook, then, such funny, occasional details as, for example, to bring every single construction project all the way up to the Board for formal approval. Major decisions are large, new investment undertakings, the entering of new markets or technologies in a big way, acquistions etc.

Furthermore, formal procedures, criteria or "hindrances" typically give way for informal considerations whenever deemed appropriate in a "top-down" way.

The more routinized the formal apparatus and the more integrated with "management", the more of a *delegated* or — from the CHQ-view — mechanized system for repetitive, operations decisions-making is formal comprehensive planning.

The more "mechanized" routine operations management, however, the more important the hierarchical design of the string system that keeps the organization under distant top management control.

The only meaningful definition of *autonomy* in decision-making is that lower level management is allowed some *degree of freedom in making choices* as to how to solve problems. The degree of *decentralization* in a decision system has to do with the linking together of such autonomous decision cells. We may as well name this the *hierarchical ordering* of the decision system. Here we may move from one extreme; a rigidly defined top-down ordering system to the other, complete anarchy. However, there are so many dimensions involved, that no simple definition of the degree of autonomy should be attempted.

This, however, also means that both extreme cases are impossibilities by definition, as long as one decision in one cell constrains the number of options available to other cells. This is a standard fact of life. It is very obviously present within the organizations called firms as the previous text should have demonstrated and in Case 3 on p. 58 in particular.

We have a very obvious, although often forgotten analogy in the mechanics of competitive markets. Total market behaviour constrains decision autonomy of individual firms. If we define market behaviour more broadly than is conventional to include also other systems, with no explicit price mechanisms, that have been designed to or grown out of a need to, solve problems of conflicting interests a management or a planning system will be covered by the definition. In fact, as we have seen already in Chapter IV, modern planning theory is currently being squeezed into market mathematics.

Decision autonomy is secured in several ways. The possession of unique information, talent or competence on the one side and the withholding of information from the formal decision authority on the other, all contribute to some autonomy. We have already discussed several instances of this in the context of planning.

Two other, maybe more important factors are (1) differently structured preferences at various hierarchical levels of the firm and (2) the realization that CHQ may not have the competence to make the most effective use of all information, even if available freely.

It may be helpful first to agree on one fundamental circumstance. Suppose we start (from CHQ) to break total corporate activities down gradually from divisions, over production lines and further into more and more minute details. At some level either the ability for CHQ to take in and digest meaningfully the total of *all* details disappears or CHQ looses interest. This level of fading interest varies a lot from place to place within a business organization, and we have quoted several examples of that. However, active interest and the competence to make use of this information to the benefit of the firm may still hold on at some lower, hierarchical level.

b) *The pluralistic system*

It is conventional to distinguish between the top-down and bottom-up approach in planning, understanding at the same time that making the best decision is not synonymous to making all information scattered around the organization available to CHQ analysts who have the overview needed for an optimal decision.

Once we have recognized a limit to the power to digest information at CHQ and that the competence to make the most efficient use of information may reside anywhere in the organization it is easier to see as well that planning does not mean the same as to gather and process information to present a menu of alternatives for CHQ to make the WHAT to do decision. Planning as it has been observed in this study does not provide information for better centralized choices but rather *forces* participants to find and agree on the best possible known choices and then lays out the consequent structure of responsibilities. In the process information and orders are communicated upwards and downwards along lines that are not possible to map. "The planning system is the means by which CHQ communicates with the organization" was an expression sometimes met with. Authority always tends to settle where information, competence, bargaining skill and initiative reside. As a rule it does not fit into the stable, neat pattern displayed on organization charts. This was at least the experience reported to me frequently. The system in use for the time being was as a rule intentionally designed as a network of parties in moderate conflict. Sometimes, but by no means always, this system had been formalized and integrated with what we have called formal comprehensive planning. If the system worked well excessive build-ups of authority tended to be countered by the system itself over time if not accompanied

by matching talent (or success). Control was what attended to the last matter.

c) *Top-down authority — ex ante*

The typical CHQ approach was to prescribe or negotiate a set of standards on routine operations at division level, profit margins, growth rates in sales, etc. This defined the constraints within which division management could decide *how to meet* these standards. The setting of these standards was a high level affair in most U.S. companies. Elaborate techniques to bring CHQ pressure on divisions were frequently engaged at this stage. They have been described earlier and will be further in the next section. However, all the time CHQ acted upon very *limited knowledge* of the operational solutions available to division management. This is why this procedure consisted in bargaining rather than analysis. Some very obvious instances of this are that both cash management (Chapter VII:3) and production planning (see Chapter V:6) are separated even formally from comprehensive planning. Even though new information often surfaced during such bargaining sessions and was digested by CHQ mediators, it is misleading to use the term analysis.

Quite often lower level CHQ planners were engaged together with division people to negotiate a further break-down of standards into targets. CHQ engagement stopped approximately where the degree of detail required in CHQ-reporting was met. Practice, however, varied a lot between firms. Quite often lower level CHQ planners negotiated a new, lower level set of targets and left it with division management to continue the break down to the level required in CHQ reporting, and further to satisfy their own internal needs.

The more effective CHQ pressure exerted in the first bargaining round the tougher division management was to negotiate stiff targets at a lower level to have some leeway (slack) to meet their own standards and so on.

It is easy to see that a large, hierarchically ordered system of the kind described is a loosely steered vehicle when it comes to precision and CHQ control of shop-floor details. If CHQ wants a particular detail attended to it has to go around the system. It knows, however, that the system is replete with so called "slack". Information of these pockets of slack is monopolized at their location. There is no way whatsoever to bring this information to CHQ by analytical instruments within the comprehensive planning system. However, again, when stepping up top-down pressure slack will be "released" to increase performance. CHQ still has no advance control about what exactly the outcome will be at the shop floor level. Any firm model consequently will have to be a "soft coefficient" model when applied to solve these kinds of problem, and the coefficients react to pressure in a way that is not generally known to CHQ. CHQ knows the potential but its ability to release the potential depends upon its ability to make top-down pressure effective. Here again reporting and control come in as the instrument.

Unexpected business slow-downs are instances when this method of correction is made operative. Reporting is often a means of spotting the business cycle as early as possible. Maybe this is the reason why business firms are such bad forecasters of the business cycle as well as their own market cycle. It may even be so that they value the option to be able to disregard business cycle arguments when imposing pressure on division management so high as to put reliance on an efficient detector system instead, in combination with the "strong man's" attitude to rely on drastic corrective action.

Such a management philosophy may work all right when cyclical swings are moderate and corrective measures are fast and possible. If the suggested interpretation was roughly correct to begin with, developments in forecasting and planning practice observed during recent interviews nevertheless suggest that a change is on the way. (See Chapter V:5.)

In many U.S. firms, plans are broken down into such minute detail as to be incomprehensible in total to CHQ. CHQ may require reporting against these details. The break down is, as we have described it, delegated and arrived at through negotiating. The final analysis of reports is also delegated and CHQ only takes in particular and prepared information and is alerted to circumstances that do not conform to agreed upon plans. This is what we should call the remote control function.

d) *Optimality, feasibility and safety*

A grand case has been presented in literature for centralized decision systems designed to promote optimum decision-making at the CHQ level. Much of the above discussion has been devoted to finding reasons for the apparent absence of such systems when it comes to operational applications. The reasons mostly seem to be based on practicability considerations. What we have called "major decisions" as a rule are what matters most for "optimality" or rather success in the long run. I have met with no formalized and comprehensive management systems in use capable of handling such problems. I have met with strategic, exploratory, etc. planning functions but usually at a safe, intellectual distance from Board room procedures. I have frequently met with formalized *procedures* to facilitate complex, unique and unstructured problem. But that is something different. Often they are associated with the judgemental, input side of what we have called formal, comprehensive planning. Sometimes they consist of a particular method of disciplined discussion or an approach to a problem or a decision. There is, however, nothing "automatic" about such methods and very little of standardized design and stability of method over time as far as my restricted observations go. There also are limits to the "mental capacities" of top decision makers or CHQ research facilities to handle vast amounts of detailed and unstructured information that is incomplete and excessive at the same time in a logical and transparent way. In addition, competence to solve important aspects of CHQ problems does not necessarily reside in CHQ. This limits the

workability of the system. Since decisions are all the time made, there exists — of course — a decision system. To unveil the workings of this system at the macro level of the entire firm is an empirical problem. It has evolved. It has seldom been designed and it is indeed very interesting to speculate about what designers can do to improve it.

The evolution up to date has lead to very pluralistically organized systems with no one in central control of the entire system. Some mechanical procedures can be described, and we have done a lot of this on the previous pages. To understand the system, however, we have to weed out a substantial mass of excessive management routines that do not relate to decision-making even though it pretends to. We have tried that. We have to add intuitive inputs of "information" in planning as well as decision-making, ever present conflicts of interest and a frustrating Hegelian method to resolve matters that are never fully understood.

There is in fact no theory to explain all this, only bits and pieces of it while the total is what matters most.

Maybe a comment to an important problem should conclude this section. Central and dictatorial decision-making under *full use* of *complete information* leads to optimal results. This is an embarrasingly tautological argument for planning until (1) an operational goal function has been defined (2) the concept of complete information related to that goal function has been operationally defined and (3) a technique to make full or best possible use of the information available has been designed. If these impossible requirements are not met one will have no way of knowing how the optimum looks and where it is. Several firms in my observation sample, however, have been successful, in constructing complex goal functions and impose them on the organization. If the informational requirements are not satisfied, something less than centralized planning will be more optimal, however, not necessarily its opposite, a market solution. Market systems on their side are supposed to create a lot of waste due to incomplete information, mistaken expectations and erroneus action, or in short a less than optimal utilization of resources. If all pieces can be pooled into one integrated decision system, it is sometimes argued, the uncertainty can be removed together with the waste. This holds as long as all uncertainty is based on matters internal to the system and all information can be fed into the decision. If not, it is easy to demonstrate that one centrally implemented decision based on erroneous or incomplete information may lead to detrimental consequences on a much grander scale than a large number of individual decisions based on correct or erroneous interpretations of incomplete information. We have observed here that firms reported on in this book have choosen a middle way, that there are many middle ways, but that they all trade in not negligible improvements in potential performance in return for possible long run improvements in safety. Also, the more important a decision the more it relies on intuitive, judgemental inputs. I think one can safely conclude that, in the foreseeable future, a management (planning) system will

not be capable of replacing entrepreneurial talent, only of economizing on its use.

4. **Corporate policy making**

The presence of explicit or implicit "policies" that guide the business organization into the future has frequently been referred to. Firm policies or desired objectives are by definition demonstrated in the decisions taken. Since they always mix with factual circumstances they are nevertheless hard or impossible to derive without access to written documents specifying the policies that apply.

Firm policies being explicit and presented in written documents, on the other hand, they did not necessarily represent an accurate image of actual, top management policy guide-lines. To express policies in a format relevant for a particular decision is a difficult task indeed. In principle such a task demands all the information required for the decision itself. It is partly and importantly a question of intuition on the part of the decision maker, and such intuition may change substantially in quality from time to time. Consequently policy documents prepared for circulation through the entire organization and — sometimes — to a still wider circle of readers were often so vague as to convey very little of substance as a basis for understanding actual decisions. One often found sentences like "dynamic behaviour", "flexible adaptations to a changing environment", "our great responsibilities to society at large" etc. One often had the feeling that the purpose of such "public" documents primarily was to create a becoming image of the corporation rather than to unveil its basic policies as to the future, or to create a comfortable feeling of working for something good but as yet undefined by deliberate management indoctrination.

To interprete firm planning and behaviour with reference to such documents would be at best speculative. These documents being the only evidence available, perhaps one should go no deeper into the matter.

The reason why the policy problem has been given a separate section is that the matter was so often brought up as an "important thing" during the interviews. A second reason is that earlier students on planning and adjacent subjects often have devoted a surprisingly large proportion of their efforts to firm policy making rather than the means by which policies are being implemented.

Firm officers or planners often wanted to think of their work as *planning for growth*. On closer questioning, however, I usually found that "growth" was a multifaced matter. It included not only growth in sales (a traditional concept of growth) but also in profits and firm size; often measured by total assets but in a few cases by net worth at market value. Usually a number of profitability and precautionary constraints were imposed on the growth plans, and if maximum long-run growth of net worth (rather than sales growth) was the stated objective, it is very easy to reconcile with the idea of profit maximization.

The questions one should in fact ask are these; given all this emphasis on policy making would not one expect that firms deliberately planned for a future program of action that would *not* maximize shareholders'

wealth or firm profits in some operational sense? If maximization of net present worth of the firm or profits is the only policy component would there be any need for further elaborations on firm policies? The targets are (then) simple enough. The task for planners is to draft a proper and operational plan to reach the target, which is a "technical" business problem rather than a policy matter.

However, the problem is not quite as simple as the questions might suggest. As indicated in the previous chapters it is hardly possible to reconcile the numerical routines met with in formal planning with a systematic pursuance of pure non- compromizing profit *maximizing* rules in any sense of the word. In many cases (US or non-US) comprehensive planning is not even operational in the sense of relating decisions to targets. The use of rate-of-return requirements in investment project selection provides a case in point. If these requirements are rigidly adhered to (which is never the case) they in fact would constitute an automatic decision mechanism. However, in principle such decision criteria can be directly related to the consequences for the firm. These consequences would be called targets, goals or even policies in an ex-ante planning context (cr. case 12 in Chapter VIII:4). A set of rate-of-return criteria for a firm in effect embodies a choice i.a. between growth and profitability. In effect then, a policy document should be a manual of decision criteria. This was the observation that introduced this section. However, corporate policy making is usually not thought of as criteria for choice and decisions and the reason may be that policy documents are regularly phrased and put into writing in the public relations departments of firms.

This discussion leads to two conclusions: (1) corporate policy making, to be an operationally meaningful concept, is the same thing as what has been described as *targeting* in Chapter II. In many firms in the U.S. sample targets are very obvious and well defined things. However, the exact nature of these targets is practically never divulged to outside observers.

The principles of building up and applying a system of targets have already been described (see Chapter II:3). It remains (2) to make some comments on what factors might influence the setting of targets. The first of these comments refers to the impact of *tradition* and the second to the impact of *past experience;* and then *past mistakes* in particular. We are now concerned with policy making as it might be read out of decisions actually taken or observed in planning manuals, and hence involved in speculation as much as observation.

5. The impact of tradition

The impact of tradition seems to me paramount in planning. The basic effort at the early stages of planning was directed towards the problem of staying on and performing well in established markets and maintaining established positions (market shares). Suggestions in preliminary planning documents by planners to do something entirely new in some areas even on a 10 year horizon would probably be weeded out in the reviewing process. This was not considered a matter for

planners. With a few exceptions (firms with conglomorate features), I found very little effort (even in very long-range plans) spent on *planning to enter* entirely new markets and still less (i.e. practically nothing) on direct efforts to contract in and leave (gradually) long-established markets. This observation has got very little to do with the systematic planning routines frequently met with that were directed towards a continuous product change; the introduction of new product variants and the phasing out of old ones. Such partial adaptions are normally carried out within the realms of established markets or technologies or, more generally, within the domain of what was often called "present business experience".

Such a focussing on the past in planning for the future is not hard to understand. Over a long stretch of years a wealth of experience had been stored within the organization and was currently put to use in the technology as well as in the dominant markets in which the firm was operating. A large business organization normally carries with it a not negligible amount of organizational inertia with respect to sudden adjustments to a new market and technological environment.

Sometimes I was given the "rough" answer; "we have been producing on the basis of these raw materials for more than 50 years with success and we have made it a policy to continue to do so".[1]) Often I heard statements like; "we expect traditional markets to grow at a rate that can sustain any desired growth on our part. We have a lot of overhead skill in our present and traditional technology and we have made it a policy to exploit that only, and not to diversify into risky und unfamiliar activities that may seem more profitable on the surface". "If we go into markets or products where we have no market or technical experience we become bankers only and we want to contribute more than money". Even more powerful was the argument presented by a high level executive in a large U.S. multinational firm; "when you have the entire world to work in it is necessary to limit your sphere of interest to make possible an active search for and development of skill".

However, the economic environment of one single firm is dependent on a number of exogenous factors such as the behaviour of competitive producers, a product demand that will normally exhibit changes over time and sometimes sudden changes in technology. If pursued inflexibly for long periods a firm policy directed towards staying put in established markets and technologies will involve a risk of the firm suddenly being caught unprepared in a new environmental situation where management no longer can control the firm. Some firms had previous experience of dramatic incidents of this nature, which had necessitated drastic reorganization, leaving them after a while to adapt to an entirely new technology and market environment. In one such firm (U.S.) I was told with emphasis that the prime purpose of long-range and strategic planning was to warn the firm in good time of the dangers of such a situation recurring. Also, in a U.S. firm of "medium size" the

---

[1]) This "policy" was in fact stated more elegantly but with no other content in a policy handbook published and made public by the firm.

long-range planning effort was currently being concentrated on getting out of the traditional market because of heavy Japanese competition. These instances, however, represent exceptions rather than prevalence in corporate long-range planning.

In another U.S. firm a recent liquidity crisis had produced the result that the major planning effort was geared towards regaining liquidity control as fast as possible neglecting in fact the long-run outlook, returns to investment and growth. Planners were aware of this unfortunate bias but attempts to reorganize planning routines into a more well-proportioned effort met with resistance from the Board of Directors. In still another U.S. firm, operating in an adjacent market, conditions were reversed. The firm had been floating on top of a booming market for a decade. Growth as well as profits were excessive and top management delegation of responsibility indeed generous, compared to practice observed elsewere. A long-term plan had recently been instituted with the explicit purpose of keeping top management better informed of what was going on more exactly within the organization. So far, divisions decided on their own budgets and plans as long as internally generated funds were sufficient. However, consolidation took place at CHQ and a rather sophisticated liquidity and rate-of-return analysis followed. The amount of information now required from divisions was impressive and the result of the analysis at CHQ generated a series of dialogues between divisions and CHQ. One result of this procedure was that problems at the lower management levels were brought to top management attention very early on. Still, however, the basic policy of a generous delegation of responsibility in planning as well as decision-making was preserved. Resources in the form of personnel etc, were generously provided if requested and top management interest in planning was markedly in favour.

One could easily imagine the blessed mixing over time of the two features of policy making; tradition and experience. Experience generates efforts to avoid mistakes and to repeat successes. Gradually such efforts are transformed into traditionally maintained policies. By degrees new experience from an ever changing environment of the firm means a transition into new policies etc. An instance of this is the previously referred to policy of some firms not to resort to external long-term sources of finance. In some instances this policy seemed to me the result of a realization that in the past the firm had not been able to grow faster than could be sustained by internal finance only. Alternatively, the same policy might have been the result of a past liquidity crisis. The danger inherent in such a slow adaptive process is that drastic set-backs in performance may be a prerequisite for sufficient changes in basic firm policies — or at least such changes take time and once enforced may be long overdue and not called for to cope with the current situation.

There are also reasons to quote in favour of constraints on planners that are based on *past* tradition and experience. The imposition of such policies on planners and decision makers creates (1) *stability* in behaviour. The same constraints on planners could also be motivated as

a (2) *precautionary* measure to guard the organization when making commitments for an uncertain future. The precautionary arguments for policy constraints on planners in turn fall back on the basic — and not well substantiated — premise that top management, the President or the Board always possess the relevant and superior insights into the future Top-steering so defined, however, also means that slight errors in foresight on the part of final decision makers are transmitted through the entire organization and may, because of a chance coincidence of unlycky circumstances, result in very serious set-backs. Another back-side of the stability and precautionary motives being enforced by top management policies are the possible, destructive consequences for initiative at lower management levels and an increased degree of organizational rigidity. The more elaborate and regulative policy making from the top down, the more open to bureaucratic inflexibility the organization.

X COMPARISONS AND CONCLUSIONS

After so many pages some kind of a summing up is a fair demand. Also, since corporate planning has been studied in several countries, some attempts at a comparison seem to be required. Both demands will be catered for. There are conclusions to be drawn and there are differences in approaches to planning systems on both sides of the Atlantic that the author cannot reasonably attribute solely to a biased sample or non-systematic interviewing. However, there exists no well defined measuring instrument with which to distil out distinct answers and the reader will have to be satisfied with the combination of speculation, impressions and observation that the author is able to muster — *or refuse to believe.*

1. Conclusions

No instrument can be evaluated without reference to the purpose for which it has been designed. A lightmeter is no good when it comes to assessing the time of the day and although an ampèremeter may be used for estimating the voltage of a current, you need an extra scale or some basic knowledge to get at the appropriate figure.

Formal comprehensive planning as a management instrument is no exception to this. Since the reader is now familiar with the structure of the comprehensive planning instrument as described in the previous chapters, we might as well sum up some of the basic properties of the instrument in terms of the various purposes of planning introduced in Chapter II. Before we do this, however, we should repeat the definition of planning used. Throughout the text we have been concerned with *comprehensive* planning at the CHQ level that yields in the end a well defined *numerical* output. Formal or informal *procedures* associated with this planning process are part of our planning concept. Since the word planning and even formal planning has lately come to be associated with the design and prescence of a whole range of *formal procedures,* we have to add that our results to not refer to them as isolated phenomena. For a discussion of the awkward terminology issue the reader is referred back to the survey of literature in Chapter IV.

Numerical information processing is the key phrase to describe what is usually meant by a formal, comprehensive planning system. However, when it comes to providing information for guiding decision makers to the *best* decisions in terms of profit performance etc. (allocation purpose), the instrument we have studied does not yield the relevant

information. Consequently it is not used for that purpose. Major decisions usually seem to be taken on the basis of information that is external to or precedes comprehensive planning. Planners may not posses the relevant competence to handle such information. If decision makers themselves (in addition) dot not take an active part in the planning process this very circumstance undoubtedly plays down the importance of comprehensive, formal planning as we have defined it.

Comprehensive formal planning is an instrument of internal two-way communication and top-down control rather than a means for analysing environmental futures and assessing their impact on the business organization.

Planning as a method of "making distant consequences a cause for immediate concern" — a purpose often quoted in literature — does not seem to be a paramount purpose of comprehensive, formal planning observed in this study.

The build-up of the plan is made in a recursive, step-wise fashion in a way illustrated in the previous chapters. Hence, several basic plan-decisions are taken before their overall impact on the firm has been analysed. Such final analyses practically never prompt more than partial backward revisions of previously fixed input variables. Consequently the final result (the plan) consists of a structure composed of elements (sub-routines) that normally do not match properly. For one thing this means that the information output of the plan is to some extent distorted and interpretation by decision makers presupposes knowledge of such distortions. Second, due to the very fact that the solution of the system (the plan) is arrived at by way of a sequence of normally inconsistent sub-routines, the procedure as such by definition means a loss of information, however sophisticated the sub-routines. The final result, however acceptable it looks, reveals little to CHQ of the existence of a better or more efficient comprehensive solution, and the system has a low potential for generating such information.

Comprehensive planning practically always is of the single valued type. Normally there is no prepared alternative for contingencies or unexpected events. In principle the structure of the comprehensive planning system represents what is sometimes called a "corporate model" and can be used, at least in theory, for simulation experiments. However, the planning system is much too complex and requires too much ad hoc *judgemental input (management participation)* to allow such analysis on the basis of the plan. Hence, if revisions in the comprehensive planning system are not frequent it represents a rather inflexible management instrument at CHQ level.

What has been said so far holds for short-term budgeting as well as long term planning. In both instances the final solution (output) of the budget or the plan is geared towards a financial format. The financial bias of practically all comprehensive planning systems reveals the prime area where plan data serve as information inputs for decisions. The future cash-flow analysis on the basis of the plan may give rise to back-ward revisions in the plan itself. The short-term budget is often put to use as a basis for short-term liquidity planning and the dominant

purpose of the long term plan is to foresee in good time future financial needs of the firm. Here the term an "early warning system" may be warranted.

In general the resources devoted to planning grow with the size and the degree of diversification of the firm. The larger and the less homogenous the firm the more pieces of information to consolidate at CHQ and the more difficult (or hazardous) to rely on intuition and memorizing capabilities when making decisions. In this sense comprehensive planning provides information for coordinating the activities of the firm. If designed to bring relevant grass root information to the attention of CHQ by bureaucratic procedure (rather than by direct observation and personal contact) one finds that reviewing and management participation in planning at all levels is extensive.

The structure vertically and horizontally of the comprehensive plan is such that people at various places in the corporate hierarchy can be made responsible for numbers (targeting). For the same reason a similarly structured accounting system allows a current check of performance against these targets (reporting). *Targeting* seems to be a use to which the planning instrument is frequently put. The negotiating process between management personnel responsible for the targets and CHQ that normally precedes the completion of the final document is often called the reviewing process. *Reviewing* and *reporting* together represent the control function of the planning instrument. The more important the targeting purpose of planning the less useful is the numerical information handled in the planning process for analytical purposes in the sense discussed above (allocation, preparedness for contingencies etc.) and the less important the element of forecasting in planning.

Thus, rather than being used as an analytical instrument the plan usually consists of a numerical statement on the future performance of the firm. This focuses attention on the *process of arriving at the plan* or more specifically on the problem how decisions taken during the course of planning (reviewing) links with actual decision making.

It seems appropriate to liken the planning process to a *rehearsal of a future decision process* at the macro level of CHQ. In elaborate planning systems where targeting and control are actively imposed the principal actors (the decision makers) usually participate. If not, the rehearsal is more of a shadow stand-in practice by staff personnel.

The closer in time the horizon and the more frequent the repetitions (revisions) the more like the final rehearsal the planning process and the closer the ties to actual decisions taken. In a well managed planning system one would expect the planning process to result in a set of decisions that deviate from the plan since decision makers have learned from practicing the decision within the planning system. When viewed this way it is not the formal planning system that is important but rather the informal preparatory decision process imposed upon it.

Besides providing "information" on future financial needs the long run planning systems studied were quite void of operational content with one exception. In the set of firms (predominantly U.S. based)

where the target motive of planning ruled, long term planning was much oriented towards finding a preliminary selection of long run targets (directives) on the basis of which short term (and numerically specified) operational responsibility targets of the budget could be fixed. This required extensive top management participation. Targets were practically always arrived at by negotiation. Thus the ex-ante decision on *what* to do (the targets) was to a large extent taken outside the numerical part of the planning system. The planning system rather provided a convenient reference format for control and a vehicle for communicating the targets to those responsible for their implementation.

