**EXECUTIVE SUMMARY OF EUROPAPERSPEKTIV 2020**

# THE EUROPEAN UNION

# AND

# THE TECHNOLOGY SHIFT

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**EUROPAPERSPEKTIV — NETWORK FOR EUROPEAN STUDIES**

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Without question, technological developments during the 2000s have changed society fundamentally. Much as earlier industrial revolutions redrew economic and political arrangements, the ongoing IT and digital revolutions have far-reaching repercussions for the structure of society. There are undeniably great gains to be had from the new technology for the European Union (EU) and its member states. New innovations in the area may enable the Union to maintain and perhaps even to increase its global competitiveness. At the same time, a variety of voices warn of the problems that follow in the wake of the rapid technological shift. The labour market is becoming increasingly automated, and robots and artificial intelligence (AI) are replacing people in the job market. Certain types of jobs are unavoidably disappearing, and it is unclear where new job opportunities will emerge. This entails some heavy costs of adjustment, both for society at large and for the persons who lose their livelihood. There are also many examples of how the digitalisation of information – which, it had been believed, would make business and administration more efficient and connect people more closely with one another – can have the converse effect, and undermine privacy protections as well. Furthermore, we see an ever more pronounced concentration of power in the hands of a few global platform companies, which raises the question of if and how these dominant players ought to be regulated. New security threats are also appearing in the wake of digitalisation. Cyber attacks against the IT systems that control strategic infrastructure like energy and telecommunications are becoming more and more common. Digital technology can be used to conduct military espionage and to carry out campaigns to influence political elections, posing a serious threat to national security (see *The European Union: Facing the challenge of multiple security threats*, Elgar, 2018). In the year 2020, then, there are several reasons to highlight the importance of the technological shift for European integration.

The technological shift offers great opportunities for improving society, but the challenges it poses are at least as great. Efforts to adapt society to new conditions and to solve cross-border problems have always characterised the EU and the process of European integration. In this book we present reflections, from a variety of perspectives, on how the Union can handle the technological shift and the transition to the digital age; and we consider the political, economic, and legal implications for the cohesion of the Union of the many advances in this area.

Now, after the 2019 elections to the European Parliament and the voting-in of a new Commission under the leadership of Ursula von der Leyen, the EU is entering a new political phase. After pausing temporarily the political reform process due to the UK's departure from

the Union, and the drawn-out negotiations over Brexit conducted thereupon, the need for political decisiveness is great. The EU must unite behind a vision for the future which can inspire citizens and breathe new life into the integration process. At the same time, many of the external and internal challenges with which the Union has long struggled persist. Political tensions on the global level remain serious, as the US under President Trump pursues a protectionist trade policy at odds with EU interests. China meanwhile is growing ever stronger, both politically and economically, with the aid of heavy investments in new technology and through the colossal infrastructure project, Belt and Road Initiative. At home, to be sure, the EU's economic recovery during the 2010s has been relatively strong; however, unemployment within the Union has failed to fall at a sufficiently rapid rate. Furthermore, new storm clouds are forming on the horizon as the global trading system takes a step backwards; and the eurozone is preparing itself for a gradual normalisation of the generous monetary policy pursued by the European Central Bank (ECB).

Where future enlargement of the Union is concerned, the situation continues to be uncertain. In 2019 the member states said no to starting negotiations over membership with Albania and North Macedonia – a decision which the outgoing president of the European Commission, Jean-Claude Juncker, has described as an 'historic mistake'. Several issues that caused discord within the Union in the second half of the 2010s continue to do so, among them disputes over refugee policy and irregular migration, differences in economic competitiveness between northern and southern Europe, and challenges in connection with democratic principles and the rule of law in several member states. Populist currents, it may be, have not advanced as far as some observers had feared they would; but they do seem to have captured a permanent place on the European political landscape.

It is an open question whether, in terms of competitiveness and political cohesion, the technological shift will end up strengthening or weakening the EU. Technological progress can be seen as a precondition if the international community is to be able to live up to the goals for sustainability set out in the UN's Agenda 2030, which calls for measures on both domestic and global levels. This is a context where the EU is a leading actor. It is clear, however, that the Union and its member states must unite as soon as possible on how to meet the pressure for change to which these technological trends are giving rise, and to turn it to the advantage of a sustainable model of development. The far-reaching digitalisation of goods, services, information, and security is redrawing the playing field in terms of which political instruments are effective for regulating the single market, as well as what qualifies as an

acceptable balance between different interests in society. This is evident not least from the discussion around the global platform companies. Existing frameworks for taxation and competition law are insufficient, namely, for dealing with the imbalances to which the dominant position of firms like Google, Facebook, Amazon and Apple gives rise (see Brokelind in *The European Union and the Return of the Nation State*, Palgrave, 2020). In a world where three global actors – the EU, the US, and China – vie for influence over global regulation, it is of utmost importance that the EU continue to champion solutions which serve to strengthen a multilateral and rules-based order.

