



Time to act – and fast!

Europe's next steps in successfully shaping the process of digitisation

Sebastian Weise

- › If Europe wants to fully exploit the potentials of the emergent digital age and hold its own against international competition, it cannot rest on its laurels.
- › Europe must actively shape the process of digital transformation, purposefully mobilise existing potentials throughout its territory, and push ahead with necessary changes, including those of a structural kind.
- › It will be particularly important in that light to further develop the overall European innovation ecosystem, to strengthen Europe's digital-policy voice at the international level and address the basics necessary for shaping the process of digitisation.
- › What this means in concrete terms is that Europe's policies must become more agile, must include the public in the shaping process and must, e.g. in addition to a European agency for digital flagship projects as well as measures for greater security both in and through the process of digitisation, likewise initiate a process for a comprehensive digital framework strategy.

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Introduction

Europe has crossed the threshold to the digital age. Today, digitisation pervades all areas of society and has brought about processes of profound change.¹ Future advances in key digital technologies will accelerate these processes of change still more.² The positive potentials of the digital transformation of Europe and the world are enormous and surpass the risks. If Europe wants to fully exploit the potentials of the emergent digital age and hold its own against international competition, it cannot rest on its laurels. Rather, Europe must actively shape the process of digital transformation, purposefully mobilise its own potentials and determinedly push ahead with the necessary changes. Beyond the potentials, the accelerating process of digitisation also presents Europe with challenges. Global technology firms are putting traditional industrial and value creation chains in Europe under pressure and challenging the competitiveness of the European economy. At the same time, data-driven business models and new forms of digital economy are presenting Europe with the challenge of adapting its regulatory framework in order to interpret the principles of freedom, of the rule of law, of subsidiarity and of the social market economy relating to digitisation in a manner in keeping with the times – no matter whether it involves competition and antitrust law, data protection law, copyright law or tax law. European answers and visions regarding the digital future are all the more important today as, beyond the economic dimension, digitisation has already become an object of competition between the different systems. While the USA and China are increasingly setting the tone with their own regulatory concepts, it is important to further develop and strengthen the European approach to shaping the process of digitisation. After all, only in this way will it be possible to maintain the values, prosperity and future viability of Europe in the digital age. In order for that to succeed, this paper will now proceed to present a series of different recommendations for the EU's next steps in shaping digitisation.

Europe cannot rest
on its laurels!

Digital basics

A positive basic attitude to digitisation: Today, new key digital technologies are already pervading all areas of society and permanently changing them. As a driver of digital transformation, it is true that key technologies are ambivalent and certainly involve risks; however, the positive potentials of these technologies markedly surpass the risks. Whether in combating climate change, improving the healthcare system, increasing the efficiency of the European economy or new possibilities in the area of internal security, key digital technologies offer an opportunity to contribute towards solving social challenges in many different ways. However, in the European public sphere these opportunities are not being adequately perceived and risks are being constantly overemphasised. Consequently, it is important to promote a constructively critical approach to handling the potentials and risks of key technologies in our society. One possibility for doing this would be the development of future scenarios which make the opportunities and risks of digitisation for Europe easily comprehensible by presenting concrete visions of the future.³

Digital technologies
could contribute
towards solving urgent
social challenges.

Moonshot project and a European agency for springboard innovations: In addition, it is important to underpin nuanced communication by means of “moonshot projects” of flagship projects at the European level. In order to develop such projects, they could be linked up to the creative organisational areas of the “Innovation Union” strategy and the Europe 2020 Strategy.⁴ Some key areas where visionary projects could be developed using digital future technologies are: energy and water management, climate protection, the healthcare system, public transport and public administration, the education system, as well as internal and external security. In addition to institutional solutions at the national level, it would be important to initiate further expansion, in the form of a European agency for digital moonshot projects similar to the German Agency for Springboard Innovations (*Agentur für Springinnovationen*). This could build on the existing structure of the *Joint European Disruptive Initiative* (JEDI) and help to usefully complement similar institutions at the national level and their projects, to develop the necessary expertise for the European innovation ecosystem and to intensify pan-European networking.

Shaping the process of digitization requires visionary projects and a darpa-like european institution enabling disruptive innovations.

Clear objectives, coherent strategy, a shared vision: As digital transformation, driven by key technologies, encompasses all areas of society, the shaping of this process of transformation constitutes a cross-sectoral issue. As such, the shaping of digitisation concerns various policy fields and is reflected in multiple different strategy documents.⁵ In order to ensure the consistency of the measures, as well as of the strategies in the different policy fields, it makes sense to initiate a process for creating a superordinate digital strategy. With an eye to identified social challenges, such a strategy process should formulate clear, measurable objectives as well as present standardised definitions of key terminology. In order for such a strategy to be able to contribute towards a shared social vision of the digital future, all the relevant stakeholders should be involved in this process.