Planning is often viewed as an internal replacement for the market mechanism. There are two sides to this hypothesis. The market process both informs firms by way of price signals about what to do and forces firms out of business if they do not respond to these signals. The first "analytical" purpose seems to play a relatively unimportant role in planning.

The dominant purpose of targeting and control of comprehensive planning probably explains the relatively little emphasis paid to the plan as an analytical information instrument. Control is the pressure side of a competitive market using the analogy introduced above. This may also explain why major decisions are usually settled outside the context of comprehensive planning rather than on the basis of an analysis of the information processed in planning routines.

However, in so far as such decisions enter comprehensive planning as input variables or targets the overall control function very much contributes to the allocation mechanism in the sense of seeing to it that decisions are realized and indicating currently (early warning system) when performance is off the plan.

The implementation side is practically 100 per cent absent from what has here been called comprehensive, formal planning.

The planning systems examined in this study can roughly be classified in either of two groups. The first is the management oriented CHQ *remote control system* where targeting, control and coordination by way of reviewing and reporting are the dominant purposes. Information on performance as well as on intentions and suggestions of division management is forced into a numerical and standardized format and brought to the attention of CHQ. The informal procedure of putting together the plan rather than the final plan document is important.

Planning in this fashion meant that facilities existed for effectively imposing CHQ views all the way down the business organization and for making grass-root information flow upwards. The relative emphasis put on the first order-giving or the second "democratic" process varied, but usually both processes were at work. Referring to the subtitle of this report comprehensive planning is designed as an instrument for *remote guidance and control* of the entire organization, although guidance and control tend to mingle.

The second mode of planning was represented by the *analytical systems approach*. Emphasis was on joining the information contained

in the numerical structure of the plan with forecasts on the economic environment of the firm. Management participation was not frequent. At lower levels it consisted in the passive reporting of data on standard forms to CHQ. At one extreme, CHQ planning consisted in the passive adding up of these figures only. At the other extreme, CHQ collected no data but rather operated some simplified numerical model of the firm. Targeting was typically absent. Reviewing consisted in non-committal consultations between CHQ and divisions. As a rule each division made up a plan of its own and this plan in turn entered the CHQ plan intact. Reporting was not related to the plan. Normally top decision makers did not get involved until the plan was almost completed. Despite its analytical inclination and low degree of management participation only a very small number of firms had managed (at the time of interviewing) to make such a planning system operational for simulation purposes.

Even though short-term budgeting normally falls under the first heading and long-term planning under the second analytical systems approach, most firms nevertheless could be roughly classified in the same fashion. The conclusion to be drawn in fact is that the majority of comprehensive planning systems studied consisted of a budget where characteristic features of the second type planning system appeared or dominated. The long term plan was either missing or was typically of the second type. The reader should remember that we are talking of the comprehensive budget or the comprehensive long term plan with emphasis put on the process of keeping its parts together in a systematic fashion. Top management involvement no doubt could be both active and extensive in such sub-functions of planning as the appropriations procedure even if missing in the comprehensive budgeting process. It should also be remembered that the results reported on rest fundamentally on observations from 1969 (U.S.) and 1970 (Sweden). Later check-ups in several Swedish firms have all revealed changes in the direction of more comprehensiveness and emphasis of coordination, targeting, new and more detailed formal routines and more management involvement; i.e. as we shall soon see a drift in the direction of U.S. planning methods.

Irrespective of which of the above planning types we study or whether we look at the long term plan or the budget, the basic formal structure of the making of the comprehensive plan looks the same when isolated. This structure has been presented already in the first chapter (Diagram I:1 A—C) and need not be repeated here.

It is sometimes argued that a planning system is an instrument of stability that makes the organization less dependent on the particular individuals who just now happen to be managing it. The system allows the people to move in and out freely and facilitates the learning and individual "retooling process".

Two observations contradict this hypothesis; (1) Planning systems do not exhibit any particular stability. Several of the U.S. companies revisited in 1973 and 1974 had reorganized their planning systems entirely. (2) Major decisions as a rule are neither shaped as a part of

planning nor on the advice of planners.

One should rather restate the hypothesis to say that well functioning planning systems may have the capacity of freeing top management from repetitive operational decision making and control to concentrate instead on major and long run problems that are handled outside the formal planning procedure, and where human foresight, experience and intuition has a comparative advantage over the system. Indications are that this use of planning was more pronounced among the U.S. sample than the non-U.S. sample. Planning then is a way of economizing on the number of strings that top management has to pull to guide and control short-term operations, in short a method of delegation.

It is probably an error of some magnitude to believe that planning in big commercial organizations — like the firms investigated in this study — is a process of compiling and evaluating in a systematic fashion the tremendous volume of information that exists within a large corporate body with a view to arriving ultimately at an optimally informed decision. Methods of compiling the data do exist but not methods of evaluating the data.

It is almost equally mistaken to believe that automated information screening and decision systems to handle major, top management problems will be there in the foreseeable future and — as well — that we (or someone) should strive in that direction. The decision makers' problem is partly the absence of information on the future, that does not exist ex definione but also the perhaps equally important problem to keep their heads above a constantly increasing flow or irrelevant information.

The ways of knowing what information to look for each time and where and when to turn off the information flow are essential. This is a task that requires more of intuition and experience than analytical talent. Once the problem has been understood one knows whether relevant information can be gathered and to what extent — and the analysis needed as a rule turns out quite simple.

It is always a challenge to extract an important, distant and possibly erroneous broadcast from one of several interacting stations that are also cluttered with noise. This is part of the art of decision making and planning is a method of ordering the signals and reducing the noise level up at the executive top.

Once you have learned the way to work with a vague, noisy and faulty information system and to make informed decisions without exactly knowing how, you may be satisfied with a rather crude, albeit improved system. Rigorous definitions, completeness and consistency may have the quality of being charming but possess no absolute value. Professional jargon is always ugly to the ear and most often unintelligible to the outsider. It is, however, an efficient means of communication to those tuned to decode the signals. The planning systems that have been described here at times must have looked incomprehensible and hardly useful to anyone who has not been involved in making them up and using them. They definitely have not

exhibited the analytic beauty that is so dear to many of my colleagues of science.

The above summary has suggested a number of questions in addition to a few empirical conclusions. They all point to the next section on a comparison between U.S. and non-U.S. firms where they are most appropriately answered — if possible.

2. Comparisons

Irrespective of firm size, nationality or length of planning horizon, the stepwise sequence of assembling data illustrated in the previous chapters and summarized already in the first chapter was in principle the same, once a comprehensive long-range plan or a budget had been introduced.

The first difference between U.S. and non-U.S. firms that is easily and fairly exactly recorded is that comprehensive planning had been started up much earlier in the U.S. and that more manpower resources (standardized for firm size) were put into planning. All but one of the 30 U.S. firms interviewed carried out comprehensive numerical planning beyond the short-term (usually annual) budget horizon and had done so for several years. Two of the 14 Swedish firms interviewed in 1969—1972 had no more comprehensive planning than an annual budget. They both belonged to the group of very large firms by Swedish standards and had extensive international operations. By a more demanding criterion the majority of the Swedish firms and several of the other European firms had no comprehensive plan at all. Whereas practically all U.S. planning systems covered the entire group operation of the business organization, planning outside the U.S. at the time of interviewing was typically restricted to the parent company even excluding at times fully controlled subsidiaries.

The larger average size and the more diversified type of operations of the firms in the U.S. sample compared to the European firms (with a few exceptions) probably explain part of the difference in coverage and to some extent the earlier introduction of formalized planning systems. Formal planning as a coordination and control instrument becomes a necessity rather than an auxiliary to informal management the larger and the less homogenous the firm's operations.

This, however, cannot be the full explanation. Several characteristics of the U.S. planning instruments compared to the non-U.S. ones *at least* suggest a difference in management philosophy.

While management participation was active at all stages of planning in the majority (not all) of U.S. firms, in the majority of European firms, CHQ planning was more of a passive adding up of numbers requested on standard forms from the various organizational units of the firm. The lively and sometimes nervy reviewing process of the U.S. firm was typically absent from the European planning sequence. This plays down the targeting motive in European firms relative to the U.S. firms and also the rationale for an elaborate reporting system against the plan.

Typically again, the degree of elaboration of the reporting system of most U.S. firms interviewed had practically no counterpart on the other side of the Atlantic.

Reporting in U.S. firms was systematically structured to the format of a comparison with the budget, normally by month and not seldom fully computerized with automatic screening for relevant information. European reporting was less detailed, less frequent, very often manual and only sporadically related to the budget. Typically again, unexpected deviations from the budget (if detected) did not seem to prompt the same kind of management action as in the U.S. firm in the form of requests for explanations and demands on corrective action.

Extensive management participation at all levels in planning, a dominant purpose of targeting, and a systematic reporting against the budget of course enhance the importance of the planning instrument measured by the attention paid to the numbers therein when it comes to making decisions. By this criterion planning must be considered to be more important in the U.S. sample than in the non-U.S. sample.

This observation is even more strengthened by the extensive top executive involvement in U.S. corporate planning as contrasted with the typical European firm of the sample. Here the differences seem more pronounced in long-range planning than in short-term budgeting. Normally a Board member and often a subcommittee of the Board took an active part in the reviewing procedure that was imposed on all stages of budgeting and long-range planning in U.S. firms. The budget and the long-range plan were the reference guide for the frequent and normally costly sessions when a group of CHQ people circulated among the profit centres of a firm or when profit centre people were brought in to CHQ from all over the world for hearings. In some U.S. firms of the sample CHQ planners had prepared themselves with an extra plan alternative to match the proposals and requests presented during these hearings. Procedures like these were of course not lacking altogether among the European firms. They were, however, typically less frequent, less extensive and less elaborate and, top management interest in *long-range planning* was often quite passive.

Any further comment on this difference in attitude immediately boils down to the question; how useful is the U.S. system of planning or control for the firm? Does it contribute better to the pursuance of good profit performance or some other goals than the more intuitive European management style? At least one conclusion seems obvious, namely that the U.S. instrumentation of planning contributes to a persistant and systematic element of responsibility-stress in the business organization.

The typical comment of the persons interviewed in U.S. firms was that they liked the U.S. planning methods once they had got used to them. The normal reaction in a European firm to the elaborate U.S. number systems was a sceptical comment. This at times was more like a sneer when I contrasted the amount of detail in a U.S. planning system (that was in large parts brought all the way up to CHQ) with the rather crude data assembly of a European firm.

In a typical U.S. budget the annual entries were broken down on a monthly basis. The horizon was between one and three years off in time. Partial updatings or complete revisions were often made once a quarter. The budget process was very standardized in the sense that each profit centre had to supply the same data-set using identical definitions. Reporting (usually by month), standardization to the same format as the budget and analysis of differences between budget entries and realizations were a matter of routine.

It was never argued that detailed entries, such as, say, sales of product x with specifications (y, z) in April next year constituted a reasonable prediction. However, not unfrequently some partial decisions dependent upon this detail (e.g. relating to the scheduling of production or purchasing) had to be taken next month and someone was to be made responsible for the figure. This very usage made the figures important. However, if uncertainty as to the future factual circumstances was high, strategic considerations on the part of responsible persons were likely to bias the figures and much argument would be wasted later to defend a detail that was not estimable from the beginning.

Thus if there is anything that distinguishes U.S. planning systems from planning systems in the European part of the sample it is the existence of an efficient CHQ reporting and control apparatus, where controls are applied at a very early stage of planning in the form of an active *reviewing* of preliminary plans. However, if one wants to think of planning in terms of analysing the future with a view to deciding on what to do — as contrasted with control — one finds very little of this among both the U.S. and non-U.S. part of the sample in the part of planning that we have observed and labelled comprehensive formal planning.

While later follow-up interviews (after 1972) seem to indicate that the non-U.S. firms are catching up on the ex-post control side I have noticed very little change on the analytical side.

If the detailed figures planned for are not unduly distorted and are presented to top CHQ management in a pedagogically condensed form the planning system of the U.S. type just described might mean CHQ access to shop-floor information that would otherwise not be available until much later or too late. This may be the basic merit of the U.S. type planning system that engages substantially more management resources than in comparable non-U.S. firms.

To measure the amount of resources put into planning is an almost hopeless task. Planning mixes with other functions of the management and the *extra* work input due to formal planning can only be estimated very approximately. Nevertheless, 17 of the U.S. firms interviewed, were willing to give a rough estimate of the extra manpower resources put into formal planning routines at all levels of the firm. A few firms could draw on separate investigations made recently to estimate the costs incurred. Estimates given below include professional as well as non professional work input in *comprehensive* budgeting and long range planning, excluding sub-planning routines such as production, inventory

and R & D planning and what is sometimes called prospective planning. Among these firms between 14—15 man-years per $ 100 M in sales were devoted to such planning in 1968.

A similar estimate of ca 8 man-years could be approximated for 6 Swedish firms. It should be remembered that this figure is strongly biased upwards by the three Swedish firms that displayed the most extensive and sophisticated planning setups. The average size of the 17 U.S. firms measured by sales in 1969 was $ 706 M. The 1969 corresponding figure for the 6 Swedish firms was $ 275 M.

Two additional observations will have to finalize this somewhat impressionistic summary of observations. For one thing the U.S. planning systems were better designed for interdivisional comparisons both as regards the ex-ante planning stage and the later reporting stage. This may be due to the fact that the firms of the U.S. sample were far ahead of their European colleagues in having the entire firm or at least its accounting system systematically organized along profit-centre or division lines. The fact that foreign subsidiaries and even at times fully controlled domestic subsidiaries often were not incorporated in the budget process in Swedish firms may be a reflection of this.

Secondly, by substantiation from the relative amount of paper handling and calculation work in *formal* planning (budgeting as well as long-range planning) the impression is left that U.S. firms devote relatively more resources to the market and income side while Swedish firms are relatively more production and cost oriented in planning. In U.S. firms this is exhibited by elaborate schemes vested with the comprehensive planning system for tracking down and phasing out non-profitable products as early as possible. These activities are facilitated by well designed and detailed accounting, reporting and control systems; devices that were not present to any comparable degree in Swedish firms. One reason for this may of course be the greater dependence on export markets of Swedish firms and (hence) smaller possibilities of controlling the market. The implication is that the relative *absence* of such planning devices in European firms makes planning more concerned with mechanical projections of existing product mixes. At the same time small possibilities of "manipulating" market behaviour and a rapid domestic cost-inflation may have pushed management's attention in Swedish firms to the remaining, controllable variables, namely productivity and to some extent wages.

PART IV
SUGGESTIONS

"The true method of discovery is like a flight of an aeroplane. It starts from the ground of particular observation; it makes a flight in the thin air of imaginative generalization; and it again lands for renewed observation rendered acute by rational interpretation."

Alfred North Whitehead

XI SUGGESTIONS TOWARDS A THEORY OF FIRM BEHAVIOUR

1. Introduction

It has been repeatedly observed that planning is something quite different from firm behaviour. Planning is a vehicle for decision-making and consequently interacts with decision making. The degree of interaction, however, is very difficult to establish by the methods of observation being available. Decisions affect firm behaviour but only as one among many factors.

One may feel inclined from earlier chapters to believe that the links between planning and behaviour are quite weak. This is probably an erroneous conclusion. A well-managed planning operation — and this study covers a number of cases — is usually a sizeable apparatus. A large number of people is involved in the planning process, including a number of decision makers. Extensive management participation has been found to be a prerequisite for a well-managed planning system. By its very nature, as an ever-ongoing and complex process, one would not expect to be able to pinpoint simple causal relationships. One would, however, expect numerous impulses, each being of relatively little importance, to bounce back and forth between those who in fact make decisions and the procedure and its participants, that have previously been described as a planning process.

There is one further and — I believe — more significant point. If important people at high, hierarchical decision levels actively engage themselves in the planning process — something that can be observed — one would expect the planning process to have been structured so as to mirror the ways by which decisions take shape and are finally made at the macro level of CHQ. If this proposition is accepted and if a formalized planning system exists, one has in fact a "decision model" capable of simulation as long as decision makers are willing to participate in the simulation. The planning system can be observed and described. The interactive judgements by participants on the other hand will not be capable of observation before they appear as input data in the planning system. Such judgemental inputs have been found to be very important features of comprehensive planning. If they are replaced by some simple number generating algorithm, however, we have a typical corporate or financial modelling set up. If we join this with an environmental model, we have a total model that includes planning and decision-making as well as behaviour — although the most essential and interesting features of all three dimensions have been scaled off by

then.[1]) This probably explains the less than successful fate that many corporate models have fared, once they have been installed and made ready to be used by CHQ decision makers (see Supplement 6).

I have likened formal and comprehensive planning already with an *ex-ante rehearsal* of a macro decision process at the level of operations management as seen and taken at CHQ. One should not believe that actual decision-making at the CHQ top is a more complex affair than one elaborate and complete sequence of comprehensive planning routines. It is rather the other way around. No human mind is capable of taking in simultaneously all the problems that are regularly handled in the comprehensive planning process in a large corporation. Also, the planning apparatus is a means of keeping the right people involved in the right decisions and at a distance from details of other matters — in short a delegation instrument. In the context of planning, CHQ decisions are concerned with the guide-lines and constraints for decision-making at lower levels, not necessarily with the problem of *how* to do things.

Thus (1) an efficient planning system is a design (or method of delegation) that economizes on the number of strings that CHQ top executives have to pull from a distance to guide, coordinate and control day-to-day operations. Once these guide-lines and constraints have been fixed, the same middle management hierarchy involved in planning is again involved in the implementation of decisions. In this sense, CHQ planning is a remote guidance and control system for repetitive and well structured decisions. It relieves top management of worries and details of operations management. It in effect enables top CHQ executives to run ("mechanize") the operations side according to a simplified objective function or set of targets.

This set of targets normally adheres to some version of the maintain or improve performance (MIP) principle, that feeds on information on past performance. This information is put to use by CHQ in bargaining with lower level management to push up planned for performance and responsibilities in the next period. Hence, a sophisticated planning system (2) can also be applied as an *administrative tension system* that forces middle management to perform according to pre-set standards and pushes performance upwards. On the other hand, when performance is gradually deteriorating because of external factors or factors outside the control of management responsible for current

---

[1]) Social theorizing has always suffered from inferiority complexes vis-à-vis natural sciences like physics. The mathematical language is a borrowed one and not well designed for the empirical problems facing social scientists. Attempts, worthy of all respect, to build a general, coherent theoretical framework has been extremely useful as a means demonstrating that many phenomenae treated separately in fact hang together. However, somewhere along the way of theorizing essential, empirical aspects of the problem being investigated begin to be weeded out because of technical language difficulties. If one proceeds further one is likely to wind up with a fairly empty structure of thought that tells an irrefutable truth but is incapable of making interesting predictions.

operations (see later) the platform from which pressure to perform better is applied is also gradually lowered. The targeting-reviewing phase that starts up planning and the reporting-control phase that concludes the planning cycle and connects up with the next round, exhibit how. The actual implementation of such purposes is best illustrated by Cases 1 (p. 40f) and 3 (p. 58ff), and any student on the matter who concentrates attention to one side of planning only (like control, targeting or the completing of forms) is liable to miss the most essential aspects of planning, namely how the entire macro-system operates in total.

If managed competently (3) such a planning system gives top management more time to devote to those unique and not-well-structured decisions, typically handled outside planning, that we have called major ones. Activities that are typically missing in formalized planning routines are: acquisitions, very large investments (until decided upon and timed), new ventures etc.

This book has not been devoted to establishing links between planning and behaviour. The study has not been designed to make such inferences possible. However, if one believes in the summing-up above, the study contains some observations relevant to the matter as far as the individual observation points (firms) are concerned. The author is also at liberty to generalize and systematize some of the scattered observations made into a set of *suggested* hypotheses on a theory of firm behaviour to be subjected to empirical testing *in some other context*. These suggestions will be given here briefly.

2. Some characteristics of formal, comprehensive planning procedures

A. *Format*

(*a*) Predominantly financial format with a number of peripheral feed-in and feed-out sub-planning routines that are not integrated with the comprehensive master plan.

Environmental studies are important CHQ input factors in planning (forecasts). Production scheduling, inventory planning, cash management are delegated sub-routines that are sometimes based on the output of the comprehensive plan, with no feed back allowed.

B. *Dominant purposes — remote guidance and control*

Targeting (goal formulation) under more or less well specified environmental constraints in conjunction with numerical reporting against targets.

(*a*) Top down CHQ directives formally or informally often constrain planners to an environment defined by the past environment (markets, technologies etc.).

(*b*) CHQ requirements are expressed in terms of *maintenance* or *improvement* of past performance in sales growth and profits, (usually profit margins) within boundaries defined by (*a*). This has been called the MIP principle. These goals are broken down into targets at lower levels to match the format of reporting.

(*c*) Targets or goals are typically determined on the basis of past internal performance on the same variable *(Feed-back performance targeting)*.

Hierarchical data assembly and control structure. The planning system is a means of ***delegation*** (a structure of sub-decision-making) while still retaining control of key activities at CHQ. This delegation is restricted to routine operations management. Numerical properties of the structure of the firm are known to CHQ only at a point in time. Knowledge available to CHQ is the pervading presence of slack or buffers throughout the organization.

In general the planning-control system allows the accumulation of such "slack" within certain limits defined by the system. This is partly a means of allowing for lower level autonomy in decision-making i.e. by allowing for restricted monopolization of information throughout the business organization. It is also so — and essentially, I would guess — in recognition of the limitations of CHQ competence to absorb, screen and make use of all the information that necessarily flows into most CHQ macro decisions. The extent and exact location of slack is unknown until a crisis situation may force more severe requirements on performance and brings out the information. CHQ management knows that improvements in aggregate firm performance can be obtained by the application of remote CHQ "pressure". They have the tools. However, they do not know exactly how and where such adjustment (improvements) will take place, nor does this seem to be an important piece of information requested at the CHQ level. Besides, CHQ may remain most satisfied as long as it does not have to resort to this source of "reserves" to maintain a "satisfactory performance". To be spared from doing the utmost may even be the significant gratification of operating, or working in, a successful firm.

The targeting-control procedure as described under (b) and (c) means that slack is built up under periods of improved performance. Division management tries to shield itself from the stepped-up performance requirements that feed-back targeting imposes. Similarly, slack is forced to be exploited to support profitability when external conditions worsen. One instance of this is the frequent method of deliberately not allowing division management to incorporate expected cyclical down-swings in demand in their plans.

Thus to CHQ the entire business organization is a typically *soft-coefficient* system. Improvements in performance are normally brought about by changes in structural coefficients rather than by adopting a given structure to a new environmental situation (see below). The business organization is a closely reined in vehicle that is steered very imprecisely over basically unknown terrain, until it hits something and has to slow down temporarily. The problem whether it is going in the right direction, is a question that is handled outside the planners' department.

Numerical planning routines are inconsistent for two reasons:

(1) They are carried out in an *iterative* fashion with no complete feed-back allowed.

(2) *Judgemental inputs* enter at numerous "stops" in the calculation process. Such inputs are *delegated* "decisions". They are neither coordinated nor necessarily based on a common base of information and their exact nature is not known at CHQ.

(*d*) Numerical information processed may be deliberately biased. Targets may be applied top-down at unreasonable levels.[1]) Grass-root data reported upwards in the planning process may be tailored by lower level management to conceal mistakes or shield middle managers from pressure to step-up performance.

The typical feature of top-down-bottom-up bargaining in sophisticated planning systems to reach agreement on targets and responsibilities, by definition means that numbers entered into the plan will be biased or erroneous in an analytical application. The numerical information handled is negotiated responsibilities rather than "correct" figures.

(*e*) A deliberate goal of long-term planning is to build up financial buffers to accomodate financial contingencies.

(*f*) Management participation is needed to implement targets. However, the methods of implementation are not planned for. Comprehensive formal planning is to assign the targets and to see that they are reached. In this sense planning is also a method of *delegation*.

C. *Less dominant purposes*

(*a*) Contingency preparedness:

No alternative comprehensive plans are made up to cope with some foreseen and possible change in plan assumptions. Implementation is outside planning. Business cycle considerations are rare in formal planning. Such considerations are taken outside formal planning and/or by frequent updatings of formal plans. Targeting and control are the foremost objectives of planning. *Alternative targets do not make sense* to those responsible for attaining them. This is probably the principal reason for the dominance of single-valued plans in formalized, comprehensive planning and the typical technique to stick to the original plan throughout the year for reference and control-purposes even though environmental change suggests that revisions be made.

(*b*) Optimization:

Information needed to optimize performance in the sense of being able to specify "feasible" optimum targets within the planning horizon is *not* available at CHQ. No alternative plans are made up simultaneously to allow choice. Information is inconsistently handled and deliberately biased and stored at levels below CHQ. *In principle,* part of this information can be forced to surface by simulating a crisis

---

[1]) Cf. again the frequent method of not allowing an expected slow-down in the business cycle to show up in the figures of the plan.

situation in planning. However, by simulating a future on the basis of the numerical information of the business organization known to CHQ under a set of environmental assumptions, less than the best feasible results will regularly be obtained. Such practical matters most probably explain the more modest measurable objective typically vested in "decision rules" imposed in planning, namely to *maintain or improve performance* (MIP) rather than aim for unperceived optimum results.

D. *Aspects of management missing in comprehensive planning*

Planning or preparatory analytical work related to unique and/or major decisions is always handled outside formal, comprehensive planning. In fact, a major decision is most conveniently defined as a decision handled outside the comprehensive planning framework. The comprehensive planning system is never designed to process decisions that lead to changes and risk-taking that are large compared to the size of the company. Such changes often require a redesign of the comprehensive planning system itself.

As we have noted earlier comprehensive planning operates more as a tracking system than a vehicle for response.

E. *From planning via decision-making to behaviour*

Decision makers' use of the planning system or any information system is highly discretionary. *Multiple sourcing of information* and *selective discarding of information* is the typical and necessary road to an operationally defined decision. There is no way of formalizing this intuitive arrival process and it has not been systematically covered in the empirical part of this study. To talk about it I will have to use associative and not very precise language. The argument is that the planning process mirrors the macro decision process that leads to decisions at the CHQ level, if one excludes major, non-repetitive decisions.