## Technological development in historical perspective

Important technological advances over history have given Europe an economic edge over other continents. The industrial revolution, which began in the 1760s in Britain with the mechanisation of the textile sector and continued with the breakthrough of electric power thereupon, paved the way for a period of stable economic growth in Europe for many decades. The factors thought to have laid the basis for Europe's technological advancement were the relatively well-developed by the standards of the time: societal institutions, among them the educational system and the framework of legal and economic rules. Patent law, a literate citizenry, and guarantees for private property helped produce a society where companies dared to invest in innovations and a skilled labour force was available.

During the 20th century, electronics – an innovation that would make digitalisation possible – was introduced. It was used to control manufacturing processes to begin with; subsequently, however, it would furnish the basis for the IT revolution and the broad breakthrough of the Internet during the second half of the 20th century. The talk at the end of the 2010s was of a fourth industrial revolution (a concept coined by Klaus Schwab), in which physical and digital reality are becoming ever more interwoven.

It is important to recall that, even if it is mainly the positive effects of technological progress – in the form of economic prosperity and improved living conditions – that get highlighted afterwards, all periods marked by technological transformation have seen some quite substantial disruptions as well. The shift from agricultural to industrial society demanded many sacrifices, with people being forced to move to the growing cities and to subsist on jobs with precarious terms. In the current century as well, we see how technological changes generate various transitional costs for individuals, as in connection with changes on the labour market. The major difference between the 1800s and the 2020s is the security – in the form of

state-financed guarantees against risks in connection with unemployment, illness, and old age – which the modern welfare state provides to people. Nevertheless, fears have been expressed that the welfare state is no longer capable of handling the negative consequences arising from technological change, given the tendency of globalisation to undermine the ability of states to finance social provisions.

## The EU and the technological shift during the 2010s

The EU has long been aware of the opportunities afforded by the technological shift. Already in the early 1990s, for instance, the European Council took the initiative for a report on how the EU should relate to the emerging global information society. Nor has there been any lack of political initiative on the part of the European Commission on how to handle technological developments. The EU has expressly sought, for example, to become a world leader in the digital economy. In March 2010, the European Commission launched the so-called Europe 2020 strategy, a ten-year programme for promoting 'smart, sustainable, inclusive growth'. One of the main initiatives within this strategy was a 'Digital agenda for Europe'. The Commission justified this initiative on the grounds that Europe urgently needed to improve its use of information and communications technology (ICT) in order to accelerate the economic recovery after the sovereign debt crisis, as well as to equip the Union for a digital future. The development of ICT, it was hoped, would help to solve such deep social problems as climate change and rising health-care costs. Particular attention was paid to the fact that European countries have fallen behind the US and Japan in terms of investment in ICT-related research and development.

Since the service market has become more and more important economically, the digital agenda stresses the importance of realising the EU's *digital single market*, in which the harmonisation of consumer rights, of intellectual property rights, and of rules on value-added taxes (VAT) play an important role. If freedom of movement in the single market had fully included e-commerce as well, it could have generated up to €250 billion in further growth during the 2015–2019 period, according to EU estimates.

Other important measures advocated in the digital agenda include improving the digital skills of citizens. The measure used by the European Commission to track how the Union is developing digitally (the Digital Economy and Society Index, or DESI) shows that all member states have improved, among other things with regard to the basic ability of citizens to handle computers. Upon closer examination, however, major differences emerge between

the member states where the digital skills of their residents are concerned. In Estonia, the Netherlands, and the Nordic countries, digital skills are among the best in the world. In southern and eastern Europe, by contrast, the situation is different. In Bulgaria, Portugal, and Romania, more than 20 percent of the workforce have no digital skills at all. These figures must be seen as alarmingly high, for participation in the labour markets of tomorrow will require a great deal in the way of digital skills.

The EU has also taken note of the changing demographic conditions that its member states face, including declining birth rates and an ageing population. The hope is that new technologies will ensure a secure basis for the welfare state in terms of tax revenues and labour. Several projects are already underway where routine tasks are performed not by human beings but by machines. Simpler tasks of public administration – in connection with the granting of financial support, for example – can now be handled by computer programmes; and people living far from hospitals can meet with doctors by way of a video call. The EU is therefore investing more and more in research and development in this area. The Commission's draft budget for 2020 contains a 6.4% increase over the previous year in such expenditures, to €132 billion.