A vision for the digital Europe needs a superordinated digital strategy.

Shaping agile policies in the digital age: Digital transformation is a dynamic and complex process. However, the concrete developmental trajectories are hard to foresee and the innovatory & political consequences of policy frameworks are difficult to anticipate.⁶ Consequently, policy frameworks should be scrutinised more closely beforehand with regard to their consequences for digital and innovation policy objectives of the EU. An appropriate review and, where necessary, the agile adaptation of existing frameworks likewise appears meaningful in case examination reveals that they are a substantial hindrance to innovation. In order to provide an advance evaluation, digital-policy and innovation-policy impacts could be adopted as categories in the existing impact assessment of the *Regulatory Scrutiny Board* in all areas of the general directorates. In addition, the EU should further develop the approaches for evidence-based policy-making that already exist in the context of the *Open Data Policy*, and which specifically utilise the free data of the public sector.⁷ This would promote the economically important *Open Data Policy* in the area of the public sector and strengthen the EU as an institution that is open to innovation and has a role-model function. Such an evidence-based, agile understanding of policy is appropriate in light of the processes of profound change, even though it involves political hurdles and the use of resources. One of the challenges here is the necessity to balance the need for agile policies against the need for reliable legal standards.

Becoming more agile – A key to smart policy making in the digital world.

Security strengthens trust in technology: New digital possibilities and technologies will only achieve deep-seated anchorage in society if they are safe and secure.⁸ In order to ensure security in the digital age, (1) regulations on cross-border information channels and on data transfer in the area of IT and cyber security must be further developed at the European level, (2) existing national digital security standards in Europe more closely harmonised and (3) consistent law enforcement improved in cases of cyber-criminality.⁹ In view of the need to develop security standards further, consideration should be given to further

Digital technologies will only achieve deep-seated anchorage in society if they are safe and secure.

strengthening the *European Union Agency for Network and Information Security* in the context of the *Directive on Security of Network and Information Systems*.¹⁰ At the same time, digitisation gives rise to new possibilities of creating greater security in both the virtual and physical area – not least the use of Artificial Intelligence.¹¹ With this in mind, it would be important to fund concrete European research projects in the field of security that strengthen both Europe as an innovation region and society's confidence in digitisation.¹²

Strengthening Europe as an innovation ecosystem.

The digital single market – a basic prerequisite for the success of Europe: A European digital single market is an essential prerequisite for achieving competitiveness at the global level. It is the only way to achieve a market size that is comparable to the American and Asian markets just in the number of potential customers. In order, for example, to enable start-ups in the EU to grow beyond their home national markets more easily, to scale digital services in Europe more quickly and to transform the disadvantages of the European markets (which are, of course, fragmented linguistically as well) into an advantage through diversity, we need uniform basic conditions throughout the European single market that not only create a standardised legal framework, but also ensure fair market conditions for all market participants and remove access barriers. However, a European digital single market also requires the political will to consistently enforce those conditions.

A European digital single market is an essential prerequisite for achieving competitiveness at the global level.

The digital future requires excellent research: Digitisation is already one of the priorities of the ongoing framework programme for research and innovation.¹³ This development should be further expanded in future R&D funding in order to increase competitiveness towards strong global competitors. The strategic approach of the framework programme – to make not only research but also innovation the focus of the funding process, i.e. to see basic research and application as one innovation strategy unit – is proving advantageous particularly in the field of digitisation: here, research and application lie particularly close together, whereby innovative companies and publicly funded research are two sides of the same coin.

Utilising research synergies in Europe: Wherever added value can be created through funding research activities not only at the national level but at the European level, that approach should be rigorously pursued. In competition with, for instance, the USA and China, the individual European countries are far less efficient than the EU as a whole can be. In order to be able to utilise the synergies, more money and better structures are needed. Funding for research in the field of digitisation would have to be increased and research structures organised more efficiently. In this respect, it would be crucial to efficiently network the collaboration between excellent national research institutes at the European level.

Individual European countries are far less efficient than the EU as a whole can be when it comes to academic excellency.

Developing, retaining and recruiting digital talents: Another decisive factor for the different “future technologies” is the training of a new generation of young scientists. That is the task of the universities, which must closely interlink teaching and good research. There is also an urgent need to gain outstanding scientists for Europe and to lose as few good scientists from Europe to other countries as possible. To do this, we need to improve working conditions and professional prospects. In this respect, it becomes clear that the focus should not only be on digitisation, and that the entire research system needs to be modernised in order to become more efficient regarding digitisation and other future technologies. In the area of digitisation, European research institutes definitely have strengths, e.g. in AI, robotics and the Internet of Things: the number of scientific publications and patent registrations make that abundantly clear. The important thing is to consistently utilise strengths in research and development and to turn these to practical use with innovative products and services. In the

field of science, too, digitisation is a useful cross-sectoral technology that has a very positive effect on all disciplines. It is therefore important to make sure that all the research institutes in Europe are at the cutting edge of digital technology.