The firm may be fairly precisely and operationally defined in terms of its environment. However, decisions are based on *expectations* as to the environment while *behaviour* depends as well on to what extent expectations come true. Again, the planning system incorporates mechanisms to handle unexpected environmental changes through reporting and control procedures. Also here it remains to evaluate the use and usefulness of the planning system for decisions as to how to respond to such events as well as the ability to cope with unexpected environmental change by decision makers.

The argument will be again that the strong inclination to design business planning systems as reference and control systems in combination with deliberate efforts to (plan to) build financial buffers and other forms of slack reveals something about firm *behaviour* under various environmental conditions.

3. Feed back, separable, additive targeting and the MIP-principle

Before suggesting an outline of a *theory of firm behaviour* I will summarize again the principles behind the planning system with

particular attention paid to their behavioural implications, in particular for well-structured repetitive decision making.

To formulate a goal or objective function is a fairly common sense thing to do. Each action taken has some objective in the background. In many firms such objectives are never spelled out. In some firms, however, especially US ones, the formulation of objective functions or a set of targets for the firm is a very broad and operationally well defined activity. There is usually some profit-performance motive in the background and we have seen earlier how target variables that strike one as being contradictionary to rational decision-making, by reinterpretation may be good proxies for or acceptable representations of components in a quite monolithic profit-seeking system.

A typical feature of this system is a delegation apparatus for repetitive decision making centered around three or four principles (a) feed back targeting geared towards the ambition to (b) *maintain or improve performance* (the MIP-principle) (c) compared to the past (feed back targeting) rather than hitting the optimum, and seldom allowing for a trade-off between the immediate future and a more distant future,[1]) making use of (d) the knowledge that slack can regularly be activated at a multitude of (unknown to CHQ) locations within the organization.

Restricted choice is practically always embedded in targeting systems. The fourth principle (e) has to do with the separation of macro firm objectives (targets) into additive components *(separable additive targeting)* that in turn correspond to a functional and hierarchical organisational split of responsibilities. Firms as well as humans have great difficulties in choosing when the range of alternatives and factors to take into account expand too much. Decision making takes more time the more varied the menu to choose from. Frustration develops and idleness rather than activity may follow. To paraphrase Arrow (1974, p. 16) the solving of decision problems as well as "of conflict requires a certain restriction of our field of attention".
Departementalization of the macro objective function follows several dimensions. Repetitive operations management, the typical object of planning systems is kept apart from more loosely structured major, top management decisions. Operations management is kept separate from financing to the extent possible. Even though inflation is seldom made an explicit concern, targets and rules are often shaped so that a normal, healthy upward drift in prices (the environment of the past 30 years) will mean a positive contribution to profit performance as long as operations departments look after their targets and the finance department their targets etc.[1]) So far we have been concerned with a functional departmentalization of targets at CHQ. Below CHQ follows a deep, hierarchically ordered sub-structure of targets also designed

---

[1]) "The optimum position" has no operational meaning to the firm in the short (next period) run at the level of CHQ. Optimizing over time within the long-run plan normally does not occur as a part of formalized routines. In addition, major decisions, that are essential for long-run performance, are not handled within formalized planning routines.

along principles a), b), c) and — if possible — d) and made consistent with the overall macro objective function. To a large extent this is a problem of organizational structure as demonstrated in several cases.

These super targets at CHQ level in turn have to be very well conceived to prevent the entire organization from marching very efficiently and very consistently in the wrong direction. We observe in passing that the set of people called planners and/or being engaged in the planning process of a big company is not normally entrusted with the task of conceiving these super-targets but rather helping to implement them in the context of a planning system. I believe that I am not misunderstanding the comprehensive planning systems I have observed, if I liken them (among other analogies I have used) with a CHQ *financial filter* for the upward flow of planned or pushed for *activities* and a later CHQ control device on those "plans", that have been allowed through. The result of the filtering process is always provisional and may be subjected to discretionary top-down revisions. The filter is standardized (or automated) to compensate for the lack of specific information and competence at CHQ needed to understand, evaluate and suggest alternatives to the continuous upward stream of suggested activities, and to control that what has been promised has been achieved.

Efficient *feed-back targeting* of the kind observed in many U.S. corporations will have a very specific influence on behaviour if plans actually influence decisions. Feed-back targeting means that improved performance feeds back through targets as a requirement of further improvements. Similarly, under conditions of deteriorating performance, division managers will be continually harassed by requirements to step back up to past and better performance records. Over time the method allows a gradual relaxation of targets, if unreasonable. If systematically enforced such a targeting system will help to keep successful firms successful within the repetitive environment to which targets apply, until some outside factor breaks down the ambition or ability to maintain these targets.

Efficient feed-back targeting is not typically matched by a system of transforming performance records of superior divisions into targets for divisions that do not exhibit satisfactory performance. *Feed back targeting applies over time rather than horizontally accross the firm.*

A relevant theory of the firm will have to keep repetitive, operational decision-making separate from major decision-making with a substantial long-run impact on the choice of environment in which the firm operates and its basic structural features.

An observer will find that operational decision-making is well rehearsed and well researched within the planning process but not very much in keeping with optimizing rules prescribed by text-book theory. This is why I tend to put emphasis on the "maintain or improve performance (MIP)" principle which is typically embedded in targeting methods observed in this study.

---

[1]) See e.g. Supplement 4, Section D on separable additive targeting methods.

He will also find that major decisions are not well rehearsed and are often based on intuition and sheer hunches. Success seems to be very much dependent upon the skills and imaginative abilities of top management and their capabilities of staying aloof from routine matters and day-to-day worries.

To be informed is much more to realize a problem than to have a number of facts around. And facts are definitely not the same thing as figures. If you have the figures you have not added much to your knowledge until the figures have been interpreted. This partly consists in discarding irrelevant figures. If you need information and cannot measure it you have to get hold of it anyhow, vaguely, intuitively and within undefined margins of uncertainty. When a problem is too complex the field of attention has to be restricted in an intuitive but rational manner for a decision to be possible. Formal, comprehensive planning is such a funnelling device for one particular but very large sub-set of decisions within a business organization.

Corporate planning as practiced is a great game with numbers. This has to be clearly understood before we try to analyse what planning means to the firm. Many phenomenae are given a numerical specification whether you can measure or predict it or not. Hence, comprehensive formal planning is not designed for problem solving and not even for gathering information for more informed decisions. The information handled within comprehensive planning routines might be grossly misleading for those who are not familiar with the rules of the number game. This holds for the popular, derived game of to-day by academicians and Government institutions alike to collect data from corporate plans to draw conclusions and make decisions.

Comprehensive planning systems of to-day are designed to assemble numerical information for control purposes. Here accuracy, reliability and relevance mean something different than in an analytical context. Hence, comprehensive planning is devoted more or less exclusively to repetitive, well structured operations management in the short run and the long run. It is a means of delegating repetitive decision-making away from CHQ without losing control of current operations.

It is a method of keeping top management on top of day-to-day operations matters and freeing their time for those major decisions that require thinking, problem solving and foresight and other tasks that those at the top are supposed to be the best to perform. This is the area that has been saved for the term "corporate planning" in the theoretical literature of the last few years. I am in some doubt about this labelling. It certainly does not tally with the terminology at the firm level. And I have not noticed — as mentioned — that corporate planners are frequently involved in top level decision-making.

4. Four propositions for a theory of firm behaviour

The suggested "theory" is structured according to the following principles. A distinction is made between management problem solving that has been found in this study to be approachable by formalized or

corporate planning routines, but enter short-run or long-run plans once taken, the dispute about the danger of integrating long-term planning with short-term budgeting rendered slightly academic.
"scientific" methods. This experience is restricted to repetitive decision making under relatively, stable environmental conditions and is embedded in the Base Hypothesis. The Presumption furthermore is that the routine or repetitive management process is quite well mirrored by the formalized planning (and control) system observed in this study even though such a formalized system is not in fact being operated in *all* firms.

A relatively minor effort is spent in comprehensive planning to foresee and prepare for major decisions and major changes as compared to applying effective control and early detection systems on the internal mechanics of the organization. This means that capabilities of coping with major change of various sorts is handled separately from corporate bureaucratic procedure and planning in particular. The apparent success in handling and adopting to major change of many large business organizations (some of them very large and several of them included in my sample) must be attributed to factors at work outside the formalized comprehensive planning system as we have defined it. Finding no better way of formulating myself I hypothesize that this ability to cope with major change largely depends on individual capabilities, talent and imagination of those at the top and must be fairly randomly distributed among business organizations. We list three dimensions in which major change or major problems regularly have to be solved *(external environment, internal coordination* and *time)* under the Supplementary Hypotheses.

Our "theory", being both crude and far from complete, still consists of four Hypotheses capable of empirical testing.

A. *Behaviour assumptions: Base Hypothesis*

If the middle management decision process, codified in a typical planning system, is *also* typical of entire firm management, performance would be characterized by:

(a) tradition to stay on in established markets and
(b) technologies
(c) a constant pressure to maintain or improve performance in this environment (MIP-principle)
(d) on the assumption of a pervading presence of pockets of slack (localization unknown to CHQ) throughout the organization, that can be activated by remote pressure
(e) a conservative financial management, occasionally exerting quantity restrictions on the willingness to finance growth *if* external financial conditions are considered less favourable, at the expense of expected future high returns to investments

Furthermore:

(f) performance standards adopted are largely based on actual performance in the past (feed back targeting)
(g) standards (targets) are gradually relaxed if unreasonable e. g. due

to changing environmental conditions

(h) cyclical environmental conditions are not properly allowed for.

This means an erroneous or at least biased information supply for those activities that use the formal, comprehensive plan as an information input, for instance production planning, investment planning and liquidity planning. Finally:

(i) emphasis is placed on early and reliable observation of undesired developments and current corrective measures rather than long-run foresight and advance adjustment, and

(j) slack is internationally allowed to accumulate when targets are easily satisfied.

Major external changes and reorganizations are planned for and handled systematically outside formal planning. *Let us assume that such changes do not occur, to begin with.*

Then we will meet with a "genetically" defined business organization capable of *adjustments to a gradually changing environment* but which will suffer the fate of the market and technology environment it happens to be located in. The business organization will grow roughly in pace with its internal generation of financial resources which are in turn heavily dependent upon market growth.

Major environmental changes then mean organizational death in its present form, if the crisis is not resolved by an innovative transformation ("mutation") of the firm into a new entity, better equipped to handle the new environment. Drastic reorganizations, with replacement of existing obsolete experience (staff, facilities etc) with new take place. Most of this renewal process will occur through the birth of new business organizations that will then, again, grow in pace with the market. We know that firms frequently have to cope with such major change, or initiate major change themselves, in both cases sometimes with success, sometimes not. The following three supplementary Hypotheses suggest explanatory mechanisms.

B. *Supplementary Hypothesis 1 (Environment)*

The extent to which major environmental changes can be accomodated depends on whether they are foreseen in time and/or whether the organization is capable of adapting in advance or at short notice.[1]) Modern planning theory may be said to give advice on the forecasting side of this. Little in the form of worked out methods of adapting such information into planning is found neither in practice nor is available in literature so far. In fact methods of long-run and short-run planning adopted typically shun away from accepting such change in the plan. Actual planning method applied is not well adapted to secure a major organizational change since both targeting and control

[1]) It is again very convenient to define a major change negatively as something that cannot be accomodated without a crisis experience if not prepared for in advance. It is not difficult to present a long list of "instances" that meet this definition. In fact, an unusually deep recession would be a border case in point.

functions depend heavily on past performance records and past experience. Such experience is relevant only as long as environmental change means repetition of past environmental behaviour. Existing techniques of planning may even work as a hindrance to major reorganizations and the more so the more efficient they are.

This supplementary hypothesis therefore states, that so far there is no formalized management technique available to be brought to bear on unstructured problems where background records of the past are either misleading or irrelevant *if not coupled with a vital element of imagination:* The human mind is foremost. Success will depend on intuition and individual management capabilities at the very top and hence be a fairly random phenomenon.

C. *Supplementary Hypothesis 2 (Internal cohesion)*

One way of counteracting declining, basic markets is to diversify into new markets. Diversification programs like acquisitions as a rule are not part of comprehensive planning. In both instances it is a question of implementation where decisions have to be tailored to unique circumstances. The talents of individuals are again important for success.

Planning comes in when the diversification has gone so far as to require a routine procedure to manage all the different technologies and markets assembled under the same CHQ hat. However, so far no good, formalized and standardized management or planning techniques seem to be available to keep a vast array of heterogenous activities together. Success also here depends on individual capabilities at the top and should be of a fairly random occurence.

In fact, we are concerned here with the internal forces of cohesion that define limits to the size of the organization that can be held together of a CHQ control system. These limits necessarily will have to be vaguely defined, but in terms of all that has been said earlier they should be expressed in a financial format, and perhaps more precisely located where the organization is beginning to experience difficulties in attracting outside funds and/or retaining its own financial resources — in short where the organization as such begins to disintegrate due to external market forces etc. Hence Supplementary Hypothesis 2 is concerned with the reason for forming large business organizations where markets are replaced by bureaucratic methods of coordination, the size of such organizations and also limits to their growth.[1])

Supplementary Hypothesis 2 may be restated as follows: Comprehensive planning works best in a repetitive environment where operations management at the macro CHQ level may be easily structured. Differentiated products and many markets mean instability (non-repetitiveness) between the parts of the business organization.

---

[1]) Note that a taxation system that favours internal retention of funds at the expense of distribution of dividends by definition will contribute to larger business units. Cf. p. 293 f. Also see the discussion on corporate banking on p. 142 f.

Comprehensive planning systems developed so far are not well designed to control too many *heterogenous* parts of an organization and to evaluate their performance against each other. Hence again, individual talent to coordinate and keep together will come into the foreground. Besides the random influence of such talent, the individual parts will tend to perform in conformity with the base hypothesis.

In addition, the substitution of a bureaucratic coordination system for the market mechanism in this differentiation case, most likely will reduce pressure to perform. This is expected to hold for business organizations with differentiated products as well as — and in particular — conglomerate organizations.

D. *Supplementary Hypothesis 3 (Gestation of new products or techniques — the time dimension)*

The argument is often heard that the rate of turnover of capital in manufacturing has been steadily increasing over the postwar period. This is certainly true if we mean that the stock of machinery and equipment is more intensively used, that it grows obsolescent much more rapidly than before and hence depreciates more rapidly economically. Furthermore, an increasing amount of effort has been spent on economizing on current capital items like inventories and trade assets. If we restrict ourselves to the installment or purchase of pieces of hardware in the production system or the management of current assets the proposition of a higher rate of turnover of capital items is probably true. An efficient planning system helps to disclose spots where improved performance in these respects can be reached. If well designed it also ties down responsibilities at a degree of elaboration that would not be possible under non-formalized management.

If by this we also mean that the gestation period associated with investment spending has been gradually shortened we are, however, likely to be in error. Growth and success in a modern type business organization are only secondarily related to the build up and efficiency of the production machinery. The inception of a new product, a new technique etc. in a technologically advanced firm often precedes the installment of equipment for its production by several years. Such long-run matters are not handled well within routine, formalized planning. Before the product can be sold a new sales and distribution system may have to be conceived, designed and organized. Taken together large, or even massive, application of costs in R & D and marketing often has to be incurred many years before any consequent income appears in the profit and loss statements of firms. A major mistake in product development or design may take as many years to correct and occasionally is synonymous to financial catastrophe for the company.

Hence, in a growing number of industries the *gestation period* for investment in the broad and proper sense of the word and the associated risktaking have increased. Among other things this means that the traditional approach to studying investment behaviour with

one-eyed concentration on the hardware side is not only grossly misleading. It is in fact of peripheral interest in the context of much firm behaviour.

The inception and early development of new products or techniques are not part of formal planning. However, the allocation of funds for such work is done through the planning process.

Allocation of funds as seen through the formal planning process follows a priority ordering extensively favouring improved performance in current operations. Financing needed to support the one year sales plan of the budget comes first. Investments needed to support the five year sales plan come second and such investments are basically geared towards continued growth in the domain of current technology and markets. Even though spending on R & D account etc. (the returns *to* which are only expected in the very long run future) is substantial in many firms it suffers early if projected cash flows are insufficient. If, for cyclical or other reasons, current operations performance begins to deteriorate this will be more speedily discovered and corrected the more efficient the planning-control apparatus at hand and corrections will take place at the expense of the very long-run future.

No formalized planning method exists that guarantees or even promotes sucessful innovative behaviour. Emphasis in planning is on control. Intuition and individual capabilities will again be decisive and hence follow a fairly *random* distribution across firms, but be related to the amount (share) of resources allocated on innovative account.

However, in firms operating in a growing and prospering market environment this share will be high and vice versa. Thus, success will enhance the innovative potential and hence raise the probability of future success, and misfortune will reinforce the long-run problems.

5. A formalized growth model (base hypothesis)

We will argue later that the MIP principle is as simple and useful in model building as any maximization postulate. It can be demonstrated as consistent with rational behaviour and it is quite general in potential application. And it can be operationally defined and observed in use among firms. If simplicity is a merit in itself the base hypothesis can casily be collapsed into manageable algebra.

In Supplement 4 section E we have derived from basic book-keeping algebra the following *additive objective function* of the firm;

$$G = \delta w + \frac{DIV}{W} = \underbrace{\underbrace{\alpha \cdot m}_{I} - \underbrace{\rho}_{II}\,\beta + \underbrace{\delta_P}_{III}\,\beta}_{R^N} + \underbrace{(R^N - r)\,\theta}_{IV} \qquad (1)$$

δ here represents relative changes in the subscript variable. (1) restricts firm management ambitions to the pecuniary objective of increasing shareowners' wealth through increasing the value of firm net worth (W) as determined by an inflation adjusted valuation method of the accounts and through the distribution of dividends (DIV). A set of additive factors contributes to this ambition;

I; internal profit generation (= the sales, asset ratio (α) times the gross profit margin (m)).

III; inflationary gains on capital account (= the rate of increase in investment

goods prices (δ_P) times the share of production assets in total assets β).

IV; The leverage factor (= the nominal return to total assets (R^N) minus the nominal rate of interest (r) and the difference times the debt/net worth ratio θ).

From these contributing factors has to be subtracted:

II; a depreciation charge on capital account (= the depreciation factor ρ times β).

If we place a target on m based on expectations as to product prices (P^x), wages, (w), investment goods prices (δ_P) and the nominal rate of interest (r), some financial risk criterion defined by θ and knowledge of the firm production and financial structure we come out with a *plan* for G calculated through (1). When all environmental expectations variables outside control of the firm have materialized (1) is transformed into a *value generating function.*

We now bring in three principles from the base hypothesis; (1) the MIP-principle [(c) on p. 240], (2) feed-back targeting (f). The third (3) principle of "slack activation" [(d) on p. 240] is simplified to the extent that enough slack, to satisfy the MIP criterion is always assumed to exist.

We also assume for purposes of this demonstration first, that the *value* of current assets and other assets respectively are a constant proportion of sales value over time, second, that the firm strictly distributes a constant fraction

$$\nu = \frac{DIV}{W}$$

of firm net worth in dividends, with assets corrected for inflation and third, that the firm always and strictly maintains a constant relation θ between debt and the same net worth[1]. We then obtain the following *value generating function*[2]*:*

$$\delta_W = Am + B\,\delta_P + Cr + D \qquad (2)$$

δ_W, or the relative growth rate in net worth (W) then appears as a linear function of the gross profit margin (m) the rate of change in investment goods prices (δ_P) and the rate of interest (r).

m in turn is easily decomposed into:

$$m = \left[1 - \frac{1}{\psi} \cdot \frac{w}{P^*}\right] \qquad (3)$$

where w stands for the wage level, P^* for product prices and ψ for average labour productivity of the firm.[1])

---

[1]) The model can easily be modified to allow for a debt-policy and a dividend policy that depends on performance records like δ_W and m.

[2]) The function (1) is derived in (18) Supplement 4. It can be demonstrated from (10), (16) and (18) in Supplement 4 that in the reformulated version (2) above:

$A = \alpha\,(1+\theta)$
$B = \beta\,(1+\theta)$
$C = (-1)\,\theta$
$D = (-1)\,[\beta\,(1+\theta)\,\rho + \nu]$
and $\nu = \frac{DIV}{W}$

[1]) See expression (15) in Supplement 4. C and the following text. Note there that when defining α in (1) above, as the sales asset ratio ψ is automatically defined as the ratio of price deflated sales and labour input. This ratio is not identical to labour productivity but should vary over time approximately as labour productivity.

The MIP-principle asserts that firm top management applies the requirement that m shall be maintained or improved. How this is to be solved is a delegated matter and it generally takes place through activation of slack in the system i.e. by increasing ψ, ceteris paribus. We have to recognize here that the concept of slack has been introduced in very vague terms, especially if we try to relate it to the conventional theory of production. To make it more precise we recall that we have assumed the sales asset ratio α in (1) to be constant. Hence investment spending is required to the extent that α is maintained constant over time. For purposes of this discussion we may regard potential slack as the potential short term upward variation in ψ at each time at no extra investment spending. Implied is then that when target satisfication is attained firms do not care to exploit this potential further. There will be a normal, calculable and expected value on ψ due to investment spending etc., and if this productivity change is sufficient to satisfy targets no slack need be and is activated.

We also have to recognize that ψ is a ratio of two "physical" quantities; volume of output and labour input. Top-down CHQ etc. pressure to step up performance in terms of targets, on the other hand, is related to "value" variables like profit margins, cost shares, sales value growth etc.

There are two things worth observing here. *First,* in a planned economic system like a planned national economy or the interior parts of a large business organization, where prices and wages are set from outside the system, the *profit margin criterion* reduces to a *productivity criterion.* This is immediately obvious from (3) and provides a rational explanaton for the keen interest in productivity performance at the firm level in planned economies. Productivity and profit margin targets are linear transformations of one another in an economy where prices (and wages) are fixed by some superior, master planning authority. A very similar situation emerges in a large business firm with no or little interior market information that superimposes an internal transfer pricing system.

Second, productivity is a *real performance concept.* So is also the *profit margin.* This follows almost immediately from (1) where I + II is the *real rate of return,* while I + II + III is the *nominal rate of return* (see also p. 288 ff). A *real profit rate* is what is needed to assess operational profit performance. Obviously there is much sense in the frequent use of *profit margin targeting,* that we have observed in US companies, as contrasted with frequent advice from literature to use nominally defined and difficult rate of return measures instead.

For simplicity we assume that there are no restrictions on activating slack during each period and that top management require that past period performance in terms of m be repeated, rather than using several years of background experience to determine m;

$$\text{target (m)} = \text{m} = \text{m (t—1)} \tag{4}$$

Activation of slack is organized on the basis of expected input and output prices [EXP (w) and EXP (P*)] respectively. Productivity is then determined from (3) as:

$$\psi = \frac{\text{EXP (w)}}{\text{(1—m) EXP (P*)}} \tag{5}$$

Feed back targeting according to the MIP-principle as a method of activating slack obviously has made *productivity "endogenous"* in this firm model. If we want to emphasize point (f) on p. 240 rather than the expectational formulation, we may quite simply replace (5) by a delay-mechanism. We now obtain from (2), (3), (4), and (5);

$$\delta w = A \underbrace{\left(1 - (1 - m\,(t—1)\,) \cdot \frac{EXP\,(P^*)}{P^*} \cdot \frac{w}{EXP\,(w)}\right)}_{m\,(t)} + B\,\delta_P + Cr + D \tag{6}$$

The crucial generator mechanism in (6) is the relationship between mistaken

output and input price expectations[1]). We should recall at this stage that by sqeesing the firm into an algebraic format like this we have also scaled off the essence of the management process. Target specification is extremely simplified in (4). This may be acceptable for didactic reasons. However, we have also taken away the bargaining between CHQ and subordinate managers that precedes the fixing of responsibilities through targets. CHQ required targets is the first opening bid. In a well managed planning system, agreed upon responsibility targets should not be the same. The nature of the intermediate process is essential for the efficiency of the entire firm. Unfortunately it is an impossible thing to mould it into algebra in a meaningful way.

In healthy industrial economies one expects to find a well functioning labour market that does not allow more than minor, transient wage differences to develop between similar job categories. Hence wages should follow the tendencies of the entire economy while — in a competitive market — individual firm prices and prices for a range of substitute products should suffer from the high-handedness of the buyers. A firm that is unable to perceive the situation that its products or its entire market is deteriorating in terms of the prices it is able to fetch, will systematically display negative price surprises, while mistaken wage expectations should be of a more cyclical nature.

Let us define the expectations generator;

$$x\ (t)\ =\ \frac{P^*}{EXP\ (P^*)}\ \cdot\ \frac{EXP\ (w)}{w} \qquad (7)$$

For firms in a deteriorating market environment $_x\ (t)$ should be smaller than unity and/or follow a downward trend and vice versa.

Changing into infinitesimal calculus (6) yields the following differential equation:

$$\frac{dm}{dt} =\ (1—m)\ (x—1) \qquad (8)$$

It x is less than unity on the average firm net worth (W) in (6) will grow at a decelerating rate and vice versa, if not counteracted by inflation in assets through δ_P. With a constant rate of inflation δ_P, a constant rate of interest and/or constant x, firm net worth (W) will settle nicely on a "steady-state" exponential growth trend. The simplicity obtained in (8) is of course dependent upon the very simple assumptions introduced, especially the feed back targeting specification (4), and the assumption that there are no limits to the amount of slack that can be activated. In a more relevant setting these limits are of course set by the amount of investment spending.