The EU's efforts to respond to the technological transformation in a number of different areas look set to continue during the 2020s. When Ursula von der Leyen, president of the European Commission, presented her political priorities for the 2019–2024 term, she declared: 'At the heart of our work is the need to address the changes in climate, technology and demography that are transforming our societies and way of life'. This priority includes 'a Europe fit for the digital age', with investments in research and development, legislative proposals on how AI is to be handled, and an update of the Digital Education Action Plan. Among the commitments made by Competition Commissioner Margrethe Vestager, whose task it is to coordinate the EU's entry into the digital age, is that by 2020 the Union will push through a digital tax for IT companies, in order to create fair competition and to prevent undue tax avoidance. In a speech to the European Parliament in October 2019, Vestager also stressed that a new European strategy for industrial development must involve the use of the entire EU toolbox to support innovative technologies and promote industrial value chains of strategic importance for Europe.

## What resources does the EU possess for handling the technological shift?

A global technological shift that affects essentially all sectors and policy areas can be seen as in many respects the very archetype of a political challenge that is best handled by a supranational organisation. What then are the Union's prospects for benefitting from these technological trends, and how can their negative consequences be mitigated? To throw light on these questions, we must consider the forms through which the EU exercises power.

One of the foundations for European integration is the voluntary transfer of decision-making power on behalf of the member states to the Union. A basic principle of the Union's power, founded on a rationalist perspective, is that its member states see that joint decision-making can address cross-border challenges more effectively than they can do themselves. Another important principle on which the EU's power rests is that of the rule of law. The predictability resulting from this principle has historically been a prerequisite for the growth and spread of technological innovations. Legal integration has also been very important for the Union's success. According to Joseph Weiler and Karen Alter, legal and political science scholars respectively, this is because the EU has managed to persuade the member states' national courts to cooperate with the EU's supranational court (the Court of Justice of the European Union, or CJEU). Recognition by the national courts of EU law and its precedence over national law is of great importance, because their decisions regarding EU rules and legislation – unlike those of the CJEU – are backed by a power of coercion at the national level, in the form of the judicial system and government agencies. In this way, the courts of the member states enable the Union's legal framework to be enforced at the national level.

Most observers are agreed that the Union wields far-reaching political influence, notwithstanding its lack of many traditional instruments of power, among them tax revenues and budgetary resources. Compared with the budget of its member states, that of the EU is small, amounting to €168 billion in 2020; Germany's state budget, by contrast, came to more than double that sum. Given such small economic muscles, in combination with its restricted autonomous power of legislation, the EU ought in theory to have but limited prospects for pushing through reforms. The fact that the Union wields substantial influence nonetheless is due above all to its ability to use regulation as a political tool. Governing through regulation is not especially expensive (a fact which nicely matches the Union's limited economic resources). The expense falls instead on the actors – mainly companies and member states – which must comply with the regulations. The political scientist Giandomenico Majone and other scholars have accordingly described the EU as a largely regulatory state, as opposed to a

state which exerts its power by redistributing economic resources via taxation and other means.

How, then, does the EU use its regulatory power to promote European integration? Here it is helpful to distinguish positive from negative integration. Positive integration entails the creation of common rules at the EU level, which is more common in areas that affect the conditions for production processes – e.g., environmental and social policy. Negative integration aims rather at removing barriers to freedom of movement; thus it primarily affects the conditions for buying and selling goods on the single market. At the level of the Union, there are a large number of independent agencies that promote positive integration through the development of common standards for medicines, food, environmental protection, and consumer rights. However, as among others the political scientists Burkard Eberlein and Edgar Grande have pointed out, EU agencies have traditionally had less influence over such sectors as telecommunications, water supply, and electric power. Here it is instead the member states that do the work of regulation. In addition, work on the preparation of some other EU regulations is done at both the Union and the national level, particularly by involving the member states' own agencies in an expert capacity.

The distinction between positive and negative integration is particularly important when it comes to the EU's ability to create rules for global IT companies operating in the single market. It is likewise important when it comes to regulating the conditions for private and state companies in energy, transport, and the environment which provide products and services to both private and public actors. The EU has legislation that regulates working conditions and consumer rights in the single market, but the Union faces a challenge in cases where new jobs and services fall outside the framework of the traditional economy (see Holmberg, Felländer, & Teigland in *Trust in the European Union in Challenging Times*, Palgrave, 2019). This includes so-called gig jobs where the persons hired lack the status of employees, as well as services in the sharing economy like the rental of private housing via Airbnb (see the chapter by Blix & Busto in this book).

Aside from its Framework Programme for Research and Innovation, the Union has few means by which to promote technological development through the allocation of public funds. Over the years, commentators have debated whether an industrial policy at the European level would be appropriate. However, the traditions of the different member states diverge quite sharply over the proper role of the state vis-à-vis the conditions faced by companies.