One may wonder, furthermore, how growth is in fact generated in this model, or more conventionally, how the *investment function* looks. We have to recall then from Chapter VII, that within a comprehensive planning framework no "individualistic" investment function can exist, especially if we restrict ourselves to investments in machinery and construction. The firm is here concerned about growth in share-holders wealth. Spending on hardware equipment is only part of the overall growth-decision. It appears, in the comprehensive planning framework, as a *derived, allocated frame* of financial resources. To understand how this frame is determined we have to understand the principles of the total planning-decision process. The basic thing is, that when firm management has decided on the inflows and outflows of funds in the business organization, the value generating function (1) allows us to calculate (backwards) how much has been allocated on capital spending account, conditional upon expectations, namely:

---

[1]) cf. the similarity with the profit function derived in Eliasson: *Profits and Wage Determination* — An empirical study of Swedish Manufacturing, Stockholm 1974.

$$[\delta_{\overline{K_1}} + \rho] = \underbrace{\frac{\alpha}{\beta} \cdot m}_{\text{Internal retentions}} - \underbrace{\frac{1-\beta}{\beta}\,\delta_{K_2}}_{\text{Leakage into current assets}} + \underbrace{\frac{\theta}{\beta\,(1+\theta)}\,\delta_D}_{\text{Inflow through borrowing}} - \underbrace{\frac{r\,\theta + \nu}{\beta\,(1+\theta)}}_{\text{Outflow through dividends and interest}} \quad (9)$$

The left hand side of (9) stands for the ratio between gross *investment volume* (ρ is the depreciation factor) and the stock of production capital.[1]) It adds up to a set of capital flows in the accounts of the firm. To formulate an investment function, if we have to, we should concentrate on studying the interrelationships between profit margins (m), interest rates (r) borrowing and dividend policies (θ, ν) over time given the structure of the firm defined by α and β.

If investment spending has to be committed ahead of cash-inflows, some future value of m and δ_D will have to be estimated before the final investment spending commitment is taken. We have noted that this decision as a rule is postponed to the latest possible moment in the appropriations procedure. One would expect some longer run future expectation on m to figure in investment planning and as well in the decision to borrow. However, investment spending is still derived within the accounting framework of (9). If spending decisions mean commitments ahead of cash inflows, something will have to give way if profit margins move above or below expected rates. Both borrowing and dividend policies may have to be adjusted through variations in θ and ν or — especially if profit margins dip below expected rates — firm management, as we have found, may start squeezing funds out of current assets or activating slack by manipulating the coefficient structure (α, β) that is practically always assumed more or less fixed in conventional model building. This process has been described in much detail in chapters VI and VII, and Supplements 2 and 3 have been devoted to describe it both in terms of the data gathering format of the planning system and a formalization of the stepwise iteration process.

Obviously, knowledge of the production structure of the firm is required to calculate m ahead of time, but, as we have found, CHQ management (who makes investment spending decisions) normally regards the production structure as a very putty-type thing and does not work with models of the production set up in comprehensive planning, except through cost models (see Chapter V:6 and Supplement 5). If investment spending and financing plans are made up on the basis of advance conceptions of m, we have noted that m might quite well be a target formula into which the entire plan is required to fit, and this target is decided at CHQ on the basis of a perception — not knowledge — of the production structure of the firm. There are a whole set of investment spending plans compatible with target m, all except one involving more investment spending than needed to satisfy m. If m, θ, and ν ratios are considered satisfactory investment plans tend to be more generously framed financially than otherwise. One should also note that much *planned* for spending on capital account (hardware as well as intangibles) (cf. Supplementary Hypothesis 3) will never yield income through m within the planning horizon. Obviously this way of looking at the "real" investment-production side means assuming that "slack" normally accumulates with new investment. The firm is constantly at a variable distance from its so called production possibility frontier, the location of which is unknown to CHQ. This constitutes the putty or soft-coefficient type of production system, and it also provides

---

1) $\delta_{\overline{K_1}} + \rho = \dfrac{\Delta\,\overline{K_1} + \rho\,\overline{K_1}}{\overline{K_1}} = \dfrac{\overline{I}}{\overline{K_1}}$ where $\overline{I}$ is gross investment volume. See (5) in Supplement 3.

a viable explanation for the residual factor in production function analysis and support for the endogeneity of productivity change. Only when the realization of targets begins to be threatened and the malleability of the putty production structure is not sufficient, investment spending plans begin to be revised. In the first stages this revision is managed in a way that does not endanger the overall sales plan. This is cash-flow mechanics at work and if one wants to build intelligibility into simplified models of investment *behaviour* a corresponding terminology is advisable. (cf. Supplement 4A.)

6. The theory of the firm in literature

The micro firm unit identified by the four hypotheses in the previous sections is a fairly specialized organism adopted to a particular market-technological environment and capable, on the average, by deliberate manipulations of decision rules of gradual adaptations to slowly changing environmental conditions. It prospers with its environment. Limits to its size and rate of growth are recognised in financial terms, or more precisely, where the organization begins to experience difficulties in attracting and/or retaining funds.

There is a certain distribution of performance characteristics. Planning, or rather efficient operations management is one method of improving these performance features. However, like in any branch of athletics there are limits to what practice and training can do and most choose not to push performance to their limits.

The environment of these firms is characterized by randomly distributed innovative change with which — if of major proportions — the average firm, if hit, is not well prepared to cope. Success in accomodating major change depends on randomly distributed skills.

If we can agree so far we have arrived at a Cyert & March (1963), and Winter's (1964, 1971) type of firm organization subjected to random reorganisations ("mutations") in response to environmental shocks. We have also found a good deal of empirical relevance in Marris' (1971) "conclusion" to keep operations decision making apart from growth decisions. There is not much room for classical, optimizing micro behaviour except, perhaps, in the ex-ante dimension[1]), when marginalist criteria have a somewhat questionable operational content.

The period by period groping into a misty future with trial and error corrections for mistaken expectations suggested by Day, Morley & Smith (1974) comes closer to what has been observed in this study. As they also demonstrate, this behavioral rule, coupled with a risk-avoiding principle, tends to generate a long run, rather stable asymptotic convergence towards some sort of equilibrium for a group of firms.

A major corporate decision embodies such a complexity that it is normally only fractionally understood. Much, perhaps most, preparatory management work is devoted to *understanding* the decision problem rather than solving it. It is more of a Hegelian confrontation of conflicting and only partially organized views, knowledge and values.

---

[1]) As suggested in a previous study of mine: *Profits and Wage Determination*, Research Report 11, Federation of Swedish Industries, 1974.

There is no language to replay how exactly the decision took shape and decision makers are not well aware of it themselves. As a consequence planners as well as decision makers are harnessed within a hierarchical structure of constraints and controls that not only restrict their field of attention but also the number of feasible options to consider in plans. With many such extraneously imposed restrictions the concept of optimization very soon becomes irrelevant to the nature of the decision.

This is partly Simon's (1952—53) line of argument in his comparison of the classical theory of the firm with organization theory. He observes that organization theory is more concerned with long-run survival (of the organization) than with optimality. An organization is a conglomerate of bargaining parties that contributes to some joint purpose[1]) but still maintains vested interests of their own. He adds very relevantly that a whole set of optimality conditions have to be identified and in general no "unique solution" is obtainable if optimum mathematics is the analytical method. The choice conflict is resolved by resort to bargaining, and this is in fact one rationale for introducing the principle of "satisfying". We note that this description associates very nicely with management techniques described in earlier chapters. The viability of the classical theory of the firm then depends on its capabilities of reasonably predicting behaviour *despite* its simplifications.

Nevertheless, if we can observe the imposition of many restrictions to a master optimum solution far down in the business organization, we cannot — on the basis of this evidence only — conclude, as many have done, that firms entertain a broad spectrum of goals or preferences, parallel to the profit motive, that are also traded off against profits as defined, say, by (1) in the previous section. *Goal formulation for the firm organization as a whole is a top CHQ matter* — as we have seen throughout this study — and CHQ is definitely concerned with the firm as a profit generator and very little else.

If CHQ chooses, as it does most of the time, not to squeeze maximum profit flows out of the organization, the less then maximum pressure on performance exercised top down allows some leeway for sub-segments of the corporate structure to exercise particular preferences, that do not fully conform to CHQ objectives. This is a pervading phenomenon. It is allowed within certain well defined limits, but it is definitely not pursued as desired within the CHQ objective function. Allowing something to happen gives a set of "behavioral rules" or "decision rules" that are quite different from those one would find if the same phenomenae were actively encouraged top-down.

Acknowledging the presence of profits as the dominant goal variable, furthermore, should not be identified with the perception of the firm as a profit maximizer, as has been done in much careless writing. From the maximization postulate follows very specific decision criteria. These criteria are what is at stake in the debate on the theory of the firm. Other principles, like the MIP-principle, although based on profit

---

[1]) cf. our discussion on Alchian-Demsetz (1972) where a very similar but much more narrow analytical approach is pursued.

seeking behaviour, yield entirely different decision criteria. It does not help to argue that the maximization postulate yields simple models and clear and unambiguous analytical results e.g. in allocation problems. The results may be wrong, and they usually are if the assumptions chosen are wrong. (cf. Simon 1959, p. 265.)

There exists no general purpose theoretical "explanation of the firm" and most academic disputes of whether the firm maximizes or behaves or what not are really about what one expects to learn from the various sub-theories under debate. Spence (1975) is quite right in saying that the modern firm is "an economy in miniature". We consequently have to make up our mind to what sub-theory of the firm we want to relate our experience in earlier chapters.

If we are to believe Machlup (1967), understanding the dynamic evolvement of the amorphous organization called a firm is *not* the concern of the classical micro economic theory of the firm, that is based fundamentally on deliberately simplified profit maximizing rules for decision making. We are rather concerned with the *mass behaviour* of a set of extremely simplified firm descriptions operating in a static environment — in short with a "macro problem". Then we should of course ask what more we learn from this theorizing compared to a more conventional macro approach. Or is some alternative, simple firm specification capable of general application (like the base hypothesis formulated in Section 5) more useful? Maybe we are rather interested in answering the Darwinian question what conditions and modes of behaviour that are forced upon firms when subjected to competitive market pressure[1]).

Are we interested to learn how the firm organization as such operates (or behaves) as in much writing on the matter by Gordon, Simon, Cyert, March, Winters and others. If theorizing based on an elaborate specification of firm behaviour over time leads to conclusions in macro that differ from those of the classical approach we have a useful empirical confrontation of ideas. Hopefully this confrontation will settle the issue to the benefit of science, by forcing some version of doctrine to leave the scene — if we cannot invent some new purpose for it to survive by.

Perhaps we want to teach firm managers how to behave better by pushing some optimal mode of behaviour, as in much of management literature. Sometimes, then, very simplified models may have a didactic value.

Is the problem of why and how firm organizations grow as in Penrose (1959) or Marris (1971) of any interest to us, or do we rather want to inquire into the rationale for the existence of the firm organization as such as in Alchian-Demsetz (1972), Arrow (1974) etc.

As we have seen, most of the problems in theorizing about the firm

---

[1]) Machlup (1967, e.g. p. 22), in defending "marginalism" against other notions of the firm, in fact suggests that it may be vigorous competition that enforces marginal conditions among firms rather than innate behaviour.

also are problems that confront the managers of the firm. Planning systems are often designed to fulfil the coordinating and competitive functions of markets internally. The system as well — if defined broadly — makes up the cohesive structure of the firm organization that produces benefits to interested parties in excess of what a divided market approach is capable of. "External" effects of this kind have also been discussed as a rationale for the organization as such. (Alchian & Demsetz, Simon etc.)

If the theory of the firm is concerned with explaining how firms operate or behave as a group or an industry the ultimate interest is of course in "macro" or "mass" behaviour rather than in individual firm behaviour.

What determines industrial growth? How can industrial growth be stimulated? How can industrial growth be manipulated or changed? To modify and complicate the rules that guide the simple profit maximizing firm, means refuting the idea so cherished by defenders of marginalist theorizing, namely that convenient but designfully false analytical simplifications regarding the individual firm do not reduce the explanatory potential of the theory at the "macro" level or falsify macro conclusions.

The contention that such false simplification does yield false analytical conclusions is the back-bone of the modern research on a dynamic theory of the firm exemplified e.g. by Simon, Winters and Marris. Since many new features added to theorizing by them and others have been found integrated in firm planning systems we should continue our discussion with this in mind.

There is a subtle difference in the inert adaptation of the firm in response to major changes in the economic environment presumed in the Base Hypothesis (on p. 240 ff.) and Winter's (1971) more general formulation that firms retain or replace decision rules over time, as they gain experience from the power of these rules, to contribute to preset goals. They thereby posess an "endogenous mutation mechanism". This would go under the Base Hypothesis under stable or gradually changing environmental conditions. When the rate of change is rapid and forces major reorganizations on to the firm, "natural selection" is assumed to take over through the Supplementary Hypotheses and a random "mutation" mechanism distributes success.[1])

---

[1]) In a general setting this distinction of mine may seem nonsensical. Even a major reorganization of a firm (say after bankruptcy) could be called a change of decision rules. I would however, prefer to name it the birth of a new organization even though the old name remains. This requires of me to tell more exactly when decision rules have changed so much that we are in fact watching a new entity being formed. This in turn is based on the possibility to separate routine operations management from other management, i.e. keep the Supplementary Hypotheses operationally apart from the Base Hypothesis. If a firm organization changes characteristics above a certain "level" e.g. by acquisitions or selling out pieces of itself, by changing key executive personel, etc., I would call the end product a new organization.

If we shift attention back again to the question of macro explanation through micro specification we would find the Base Hypothesis of the previous section (and elaborated in this Chapter on p. 244 ff.) to be a very reasonable, very simple and highly potent explanation of macro behaviour, if one is willing to believe that major, unique and unstructured decision-making is managed with random success through the three Supplementary Hypotheses.

In their lucid paper Alchian & Demsetz (1972) investigate under what conditions it is beneficial to combine economic activities into a firm organization, rather than relying on the market to coordinate the same set of activities. Any answer to this question would also be *one* argument in favour of planning. They approach the question under the heading of "team production". They conclude that "team production of Z" (or firm organization) will be meaningful if it yields "an output enough larger than the sum of separable production of Z to cover the costs of organizing and disciplining team members". There are numerous technical and other reasons (too obvious to be exemplified here) that make it impossible, difficult or simply uneconomical to split up production systems by intermediate markets. However, when internal, individual performance is not measured or controlled by markets, new problems, like "shirking", appear. We recall that the planning systems observed in this study are typically geared towards keeping various dimensions of "shirking" under control by measurement and exhortation to negotiate contracts (plans, responsibilities) throughout the organization. We also note that the measurement problems associated with control in team production belong to the family of problems that obstructs attempts to delegate decision-making through instituting "synthetic market systems" within the firm by way of transfer pricing methods (cf. Hirschleifer (1956, 1973) and p. 70).[1]) It is worth noting, however, that the A & D proposition must be considered implicit in earlier and more general propositions such as Simon (1952—53), Cyert & March (1963. e.g. p. 27 and 36), who view the firm organization, or any organization, as a joint venture of interested parties. The rationale for joining has to be the expectation that group output is larger than the sum of individual outputs. The parties stick together as long as they consider their marginal rewards for staying together satisfactory, or, until external (market) rewards present better options. Even more generally, one can view organizations as "a means of achieving the benefits of collective action in situations in which the price system fails" (Arrow (1974. p. 33)). One problem of course is that interested parties can be defined and

---

[1]) Note, that we have widened the concept of a firm or a team compared to A & D. The same organizational problems (like "shirking") that relate to individuals in a team are applicable as well to teams (say divisions) within a larger set of teams (a firm).

introduced very broadly and one will meet with difficulties of keeping the concept of an organization or a firm within limits, or reasonably close to what phenomenae the concept of a firm organization is normally associated with. Contrary to Simon and Cyert & March A & D moves in the opposite direction by narrowing down the concept.

For some reason A & D refute Knight's (1921) proposition that the distribution of risk is a rationale for the existence of an organization like the classical firm. Most probably this conclusion depends on A & D's narrow definition of the concept of a "firm" to team production mentioned above. Such simplifying devices are sometimes useful in a didactic context but not to criticize others. A & D may have in mind that risks of any size can be insured for, perhaps more cheaply in the market, than internally, by joining economic activities together under the same hat. However, markets may not be perfect or competitive. Insurance may not be available. "Team activities", furthermore, may produce economic benefits to the team even at the cost of lowering total team productivity, by introducing market imperfections. So perhaps, what A & D assert is that market imperfections listed by them are the rationale for instituting a firm organization. There are, however, other market "imperfections" than those discussed by A & D under the heading of team production that lead to the same conclusions.

Such imperfections are numerous on the financing side and the "Commercial and investment bank activity", carried out by centralized financing and cash management functions in a large firm (conglomerate or not, see Chapter VII 3.b) yields benefits to the system such as a reduction of financial risk-taking or a "distribution of risk-taking" over time that smaller organizations are not capable of. Likewise, the absence of satisfactory external credit market facilities may have been one of the more important factors that have prompted the systematic build up of substitute, internal administrative "credit allocation" systems within large business firms, that probably is the strongest cohesive factor of the firm organization. For instance, a large firm defined as a financial system should be more capable of surviving a well defined financial crisis as an organization, than a smaller firm organization. Assuming a nonperfect, and less than fully informed external market environment, such scale effects present a rationale, based on the risk-taking potential for agglomerating small scale economic activities into larger ones. When discussing the loose concept of the firm rather than the production unit or a team of workers I have found it very useful in Supplementary Hypothesis 2 to relate the rationale of its existence as well as its size limits to the cohesive factors that can be applied to attract outside and/or retain internal funds.

It is obvious from the preceding chapters that the evidence presented there does not support the "marginalist" theory of the firm in the strict interpretation, that the firms plan to maximize their profit position on the basis of available information. On the other hand no *alternative, general* theory of the firm could possibly retain all the features

(important or not) of a business decision system of the kind that has been described in this book. Most of the controversy over the theory of the firm is anyhow concerned with the question of delimiting the range of phenomenae economists *should* be interested in. The choice of interest also defines the choice of specification. As Machlup (1967) correctly points out in his article, a theory of the firm based on the simplifying profit maximizing principle "serves only to explain and predict effects of mass behaviour". Since we are here also concerned with *understanding how* individual business organizations (firms) work, this controversial issue is best treated in its proper theoretical environment the firm and the market (see below).

It may be of interest to note in conclusion, that the path breaking work of Simon, March, Winters etc. referred to earlier, and the recent application of information theory to the theory of the firm, by Arrow and others, build a very useful bridge from the theory of the firm to the management literature on planning discussed in Chapter IV, and also — which is more important — to activities that we can in fact observe as going on *within* business organizations.

7. Growth and optimal size of the firm

Perhaps it was not so strange at all that very little attention, at that time, had been paid to building a general theory of the growth of firms, as noted by Penrose (1959, p. 1). For one thing the traditional micro theory of the firm was, and still is, narrowed down to the restricted playground of market behaviour under static conditions. Attempts to fuse growth into this format is quite an intellectual effort, if movement is not to be explained by some unexplained ex ante flow of force. Normally, as in Gordon (1962) and Marris (1971) the result almost has to be a thematic variation on the accounting identities elaborated in Supplement 4. Perhaps one should not expect to be able to probe deeper theoretically into this issue. If we want to explain why growth, perhaps we have to consult other sciences than economics? We have noticed already that firms themselves have not succeeded very well in structuring their essential growth mechanisms into the format of very complex comprehensive planning systems, but rather leave them as ad hoc judgemental inputs. Baumol's (1959, p. 45 ff) suggestion that firms try to maximize sales or sales growth subject to some profit constraint may convey an appealing air of reality, considering the strong emphasis we have observed being placed on sales growth projections in targeting procedures. However — as we have demonstrated in section E and in Supplement 4E — this principle can very nicely be resolved into an overriding concern with profits or the value growth of the firm, and we are back where we began. The difficulties involved in distinguishing growth orientation from profit motivation in firm behaviour when it comes to empirical asessments, is also well illustrated in Meyer (1967). And if we intend to explain growth by way of explaining profits within a system of thought where growth is governed by perceived profits we have taken on quite an investigative burden.

Growth is a time consuming activity by definition. Growth at the firm level also is a macro problem. As a rule it takes place through the agglomeration of the classical type of firm (a production unit) into various organizational entities. We have the specific problem of *why* such organizations are formed i.e. the economic rationale for the formation of such organizations. This has been treated in the very narrow domain of the classical firm (a production unit) by Alchian — Demsetz (1972). Here the concept of a firm is delimited by the extra economic benefits that occur from team production as compared to individuals joined together by a market. At this level the growth problem narrows down to the question why investment takes place to increase the scale of operations (the team) and/or to improve performance characteristics (productivity) of the production unit.

The theory of the growth of the firm will always have to be a quasi macro problem relating to an organization of classical firms (production units) that grows by changing the operating characteristics of existing units, by adding new units through internal investment[1]) or by purchasing new units from other firms. To prevent the firm from becoming synonymous with a sub-industry, total industry or the entire economy of a country some delimiting factor will have to be introduced. This factor in turn will have to be an arbitrary one, and is conventionally tied either to a legal definition or to some degree of top-down financial control and/or to the cohesive factors that *tend to keep financial resources within the "organization"* rather than distribute them through the market. Thus the concept of an "optimal size" of the firm will necessarily have to be a very vaguely defined one. Market imperfections are again the basic explanation. But, nevertheless, the same factors are the relevant ones to investigate when we want to inquire into why and how firms grow.

This conceptual approach still has much in common with Penrose (1959) who assumes (p. 43) that profitable opportunities are generally available and that excess management capacity etc. (Chapter V) in combination with an elastic supply of management, capital, labour etc, pushes the organization towards growth, presumably as long as management can exploit the opportunities, that are available.[2]) In fact, such thoughts can be nicely associated with the idea of the pervading presence of "pockets of slack" throughout the organization, that can easily be activated at small costs of need be. (See p. 246 f. this chapter.)

---

[1]) See, in particular, how a "firm" can be likened with a number of production and distribution units joined together by a CHQ vested commercial banking and/or investment banking function in Chapter VII.3.

[2]) Such downhill travelling approaches have always demonstrated strong attraction to economists since they leave the most complex problem to explain the momentum, direction and origin of economic motion to God. The choice of restraining factors allows a great many variations on one theoretical theme. In much production function economics time itself is assumed to generate most economic growth. In Meyer-Kuh (1957) and Eliasson (1967, 1969) growth opportunities are assumed to exist although availability of high quality finance restricts their exploitation.

8. The firm and the market

Limited access to information and the possibility to create imperfect markets by withholding information or applying power by collusion can be followed through to an extreme end and provide a rationale for the popular "techno-structure conspiracy" pushed by Galbraight (1967) and aimed at controlling the political and demand environment of firms.

In an earlier and less pretentious paper, Jenner (1966) approaches the related problem, of the importance of *competitive market conditions* dominated by consumer preferences, to prevent the formation of monopoly conditions. In a way both Winter (1964), Jenner (1966) and, even earlier, Alchian (1950) present the reader with a "formalization" of the Shumpeterian innovative process on the basis of a strong Darwinian background theme. Innovations are the essential agent in a competitive market and Jenner prepares a conceptual and simultaneous marriage of perfect competition and transient quasi-monopolies based on innovations, in the market. Monopoly conditions, whether being organized in one firm entity, a cartel or by some other agreement or contract, being transient or not, immediately bring in the measurement and internal control problems of Alchian & Demsetz (1972) that figure so importantly behind formalized comprehensive planning and control systems. Not surprisingly, such systems are geared towards the individual firm organization objectives, not towards maintaining competition. Jenner's so called information version of competitive price theory demonstrates that the "condition that no firm dominates the conditions under which a new product emerges" is a more important requisite for (pure) competition than that no firm controls the price of its output. However, we are now concerned less with the rationale for the existence of team production (= a firm) in the sense of A & D (1972) but rather with the question why a large number of economic activities are frequently agglomerated into a large hierarchically ordered organization. The problems of A & D are also found in this larger organization. The Jenner article, however, brings up the question what is left — after this battery of new approaches — of the conventional optimizing theory of the firm that abstracts from most of the new features added and is based in addition on postulates that do not seem to be supported by observation at the micro level.

While Jenner (1966) introduces free and easy access to the market (entry), as a prerequisite for competition (in order to give som content to the concept of pure competition), Alchian (1950) emphasized the selective *exit* of low performance firms as a result of competition. As Winter (1964) points out, this has little or nothing to do with the problem whether firms are profit maximizers or not, or with the classical theory of the firm at all. Thus, Friedman's (1953) conclusion that in the long run, surviving firms must be profit maximizing firms cannot be drawn from this argument.

All activities at the micro level, taken together, define market behaviour, and market behaviour if competitive enough puts a premium on being efficient and/or profitable and innovative. Hence, it fastens

environmental change and *forces* firms to step up performance. Subnormal performers will grow slower than efficient competitors or contract operations and hence loose in relative importance.[1]) It will be impossible to discriminate between competitive pressure and selective market mechanisms on the one side, and the presence of neoclassical instincts on the other, by observing the combined consequences in data of individual firm behaviour. This will be even more so when we observe macro data on groups of firms or industries.

Still, neoclassically based theory has demonstrated a great survival value in empirical confrontations at the macro economic level. Perhaps we should adopt Machlup's (1967) views that the classical micro theory of the firm is really a macro theory. The firm description is more or less identical to its production function and it is nicely consistent with the central theoretical framework of economics, which is not necessarily the case with a MIP-based firm specification[2]). Then we can disregard the fact that it rests on assumptions that are obviously false at the individual firm level. We can repeat the conventional conclusions with great confidence since there is no competitive model of the firm capable of such simple, straight forward or unambiguous predictions and no empirical method capable of disproving the conclusions. Or can we?

Marris' (1971b) suggestions towards a more general theory of oligopoly obviously and in toto must be a very awkward apparatus compared to the simplicity of conventional classical theory. We are likely to be presented with multiple equilibrium solutions where only genuine empirical knowledge will help to sort things out. However, it

---

[1]) Cf. Alchian (1950), Koopmans (1957, p. 140), Winter (1964).

[2]) Since a modern firm manages not only production equipment but also other assets like money in various forms, knowledge, etc., a set of neoclassical production functions operating in the market place according to optimality rules is not always a fully relevant specification of the underlying reality. To improve specification in this respect Fischer (1974) has introduced real balances (money) into a conventional macro production function.

suggests conclusions that conflict with classical theorizing. Even though the assumptions are not under full control they withstand confrontation with reality better than classical theory at the micro level.

Furthermore, Marris keeps firm market behaviour separate from "growth". On this second aspect the classical theory of the firm has little to say.

The typical line of defence for the classical theory is that even though assumptions may be somewhat false they are simple and capable of straight forward predictions, although (again) these predictions sometimes are of such a nature that they cannot be subjected to empirical checks. It is obvious from our previous discourse that if viewed through the planning system, firms are very much concerned with their profits, so we can keep that simplification. The MIP-principle applied to short-term profit performance, introduced earlier, offers an irritatingly simple alternative to profit maximization. It can be empirically supported at the firm level. The nimbus of rationality can be conferred upon the principle, if we introduce the supplementary principle — referred to frequently earlier — that when confronted by uncertain, complex and contradictory signals about the future firms restrict their field of attention in order to be able to evaluate and digest the information. A MIP-based, alternative theory covers a wider range of phenomenae than the classical model e.g. certain aspects of growth (cf. Section 4 and Supplement 4).

Furthermore, firm behaviour (according to *any* theory) may quite well produce *macro behaviour* in a very competitive environment that supports theorizing based on optimizing instincts of individual firms for two reasons.[1]) The first reason is the one already mentioned. Competition favours the most competitive firm units. The second reason is more subtle. All measurements aimed at determining optimum features of the production sector or to test the theory, will have to be based on data on actual (not optimal or planned) performance. Prices are determined by the marked process that actually takes place and after it has taken place. Decisions and behaviour on the other hand are based on anticipated prices etc. The more one aggregates, the more constrained of accounting identities the aggregates, and the more likely

---

[1]) A remarkable result was in fact obtained in experiments with simulated, synthetic macro data by Nelson & Winter (1973) on a sample of firms. They reported that the "utter absence of a production function from the underlying structure does not prevent one from calculating, à la Solow, what the rate of technical change would be if the data were generated by a neutrally shifting aggregate production function".

that support for the macro version of theory is obtained if no distinction between ex-ante and ex post is explicitly made.

One general observation from this discussion is that when a decision problem gets very complex — and most business decision problems are — we not only have to accept that the information needed to calculate its optimum resolution is unavailable but, that even in theory no unique solution will generally exist. Since in reality the conflict of choice has to be resolved, *a process of provisional decision making* is resorted to, as we have observed throughout this book. The general method is to restrict the field of attention, fix a set of temporary perceptions and then keep reconsidering the decision case as long as this is possible. This very strongly underlines Simons (1959) observation that "the economic actor" (here the firm) acts on and responds to "the subjective environment that he perceives". We have to know something about "his perceptual and cognitive processes" to say something, implying that the final outcome of the economic process involving all decision makers does not tell us much about the thoughts he had about that outcome that went into his decision. Within this perceived environment for the decision, an optimum or equilibrium or chosen solution exists ex definitione, once the decision has been taken, but this is definitely an ex ante abstraction and a very transient one as well.

The concept of an *equilibrium* based on the characteristics of an optimum solution has been a very useful notion in economic theorizing as long as it has not been pursued in absurdum per se. It has allowed the use of very powerful mathematical methods. However, as anyone who uses mathematics as a language, (and with retained imagination) has experienced, powerful analytical methods often tend to define ones problems rather than solve them. Since constrained but well trained minds probably is the worst of all intellectual combinations, I here venture the heretic suggestion, that perhaps we economists should leave the concept of an equilibrium, as we define it, aside for a while — but not forget it — to allow some new and fruitful analytical techniques to enter the scene. For instance, a direction of change can be investigated or explained without recourse to a distant or hypothetical focussing point. If we restrict our area of inquiry to those problems that can be handled by a particular technique of analytic thinking we may soon find that we have less to say on important economic matters than other disciplines, that choose the problem first and the analytical language thereafter.

This suggests a final comment. A theory has no scientific interest if not related to a problem. The problem may be more or less interesting, important etc. but that is a different question. The problem is what relates the theory to empirical phenomena. The problem may still be a very hypothetical one, of some other imaginable world like business man's behaviour under conditions prevailing on Venus. Sometimes a

generalization from some very simple observation may represent a satisfactory solution to our problem. But the basic thing is that the problem comes first and the theory thereafter. This could mean that all the pieces of theoretical machinery, that we have discussed, relates to different problems. This would settle all disputes once and for all, since everyone is free to choose his own problem, if he can find a financier to support him.

SUPPLEMENTS

"Mathematics is a language."

J. Willard Gibbs

"It is clear, in short, that the surface structure is often misleading and uninformative and that our knowledge of language involves properties of a much more abstract nature, not indicated directly in the surface structure."

Noam Chomsky

SUPPLEMENT 1

Managing the comprehensive CHQ plan

In this supplement we will illustrate in more detail how a comprehensive CHQ plan may be put together. We proceed through three stages of simplification and begin (Supplement 2) with a rather detailed account of how basic data collected at division level are put together and consolidated into a comprehensive plan at CHQ. The account starts with the set of standard forms that divisions are normally required to complete, at least once, often several times a year, and calculation procedures used to consolidate the plan are illustrated.

The standard forms given as illustration do not by far show the details of the standard forms actually used. Still the standard forms and the calculation procedures exhibited represent a rather sophisticated version of a planning set-up joining together several facets of planning procedure only met with in its entirety in a small number of the firms studied. This is the same as to say that the degree of sophistication in planning has very little to do with the amount of detail of the data assembled in the planning process but rather depends on *how* the data are analysed and put to use.

Second, (Supplement 3) the contents of the standard forms are formalized in a block-recursive scheme with external decisions, checks and revisions indicated by open ends and loops. In principle this second step represents a rather involved formal simulation model of planning. With some further specification it is fully capable of numerical application. One such very simple instance of specification constitutes the *third* step (Supplement 4). Loops and open ends are eliminated from step two. This allows an "analytical" formulation of some properties of the "model" illustrating e.g. the case when the plan is always realized as planned ex post. Rate of return measures are introduced and compared and the effects of inflation on the variables of the plan are discussed.

It should be emphasized that we are concerned here with the making of a plan only and the properties of the planning system. The relationship between planning, decision-making and behaviour has been treated already in chapter XI.

Costing is crucial when the initial sales-profit plan is put together. We have mentioned already, that this procedure is an ingenious short-cut (applied 100 per cent) that allows planners to by-pass a number of intricate problems associated with the specification of the aggregate production set-up of the firm organization. For instance, the treatment

of "capital" is much simplified and the transformation of macro economic volume data associated with inputs and outputs of the production system (man-hours, screws and nuts and wire) into the data needed for a profit-financial growth plan expressed in current prices is nicely effectuated. We illustrate, by deriving from an actual case of costing met with, the aggregate production function that is compatible with this particular costing procedure (Supplement 5).

We conclude the supplement section by a brief discussion on the topic of computers and financial models in planning (Supplement 6) and list the core of interview questions raised (Supplement 7) as well as the firms interviewed (Supplement 8).

SUPPLEMENT 2

A set of standard forms — division level

A. **Sales and cost plan**

(Break down of entries (1) — (3) in profit plan B. below.)

A 1. *Sales plan;*

Product	year									
	1		2		3		4		5	
	quantities (q)	prices (p)	q	p	q	p	q	p	q	p
1										
2										
•										
•										
•										
•										
•										
n										
Total sales value ($ thousand)										

A 2. *Cost plan — estimates of cost inflation*

		(1)	(2)	(3)	(4)	(5)	(6)
	Nature of expense (percentage change in unit price)	Percent of total costs, present year (weights)	*Percentage changes in unit price per year times (1)*				
			1	2	3	4	5
A	Raw materials, semi-finished products and services etc (+)						
B	wages and social charges a) increase in charges per unit of input (+) b) calculated increase in productivity (—)						
C	Purchased finished products (+)						
D	Total increase in costs per unit of input (ΔC/C in (4), S5A)	100 %					

Comments; Cost plan A 2 is sometimes made up for each individual product or group of products (manufactured at the same production line) in section 1. However, normally table 2 applies to a division. If consolidated for a section or division of the firm, or for the entire firm, it yields (at the bottom line) an index of cost-inflation corrected for productivity improvements (see S5) and defined for a fixed level of production. As long as a cost-plan, designed as a linear input-output system with no substitution possibilities on the input side, is a fair description of the firm production set-up, no problems occur. However, when the input quantities are not consistent with the composition of output for which the calculation is supposed to apply we run into a familiar index problems. Secondly, besides being dependent upon investment spending in the past, productivity change also depends on the composition of output. Hence, this method of calculating an index of input prices functions properly when the composition of input

quantities remains approximately unchanged over time and when the output composition is a mapping of the input composition. We will return to this problem in Supplement 5 when we investigate under what conditions a standard cost index can be transformed into a conventional production index.

If now — for each individual product — expected quantities to be sold are explicitly entered, knowledge of the existing production structure should yield input *quantities* needed (raw-materials, people etc.). Applying the factor price inflation index from section 2 expected *costs* to produce the quantities in section 1 can be calculated and for each product a consolidated sales- and profit plan may be put together. For further explanation of table A2 see Supplement 5.

A 3. *Consolidated plan*

		Year				
		1	2	3	4	5
Product 1	Sales value					
	— costs					
	Operating profits (or profit margin)					
Product 2	.....					
	.....					
	.....					
Product n	.....					

Total Division profit plan (products 1 to n)

Total	Sales Value					
	Costs of good sold					
	Operating profits					

Comments: The implications of a frequently used costing principle for this table will be discussed in S5.

B. Profit plan

Section (B1) — operations

	Year				
	1	2	3	4	5
1) + Sales net					
2) — Cost of goods sold					
3) Gross profit (1)—(2)					
4) — Selling and administrative expenses					
5) — R & D expenses					
6) operating income ((3)—(4))					
7) — operating income in per cent of sales					
8) — (costs) calculated depreciation*)					
9) net operating income ((6)—(8))					

Section (B2) — financing

	Year				
	1	2	3	4	5
10) + interest income					
11) + other non-operating income					
12) Total non-operating income					
13) + interest expenses					
14) + other non-operating expenses					
15) Total non-operating expenses					

Section (B3) — consolidation

	Year				
	1	2	3	4	5
16) + operating income (= (9))					
17) = adjustment for non operating income and expense ((12)—(15))					
18) profit before taxes					
19) — provision for taxes*), **)					
20) Net profit*), **)					
21) Dividends**)					

*) This form applies to U.S. firms in particular where calculated depreciation rates on depreciable assets normally were the same as those estimated for taxation purposes.

**) Note that entries 19), 20) and 21) do not apply to divisions.

C. Cash-flow-plan

Sources (C1)

	Year				
	1	2	3	4	5
1) + operating income					
2) + non-operating income (net)					
3) — Taxes					
4) — Dividends					
5) Total internal sources (see form B)					
6) + increase in issued share capital (cash-payments)					
7) + New long term loans					
8) + New short term loans					
9) + increase in accounts payable (decrease (—))					
10) Total borrowing ((7) + (8) + (9))					
11) Total sources ((5) + (6) + (10))					

Applications (C2)

	Year				
	1	2	3	4	5
12) + amortization payments					
13) + increase in accounts receivable (decrease (—))					
14) + increase in inventories (decrease (—))					
15) increase in other current assets					
16) increase in current assets total ((13) + 14) + (15))					
17) + plant and property acquisitions (investment plan (see form D))					
18) investment in capital assets total ((12) + (16) + (17))					
19) change in liquid accounts ((11)—(18))					
20) liquid accounts, stocks end of period					

D. **Investment plan (examples relating to plant and property aquisitions)**

Example 1	Year				
	1	2	3	4	5
1) Necessary to realize sales and production plan					
2) Other					
Total					

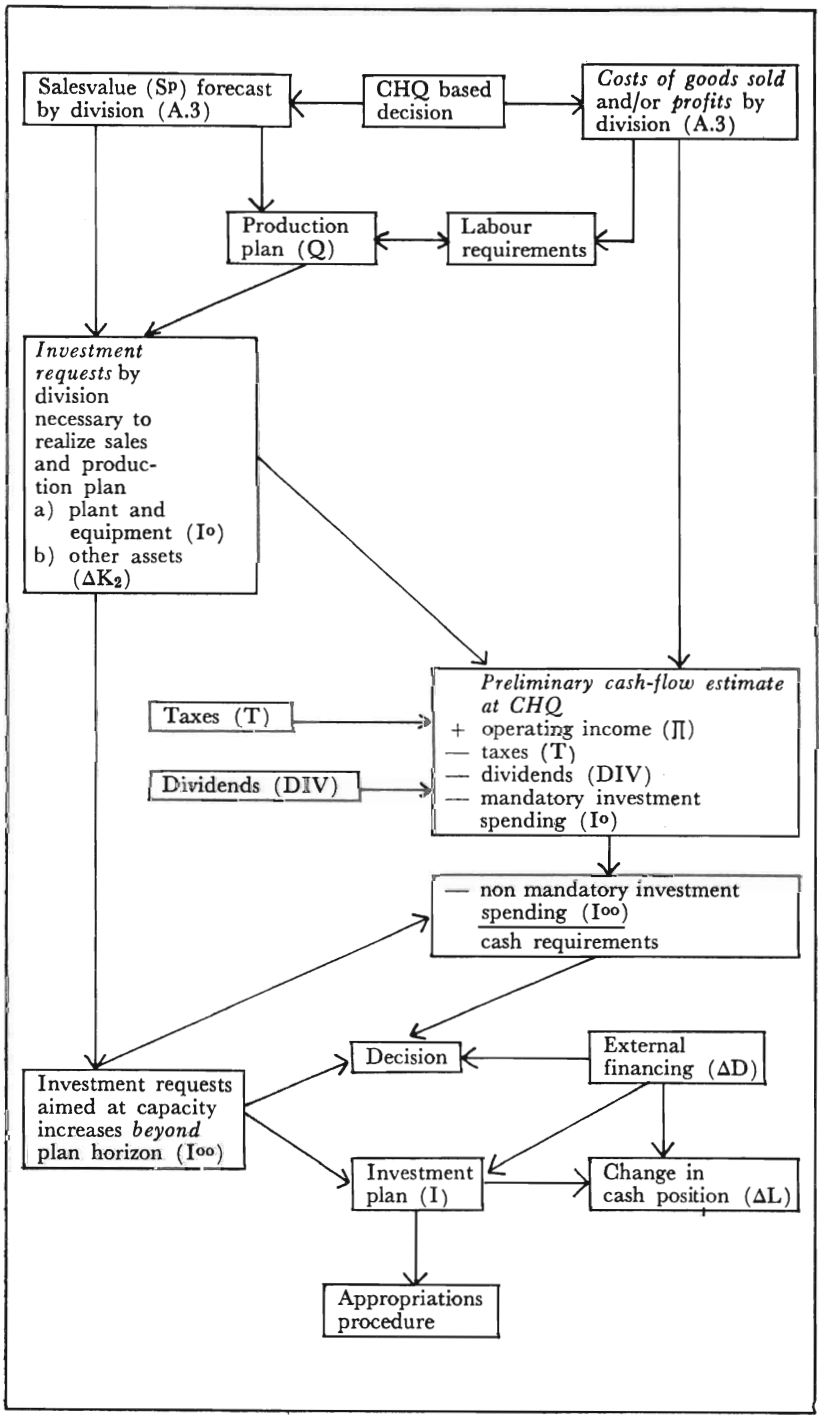
Example 2 expenditures necessary to	Year				
	1	2	3	4	5
1) Keep plant operating*) (marginal operation)					
2) Meet sales requirements (volume)					
3) Equipment for new products					
4) Cost reducing investments					
5) Non operating upkeep and improvement					
6) Contingency					
Total investment expenditures					

*) defined e.g. as reinvestment spending needed to preserve the present cost structure at the present output level and present wages and prices. Normally, instructions accompanying the forms to be completed at division level were not as explicit as this. Reference was rather given to "establishhed practices" that might vary between divisions but were "known by experience to CHQ planners".

E. Consolidation at CHQ

In this section we will illustrate how division data collected on standard forms similar to those presented in the previous section may be used and consolidated at CHQ. For simplicity we work with an abstraction of a firm with no equity financing (planned for), no overhead expenses separated from current costs, no spending of investment nature (e.g. on R & D) other than on plant and machinery acquisitions and no current income and expense other than what is associated with sales and production and interest on loans. Capital letters and figures within brackets refer to the standard forms above.

Decision flow chart in planning



SUPPLEMENT 3

A formalized CHQ-planning model

A. *Symbols, definitions and assumptions*

(1)	$m = \frac{S-C}{S}$	operating (gross) profit margins
(2)	$\Pi = S-C$	(operating) profits
(3)	$K_1 = k_1 S$	production equipment (value)
(4)	$K_2 = k_2 S$	current assets (including L defined below)
(5)	$\Delta K_1 + \rho K_1 = I$	gross investment spending on production equipment
(6)	$I = I^{o} + I^{oo}$	
(7)	$A = K_1 + K_2$	total assets valued at replacement prices
(8)	$R = m\frac{S}{A} - \rho\frac{K_1}{A}$	rate of return on total assets
(9)	$IN = r_1 K_2 - r_2 D$	interest costs net
(10)	$T = s(\Pi - \rho K_1 - IN)$	corporate income tax bill
(11)	$W = A - D$	net worth

p; (superscript) denotes ex-ante specification (=plan)
i; number of division (subscript)
t; time period (subscript)
ρ; depreciation factor applicable to K_1
d; fiscal rate of depreciation
H; time Horizon
S; sales (value)
$\overline{S}$; sales volume $= S/p^{x}$
$\overline{K_1}$; volume of production equipment $= K_1/p$
Z; volume of purchases (raw materials, intermediate goods etc.)

w; wage and salary level (index)

C; operating costs

I^{o}; plant and equipment acquisitions needed to realize S^{P}

I^{oo}; additional plant and equipment acquisitions needed to sustain operation at "desired" levels beyond H.

p^{x}; final goods price index

p^{z}; purchase price index

p; investment goods price index

r_1; average lending rate
r_2; average borrowing rate
} sometimes we disregard interest income and use only r to represent the borrowing rate

t; corporate rate of taxation

D; debt

W; net worth

DIV; Dividends

T; Taxes

L; level of liquid assets *or* employment, when indicated

$\overline{L}$; desired level of liquidity

$X \longrightarrow Y$ stands for "Y follows from X" in the plan

$X \text{—}||\!\longrightarrow Y$ indicates that a decision external to the formal plan is needed to determine Y from X

B. **Block recursive planning model**

I. *Planning step I (Division sales — profit plan)*

$\{ S^{P}_{i,t} \} \longleftarrow\!\|\longrightarrow \{ S^{p}_{i,t}, {}^{m}_{i,t} \}$ $t=1, \ldots T$

CHQ based $i=1, \ldots N$

decision: Evaluate $\{ S^{p}_{\cdot} {}^{m} \}$

against pre-set profit standards

II. *Planning step II (Division capital resource use plan)*

$\{ S^{P}_{i,t} \} \longrightarrow \{ \mathbb{I}^{o}_{i,t}, \Delta A_{i,t} \}$

$\longrightarrow\!\|\longrightarrow \{ I^{oo}_{i,t} \}$

III. *Planning step III (Division cash-flow plan)*

a) *cash outflow*

$\underbrace{I^{o}_{i,t} + I^{oo}_{i,t}}_{I_{i,t}} + \Delta K_{2,i,t}$

b) *cash inflow*

Π^{P}_{i}

c) *division investment budget*

$E^{x}_{i,t}$ = External CHQ contribution needed $= I_{i,t} + \Delta K_{2,i,t} - \Pi^{P}_{i,t}$

$\longrightarrow\!\|\longrightarrow$ { E^{x}, prior requirement }

Possible CHQ decisions: 1) OK (Rare)

2) Go back to stage II. Adjust I^{oo} and possibly I^{o} (frequent)

3) Go back to stage I. Revise sales and profit plan (very rare)

IV.*) *Planning step IV (preliminary Division Rate of return check)*

$\{S^{P}_{i,t}, m_{i,t}, I_{i,t}, \Delta K_{2,i,t}, \rho_i\} \longrightarrow \{R_{i,t}\}$

1) Evaluate $R_{i,t}$ against pre-set profitability standards.

2) Compare R_i

possible decision; a) Go back to step II and revise

b) Go back to step I and revise

*) In the majority of interview cases this step was passed over. The m check in step I was considered sufficient. This step has been discussed in detail in chapter VIII.

V. *Planning step V (CHQ consolidation of step III)*

$\longrightarrow\!\|\longrightarrow \{r_{1t}, r_{2t}\} \longrightarrow \{D_t, A_t, E^{x}_{t}\} \longrightarrow \{IN\}$

$\{\Pi_t, IN_t, K_{2t}, d\} \longrightarrow \{T\}$

$\longrightarrow\!\|\longrightarrow \{DIV\}$

{Investment financing available from internal sources} $= \psi = \Pi - \Delta K_2 - IN - T - DIV$

$\{I_t\} \longleftarrow\!|\,|\longrightarrow \{\psi_t, \Delta L_t, \Delta D_t\} \longrightarrow \{I^{P}_{t}, \Delta D_t\}$

Possible decision; a) If $\Delta\bar{L} + \Delta D < \psi$ go back to step II and revise (frequent)

b) Go back to step I and revise (extremely rare)

SUPPLEMENT 4

Further simplification — CHQ plan

Business life takes place within an accounting system where debit and credit always have to meet ex post. If one or some variables are manipulated, other variables have to adjust. We will define some variables that interest firm managers and owners, like profitability, cash-flows and growth and do some exercises within the constraints of the accounting system. If some variables can be manipulated (parameters) or are given from outside the system, we have a financial model or a simple financial planning system.

We abstract here from the informal criteria that guide the iterations and that precede final consolidation of division plans at CHQ. The main text has already been devoted to those fundamental aspects of planning. We obtain in fact an extremely simplified CHQ financial model.

A. *Investment budget — cash-flow approach*

Step I (profit function)

$$\Pi = m\,S \qquad (1)$$

Step II and III (capital requirement plan)

$K_1 = k_1\,S$	production equipment	(2)*)
$K_2 = k_2\,S$	current assets	(3)
$A = K_1 + K_2$		(4)

*) Note that this simplification means that the value of assets is supposed to be directly proportional to sales — not to the volume of assets and sales respectively. When expressed in volume terms and when S' represents *value added* rather than sales k_1 would represent the capital-output ratio. Note, however, that we have not assumed k_1 (or k_2) to be constant over time. If prices on investment goods and products develop differently and if the capital-output ratio is constant one should of course expect k_1 to change. For the purpose of this exposition, however, we disregard this complication. In formal planning especially k_2 is normally estimated on the basis of internally available data. It usually varies over time and is sometimes treated as a parameter that can be varied.

$$\left\{\begin{matrix}\text{gross-}\\\text{invest-}\\\text{ment}\end{matrix}\right\} = I = I^{o} + I^{oo} = p\Delta\overline{K}_1 + \rho K_1 \qquad (5)$$

Step III (Cash flow analysis)

$$\left\{\begin{matrix}\text{Total applica-}\\\text{tion of funds}\end{matrix}\right\} = \Delta K_2 + I \qquad (6)^{**})$$

$$\left\{\begin{matrix}\text{Internally gene-}\\\text{rated funds}\\\text{available}\end{matrix}\right\} = \Pi - (DIV) - (T) - (rD) \qquad (7)$$

$$\left\{\begin{matrix}\text{Internal funds}\\\text{available for invest-}\\\text{ment in production}\\\text{equipment}^{***})\end{matrix}\right\} = \psi = \Pi - (DIV) - (T) - (rD) - \Delta K_2 \qquad (8)$$

Step IV (external financing)

$$I = \psi + \Delta D \qquad (9)$$

**) Note here that assets of type K_1 may appreciate in value (capital gains). We assume that this does not happen as far as current assets (K_2) are concerned.

***) Note that formulation (8) presumes that investments in current assets are regarded as a mandatory investment expenditure. Cf. Chapter VI:1.

Obviously (8) or (9) has no explanatory content being — so far — expressed as a cash flow identity. (8) could be given some explanatory power, if we define the criteria that lie behind the division — CHQ build-up described in section S3.B. We will do this in a much simplified way along the ideas expressed in Meyer-Kuh's (1957) "residual funds" and Eliasson's (1969) "capital budgeting" theory of investment that have found some support in these interviews. There are other theoretical approaches, that have found less backing. Some of them are discussed in chapter IV.

Suppose (*for simplicity*) that (1), the profit margin, is linearly dependent upon the rate of change in sales[1]) (2) that fiscal depreciation allowances and tax deductibe interest charges taken together are proportional to sales, and (3) that firm management has established the policy always to distribute a fixed portion of operating profits net of fiscal depreciation and interest charges as dividends. Applying (3) we can then easily derive:[2])

$$\psi = \alpha\ S^p + \beta \Delta S^p + \gamma$$
$$\gamma = 0 \text{ (simplifying assumption)} \qquad (9B)$$

The introduction of (3) means that the sales growth dependent buildup of current assets (inventories, trade assets etc.) is regarded as a mandatory claim on financial resources.

Assume further that (4) there is always a sufficient pent-up desire on the part of divisions to invest in production equipment if CHQ supplies enough financial resources and (5) that cut-backs, through capital rationing by way of ψ, affect investments in production capacity that will not become operative until beyond the planning horizon *or* can be accomodated without revisions in sales and profit plans. Finally, the decision to borrow is determined also by factors external to the plan and can be treated exogenously here. The interview results do not refute the hypothesis implicit in this set of assumptions. When formulated at the aggregate level of a CHQ investment plan (I^p) and we obtain:

$$I^p = \alpha\ S^p + \beta \Delta S^p + \Delta D \qquad (9c)$$

Transform (9c) into:

$$\left(\frac{I^p}{S^p}\right) = \alpha + \beta\delta_s + \frac{\Delta D}{S^p} \text{ where } \delta_s = \frac{\Delta S}{S}$$

If the decision is $\Delta D = 0$

then: $\frac{\partial (\ )}{\partial \delta_s} = \beta$

---

[1]) Then (1) can be rewritten as

$$\Pi = (m_1 + m_2 \frac{\Delta S}{S})\ S$$

[2]) The derivation offers no complications under the assumptions made. See Eliasson (1969, p. 73 ff). In order to save symbols we do not demonstrate this here.