Countries such as France have advocated extensive state influence over certain industrial sectors, while among others the UK have thought the state should rather stay out and let the market guide developments. However, notwithstanding its lack of an industrial policy properly speaking, the EU can still exert influence over the corporate sector through the far-reaching powers which the Commission wields in the area of competition law. The Commission's Directorate-General for Competition monitors compliance with EU competition rules, and it decides whether or not corporate mergers are to be permitted. In the context of the Single European Act (1986), the Union started trying in a serious way to regulate industrial sectors which the member states had hitherto been careful to protect from European influence. At the beginning of the 1980s, the high-tech sectors of the period – among them the telecoms industry – were essentially regulated only at the national level, and they displayed monopoly-like features. By 1990, a decade later, the Commission had drafted several policy measures aimed at dismantling such national monopolies, with an eye to promoting competition and freedom of movement in the single market. It is also with the support of EU competition policy that Commissioner Margrethe Vestager has taken on the market-dominant US IT firms, including Google and Amazon, in order to limit their ability to use business models based on anti-competitive strategies (see Lundqvist's chapter in this book). Furthermore, the Commission has launched a number of flagship initiatives aimed at enhancing the competitiveness of the member states, among them the growth-and-innovation initiative in the 'Investment Plan for Europe' (the Juncker Plan).

Regarding the important question of how the use of our common resources – air, water, nature, and the like – is to be regulated, the EU's member states and institutions have decided on relatively modest measures, including emissions trading. However, the EU's stance on climate issues and the environment has repercussions on a global level, as was evident when its member states were able to present joint negotiating positions at the UN's international climate conferences in Copenhagen and Paris. When it comes to environmental work within the borders of the Union itself, the Commission has modified aspects of competition policy in order to promote consideration for the environment. As the legal scholar Jörgen Hettne shows in *Europaperspektiv 2013*, both the Commission and the CJEU have moved towards allowing the effect on the environment to be weighed in when the provision of public goods and services is put out to tender.

When it comes to promoting new technologies and encouraging reforms to facilitate structural adjustment, the EU has mainly made use of so-called soft means of governance, including

peer pressure, the spread of best practices, and programmes with national commitments to achieve certain goals. The aforementioned Europe 2020 strategy was particularly prominent in this regard, as was the earlier Lisbon Strategy, the goal of which was to make the EU into the leading knowledge-based economy in the world. In the wake of the economic crisis, moreover, the Union's framework for economic governance is being upgraded. The procedures of the Stability and Growth Pact are being strengthened, and the link with the Europe 2020 strategy is being emphasised (see Michalski in *Europaperspektiv 2013*). Yet the means of governance are still soft; they do not consist of binding law. It is thus up to the member states themselves to implement the reforms they have undertaken to carry out.

As can be seen from this review, it is first and foremost regulation – in the form of legislation, judicial decisions, case law, and to some extent soft means of governance – which is the instrument the Union has at its disposal for dealing with the technological shift. Other tools include the investments in research and innovation funded by the Horizon 2020 programme. But even though the EU budget is limited, it must not be forgotten that the Union is also able, by deploying the Cohesion Fund and the European Regional Development Fund, to mitigate the negative impact of technological change on individuals by redistributing resources between member states. During the 2014–2020 period, these funds disbursed monies to economically weak member states and regions in order to help them invest in technology, pursue sustainable development, and carry out structural adjustments.

## Structure of the book

The EU is facing an accelerating technological shift in virtually all spheres of society. In the nine chapters of this book, we attempt to cast light on the impact of technological change on the Union and its member states. Our authors analyse the effects of the technological shift on political, economic, and legal integration within the Union. The EU's need to handle the transition to the digital age brings a number of questions to the fore. How will the digital single market be realised, and what challenges does the digitalisation of trade present for the EU? Can e-democracy help reduce the democratic deficit in the Union? What opportunities do the Union and its member states have to counter the threat posed by cyber warfare, in the form of attacks on infrastructure and the dissemination of false information? What can the Union do to ensure protection for privacy, and what ethical requirements can be imposed on companies' use of AI at a time when more and more information is stored digitally and decisions are guided by algorithms? What effects will the technological shift have on the European job market and the demand for different types of labour? How can the EU

contribute to structural transformations that will give its citizens the skills they need in the digital economy? These are some of the questions addressed in this book.

The starting point in the book's first chapter, authored by *Johan Eriksson* and *Lindy M. Newlove-Eriksson*, is that the world in the early 2020s is undergoing a technological *mega-shift*. This involves a digital interweaving of several different processes, technical systems, infrastructures, organisations, and societal functions – and in some respects the human body as well. The authors describe how critical infrastructure, artificial intelligence, and 'smart' homes and cities are becoming increasingly intertwined – not least by way of the new 5G technology – with consequences for security and vulnerability which to a great extent are unexamined. The chapter analyses what this mega-shift means for the EU. Eriksson and Newlove-Eriksson contend that the challenges facing the EU are significant, especially when it comes to maintaining a strategic overview and ensuring responsibility. The Union scarcely lacks, the authors aver, strategies for responding to the technological shift, but its lines of responsibility are unclear. Furthermore, the EU has a tradition of engaging several parallel expert and strategy groups on various technological issues, leading to a lack of coordination.