Since under normal circumstances $\beta < 0$[1]) we have demonstrated a common experience among firms by the help of a simple model. The faster the growth in sales planned, the slower (relatively) the growth in investments (I) that can be financed by internal retentions. This is so since the faster sales growth the heavier the drain on internal sources of funds from a necessary build-up of current assets, mainly trade assets. To finance a rapid expansion in production investments firms are forced to acquire external funding by $\Delta D > 0$. This internal financing squeeze typically occurs around the peak of the business cycle, when external markets for credit are also, as a rule, beginning to tighten up. Obviously, a rapid rate of inflation is liable to produce the same kind of effect since sales, current assets and prices for investment goods are affected likewise in an upward direction. The impact may be more drastic this time, since dramatic movements in prices may not have been well foreseen and prepared for by a wise advance borrowing program.

B. *Profitability and growth*

We now proceed to introduce a *real rate of return* (R) on assets and to relate it to the growth rate in assets through the cash-flow identity (9). Even though part of current assets (K_2) yields an "interest income", this income does not appear as income in our return to total assets (R). If included, R would become dependent on the financing structure, which is not desirable.[2]) This aspect is taken care of when the real rate of return to net worth (R^W) is introduced. Hence the interest rate r should be regarded as a "net borrowing rate", i.e. net of interest income. The rate of return measures are defined on a net of inflation basis by defining total assets at replacement costs without adding unrealized capital gains through inflation to income in the numerator. There are several arbitrary secifications that have to be made. First, despite, the fact that no interest income will appear in profits we choose to think of current assets K_2 in A as defined on a gross basis, i.e. trade debt (for instance) is not subtracted. This problem, however, will not disturb us until we start filling our formulae with data. It is a measurement problem.

Second, it is not altogether clear how the depreciation in real value in nominal assets (bank deposits, trade assets etc.) due to inflation should

---

[1]) See Eliasson (1969, p. 75)

[2]) For instance, if a firm borrows money and relends it at the borrowing rate with *no* intermediate profit R is likely to be affected. One solution might be to do as Eliasson's (1970) study of rates-of-return and financing in the Swedish shipyards, namely to split total assets into two parts: one referring to ship-building proper and generating an operating net income, the other part referring to the financing or investment side including a huge stock of outstanding trade-assets and generating a current interest income (op. cit. p. 192 ff.).

be treated when defining a real rate of return. This is so even though capital gains (realized or not) are added when we introduce later a nominal rate of return. To make up our minds, we have to decide already here what is the relevant price deflator to use. If we are concerned with the firm's ability to refinance its assets the relevant deflator should most adequately indicate zero change for nominal assets (K_2), while an investment goods price index should be used for production capital (K_1). If we are interested in the firm's ability to finance growth in proportion to sales, then perhaps a product price index should be used for nominal assets.

Suppose we look at share owners' interests. Then it could be argued that an entirely different measure should be used, perhaps the consumer price index. We choose a conventional approach and use the investment goods price index to calculate the depreciation in real value of *nominal* assets (K_2). This factor ($\frac{\Delta p}{p}K_2$) is then subtracted from income to obtain a real rate of return. This choice also simplifies the formal exercise now to begin. But we should be prepared to change our minds later on. We intend to discuss this further in the next sections C. and D., when the concept of a nominal rate of return is introduced.

Real rate of return on total assets, no taxes, no external financing

Def.: Real rate of return on total assets (before tax)

$$= R = \frac{\Pi - \rho K_1 - \frac{\Delta p}{p}K_2}{A} = m\frac{S}{A} - \rho\frac{K_1}{A} - \frac{\Delta p}{p}\frac{K_2}{A} \qquad (10)$$

Putting gross retained earnings (saving) on the left hand side and total capital requirements on the right hand side we obtain the following cash-flow identity:

$$\underbrace{\Pi - (DIV)}_{\text{saving}} \equiv \underbrace{\Delta K_1 + \rho K_1 - \Delta p\overline{K_1}}_{I} + \Delta K_2$$

With no extenal financing and no taxes saving is equal to gross profits less dividends (cf. (7)). Using definitions (4) and (5) and inserting into (10) we obtain after some algebraic manipulations:

$$R = \frac{\Pi - \rho K_1 - \frac{\Delta p}{p}K_2}{A} = \frac{\Delta A}{A} - \frac{\Delta p}{p} + \frac{DIV}{A} \qquad (10B)$$

or;

$$\frac{\Delta A}{A} = R + \frac{\Delta p}{p} - \frac{DIV}{A} \qquad (11)$$

i.e. the value growth in total assets is the rate of return realized plus capital gains on assets minus the proportion of total assets distributed as dividends.

Real rate of return on net worth, no taxes

$$\left.\begin{array}{l}\textit{Def.:}\ \text{Real rate of}\\ \text{return on net}\\ \text{worth}\end{array}\right\} = R^W = \frac{\Pi - \rho K_1 - \frac{\Delta p}{p} K_2 - rD}{\underbrace{A - D}_{W}} = R\frac{A}{W} - r\frac{D}{W} =$$

$$= R + (R - r)\frac{D}{W} \qquad (12)$$

The second factor $(R - r)\ \frac{D}{W}$ is the so called "leverage effect", here defined in "real terms" as the real rate of return R minus the nominal interest rate r. Obviously, it is quite conceivable that the leverage effect so defined contributes negatively to the real rate of return on net worth $(R < r)$ while having at the same time a positive effect on the nominal rate of return on net worth. We will come back to this later.

Cash flow identity:

$$\underbrace{\Pi - rD - (DIV)}_{\text{saving}} + \Delta D \equiv \underbrace{\Delta K_1 + \rho K_1 - \Delta p \overline{K_1}}_{I} + \Delta K_2$$

$$R^W = \frac{\Pi - \rho K_1 - rD - \frac{\Delta p}{p} K_2}{W} = \frac{\Delta A}{W} - \frac{\Delta p}{p} \cdot \frac{A}{W} + \frac{DIV}{W} - \frac{\Delta D}{W} \qquad (13)$$

but: $\Delta A - \Delta D = \Delta W$

Thus; $\frac{\Delta W}{W} = R^W + \frac{\Delta p}{p}\frac{A}{W} - \frac{DIV}{W}$

The growth rate in net worth $(\frac{\Delta W}{W})$ equals the real rate of return on net worth plus the unrealized capital gain in per cent of W minus the proportion of net worth distributed as dividends.

C. *Prices and profits*

Gross, operating profits (Π) are by definition equal to sales value $(P^x\overline{S})$ minus wages (wL) and purchases (p^zZ). Note that L here represents labour input in production. p^x and p^z stand for final product — and purchase prices respectively, and $\overline{S}$ and Z for the corresponding volumes. We then have by definition, that production volume (Q);

$$Q = \overline{S} - Z \qquad (14)$$

and that final product price (p^x) can be formulated as:

$$p^x \equiv w\frac{L}{\overline{S}} + p^z\frac{Z}{\overline{S}} + \frac{\Pi}{\overline{S}} \qquad (15)$$

The price is the sum of unit wage costs, unit purchase costs and profits per unit of output. Using (10), (15) can be reshaped into:

$$P^x \equiv w\frac{L}{\bar{S}} + p^z\frac{Z}{\bar{S}} + \left[R + \alpha\rho + (1-\alpha)\frac{\Delta p}{p}\right]\frac{A}{\bar{S}} \qquad (15B)$$

$$\alpha = \frac{K_1}{A} \quad \text{(from 10B)}$$

Unit wage costs are the product of the wage and the input of labour time (L) per unit of sales volume ($\bar{S}$). This ratio is in fact the inverse of a variable that should be expected to move roughly proportionally to labour productivity ($\frac{Q}{L}$) over time[1]).

There is an analogous interpretation of unit purchase costs, $p^z \cdot \frac{Z}{\bar{S}}$

(15B) finally makes it possible to introduce a conception of *unit capital costs* as the sum of the real rate of return (R), the depreciation rate (ρ) multiplied by α and $(1-\alpha)$ times the rate of change in the price of investment goods (p) all multiplied by the inverted value of "capital productivity", interpreted the same way as labour productivity above. This is a capital cost measure that derives directly from so called marginal productivity theory. This concept has been used frequently in neoclassical investment theorizing during the 60ies[2]). A somewhat restricted interpretation is however required for this to be a meaningful cost-concept even if interpreted — as it must be — as a "shadow accounting price". It all has to do with how firm executives make use of the identity (15B). Suppose, therefore, that firm executives define a rate of return requirement that applies to R^W in (13) (also cf. case 12 in Chapter VIII.4.d). When interest charges have been estimated this measure can be transformed into R. If this yardstick, say R^o, — so obtained — is used as a criterion to adjust volumes and

---

[1]) It does exactly if $\frac{Z}{\bar{S}}$ is a constant.

[2]) See Jorgensen (1963) who derives a measure of *price of capital services* (a "shadow price") as (we use our symbols);

$$c = p\left(r + \rho - \frac{\Delta p}{p}\right)$$

Under the assumption of "stable expectations" (= the future relative prices will be forever like to-day) Jorgensen demonstrates that for optimal capital accumulation firms should charge themselves a rental for each unit input of capital services equal to c. Jorgensen calls r the "cost of capital". It is his discount factor. We will find in the next section that c is identical to our unit capital cost measure in (15B) if r is interpreted as the *nominal* rate of return. In his empirical applications Jorgensen uses an external reference variable (the U.S. Government long-term bond rate) to represent r.

prices, so that both R° and the identity (15B) are satisfied, then it is quite legitimate to call the right hand component in (15B) a "unit capital cost measure". Theoretically, in the world without taxes and uncertainty, that we are for the time considering, it reflects the cost on the margin for acquiring new equity financing. This is a calculation in future time. In past time expectations may be wrong and calculations may have been erroneous. R is then the *residual factor that accomodates all caculation erros*. R then is no longer a parameter that is controlled by the firm in, say, an investment calculation or in an investment behaviour function. To enter actually registered statistical data on R, in the capacity of being such a parameter, to explain investment behaviour or something else therefore will lead to spurious conclusions, if attempted.

D. *Inflationary management*

R as defined above is a real rate of return. This is immediately understood from the fact that A is continuously upgraded by inflation, while no capital gains are part of those profits that go into the numbers of R. Consequently, R is not directly comparable to the rate of interest r, and (12), even though formally correct, includes a difference between two incommensurable entities. To be comparable, net capital gains in A (realized or unrealized) have to be added to profits; or, an entirely different definition has to be used.[1]) Let us then define the *nominal* rate of return on total assets (R^N) as the real rate of return R plus inflationary gains in per cent of total assets. We also have to add the inflationary loss subtracted in (10). Using (11) we obtain:

$$R^N = R + \frac{\Delta p}{p}\frac{K_1}{A} + \frac{\Delta p}{p}\frac{K_2}{A} = \frac{\Delta A}{A} + \frac{DIV}{A} \qquad (16)$$

---

[1]) The common calculation method in the U.S., e.g. in Fortune, is to enter book-valued assets in the denominator and operating profits (as we do in (12)) in the numerator. If one can argue that calculated depreciation is based on fair economic life length estimates on capital equipment and then applied to historic purchase costs, both assets and depreciation will be underestimated compared to our formula. The rate of return measure so obtained will be a *nominal* one, and it will be higher than R and R^W respectively [cf. Eliasson (1972, p. 25)]. However, it is not possible to tell a priori whether it is higher or lower than R^N or R^{WN}. It all depends on the rate on inflation. In effect assets in the U.S. measure is a jumble of apples and pears summed up without any standardization to a common price denominator. We only know that our and the U.S. method give identical average results over the entire life length of the same capital investment. This is not a satisfactory state of affairs when we are dealing with constantly changing aggregates. Still, when one takes a deeper look into the problem, dissatisfaction spreads also to the price-corrected measure that we have used. Even though the economic life length of a piece of capital is the same in both methods, the time shape of its economic wear and tear is not independent of price development. Since the "true" time shape is unknown and arbitrarily assumed in both measures one may, with some extra generosity, perhaps, call the U.S. approach a special depreciation formula.

(16) simply reads that R^N is the growth rate in assets plus dividend payouts in per cent of total assets.

Analogously, the nominal return to net worth R^{WN} shold be defined from (12) as:

$$R^{WN} \equiv \underbrace{R + \underbrace{\frac{\Delta p}{p}}_{\text{inflationary gain}}}_{R^N} + \underbrace{(R^N - r)\frac{D}{W}}_{\text{leverage effect}} \equiv \underbrace{\frac{\Delta W}{W}}_{\text{growth in net worth}} + \frac{DIV}{W} \qquad (17A)$$

We now have the nominal return to net worth (R^{WN}) redefined within the accounting system as the nominal return to total assets R^N plus the leverage effect, this time more consistently specified as R^N minus the nominal, net interest rate times the debt/net worth factor. This is a highly conventional result that is also identical to the value change in net worth plus the ratio of dividends to net worth.

There is nothing in these formulae except accounting identities until we start measuring them and interpreting the figures. This is exactly what the formal planning and accounting systems are all about; a consistent numerical framework that can be interpreted and put to use. However, as we have noted frequently, prices as a rule are *not* made explicit at the level of the entire firm. It is easy to see why. It is not even clear what price indexes should be used.

Suppose that firm management wants to define a R^{WN} *requirement* and puts this requirement to systematic use throughout the entire firm. There are many choices. Perhaps firm management wants to interprete this requirement as the "costs" of acquiring new equity financing on the margin or to keep stockholders happy and then work itself backwards to the "capital cost" measure entered in (15B)[1]. In fact case 12 on p. 170ff illustrates this approach. For the time being we neglect taxes.

Obviously R^{WN} and R^N incresases with the (expected) rate of inflation in investment goods prices.

There are, however, several conceptual difficulties that make this way of looking upon inflation a little bit too simple. (16) and (17) are still identities. Suppose we shuffle terms around. We know then that the rate of growth in net worth ($\frac{\Delta W}{W}$) is identical to the nominal rate of return to net worth minus the rate of dividend payout, or:

$$\frac{\Delta W}{W} \equiv R^{WN} - \frac{DIV}{W} \qquad (17B)$$

---

[1]) Which is "formally" identical to c in the footnote on p. 287, since from (16) $R = R^N - \frac{\Delta p}{p}$

Who is concerned about the growth in net worth and dividends? Presumably both stockholders and firm managers. Is the investment goods price index the right reference index for stockholders? Probably not if shares are widely owned by households and definitely not if there is very little inflation in investment goods prices but very much so in the consumer price index. If stockholders are households that buy stock to hedge against inflation, their savings invested in stock then would *not* keep their consumer purchasing power i.e. if firm management defines rate of return requirements in terms of R^{WN}. This is so even though firm management might secure a cash-flow sufficient to replace capital equipment that inflates at a slower rate than the consumer price index. The appropriate rate of return requirement should perhaps be:

$$R^W + \frac{\Delta p^c}{p^c} \qquad (17C)$$

where $\frac{\Delta p^c}{p^c}$ is the percentage change in the consumer price index and R^W is a real rate of return requirement on net worth.

Perhaps an entirely different measure, defined from what alternative options that are available to savers should be used.[1]) On would expect then, that market mechanisms force firm management to adopt rate of return standards that satisfy stockholders in the long run. The application of these standards then results in profit performance that can be recorded in terms of R in (10), R^W or whatever one likes.

In fact, requirement (17C) is intuitively rather appealing. It is identical to requiring that the rate of growth in net worth $\left(\frac{\Delta W}{W}\right)$ plus the ratio of net worth distributed as dividends $\frac{DIV}{W}$ after being deflated by the consumer price index is identical to a preset real rate of return target. With this approach the consumer price index *instead* of the investment goods price index should be used all the way back to correct accounts for inflation.[2]) This is, in effect, the method suggested very recently by *the Institute of Chartered Accountants in Englad and Wales.*[3])

---

[1]) See Bröms-Rundfelt (1975) who suggest a system for correcting profits for inflation, where unrealized capital gains are added to operating profits as in (16) by the help of specific investment goods price indexes. Profits so obtained are then deflated by the consumer price index on the argument that stockholders en masse have their desires more geared towards the basket of products that goes into the consumer price index than the basket that constitutes the weights in an investment price index.

[2]) Only when $\frac{\Delta p^c}{p^c} = \frac{A}{W}\frac{\Delta p}{p}$ will the results be identical. This follows from (17A) and (17C). As will be shown in (18) below a firm can compensate for the difference $\frac{\Delta p^c}{p^c} > \frac{\Delta p}{p}$ by a high leverage factor $\frac{A}{W}$.

[3]) See *Accounting for Changes in the Purchasing Power of Money.* Provisional statement of standard Accounting Practice No. 7, May 1974. Also cf. Kirkman (1974, Chapter 12)).

To take an example, according to (13):

$$R^W + \frac{\Delta p\, A}{p\ W} = \frac{\Delta W}{W} + \frac{DIV}{W}$$

if the specific price index $\frac{\Delta p}{p}$ is used to correct accounts. If the right hand side of the formula is deflated by the consumer price index to demonstrate the *increase in real purchasing power gained by share* owners through capital gains $\frac{\Delta W}{W}$ and dividends $\frac{DIV}{W}$, then the left hand side has to be written:

$$R^W + \frac{\Delta p\, A}{p\ W} - \frac{\Delta p^c}{p^c} \qquad (18)$$

This new *real rate of return* concept in fact depends on the *relative change* in a firm specific price index P and the consumer price index.

If the consumer price index inflates faster than the specific investment goods price index by a factor $\frac{A}{W}$ or more then R^W has to be reduced by the difference $\frac{\Delta p^c}{p^c} - \frac{A\,\Delta p}{W\,p}$ to reflect properly the real rate of return on net worth that the stockholder regards as essential in his value system. This is exactly what the British proposal demands or suggests although not exactly in this terminology. It is easy to see that a conflict of interest may arise if firm management states its rate-of-return requirement in terms of a different price index. Considering these technical and mental complications it is also easy to see why so many firms prefer to use much simpler measuring rods like *profit margins* to evaluate internal performance which are in fact *real profit rate* concepts. The reader may enjoy, however, checking back at *case 12* that demonstrates how a large Swedish company uses the consumer price index to determine a real rate-of-return requirement for the entire firm and then uses this criterion to derive a systematic set of profitability requirements at the investment object level.

E. *Separable, additive targeting and the real value growth of the firm*

When (1) price increases are positive, (2) inflation rates are reasonably parallel and (3) financial management is reasonably conservative, a targeting policy aimed at *maintaining or improving profit margins* (MIP) is synonymous to a policy aimed at *maintaining or improving* the rate of growth in the real (price corrected) *value of net worth,* including *current dividend reservations.*

The exact meaning of assumptions (1), (2) and (3) will be shown below.

The proposition suggests that it may be rational under the assumed "satisfying principle" MIP and under a particular set of environmental conditions to break down the target to maintain or raise the rate of real value growth in net worth into several *additive* operations targets (rules) and either disregard inflationary conditions or incorporate

them separately together with financial management. As we have demonstrated earlier in the text components I and IV are in fact managed in different administrative bodies in a business organization. (10) and (17A) immediately give:

$$G=\frac{\Delta W}{W}+\frac{DIV}{W}=\underbrace{\underbrace{m\frac{S}{A}}_{I}-\underbrace{\rho\frac{K_1}{A}}_{II}+\underbrace{\frac{\Delta p}{p}\frac{K_1}{A}}_{III}}_{R^N}+\underbrace{(R^N-r)\frac{D}{W}}_{IV}=R^{WN} \qquad (18)$$

Suppose the firm entertains the objective to MIP (maintain or improve cf (17C)):

$$TARGET=G-\frac{\Delta p^c}{p^c} \qquad (18B)$$

Assume that $\frac{K_1}{A}$, ρ and S/A are known or assumed given whatever actions are taken.[1]) Then the objective to MIP [m] is the same as/or reinforces MIP $[G-\frac{\Delta p^c}{p^c}]$ as long as expectations are that:

(A) $III-\frac{\Delta p^c}{p^c}\geq 0$ and

(B) $IV\geq 0$

(A) is not necessary satisfied.

(B) is normally fulfilled.

(A) requires that investment goods prices grow A/K_1 times faster than the consumer price index. One may argue, however, that firms are not overly concerned about the real, consumer price deflated growth in net worth, but rather in money growth in net worth $\frac{\Delta W}{W}$. They entertain so to speak an "inflationary" illusion and do not bother [cf. section D] to compensate stock owners for the resulting slow down in the growth of real purchasing power of their net worth, by stepping up performance requirements on the operating side, i.e. requirements on m.

(B) embodies the assumption of conservative financial management in the sense that the leverage factor $\frac{D}{W}$ is geared low in firms with low or unstable performance records i.e. small R^N compared to r and/or fluctuating R^N.

One may, however, add that

$$III+IV-\frac{\Delta p^c}{p^c}$$

is practically always larger than zero. Hence, an operative targeting formula compatible with the maintain or improve (MIP) proposition would still be to centre targeting around m and to expect only positive,

---

[1]) This is a typical assumption in planning.

windfall contributions to overall goal satisfaction from inflation and financing taken together. In this interpretation (18) also demonstrates that targeting on profit margins is a perfectly rational substitute for profitability targeting, and profit margins are much easier to measure and handle. Moreover, targeting on profit margins as practiced in many US companies (see Chapter VIII) in fact means using a *real rate of return concept* which obviously is preferable to shaky and vaguely defined nominal rate of return measures. A failure of the firm to *target* m efficiently or *price its products* properly in inflationary times is immediately reflected as a decrease in m. Maintenance of m in terms of MIP forces firms to price its products on an inflation adjusted cost base to prevent m from going down. Targeting on measures like R^N in (18) would not lead to the same pressure in inflationary times. This application of *inflationary management* is probably another instance, where sophisticated business practice has proven superior to refined academic advice.

F. *Taxes and profitability*

Corporate income taxes constitute a separate problem in planning as well as ex post accounting for two reasons. Tax deductible depreciation charges in practically all industrial countries are based on historic purchase costs rather than replacement costs. Hence, if rate of return measures are made on the current replacement value of assets, net worth estimated as the difference between total assets (A) and outstanding debt (D) will include a substantial component dependent on past inflation in capital goods that is not shown in the books of the firm. Second, most industrial countries, maybe with the exception of the U.S., allow a faster rate of depreciation of fixed assets than warranted by proper life length estimates. In the long run this difference disappears for individual investment objects, but asset aggregates in growing firms will show a similary growing hidden "tax credit" that is not shown in the books of the firms. These circumstances are predominantly neglected by firms in planning, in internal accounting as well as official acounts, although the extreme inflation rates of the 70:ies have aroused a wide spread interest in how to adjust official accounts for inflation (see section D of this supplement).

We vill try to isolate the tax factor by defining the rate of return measures introduced earlier on an after tax basis.[1])

The nominal rate of return on net worth (R^{WN}) defined by (17A) is transformed onto an after tax basis by subtracting the current year tax bill (T) from current pofits and by treating the cumulated, hidden "tax credit" (TC) as non-interest bearing debt.

---

[1]) Based on some simple algebra in my paper: *International Competitiveness — an empirical analysis of Swedish Manufacturing,* Federation of Swedish Industries Research Report B 3, September 1972, p. 7.

Thus, the nominal, after tax rate of return can be defined from (17A) as:

$$R^{WNT} = \frac{(R + \frac{\Delta P}{P})\ W + (R^N - r)D - T}{W} \cdot \frac{W}{W - TC} \qquad (19)$$

[W—TC] then, in fact, becomes net worth as shown in the balance sheet of firms *plus* what would have been left of "hidden reserves" after applying the *nominal* rate of corporate taxation (t).[2])

The current tax bill is defined by:

$$T = t\ (\Pi - dK_1 - rD) \qquad (20)$$

d is the rate of depreciation (on assets K_1) allowed for taxation purposes. Since tax rules practically always apply to book values and — in so far as we are concerned with assets — normally to their purchase costs d will have to be estimated anew each period, and hence should be expected to vary overtime.

After some cumbersome algebra appears:

$$R^{WNT} = \left[\underbrace{(1 - t)\ R^{WN}}_{I} + \underbrace{t\ (\frac{\Delta p}{p} + d - \rho)\frac{K_1}{W}}_{II} \right] \frac{W}{W - TC} \qquad (21)$$

The nominal *after tax* rate of return on net worth is the sum of two components (I + II) adjusted upwards by the factor W/W—TC. I is defined as (1—t) times the corresponding *before* tax rate of return. II is an additive correction factor $t\ (\frac{\Delta p}{p} + d - \rho)\frac{K_1}{W}$, that is larger the higher the rates of inflation and fiscal depreciation compared to the rate of economic depreciation. In inflationary times and/or with particularly generous fiscal depreciation rules (i.e. large factors II) over a long period of time it happens that after tax rates of return (*defined by (19)* are higher than before tax rates of return. The reason, of course, is that factor II has been interpreted as an automatic generator of interest free debt, a tax credit.

Formula (21) in fact allows a further extension of the separable, additive targeting formula (18) on p. 292 and tax considerations appear as an additive component that can be, and often is, managed separately from production, financing, etc. The after tax value growth of the firm is identical to the nominal rate of return (= the sum of the additive factors in (18)) reduced by the nominal tax rate *plus* an additive *tax leverage factor*. I + II in (21) is then magnified by the ratio between total net worth (W) and the part thereof that would be available to share owners after full taxation (W-TC).

The positive tax leverage factor appears because all value currently generated in the firm is not subject to taxation the period (year) it is generated. One might ask the question how "true" profits should in fact

---

[2]) "Hidden reserves" are defined as W less what appears as net worth in the books (= B). Thus: W—TC = B + (1—t) (W—B).

be defined in a taxation context. One could argue convincingly for a depreciation formula that should not allow a faster fiscal (d) than economic (ρ) depreciation rate. One could also argue, as convincingly, that firms should not be taxed on that part of profits that depends on a change (up or down) in the general level of prices, e.g. the consumer price index. In other words, firms should be allowed to upgrade net worth *free of tax* in pace with the rate of change in the consumer price index (cf. *Case* 12 on p. 170 ff). This "definition" has the additional advantage of identifying extra inflationary gains from, say, prudent, advance purchasing, with operating profits, and hence make them subjected to taxation. Then from (18) we obtain a new, nominal after tax rate of return:

$$R^{WNT}_{\bigstar} = (1-t)R^{WN} + \frac{\Delta p^c}{p^c} \qquad (22)$$

to compare with R^{WNT} in (21). This comparison, which is quite simple, demonstrates that for *each given before tax rate of return* the change to formula (22) will not be favourable to the firm, as a rule.