The authors also describe the EU's behaviour as stamped by a fundamentally techno-optimistic perspective. This has two unfortunate effects: first, issues of security and vulnerability often fail to attract sufficient attention; and second, conflicts between different interests around technological development are not taken into account. The chapter then reviews three different perspectives on technology and societal change: a techno-optimistic perspective, a pessimistic perspective, and a newer perspective that takes into account the complexity and interweaving of technological development and societal change. In the four subsequent sections, the authors analyse more specific challenges that the technological mega-shift poses for the EU's security: antagonistic threats: the surveillance society; vulnerability and uncontrollability; and private-public organisation and accountability. The authors' purpose here is to illustrate the wide range of problems associated with security and vulnerability which arise from the mega-shift. Eriksson and Newlove-Eriksson conclude with four recommendations on how, in light of the conclusions of their chapter, the EU can handle the mega-shift: the Union should take a holistic perspective on the mega-shift; it must develop clear lines of responsibility for interwoven systems; it should forswear any deterministic outlook; and it must stop the outsourcing of security-classified activities.

In the second chapter of the book, *Staffan Jacobsson* and *Björn Sandén* contribute to our understanding of how political instruments can stimulate and facilitate climate-related technological shifts in Europe, and what knowledge base we need to design such instruments. In 2018, the UN's Intergovernmental Panel on Climate Change (IPCC) reported that $CO_2$ emissions need to be reduced to zero by 2050 if the global average temperature is to stay less than 1.5 degrees above the pre-industrial level. The climate challenge thus necessitates the rapid introduction of completely new technological solutions in the electricity and heating sector, the construction sector, the transport system, the iron and steel industry, the chemical industry, and agriculture. Jacobsson and Sandén begin the chapter with a description of how state policy in Denmark and Germany contributed to the development of the wind-power and solar-cell industries, thereby enabling these technologies to account in 2018 for 88 percent of newly installed electric power in the member states (EU 28). They then emphasise how the Commission has been influenced by a 'neoclassical' economic perspective, which differs significantly from the outlook that underpinned the developments in Denmark and Germany. Jacobsson and Sandén elucidate the weaknesses of the neoclassical approach, which render it insufficient for providing politicians with good guidance on how to deal with the climate challenge. These include a linear view of technological development, a static concept of cost-effectiveness as the goal of policy, and a focus on market failures as the only guide for government efforts. Such concerns do indeed reflect, the authors concede, important aspects of technological and industrial development; but they are not problem-free.

In view of these shortcomings, Jacobsson and Sandén present an analytical alternative – 'Technological innovation systems' – which they have been involved in developing. This approach is inspired by the classical economists of the 18th and 19th centuries, who studied the relationship between the emergence of new industries, the development of markets, and learning throughout the value chain. Taking a dynamic and long-term perspective on technological development, it emphasises dynamic efficiency as the goal of policy, with long-term gains being set against short-term costs. In their conclusion, the authors suggest that the notion of market failures should be supplemented by the broader concept of 'systemic weaknesses' as a guide for policy. They stress the need for technology-specific market-creating control instruments for promoting technological and industrial development. In their recommendations, finally, the authors underline the importance of building up competence within ministries and agencies, so as to enable the EU and its member states to pursue an effective and conscious policy for a sufficiently rapid climate conversion.

In the third chapter of the book, *Stefan Larsson* examines ethical guidelines as an instrument for the development and use of artificial intelligence (AI). He points to the interplay between such guidelines and legal instruments, and seeks to ascertain what is about the development of AI that is so distinctive as to prompt debaters on the subject to give ethical questions such a prominent place, and authorities to issue such a rich flora of guidelines. By adopting a European perspective, the chapter contributes to the ongoing discussion – global, continental, and national – on 'AI governance'. In particular, the chapter deals with the ethical guidelines for so-called trustworthy AI which the Commission's Expert Group on Artificial Intelligence published in April 2019, and which figure as part of the Commission's strategic work on AI.

Taking his point of departure in the social-science research on technology, Larsson examines the elusive definition of AI closely. AI must be seen, he argues, in its applied context, and in its interaction with social structures and with human values and expressions. One reason why this is important is that AI and machine learning require large amounts of data with which to work. Where the role of the law in this area is concerned, according to Larsson, there is a particularly great need for multidisciplinary competence both in research on AI and in development of it. Larsson sees it as particularly fitting that the European discussion on AI governance has been so heavily marked by a determination to ensure that AI develops in a *trustworthy* manner, and in line with society's norms and values. Finally, Larsson argues, the EU must move from elaborating positions of principle in this area to developing and applying effective procedures, in regard to both ethical guidelines and legal controls for AI.