The basic problem, however, is *whether profitability targets or requirements are set before or after tax considerations. Could it be that a favourable corporate tax system drives down before tax rate of return requirements, since firm and share owners' interest is on after tax profits?*

An even more general, and probably very important, question is to what extent a very competent financing department, operating through the leverage factor IV in (18), or a clever set of tax people, demonstrating their abilities through II in (21), or simply high inflation rates, boosting nominal profits by way of III in (18), may contribute to making management more slack in excercising *operating profit control* through profit margins (or I in (18)), since overall, after tax profitability is anyhow considered satisfactory? Whatever the answer, we can regard the well designed feed back targeting-control system on operating profit margins, observed in many US companies as a method to overcome this risk or tendency.

SUPPLEMENT 5

Costing and Production Structure

A. *An illustration of a costing principle used frequently*

Suppose (for simplicity) that total costs (C) are defined by;

$$C = wL + p^z Z \qquad (1)$$

w = wage level per unit of labour input L

p^z = price per unit of input goods Z

For the purpose of deriving a standard cost estimate per unit of output Q fix the level of production to $\overline{Q}$ and consequently the volume of input goods needed to $\overline{Z}$.

Thus from (1);

$$\Delta C = \Delta wL + \Delta Lw + \Delta p^z \overline{Z} =$$

$$= \frac{\Delta w}{w}(wL) + \frac{\Delta L}{L}(wL) + \frac{\Delta p^z}{p^z}(p^z \overline{Z})$$

since $\Delta\left(\frac{Q}{L}\right) = (-1)\frac{\overline{Q}}{L} \cdot \frac{\Delta L}{L}$ one obtains;

$$\delta_{C,\overline{Q}} = \delta_w\left(\frac{wL}{C}\right) - \delta_{\bar{a}}\left(\frac{wL}{C}\right) + \delta_{p^z}\left[\frac{p^z\overline{Z}}{C}\right] \qquad (2)$$

where δ denotes growth rates and more specifically

$$\delta_{\bar{a}} = \frac{\Delta\left(\frac{\overline{Q}}{L}\right)}{\frac{\overline{Q}}{L}} = -\frac{\Delta L}{L} \qquad (3)$$

or the change in average labour productivity when Q is fixed.

(2) is the same as;

$$\delta_{C,\overline{Q}} = (\delta_w - \delta_{\bar{a}})\frac{wL}{C} + \delta_{p^z}\frac{p^z Z}{C} = \alpha(\delta_w - \delta_{\bar{a}}) + \delta_{p^z}\beta \qquad (4)$$

Under the assumption of this example percentage changes in wages and labour productivity may be netted as in table A 2. in Supplement S 2. δ_w and δ_{p^z} denote relative price changes in rows A and B a) respectively; $\delta_{\bar{a}}$ productivity change in row B b) and $^{wL}/_{C}$ and $\frac{p^zZ}{C}$ the weights in column (1) assumed to be constant. $\delta_{C,\overline{Q}}$ stands for the total weighted cost change per unit of input at a fixed level of production.

With the assumptions used one can construct a measure of cost inflation (a "price index") without estimating the hypothetical *reduction in employment* possible by way of productivity improvements by inserting instead a direct estimate of productivity change. Cost-shares (α and β) during a previous period can then be used as weights. However, one is liable to come up with a misrepresentation of cost inflation by this method if one — which is both likely and easy — cannot keep productivity improvements that originate from a planned change in Q apart from those that would hypothetically follow if employment is reduced at a constant Q level. It is doubtful — from the interviews — that firms have the data gathered together and the time to make such sophisticated estimates. The most probable error is that productivity change is overestimated (we get both effects) and cost inflation consequently is underestimated.

B. *A production volume index*

A common practice is to measure the change in production volume for individual product lines or production aggregates by a so called standard cost index. The idea is to compute an index of total costs, net of changes in input prices. Suppose we apply the method of measuring change in input prices given above. Let both Q and L change. After total differentiation of (1) we obtain;

$$\delta_C = \frac{\Delta C}{C} = (\delta_w + \delta_L)\alpha + (\delta_{p^z} + \delta_Z)\beta \tag{5}$$

where $\alpha = \frac{wL}{C}$, $\beta = \frac{p^zZ}{C}$, $\alpha + \beta = 1$

Since Q is no longer held constant ΔC is different in (5) and (2). Subtracting (4) from (5) one obtains the cost change associated with production change only, input prices being held constant.

$$\delta_C - \delta_{C,\overline{Q}} = \alpha\delta_L + \beta\delta_Z + \alpha\delta_{\bar{a}} \tag{6}$$

So defined, "production change" is represented by a weighted average of changes in labour input, changes in input goods Z and productivity change $\delta_{\bar{a}}$, *cost shares* being used as weights.

Even though this may sound reasonable, it should be of some interest to check how this measure deviates from the proper one. Thus by definition:

$$p^xQ = \Pi + C \tag{7}$$

Π as before stands for profits, p^x for product prices and Q for production volume.

After total differentiation and division by p^xQ we obtain:

$$\delta_Q = \frac{\Delta\Pi}{p^xQ} - \delta_{p^x} + \alpha(\delta_w + \delta_L) + \beta(\delta_{p^z} + \delta_z) \qquad (8)$$

Consequently, the difference between "production indexes" (6) and (8) is defined by:

$$\delta_Q - (\delta_C - \delta_{C,\overline{Q}}) = \frac{\Delta\Pi}{p^xQ} - \delta_{p^x} + \alpha\delta_w + \beta\delta_{p^z} - \alpha\delta_{\ddot{a}} \qquad (9)$$

This can be demonstrated to be equal to zero under several sets of conditions. One such condition is the case when there are no profits in the system ($\Pi = 0$), when no change in inputs Z is associated with production change and when product prices change in direct proportion to the cost inflation index (4). The problem with "no profits" can be solved by also letting Z represent capital inputs in the production of Q and p^z the cost of capital *and* input goods. Our formulae will then be identical to (15B) in the previous Supplement 4.[1]) Then β will represent the profit margin and total costs exhaust sales value. If now w, L, p^z and Z are *defined in such a manner,* that α and β become constant coefficients (8) is redefined as a partial differential equation. The solution of this differential equation is a first order homogenous function of Q in L and Z. Among a large number of possible solutions we have:

$$Q = \Theta\, L^{\alpha} Z^{\beta} \qquad \alpha + \beta = 1 \qquad (10)$$

where Θ is an integration constant. (10) is sometimes called a "Cobb-Douglas" production function in a context like this one.

However, as a rule one would expect the relative movement of product and factor input prices to be such that (9) differs from zero. Also, one could not expect α and β to remain stable over time which means that the cumulation of "production growth" rates (6) over time will be seriously biased if changes in α and β over time are systematic and *substantial.*

C. *The Production function*

In the previous section we demonstrated that something that looks like a "production function" can be derived from a cost-function. In Chapter V. 6 we have taken note of the apparent absence of the concept of a production function in business planning. In their way, at least indirectly and without knowing it, firms have choosen side in the big academic

---

[1]) In fact p^z will represent $\frac{p^zZ + (R+\rho)p\alpha A}{Z + \alpha A}$
and total costs will include profits as well and add up to sales value S.

dispute over the issue, whether an aggregate production function really exists. We do not engage in that debate here. We simply ask the question what we have to do, to use (10) as a production function in a technical or physical sense.

We have agreed on Q as the proper measure of output. We assume that L is measured in man-hours of work input of homogenous quality. A production function in a physical sense now requires for its existence that there also exists an aggregate *physical* capital stock Z to put into (10). The debate is concerned with whether such an aggregate measure can be defined independently of relative prices and distributive shares (profit margins, etc). If this is impossible we run into circular reasoning when we try to explain profits in the firm, or in the economy, by using an aggregate "production function" of type (10) or some other kind with capital stock explicit, since capital stock is not independent of the rate of profit. For the same reason we also run into conceptual problems when we relate profits to a measure of capital to obtain a measure of the *rate of return to capital* as in Supplement 4. The interested reader should derive both enjoyment and wisdom from Solow's (1964) lecture on "Capital Theory and the Rate of Return" and Robinsons's (1964) rejoinder. The problem is an old one and was treated as incisively as ever with few religious formations around it already by Wicksell (1901).

To round off the discussion let us assume that Z is capital input in production (welding machines, constructions, trucks etc.). (10) has the mathematical property, that if we increase Z (or L) Q will increase, if $\alpha, \beta > 0$. If L goes down and Z up the effect may cancel out and Q may remain unchanged.

Under what circumstances do we expect L and Z to change? Presumably when product prices go up and make it profitable to increase Q. When prices on labour and capital move differently it may be profitable to substitute the one for the other. When product-prices, wages and capital costs move differently on individual products and in individual markets, we have a typical allocation problem within the firm, in time, of the kind that regulate CHQ and divisional relationships. The same problem presents itself over time when wages and capital costs move differently. Can we then — for a country or a firm — use aggregate production functions of the type (10) to inform ourselves of where to allocate Q, L and Z most profitably. The requirement for deriving (10) is that w, L, p^z be defined so that α and β remain constant during this analytical exercise. Otherwise we will obtain nonsensical results. We have an indexing problem. Which are the price indexes w and p^z that keep α and β constant?

How do we change capital input (Z)? We may invest. We may raise or lower the rate of utilization of production equipment and it depreciates in usefulness with use and time. Obviously several (at least three) technical qualities of change are involved. If we want them lumped together in a measure ΔZ they have to be weighed together by their relative technical qualities in terms of affecting Q. Their joint technical quality is already described by β in (10). Obviously

β is dependent on the composition of technical qualities inherent in the aggregate Z. If this composition changes, β is not constant during that same change. This sounds very restrictive. Sometimes no new investments take place. Capacity utilization varies independently of depreciation rates etc. It will be difficult to change Z without changing β at the same time if we do not manage to incorporate the change in the composition of Z into price index p^z.[1])

A similar problem relates to the composition of labour in L.

Obviously there are some difficulties involved in using an aggregate production function of the type (10) even at the firm level. To get around the aggregation problem we have to break the production function down into a set of technically defined production processes. In the end an investment object will be described by a set of technical prestanda, its location in a production process, how many hours a day it is operated and at what speed, etc. We do not need a capital value measure to describe the production structure of the firm. Output is the solution to a programming problem.

This is exactly what the firms have imitated in their planning systems. They have all the data needed. However, the typical feature is that these data never reach CHQ. Thus the technical allocation problem is solved at lower levels as described in e.g. Chapter VI.2. Investment spending proposals that reach CHQ through one set of channels are based on that particular solution as well as the sales plan.

Similarly aggregate cost and output-value data reach CHQ through other channels. They are also based on that particular allocation-solution that is — as we have seen — fixed at an early phase of planning. The consequences of a new allocation (a new solution) are not derived on the basis of the aggregate cost and investment data filed at CHQ but require that the whole planning cycle is repeated. Normally, this is only done at regular intervals, when the plan is scheduled to be revised.

Thus CHQ in fact does not possess the data to "simulate" a new situation on the basis of environmental changes. It would require a change in the composition of the aggregate data available at CHQ. To determine that change, lower level management and technical staff will have to be involved. Failure to accomodate this problem must be partly responsible for the fate of so called "corporate models" (see next Supplement). Any such model that uses aggregate quantity data weighed together by prices will have to be a "soft coefficient" model, like the production function. The coefficients change when the firm adapts to a new set of circumstances.

---

[1]) This is probably also Leibenstein's (1966) problem when distinguishing between allocative efficiency and "x-efficiency". The application of new resources or a reallocation of existing resources normally alter the technical coefficients of the economic system being investigated (whether in response to changing relative prices or some awesome external force). Hence conventional allocation calculus on a fixed coefficient, macro production system will normally demonstrate that "allocative efficiency is trivial".

SUPPLEMENT 6

Corporate model building and computer applications

Any numerically specified representation of a corporate budgeting or comprehensive long-term planning system could resasonably be called a "corporate model". For instance, a corporate budget system can normally be broken down into a number of interrelated numerical sub-routines that can be stored in a computer and that are tractable for analysis and simulation. The basic requirement of a corporate model is that it be a reasonable description of the business organization.

However, in the language of business economists, the term "corporate model" seems to have been reserved for something much more restricted than the formalization of the budget or the formal planning system.

The term "model" often carries the notion of a simplified description of the firm; simplified both in the sense of abstracting from details of the corporate structure and from the description of the company given by the structure of the budget or long-term planning system. Often, but not always, the term is applied to an aggregate and usually grossly simplified representation of the financial accounting system of the firm. For these and other reasons it is quite useful to keep formal budgeting or planning under the same heading as corporate model-building. We may refer to the typical corporate model as a *self-contained* model which automatically produces a "provisional decision" or a plan from a specified set of input assumptions. The budget or planning process on the other hand can be viewed as an *open* model where management and model have to *interact* for a solution or a plan to come forward.

Principally, two different purposes of model building can be distinguished; *simulation* and *optimization.*

A *simulation* model is a set of numerically specified relations used to simulate consequences for the firm (liquidity, profitability, etc.) for various alternative sets of assumptions (sales forecasts, profit margin estimates etc.). As a rule the level of aggregation is high.[1]) The approach may be called dynamic in the sense that final outcomes

---

[1]) In Gershefski (1968) a good example of this type of model is found.

from the simulations are a series of time-paths into the future and that the output for one period is based on the outputs of the immediately preceding period. Since (1) a "recursive" structure of the type illustrated in Diagram I:1 B seems to dominate such models and since (2) typical interdependence links such as the links between investment spending and production capacity are usually taken care of outside the model, feed-back features play a relatively unimportant role in simulation models built so far. They are usually tied on to an exogenous input variable (e.g. sales) that is assumed not to be affected by the simulation results. The main feed-back element occurs in the calculation of available financial resources. Since "models" of this kind are often applied to estimate the future needs for external financing from one (or several) future growth/profit paths, that are exogenously given, such models often figure under the heading of "financial models".

In at least 10 U.S. and 6 non-U.S. firms some such "model" for the entire firm had been, or was being developed. A couple of firms reported that the usefulness of such models had turned out far below expectations (they were "too simple" or did not answer "relevant questions" etc.) and further work on the model had been discontinued. However, two firms also reported that they were very satisfied with their integrated company — environmental models (cf. case 15 on p. 199 f).

It should be emphasized that these "models" in practice had very little or nothing to do with the computerization of budget or planning work that has been achieved very frequently in U.S. firms and often in non-U.S. firms. Though data compliations in planning work were administered through a computer data were all the time taken out of the computer for checking, discussion, revision and rechecking again in the way illustrated in section B of Supplement 3. "Computerization" was more a matter of facilitating detailed and laboursome numerical computations than using the planning system for analytical purposes. To "identify" the planning or decision systems in use to-day with existing computer systems[1]) thus seems at least somewhat farfetched in connection with current planning technology.

Besides the fact, that calculation procedures were much more aggregated in "financial models" than in budget or planning work "intermediate judgemental inputs" were always passed over in a very superficial way[2]) or simply not allowed in the financial models.

---

[1]) As e.g. in Glans, Grad, Holstein, Meyers and Schmidt, *Management Systems*, New York 1968.

[2]) Even though a computer technology exists to accomodate far more sophisticated and involved decision problems than those met with in budgeting and planning work the present status of formalization of decision procedures internal to the plan and before actual commitment decisions have to be taken leaves a long way to go before we reach the well structured world depicted in Simon's *The Shape of Automation for People and Management* (1965, Chapter 3) even among very sophisticated firms.

In principle simulation models of the kind described above could be employed for optimization purposes by a series of trial and eror simulation runs on different sets of feasible input data. However, practically all models met with this interview series were too aggregated to serve any useful such purpose. The choice between crucial variables as sales growth and investment spending was usually settled outside the model. At best, simulation experiments could be used to illustrate the profit and financial consequences for the entire firm of alternative sales-growth mixes at division level.[1]) The most beneficial application of corporate models so far seems to be at the initial phase of planning work in a manner similar to that reported in Case 3 on p 58 f. Planning to a large extent consists in *negotiations* aimed at reaching a compromise between CHQ requirements and division capabilities. In order not to be owerpowered by shop-floor details CHQ need an instruments to support their arguments. The simplest of such instruments — used frequently among U.S. firms — is an analysis of historical performance trends. In some 6 or 7 firms of the sample, however, a divisionalized corporate financial model was employed for such bargaining purposes.

Optimization (or "allocation") has to be viewed in at east two dimensions. It can take place internally *between divisions,* in a divisionalized model, or *over time* in the same model or in an aggregate model. In effect, optimization in this context can be interpreted as applying automated search or decision rules (simulation) to problems that are not tractable for analytical solutions (cf. Naylor 1971, p. 143 f) and/or where problem solving is hierarcically ordered as a structure of departmentalized but interdependent subroutines (cf the production function problem in the previous section and chapter IV. 13). In modern planning literature planning is often defined as a constrained maximization problem[2]). Some of the constraints lie in the objective or preference function, that defines the decision rules. The same optimization procedure can also be engineered through the budget (or planning) routines by making several budgets on the basis of alternative but feasible input assumptions. The amount of detail that enters into budget work would perhaps make such budget simulations very informative. However, the management workload involved practically always prevents alternative planning in this sense.

A recursive aggregation pattern is typical of a planning sequence. Essential micro information is "left behind" at lower levels, as has been

---

[1]) This seems to be at variance with Hammond's (1972) suggestion that the reason why "so many planning models" have been only partial successes or outright failures "lies on the managerial rather than the technical side". The answer suggested by evidence from this study is rather that the computer has easily handled the models, but management has found the models too simple or not very relevant for their problems. Also cf. *Budgetering och planering i USA* — en reserapport (Stockholm 1973, p. 32).

[2]) See e.g. Heal (1973 p. 5).

described in the earlier chapters. This is fact means that CHQ does not have access (in a routine manner) to the data needed to build a model that can handle the allocation problems that *are* being handled already in the planning process. Such information can only be extracted from below by way of an iterative exchange of information through the planning process, i.e. through simulations on the entire planning system. Such practices are, however, very rare as parts of one planning sequence.

Alternative planning or budget simulation nevertheless takes place currently in one very important sense. In all firms interviewed the budget was revised entirely at least once a year, often every half year, sometimes every quarter and in a couple of U.S. firms every month. This time-iterative process combined with an elaborate control and checking-against-the-budget probably is a most efficient procedure for CHQ to extract and exchange information. Past plans can also be used as a reference to evaluate new plan solutions and to improve techniques the next time. Even though the optimum position conditional on some set of input assumptions is not known to the firm and shifts around from time to time, such a sequential groping for well defined but changing future targets has got all the qualities needed to warrant the term "dynamic optimization". The procedure also allows an extensive management involement of a kind that is impossible with a pure model approach. Furthermore, as we have mentioned earlier, extensive management involvement from the top and all way down is essential for this kind of numerical exercise to be taken seriously in a decision context.

Besides the types of "optimization procedures" described above, optimization models at the level of the entire business organization seem to be extremely rare or nonexisting.[1]) Obviously the degree of specification needed to handle those allocation problems that are relevant for CHQ decision-makers is far above the present capacity of model builders. Formal systems approaches by the help of which a computer is allowed to trace down the best solution to a well structured problem, without human involvement *during* the optimization process, seem to be restricted almost entirely to *subroutines* within the budget or planning process or to current operating problems of the firm. As such they fall outside the scope of this study. However, fragmentary

---

[1]) This is also a conclusion reported by Hammond (1972, p. 114). The difficulties involved are well (and perhaps unintentionally) illustrated in Rapoport-Drews (1962). On the other hand a good example on how a well defined and well structured decision problem referring to one particular, operational aspect of the firm can be successfully "computer solved", is reported on Anderson-Gilmartin-Milam (1968). American Airlines (a centralized and almost single product company) combined its demand forecast and so called schedule evaluation models to determine the "optimum" desired features of a new aircraft (passenger capacity, speed, needed airport facilities etc.).

evidence from the interviews indicate their frequent presence in e.g. inventory management, production scheduling, distribution and transports and — at times — cash management. Here, again, output variables from the comprehensive budget sometimes figure as input assumptions or "forecasts" for the optimization procedure.

It should finally be mentioned that routine check-ups against the budget by quarter or month, through the computer, were frequent practice in U.S. firms. Often print-outs were standardized into a format convenient for analysis or comparison. Sometimes the computer was programmed to select "important" deviations between budgeted entries and realizations according to pre-set criteria and to weed out all other numerical information.

SUPPLEMENT 7

The preliminary Interview Questionnary

Practically all interviews in the US in 1969 and most interviews elsewhere before 1971 included as a minimum the battery of questions listed below.

In later interviews the "mandatory" questioning battery was restricted to such easily measured features of the formal planning process as horizons, frequency of revisions and type of reporting, whether particular formal methods were used or not (ex ante rate of return calculations at division level, aggregate price indexes etc.). In interviews during 1973 and 1974 more time was devoted to particular problems connected with the purpose of formal planning, how particular numerical methods related to that purpose, to what extent and how people at the executive level authorized to make decisions took active part in the work on the plans etc. Follow-up interviewing was predominantly concerned with mapping changes in purpose, methodology and coverage of planning and similar, particular issues of interest.

The reader has probably noticed already that during the course of this study the author's interests have strayed far out of the field preconceived as important when making up the prepared set of questions below, before interviewing started in the US in 1969. One important shift of emphasis or interest has been away from the technical design of the planning system towards the problem: *What is the system supposed to be used for and how does the design compare with the supposed purpose.*

For one thing formal planning was found to serve purposes quite different from those expected and embedded in the prepared questions.

For each firm in the 1969 and 1970 interviews the relevant data were entered on the form. As for the "qualitative" questions, immediately after the interview the author made an assessment and entered a qualitative judgement. A more extensive discussion and motivation is regularly presented in the report that accompanies *each* interview.

Standard set of questions used for interviews 1969 through 1970

1. *Firm:* (Name, particular characteristics, key financial and other data).

2. *Types of formal plans:* (Horizons, purposes etc., where and how does the planning process begin, where are elements of plans made up, top-down or bottom-up approach etc? Existence of alternative plans.)

3. *Specification of planning document:* (The degree of detail, financial orientation, existence and contents of standard forms etc.).

4A. *Frequency and type of revisions:* (How often and to what extent are plans revised?)

4B. *Reporting:* (Frequency, connection with plans etc.)

5. *Initial numerical conditions:* (Where and how does planning start? What are the initial assumptions? To what extent are they revised during the planning process etc.?).

6. *Use of aggregate price indices and forecasts:*

7. *Current sales/investment link within planning horizons:*
(Who puts together the sales plan? How and where do requests for investment spending originate? When and how (in the process) are sales and investment plans "confronted" systematically?

8. *Executive involvement in formal planning:*
(Top-down communication before planning starts, top-executive participation in planning, CHQ participation in division planning, forms of presentation before final approval.)

9. *Adjustment in formal plan after executive review:*
(Are such adjustments frequent? Do reviews take place at several stages of work on the plan?)

10. *Degree of high executive control of details:*

11. *Type of authorization before implementation of plans:*
(When and how is authority to make financial commitments in keeping with plans *delegated?*)

12. *Organizational structure of firm:*
(divisionalization and according to what principles? Degree of heterogenity on market and production side?)

13. *Level of principal planning work:*
(CHQ or divisions? Is division planning more ambitious and sophisticated than CHQ planning or vice versa?)

14. *Degree of iterativeness in adjusting total spending to available finance:*
(Partly a check-question to 7.)

15. *Existence of internal financing constraint:*
(Observable in policy statements and/or indirectly from planning routines.)
a) Short run
b) Long run

16. *Other constraints on growth than financial:*

17. *Degree and kind of CHQ control on:*
    a) Current operations
    b) Capital expenditures

18. *Formal ex-ante rate of return calculations:*
    (Existence, use in planning, relevance for decisions in the plan)
    a) At division level
    b) At investment object level

19. *Premium on growth projects in formal criteria for choice:*

20. *Formal policy manual* (Existence, specification and type of operational rules etc.)

21. *Stock of investment opportunities:*
    (Partly a check-question for 15 and 16. Excess of investment opportunities over availability of finance *or* difficulties to find opportunities to finance.)

22. *Working capital requirements (mandatory, slightly flexible, flexible):*
    (Refers to methods of calculation in budgeting and long-range planning)

23. *Length of product cycles (less than average, average, longer than average):*

24. *Equipment life (above average, average, below average):*

25. *Prime shock-absorber:*
    (Test-question to check on causal structure of plan. Which "variable" is designed to give way if something goes wrong, which variable is deliberately buffered to absorb "shocks"? The question was as generally phrased as indicated.)

SUPPLEMENT 8

List of participating firms

In this supplement only firms subjected to systematic interwiewing as described in the previous supplement have been listed[1]). Firms have been listed by the name applicable at the time of interviewing.

A. *U.S. interviews* (30 firms, 38 interviews)

1.	Allied Chemical Corp.	New York, N.Y.
2.	Ampex Corp.	Redwood City, Calif.
3.	Beckman Instruments, Inc.	Fullerton, Calif.
4.	Boeing	Seattle, Wash. (1974)
5.	CBS, Inc.	New York, N.Y.
6.	Crown Zellerbach Corp.	San Fransisco, Calif.
7.	Cutter Laboratories, Inc.	Berkeley, Calif.
8.	Del Monte Corp.	San Fransisco, Calif.
9.	Dymo Industries, Inc.	Berkeley, Calif.
10.	Dynalectron Corp.	Washington DC
11.	Easco Corporation	Baltimore, Maryland
12.	Electronic Communications, Inc.	St. Petersburg, Florida
13.	Exxon	New York, N.Y. (1973)
14.	Fibreboard Corporation	San Fransisco, Calif.
15.	General Electric Company	New York, N.Y.
16.	General Motors Corp.	Detroit, Michigan
17.	General Telephone & Electronics International	New York, N.Y.
18.	Genesco	Nashville, Tennessee
19.	Hewlett-Packard	Palo Alto, Calif.
20.	Honeywell, Inc.	Minneapolis, Minnesota
21.	IBM	Armonk, N.Y.
22.	Jim Walter, Corp.	Tampa, Florida
23.	Kaiser Aluminium & Chemical Corp.	Oakland, Calif.