In the fourth chapter of the book, *Björn Lundqvist* explores how the EU can safeguard competition in the digital platform economy. He begins with an account of the intensive discussion about whether consumers and businesses are exposed to unfair business strategies when using services on the Internet. This discussion is linked to the Internet phenomenon of 'platforms' – i.e., websites or apps where users and potential buyers of products and services interact and are matched with advertisers and suppliers. Platforms such as Google, Facebook, and Amazon have drawn particular attention, but Apple usually features in the discussion as well. As Lundqvist sees it, the increased importance of digital platforms as a bridge between consumers and suppliers for the entire business community is obvious to all. Platforms have a great commercial impact on the industries and markets linked to the digital economy, and their importance is likely only to increase. Larsson does not believe it is possible as yet to gauge the effects and future consequences of the increased commercial importance of platforms. Notwithstanding this uncertainty, however, it is quite clear there is a desire among

decision-makers and the public that the business practices of platforms be reviewed, restricted, and regulated in order to protect businesses, consumers, and competition as democratic driving forces in society. In his discussion of this problem, Lundqvist argues that the platforms' commercial power and use of digital 'ecosystems' must be understood, made visible, and taken into account when competition law is applied by European courts and competition authorities.

On the basis of this analysis, Lundqvist concludes that the Union can regulate platforms adequately if it modernises the manner in which it applies competition law. For that to happen, however, competition law must evolve. There are economic theories and legal doctrines that can be used to address the behaviour of platforms and to identify competitive harm and possible effects on markets. The author contends that what is needed to safeguard competition in the platform economy is a measure of boldness on the part of courts and competition authorities: they must make use of the modern economic research on platforms that is available and which is developing. In his closing recommendations, Lundqvist stresses that the Commission must act against abuses by platforms in digital ecosystems that they control. That is, the EU should focus its application of competition law on the regulation of intra-ecosystem competition. Furthermore, a principle of *platform neutrality* – similar to that of Internet neutrality – should be developed under EU competition law.

*Fredrik Heyman*, *Pehr-Johan Norbäck*, and *Lars Persson* begin the fifth chapter of the book with the observation that digitalisation will have major effects on the dynamics of productivity and job creation. This leads the authors to formulate the following questions: How can the EU make use of the new digital technology to enhance productivity and create new jobs? How can it ensure that the increased prosperity resulting from digitalisation benefits the entire Union, and does not lead to greater inequality within and between member states? The purpose of the chapter is to review some important lessons from economics research on the digitally driven transformation of business structures that is occurring, and how it has affected various labour markets. On the basis of these lessons and their own research, the authors discuss some possible policies for improving this structural transformation in future, and enhancing job creation in the EU thereby. They point out too that the Union is in fact making important investments in the area of digitalisation, and that these are affecting the way businesses work.

The analysis presented by the authors indicates that, when a digitally driven structural transformation is successful, companies employ digitalisation to develop strategies that solve information and communication problems, create personalised goods and services, and utilise previously unused private assets. The conclusion the authors draw from this is that continued work on cross-border policy coordination within the EU is necessary in order to achieve the promise of digitalisation. They stress in their recommendations that what is crucial – if the EU is to ensure that the ongoing ICT-based structural transformation creates prosperity for the entire community – is an improved entrepreneurial ecosystem that manages to increase employment in successful new companies. It is important, for example, that young businesses be able to scale up their activities more quickly and efficiently. This in turn presupposes the existence of favourable institutions that can channel private and public savings into company start-ups and business development. A well-functioning stock exchange is part of this. Venture capital must also be available to support companies in their early development phase, and to develop, restructure, or scale up existing companies.

In the sixth chapter of the book, *Jenny Jansson*, *Olle Jansson*, and *Jan Ottosson* discuss the European Semester in relation to technological progress and the role that the social partners in different countries can play in the process. The authors begin with a look at the Europe 2020 strategy, according to which the EU can achieve smart, sustainable, and inclusive growth through coordinated structural reforms. The main instrument the EU possesses to push developments in this direction is the European Semester. Jansson, Jansson, and Ottosson note that technological progress is expected to lead to economic growth; however, the way in which the fruits of such growth are distributed is not given in advance. Social change can offer opportunities to some and yet pose a threat to others. If trade unions and other stakeholders are included in the process, they can look after their members' interests even as the EU's policies for technological advancement gain legitimacy. The chapter examines the extent to which this actually occurs, and how.

To illustrate their results, Jansson, Jansson, and Ottosson contrast how pluralist and corporatist research perspectives try to make sense of the way in which the social partners participate in the work on the Semester, and how this varies between different member states. Their results indicate that the Semester could serve as a bridge between growth and social reform, by involving the social partners and ensuring that all interests are taken into account in the making of EU economic policy. The chapter also shows, however, that there are major differences between the member states in how much the social partners can have their say, in

when they are involved in the process, and in whether governments listen to them. In light of these findings, the authors recommend that the EU formalise the manner in which the social partners are allowed to take part in the Semester, and that it place stricter demands on the governments of the member states as to how and when they involve the social partners.

In what way does digitalisation change the conditions for taxation? This is the question addressed in the book's seventh chapter, the authors of which are *Mårten Blix* and *Emil Bustos*. Technological trends, Blix and Bustos show, are reworking the conditions under which countries seek to finance their public expenditures. The automation of work has long been prominent in manufacturing, but it is increasingly affecting the service sector as well. Everything from economic accounting to financial services can be handled by advanced software and AI. Human labour certainly does not disappear, but it changes its character and other skills are demanded. In many countries the number of 'middle jobs' has fallen, creating so-called job polarisation. One consequence of this is an increased pressure on revenues derived from taxes on labour, since labour is typically taxed much more heavily than capital. In addition, technology is making it ever easier to move operations and services – not least those which are organised via platforms or cloud services – in a way that reduces the corporate tax burden.

The authors also highlight the change in corporate tax proposed by the OECD in the fall of 2019, which may end up refashioning a system that has existed since the 1920s. The motive for the proposal lies in a ever increasing pressure to reform the basis of corporate taxation. One expression for this is the dissatisfaction expressed by several countries over the fact that multinational corporations make significant profits, but that the revenues only go to the country where the value of the good or service was originally created (as opposed to countries where the good or service is used). The debate over how global corporate taxes should be distributed among countries is certainly not new; however, the difference in taxes paid between multinational corporations (especially digital ones) on the one hand and small businesses on the other has grown conspicuously large. According to the International Monetary Fund, the pressure to change which the international tax system is now undergoing is without historical precedent. One likely consequence of the OECD's proposal is that corporate taxes end up being redistributed in a way that has not been seen before. For many of the EU's member states, this will probably mean a transfer of tax revenues to other countries and indeed outside the Union.

Blix and Bustos show in their chapter that most of the changes driven by technological progress are making tax bases more mobile and thus more volatile. The authors conclude from this that, if the tax system is not reformed, revenues will gradually erode and efficiency losses for the economy will worsen. Countries that tax labour heavily will face a particular challenge, due to the inhibiting effect of such a policy on learning and supplementary training. In light of this conclusion, Blix and Bustos stress it is high time to reform the tax system, so as to facilitate the structural transformation that will be needed.

In the eighth chapter of the book, *Pernilla Rendahl* discusses the Commission's proposal for a special tax on digital services, first presented in 2018. The member states were unable to agree at that point, so a second and less far-reaching proposal to harmonise the taxation of digital advertising services was presented at the beginning of 2019. The member states could not unite behind that proposal either, however. Rendahl describes in her chapter how most member states have instead proposed and introduced their own variants of similar taxes on digital services. She also reviews the reason given by the Commission for proposing a harmonised tax on digital services – namely, to ensure fair taxation as between digital companies and traditional ones. Digital companies are not taxed in the EU in the same way as traditional companies physically established in a member state. Since corporate taxation is not harmonised within the EU, and current principles for which state is entitled to tax corporate profits do not fully meet the demand for a more equitable taxation of digital companies, the special tax on digital services has been proposed as an alternative for increasing the tax on these companies. The aim is to increase the tax in the country where the value for the digital company in question is created. According to the Commission's logic, the country where the users of the digital service are located should have the right to tax such a company, instead of for example the country where the company is established.

In this chapter, Rendahl shows that the analysis underlying the Commission's position – that the current tax arrangement is unfair – is based on an income-tax logic. She compares the proposals for a special tax on digital services with the provisions on VAT, in order to problematise what is meant by a fair taxation of digital services in the single market. She also analyses the Commission's underlying reasons for proposing a special tax on digital services against the background of its overall objective of a uniform digital market. In view of these factors, Rendahl concludes that a tax reform is urgent for establishing a sustainable tax system. However, if the goal is to achieve fair taxation, then such a reform should *not* rest on the principle that companies should be taxed where the value is created.

In the book's ninth and concluding chapter, *Martin Karlsson* analyses how EU institutions use new technologies to increase citizens' opportunities to influence Union policy, as well as how the EU controls and limits opportunities for political participation via the Internet. By broadening and streamlining channels of communication and organisation, new information technologies have revolutionised the opportunities for citizens to participate actively in politics. At the same time, technological trends have brought new threats to democracy in their train. Karlsson begins with an analysis of how the prevailing view regarding the impact of the new information technology on democracy has changed from utopian to increasingly dystopian. He describes how a conjunction of ideas – that representative democracy faced imminent crisis, that the new technology afforded excellent prospects for effective communication, and that a normative democracy based on widespread citizen participation was a compelling ideal – paved the way for a view of the Internet at the turn of the millennium as a democratising force. Karlsson also discusses how a number of developments then conspired to create an increasing sense that information technology poses a threat to democracy. The unwillingness of established political institutions to share power, alongside the efforts of citizens to influence politics, played an important role in this regard. Along with the signs that political communication on the Internet often assumes a hierarchical, polarised, and intolerant character, this has contributed to an increasing focus on the challenges that information technology poses to democracy.