Note: 30 interviews were carried out in 1969. 8 in November 1973 and June 1974. Three new firms were included in the sample in 1973 and 1974.

[1]) One set of interview reports and other documentary material has been deposited in a confidential file at the library of the Federation of Swedish Industries. The file is available only for the author. For research purposes access to the file may be arranged through the author and/or after clearance with the firms involved.

24.	Litton Industries, Inc.	Beverly Hills, Calif.
25.	Standard Oil Company of California	San Fransisco, Calif.
26.	Tenneco, Inc.	Houston, Texas (1974)
27.	3M Company	St. Paul, Minn.
28.	Varian Associates	Palo Alto, Calif.
29.	Xerox Corporation	Rochester, N.Y.
30.	U.S. Steel Corp.	New York, N.Y.

B. *Swedish interviews (16 firms, 24 interviews)*

1.	AGA Aktiebolag	Lidingö (1970)
2.	ASEA	Västerås (1969)
3.	Atlas Copco	Nacka (1974)
4.	Bahco Ventilation	Enköping (1969)
5.	Electrolux AB	Stockholm (1969)
6.	Eriksbergs Mekaniska Verkstads AB	Göteborg (1969)
7.	KemaNord AB	Stockholm (1970)
8.	Gränges	Stockholm (1969)
9.	Götaverken AB	Göteborg (1969)
10.	Hvilans Mekaniska Verkstads AB	Kristianstad (1974)
11.	Mo och Domsjö AB	Örnsköldsvik (1972)
12.	Sandvik AB*)	Sandviken (1970)
13.	Stora Kopparbergs Bergslags AB	Falun (1970)
14.	SKF	Göteborg (1971)
15.	Telefon AB LM Ericsson	Stockholm (1969)
16.	Volvo AB	Göteborg (1970)

*) Including also an interview at Sandvik de Mexico, S.A. Tlalnepantla, Mexico.

Note: Year of first interview indicated.

C. *Other non-U.S. firms* (16 firms, 16 interviews)

1.	British Leyland Motor Corporation, Ltd.	London, England (1969)
2.	Blue Circle Group	London, England (1974)
3.	Robert Bosch GmbH	Stuttgart, Germany (1973)
4.	BP Chemicals International, Ltd.	London, England (1974)
5.	Chloride Group, Ltd.	London, England (1974)
6.	Fiat	Turin, Italy (1974)
7.	Guest, Keen & Nettlefolds Ltd.	Worcester, England (1971)
8.	Hitachi, Ltd.	Tokyo, Japan (1970)
9.	Farbwerke Hoechst AG	Frankfurt/M, Germany (1973)
10.	Kone AB	Helsingfors, Finland (1971)
11.	Mitsubishi Heavy Industries, Ltd.	Tokyo, Japan (1970)

12. OY Nokia	Helsingfors, Finland (1971)
13. Adam Opel AG	Rüsselsheim/m, Germany (1973)
14. Philips	Eindhoven, Holland (1971)
15. OY Strömberg	Helsingfors, Finland (1971)
16. Sumitomo Chemical Co Ltd	Tokyo, Japan (1970)

Note: Year of first interview indicated.

Bibliography

Accounting for changes in the purchasing power of money — provisional statement of standard accounting practice No. 7. The Institute of Chartered Accountants in England and Wales (May) 1974

Ackoff, R. L., 1967
Management Misinformation Systems, *Management Science,* Vol. 14., No. 4 (Dec.)

Ackoff, R. L., 1970
A Concept of Corporate Planning, New York, London, Sydney, Toronto

Alchian, A. A., 1950
Uncertainty, Evolution and Economic Theory, *Journal of Political Economy,* Vol. 58 (June)

Alchian, A. A. — Demsetz, H., 1972
"Production, Information Costs and Economic Organization", *American Economic Review,* p. 777—795

Anderson, D. L. — Gilmartin, R. V. — Milam, D. E., 1968
The Application of Computer Models to Planning, from Vancil-Aguilar-Howell (Eds., 1968)

Ansoff, H. I., 1967
A Quasi-Analytic Method for Long Range Planning, from *Organizational Decision Making,* (ed. Wilson) Prentice-Hall

Ansoff, H. I., 1975
Managing Surprise and discontinuity — Strategic Response to weak Signals. Working Paper No. 75—21 (April), European Institute for Advanced Studies in Management, Brussels.

Anton, H.R. — Firmin, P. A., 1966
Contemporary Issues in Cost Accounting, Boston

Anthony, R. N., 1965
Planning and Control Systems, A framework for analysis, Boston

Argyris, Ch., 1971
"Management information Systems: The Challenge to rationality and emotionality", *Management Science,* Vol. 17, No. 6 (Febr.)

Arrow, K. J., 1964
Control in large Organizations, *Management science,* Vol. 10, Number 3 (April)

Arrow, K. J., 1973
Information and Economic Behavior Federation of Swedish Industries, Stockholm

Arrow, K. J., 1974
The Limits of Organization, New York

Arrow, K. J., 1975
Vertical integration and Communication, *The Bell Journal of Economics,* (Spring)

Arvidsson, G., 1971
Internpriser (Sveriges Mekanförbund — EFI), Stockholm

Back, R., 1973
Beslutskoordinering, (EFI), Stockholm

Baumol, W. J., 1959
Business Behavior, Value and Growth, New York
Baumol, W. J. & Fabian, T., 1964
"Decomposition, pricing for Decentralization and External Economics", *Management Science,* (Sept.)
Baynes, P., 1973
Case Studies in Corporate Planning (Society for Long Range Planning), Bath
Bergstrand, J., Gavatin, P., Magnusson, Å., Samuelson, L., 1970
Budgetering — en litteraturöversikt, (Sveriges Mekanförbund — EFI), Stockholm
Blackorby, Ch. — Nissen, D. — Primont, D. — Russell, R. R., 1974
"Recursively Decentralized Decision-Making", *Econometrica,* Vol 42, No. 3 (May)
Bonini, C. H. P. — Jaedicke, R. K. — Wagner, H. M., 1964
Management Controls: New Directions in Basic Research, Mc Graw-Hill
Boulden, J. B. — Buffa, E. S., 1970
Corporate Models-on-line, Realtime systems, *Harvard Business Review,* (July—August)
Bröms, J. — Rundfelt, R., 1975
Inflationsredovisning — ett förslag till prisjusterad årsredovisning, Economic Research Report No. 13, Federation of Swedish Industries, Stockholm
Budgetering — Studier i några företag (Sveriges Mekanförbund — EFI), Stockholm 1972
Budgetering och Planering i USA, En reserapport (Sveriges Mekanförbund — EFI), Stockholm 1973
Budgeteringspraxis, (Sveriges Mekanförbund — EFI), Stockholm 1972
Buzzell, R. D. — Gale, B. T. — Sultan, R. G. M., 1975
Market Share — a key to profitability, Harvard *Business Review,* (Jan.—Febr.)

Camillus, J. C., 1975
Evaluating the Benefits of Formal Planning Systems, *Long Range Planning,* Vol. 8, No. 3 (June)
Cohen, 1960
"The National Industrial Conference Board Survey of Capital Appropriations" from *The Quality and Economic Significance of Anticipations Data,* NBER, Princeton
Cole, R., 1969
Cost of Forecast Errors, IBM Economic Research Department (mimeographed) Dec. 1969
Collins, N. R. — Preston, L. E., 1969
Price-cost Margins and Industry Structure, *The Review of Economics and Statistics,* (August)
Cyert, R. M. — March, J. G., 1963
A Behavioral Theory of the Firm, Englewood Cliffs, N. J.

Danielsson, A., 1963
On Measurement and Analysis of Standard Costs, (FFI), Stockholm
Dantzig, G. — Wolfe, P., 1961
The Decomposition Algoritm for Linear Programs, *Econometrica* No. 29
Day, R. H. — Kennedy, P. E., 1970
"*Recursive Decision Systems:* An Existence Analysis", *Econometrica,* Vol. 38, No. 5 (Sept.)
Day, R. H. — Morley, S. — Smith, K. R., 1974
Myopic Optimizing and Rules of Thumb in a Micro-Model of Industrial Growth, *The American Economic Review,* (March)
Dearden, J., 1968
Appraising Profit Center Managers, *Harvard Business Review,* May—June
Debreu, G., 1959
Theory of Value, An axiomatic analysis of economic equilibrium, London
Denning, B. W. (ed.), 1969
Corporate Long Range Planning — industry's problems and national policies, Edinburgh

Dix, A. Ch. — Kaffenberger, W. E. — Withers, J. L., 1968
Start-up and Evolution of Formal Planning Systems, from Vancil-Aguilar-Howell (1968)
Donaldson, G., 1969
Strategy for Financial Planning, *Harvard Business Review,* Nov.—Dec.
Drucker, P. F., 1964
Control, Controls and Management in Bonini-Jaedicke-Wagner (1964)
Drucker, P. F., 1972
Long Range Planning Means Risk-Taking, from Ewing, ed. (1972)

Earley, J. S., 1956
Marginal Policies of "Excellently managed" companies, *The American Economic Review,* Vol. XLVI (March)
Eilon, S., 1969
What is a decision? *Management Science,* Vol. 16, No. 4 (Dec.)
Eliasson, G., 1967
Kreditmarknaden och Industrins Investeringar — en ekonometrisk studie av företagens kortsiktiga investeringsbeteende, Uppsala
Eliasson, G., 1969
The Credit Market, Investment Planning and Monetary Policy, Uppsala
Eliasson, G., 1970
Räntabilitet och Finansiering i Sex Svenska Varv under en 20-års Period. Supplement B in Ekström, *Varvsindustrins Problem,* Stockholm
Eliasson, G., 1972
Capital Transfers, Taxes and International Corporate Operations, no. B2, mimeographed Research series B, Federation of Swedish Industries (April)
Eliasson, G., 1972
International Competitiveness — an empirical analysis of Swedish Manufacturing, mimeographed research series B3, Federation of Swedish Industries, Stockholm (September)
Eliasson, G., 1974
Business Cycles in Business Planning, No. 8, Economic Research Reports, Federation of Swedish Industries, Stockholm. Also printed in The Economic Outlook for 1974; Papers presented to the Twenty-First Annual Conference on the Economic Outlook, Research Seminar in Quantitative Economics, University of Michigan, Ann Arbor, Mich.
Elliott-Jones, M. F., 1973
Economic Forecasting and Corporate Planning, The Conference Board, New York
Ewing, D. W. (ed.), 1972
Long Range Planning for Management, New York

Ference, Th. P., 1970
Organizational Communication Systems and the Decision Process, *Management Science,* Vol. 17, No. 2 (Oct.)
Fischer, S., 1974
Money and the Production Function, *Economic Inquiry,* Dec.
Friedman, M., 1953
Essays in Positive Economics, Chicago (The University of Chicago Press)
Företagets Långsiktsplanering (SNS, Stockholm 1964)

Galbraith, J. K., 1967
The New Industrial State, London
Gershefski, George W., 1968
The Development and Application of a Corporate Financial Model, Oxford, Ohio
Gershefski, George W., 1969
Building a Corporate Financial Model, *Harvard Business Review* (July—Aug.)
Gershefski, G. W., 1970
Corporate Models — the State of the Art, *Management Science,* No. 6 (February)
Glans — Grad — Holstein — Meyers — Schmidt, 1968
Management Systems, New York

Godfrey, J. T., 1971
Short-run Planning in a Decentralized Firm, *The Accounting Review*
Godfrey, J. T. — Prince, Th. R., 1971
The accounting model from an Information systems Perspective, *The Accounting Review*, Vol. XLVI, No. 1 (January)
Gordon, M. J., 1962
The Investment, Financing and Valuation of the Corporation, Homewood, Ill.
Gordon, M. J., 1964
The Use of Administered Price Systems to Control Large Organizations, in Bonini — Jaedicke — Wagner (1964)
Greiner, L. E., 1970
Integrating Formal Planning into Organizations, from Aguilar — Howell — Vancil (1970)
Grove, D. L., 1972
Business Planning and Forecasting from a Business Economist's Viewpoint. Paper presented at the International Economic Association Conference on long term planning and forecasting, Moscow, Dec. 1972

Hammond III, J. S., 1972
The Successful Use of Computer Models in Planning, from Vancil (ed., 1972)
Hass, J. E., 1968
Transfer Pricing in a Decentralized Firm, *Management Science*, Vol. 14, No. 6, February
von Hayek, F. A., 1940
"Socialist Calculation", *Economica*
von Hayek, F. A., 1945
"The Use of Knowledge in Society", *American Economic Review*
Hayes, R. H. — Nolan, R. L., 1974
What Kind of Corporate Modelling Functions Best? *Harvard Business Review* (May—June)
Heal, G. M., 1973
The Theory of Economic Planning, Amsterdam—London
Henderson, B. D. — Dearden, J., 1966
New System for Divisional Control, *Harvard Business Review* (Sept.—Oct.)
Henry, H. W., 1967
Long Range Planning Practices in 45 Industrial Companies, Englewood Cliffs, N. J.
Hetrick, J. C., 1969 a
A Formal Model for Long Range Planning;
1. Relating the Company to the Economy, *Long Range Planning*, Vol. 1, No. 3 (March)
Hetrick, J. C., 1969 b
A Formal Model for Long Range Planning;
2. The Assessment of Opportunity and Risk, *Long Range Planning*, Vol. 1, No. 4, (June)
Hetrick, J. C., 1969 c
A Formal Model for Long Range Planning;
3. Allocating and Appraising Capital Investments, *Long Range Planning*, Vol. 2, No. 1 (Sept.)
Hicks, J. R., 1946
Value and Capital, London
Hirshleifer, J., 1956
On The Economics of Transfer Pricing, *Journal of Business*, Vol. 29
Hirshleifer, J., 1973
Where Are We in The Theory of Information?, *The American Economic Review*, LXIII, No. 2, (May)
Hofstede, G. H., 1967
The Game of Budget Control, Assen
Hopkins, D. S., 1972
The Short-Term Marketing Plan, (Conference Board), New York

Hussey, D., 1969
Corporate Planning at Fyffes Group, *Long Range Planning Journal,* Vol. 2 No. 1 (Sept.)
Hussey, D., 1974
Corporate Planning — Theory and Practice, Pergamon Press

Jantsch, E., 1968
Technological Forecasting in Corporate Planning, *Long Range Planning Journal,* Vol. 1, No. 1 (Sept.)
Jenner, R. A., 1966
An Information Version of Pure Competition, *Economic* Journal, Vol. 76
Johansen, L., 1970
Principielle Betraktninger om Prognoser och Langtidsplanlegging, memorandum from Institute of Economics, University of Oslo (May)
Jonsson, A.-M. — Wallroth, Chr., 1970
Organisationsmodeller, (Sveriges Mekanförbund), Stockholm
Jorgenson, D. W., 1963
"Capital theory and investment behavior", *The American Economic Review,* Vol. 53 (1963:2), papers and proceedings

Kami, M. J., 1969
Gap Analysis: Key to Super Growth, *Long Range Planning,* Vol. 1, No. 4 (June)
Kingshott, 1968
Financial Forecasting, *Long Range Planning,* Vol. 1, No. 2 (Dec.)
Kirkman, P. R. A., 1974
Accounting under Inflationary Conditions, London
Knight, F., 1921
Risk, Uncertainty and Profit, Boston
Koopmans, Th. C., 1957
Three essays on the state of economic science, New York, Toronto, London
Kornai, J., 1970
Mathematical Planning of Structural Decisions, Amsterdam
Kornai, J., 1971
Economic Systems Theory and General Equilibrium Theory, *Acta Oeconomica,* Vol. 6 (4)
Kraushar, C. A. A., 1968
Long Range Planning at Perkins Engines Group, *Long Range Planning,* Vol. 1, No. 2 (Dec.)
Kriebel, Ch. H., 1969
Perspectives on Information Processing in Management Information Systems, *Erhvervs Økonomisk Tidskrift,* No. 4

Lange, O., 1936—37
On The Economic Theory of Socialism, *Review of Economic Studies*
Langtidsplanlegging, Fem Praktiske Eksempler fra Norske Bedrifter, Oslo 1969
Laszlo, E., 1972
Introduction to systems Philosophy, New York etc.
Le Breton, P. P. — Henning, D. A., 1961
Planning Theory, Englewood Cliffs
Leibenstein, H., 1966
Allocative Efficiency vs. "X-efficiency", *The American Economic Review,* Vol. LVI number 3 (June).
Leontief, W., 1948
Note on the Pluralistic Interpretation of History and the Problem of Interdisciplinary Cooperation, *The Journal of Philosophy,* Vol. 45, No. 23 (Nov.)
Leontief, W., 1966
Essays in Economics, Theories and Theorizing, New York, Oxford University Press
Lietaer, B. A., 1970
Prepare Your Company for Inflation, *Harvard Business Review,* (Sept.—Oct.)

Lindbeck, A., 1971
The Efficiency of Competition and Planning, from *Planning and Market Relations* (ed. Kaser, M. — Portes, R.) London
Lloyd-Jacob, D., 1969
The Use of Simulations for Market Forecasting — A case study in the mining industry, *Long Range Planning,* Vol. 2, No. 1 (Sept.)
Långsiktsplanering i medelstora företag — Sex praktikfall i ett perspektiv (Sveriges Mekanförbund — EFI) Stockholm 1972

Machlup, F., 1967
Theories of the firm: Marginalist, behavioral, managerial. *The American Economic Review,* Volume LVII, (March)
Madsen, V., 1959
Regnskabsvæsenets opgaver og problemer i ny belysning, Köpenhamn 1959
Malinvaud, E., 1967
Decentralized Procedures for Planning. From Malinvaud — Bacharach (eds), *Activity Analysis in the Theory of Growth and Planning* (Macmillan)
March. J. G. — Simon, H. A., 1958
Organizations, New York
March, J. G. (ed.), 1965
Handbook of Organizations, Chicago
Marris, R., 1968
The Economic Theory of "Managerial Capitalism", New York
Marris, R. C., 1971
An Introduction to Theories of Corporate Growth in Marris & Wood (eds.) *The Corporate Economy, Growth Competition and Innovative Potential,* Edinburgh
Marris, R., 1971b)
The Modern Corporation and Economic Theory, from *The Corporate Economy Growth, Competition and Innovative Potential* (eds. Marris & Wood), Edinburgh
Marschak, J. — Radner, R., 1972
The Economic Theory of Teams, Cowles Foundation Monograph, Yale University
Mason, R. O., 1969
"A dialectical approach to strategic planning", *Management Science,* Vol. 15, No. 8 (April)
Mesarovic, M. D. — Macko, D. — Takahara, Y., 1970
Theory of Hierarchical, Multilevel Systems, New York and London
Meyer, J. R., 1967
An Experiment in the Measurement of Business Motivation, *The Review of Economics and Statistics,* (August)
Meyer, J. R. & Kuh, E., 1957
The Investment Decision — an empirical study, Cambridge
Mitroff, J. J., 1971
A Communication Model of Dialectical Inquiring Systems — a strategy for strategic planning, *Management Science,* Vol. 17, No. 11 (July)
Modigliani, F. — Cohen, K. J., 1958
"The Significance and Uses of ex-ante Data", *Expectations, Uncertainty and Business Behavior,* A conference held at Carnegie Institute of Technology, 1955 (ed. Bowman), New York
Modigliani, F. — Cohen, K. J., 1961
The Role of Anticipations and Plans in Economic Behavior and their Use in Economic Analysis and Forecasting, (Studies in Business Expectations and Planning 4.) Urbana, Ill.
Morris, W. T., 1967
Intuition and Relevance, *Management Science,* Vol. 14, No. 4 (Dec.)

Naylor, Th. H., 1971
Computer Simulation Experiments with Models of Economic Systems, John Wiley & Sons, Inc.

Nelson, R. R. — Winter, S. G., 1973
Toward an Evolutionary Theory of Economic Capabilities, *The American Economic* Review, Vol. LXIII, No. 2 (May)
Nelson, R. R. —Winter, S. G., 1974
Neoclassical Vs Evolutionary Theories of Economic Growth — Critique and Prospectus, *The Economic Journal* (Dec.)

Pareto, V., 1897
Cours d'économie politique, Vol. II, Lausanne
Pareto, V., 1927
Manuel d'économie politique, 2nd ed., Paris
Pelikán, P., 1969
Language as a Limiting Factor for Centralization, *American Economic Review*
Penrose, E., 1959
The Theory of the Growth of the Firm. Oxford
Pinnell, L. B., 1969
The Development of Long Term Corporate Planning at Pilkington, *Long*

Range Planning, Vol. 1., No. 4 (June)
Praktisk Långsiktsplanering, (Sveriges Mekanförbund), Stockholm 1970
Produktionsplanering, (Sveriges Mekanförbund), Stockholm 1971
Rapoport — Drews, W. P., 1962
Mathematical Approach to Long Range Planning, *Harvard Business Review,* Vol. 40, No. 3
Rasmussen, H. J., 1974
Multilevel Planning with Conflicting Objectives, *The Swedish Journal of Economics,* Vol. 76, No. 2 (June)
Renck, O., 1967
Investeringsbedömning i några svenska företag, Stockholm
Rhenman, E., 1969
Företaget och dess omvärld, Lund
Robbins, S. M. — Stobaugh, R. B., 1973
The Bent Measuring Stick for Foreign Subsidiaries, *Harvard Business Review,* (Sept.—Oct.)
Robinson, Joan, 1964
Solow on the Rate of Return *Economic Journal,* Vol 74, 1964
Rossotti, Ch. O., 1968
Two Concepts of Long Range Planning in Vancil — Aguilar — Howell (eds.) *Formal Planning Systems,* 1968

Schiff, J. S. — Schiff, M., 1967
New Sales Management Tool: ROAM, *Harvard Business Review,* July—August
Schlesinger, Jr., A. M., 1973
The Imperial Presidency, Boston
Schoeffler, S. — Buzzell, R. — Heany, D. F., 1974
Impact of Strategic Planning on Profit Performance, *Harvard Business Review,* (March—April)
Schumpeter, J. A., 1934
The Theory of Economic Development, (Harvard Economic Studies Series) Cambridge
Scott, B. W., 1965
Long Range Planning in American Industry (AMA)
Selznick, P., 1957
Leadership in administration, Evanston, Ill.
Shank, J. K., 1970
Linkage between Planning and Budgeting Systems, from Aguilar — Howell — Vancil, 1970
Simon, H. A,, 1952—1953
A comparison of organisational Theories, *Review of Economic Studies,* Vol. 20, Nr. 1.

Simon, H. A. — Newell, A., 1958
Heuristic Problem Solving: The Next Advance in Operations Research, *Operations Research,* 1958, 6
Simon, H. A., 1959
Theories of Decision making in Economics and behavioral Science, *The American Economic Review,* Vol. XLIX, (June)
Simon, H. A., 1965
The Shape of Automation for People and Management
Smalter, D. J., 1968
Analytical Techniques in Planning, *Long Range Planning Journal,* Vol. 1, No. 1 (Sept.)
Smalter, D. J., 1969
The Anatomy of a Long Range Plan, *Long Range Planning,* Vol. 1, No. 3 (March)
Solow, R. M., 1963
Capital Theory and the Rate of Return, Amsterdam (North-Holland)
Spence, A. M., 1975
The economics of internal organization: an introduction, *The Bell Journal of Economics,* (Spring)
Starr, M. K., 1966
Planning Models, *Management Science* Vol. 13, No. 4 (Dec.)
Steiner, G. A., 1963
Managerial Long-Range Planning, New York
Swedenborg, B., 1973
Den Svenska Industrins Investeringar i utlandet (Industrins Utredningsinstitut), Stockholm
Svennilson, I., 1938
Ekonomisk Planering, Uppsala

Taylor, F. M., 1929
"The guidance of Production in a socialist state", *The American Economic Review* (March)
Thompson, S., 1962
How Companies Plan, *AMA Research Study 54,* New York
Thune, S. S. — House, R. J., 1970
Where Long-range Planning pays off, *Business Horizons* No. 4, (August)

Walras, 1926
Elements d'économie politique pure, éd. définitive, Paris
Vancil, R. F., 1970
The Accuracy of Long Range Planning, *Harvard Business Review,* (Sept.—Oct.)
Vancil, R. F. (ed.) 1971
Formal Plannnig Systems — 1971 (mimeographed) Boston
Vancil, R. F. (ed.) 1972 a
Formal Planning Systems — 1972 (mimeographed) Boston
Vancil, R. F., 1972 b
Better Management of Corporate Development, *Harvard Business Review* (Sept.—Oct.)
Vancil, R. F., 1972 c
Texas Instruments Incorporated (Management Systems, *Harvard Business School* 4-172-054, mimeographed)
Vancil, R. F. — Aguilar, F. J. — Howell, R. A. (eds.), 1968
Formal Planning Systems — 1968 Graduate School of Business Administration, Harvard University, (mimeographed), Boston
Vancil, R. F. — Aguilar, F. J. — Howell, R. A. — McFarlan, F.W. (eds.), 1969
Formal Planning Systems — 1969 (mimeographed), Boston
Vancil, R. F. — Aguilar, F. J. — Howell, R. A. (eds.) 1970
Formal Planning Systems — 1970 (mimeographed) Boston
Warren, E. K., 1968
Långtidsplanering ur beslutfattarens synvinkel, Stockholm

Weinwurm, E. H. — Weinwurm, G. F., 1971
Long Term Profit Planning (AMA)
Weitzman, M., 1970
Iterative Multilevel Planning with Production Targets, *Econometrica,* Vol. 38, No. 1 (January)
Wicksell, K., 1901
Föreläsningar i Nationalekonomi, del I, Lund
Widebäck, G., 1964
Budgeteringens Inverkan på ett Företags Effektivitet (Stencil), Lund
Widebäck, G., 1970
Budgetering — ett medel för effektiv företagsplanering, Stockholm
Winter, S. G., 1964
Economic "Natural Selection" and the Theory of the Firm, *Yale Economic Essays,* Spring
Winter, S. G., 1971
Satisfying, Selection and the Innovating Remnant, *The Quarterly Journal of Economics,* Vol. LXXXV (May)

Åberg, C. J., 1971
Plan och prognos — en studie i de svenska långtidsutredningarnas metodik, Stockholm

SUBJECT AND TERMINOLOGY INDEX