Against this background, Karlsson charts how EU institutions have related to the new information technology as a tool for civic participation in European politics in recent decades. The analytical focus of his chapter is particularly on two channels of Internet-based political participation initiated by the EU: the European Citizens' Consultations, conducted between 2009 and 2018; and the European Citizens' Initiative. His analysis shows how, at one and the same time, EU institutions have both facilitated and limited citizens' opportunities to influence European politics through these channels. To be sure, many citizens have gotten the chance to express their political views; but their actual influence over political decision-making and the European political agenda has been very limited. In conclusion, Karlsson formulates two policy recommendations: the first bears on how Internet-based processes for participation at the EU level can be designed so as better to manage the conflict of interest between established political institutions and citizens; the second has to do with how the many challenges linked to the Internet as a channel for political participation can be confronted. One suggestion is to design participatory processes in such a way as to guarantee

that citizens of a Eurosceptical persuasion also have an opportunity to influence the political agenda.

## Conclusion

Great hopes are being placed in technological innovations to help to solve the political challenges of the 2020s, such as how to halt climate change while at the same time securing a sufficient energy supply. The idea is that new technological advances will help to improve people's lives. The majority of analysts are agreed, however, that technological shifts can also have major negative consequences for society. Nor is it uncommon for the positive and negative changes arising from technological trends to be regarded as predetermined and impossible to influence. As this book shows, however, many pragmatic political solutions are available by which we can steer the technological shift in the desired direction and forestall negative effects that may arise. One conclusion repeatedly highlighted by our authors is that technological developments give rise to very complex situations which require a holistic approach. This is true whether we seek to understand the possibilities and risks associated with AI, or those arising from digitalised public administration, or those connected with e-democracy. It is therefore fundamental that the EU's institutions and elected politicians be prepared to take a holistic perspective when they address technological trends and attempt to deal with the problems that arise as economic and political conditions in society change.

Historically speaking, the EU has been successful at handling cross-border problems and dealing with economic and political changes. Now, in the year 2020, it is an ongoing global technological shift that is testing the Union's capacities. Several of the chapters in this book show the great need for common rules and coordination at the European level if we are to take advantage of the gains that the technological shift is generating. Three measures, essentially, are needed from the EU. First, it must develop the institutions necessary to drive technological progress forward. This includes promoting investment in research and development, providing predictable regulations for a digital economy, and upholding robust legal and ethical principles for the development of digital technology and AI in the emerging platform economy. Second, the Union and its member states need at the same time to ensure that there is adequate protection for those groups in society who are badly disadvantaged by the new technology. Investments in cutting-edge research must be combined with adjustment support for citizens who have not yet mastered the basics of digital technology. Third, the EU must maintain its ability to disseminate sustainable rules outside of Europe's borders. This can be seen as a guarantee that the European political, economic, and social model can be

maintained in future, since stepped-up conflict can be expected between the three global players – the EU, the US, and China – over the rules and regulations that apply within the digital market. This means too that the EU should defend citizens' rights on the issue of individuals' access to the Internet and their ability to seek information and to provide services under the principle of net neutrality.

However, the question remains as to whether the EU at the beginning of the 2020s has the political momentum needed to deal with the technology shift and its consequences. In a speech in November 2019, the outgoing president of the European Council, Donald Tusk, argued that it is political leadership and unity that the EU now needs. To be sure, the EU is larger than just the sum of its members, but it will be hard to carry out the necessary political reforms if the member states cannot agree on the Union's future direction. In part the member states disagree on the design of future regulations; in part they are reluctant to delegate additional power and resources to supranational institutions. All in all, this puts the EU at risk of paralysis. Given too the existence of major differences between the member states in their ability to handle the technological shift – for instance with regard to citizens' digital skills – there is a great risk that the crack will deepen. During negotiations over the EU's forthcoming long-term budget for the 2022–2027 period, member states took differing views on what investments the Union ought to make in light of the pressure for technological change. The dividing line here runs between the richer member states of northern Europe and the poorer ones to the south and east. Countries such as Austria, the Netherlands, and Sweden want to reduce appropriations to the Cohesion Fund, and to increase the Union's investments in research and development instead. By contrast, the 17 countries known as the 'Friends of Cohesion' – among them Italy, Poland, and Romania – want the Structural Funds to be given greater resources.

It is clear, however, that the EU must do both – invest in new technologies and support weak regions. Exactly how these opposing demands are to be balanced is one of many important questions the Union will need to confront in the coming years. The Union must therefore act, under the leadership of Ursula van der Leyen's Commission, to instil new hopes in European integration and to demonstrate the economic, political, and environmental benefits that concerted action within the EU provides. Otherwise, the risk is that the global technological shift – and its promise of solutions to burning social problems – will pass the EU by.