Strengthening Europe as a pan-European innovation ecosystem: Europe's potential as a poly-centric, diverse innovation ecosystem is enormous. Today, there is already a whole series of important innovation ecosystems, including Berlin, London, Paris, Amsterdam and Copenhagen. In order for Europe to be able to exploit its existing potential to the full, the EU should substantially intensify the process of networking existing innovation ecosystems and their actors.¹⁴ Besides the above-mentioned closer networking of the European research locations, the focus should thereby be on improving the cross-border access of companies – particularly medium-sized enterprises – to Europe's innovation ecosystems and start-up centres. In addition, the access of start-ups to private venture capitalists in Europe should also be supported across borders. Furthermore, a pan-European, innovation ecosystem requires cross-border, comprehensive digital infrastructures in order for Europe as a whole to be able to benefit from the process of digital transformation.

A greater Europe in the area of innovation policy as well: When one considers the recommendations for action already presented, it becomes clear that in many ways the growth of innovative power also means the growth of Europe. Whether in light of the European single market, or the further networking of the European research landscape or of the existing centres of innovation, achieving this strengthening of Europe presents a central political challenge in times of growing euroscepticism. A further challenge will be to shape the process of digital transformation in such a way that Europe as a whole benefits and that no extreme asynchronicities occur.

Europe needs to connect existing innovation hubs to build up a pan-European innovation ecosystem.

Europe must benefit from digital as a whole and extreme asynchronicities must be avoided.

Strengthening Europe's digital-policy voice at the international level

Security requires international cooperation and digital sovereignty: Harmonised European security standards are important. However, in a digitally networked world, regional standards alone do not suffice. Consequently, the EU should endeavour – in cooperation with partners, particularly the USA – to further develop international standards in the cyber-security area and to improve the transatlantic exchange of information on cyber-threats, getting the private sector involved here too.¹⁵ A forum where this process could be advanced is the *Internet Governance Forum* which is being held in Berlin in 2019.¹⁶ To complement the need for international cooperation, Europe should also increase its efforts to achieve digital sovereignty.¹⁷ Through increasing European innovative power with regard to strategically important key technologies, Europe must, in the medium to long term, be placed on a footing where it can develop and provide secure systems in the fields of hardware and software, as well as vital digital infrastructures. The aim is not to enable Europe to be more digitally self-sufficient, but to empower Europe to make constructive contributions to international forums as an actor with great expertise and skills of its own in setting international standards in the field of security.

Europe needs to strengthen its digital sovereignty over key technologies.

Fostering intra-European consensus on important questions of digital policy: As a global process, the digital transformation is intensifying and accelerating globalisation and further reducing the ability of European nation states to shape the process when they act individually. The EU is therefore becoming increasingly more important for preserving European values and principles as a powerful formative and implementational force – whether in dealings with global technology giants, such as Alibaba, Tencent, Google (Alphabet) and Facebook, or with the leading digital nations – i.e. the USA and China, and their specific organisational concepts

for the process of digital transformation. In order for the EU to be able to fulfil its potential as a formative force, there needs to be a European consensus. When one looks at pressing current issues relating to shaping the process of digital transformation, it is clearly necessary to push ahead with achieving such a consensus at the European level over the next few months, particularly with an eye to the taxation of new data-driven business models and digital platforms, and also to further develop consumer protection following the New Consumer Deal. In this respect, it will on the one hand be particularly important to strike a good balance between economic freedom, openness to innovation and the need for regulation, while on the other it will also be important for Europe to enter into timely and transparent dialogue with its important partners concerning European frameworks, in order to prevent unnecessary tensions.

International normative framework: As a global process, the shaping of digital transformation in line with European values and concepts of order also calls for global standards¹⁸ that are based on the principles of freedom, the rule of law and democracy and that help to create (among other things) a “free, open, secure and peaceful” Internet. In order that Europe can advance the rules-based international order in the digital area too, it must strengthen its own expertise and skills – for, after all, this is the only way by which Europe’s voice is accorded any weight in multilateral forums. However, Europe must also mobilise international support for standardisation processes – whether in the case of states, global Internet concerns, civil society or the tech community. Particularly in times when multilateralism and multi-stakeholder approaches are under pressure, it is important to discuss the introduction of a new EU High Commissioner for Digital Policy, who would function as a digital or technological ambassador. Such a “technological ambassador” would be able to explain Europe’s approach towards shaping the process of digitisation to its international partners, to promote that path and thus make an important contribution towards further developing the rules-based international order for the digital area in line with European values.¹⁹

Utilising the current window of opportunity and fostering the unity of Europe: When one looks at the current mood regarding the further development of a constitutional and liberal regulatory framework for digitisation, it is favourable at the international level. In response to the General Data Protection Regulation, an increasing number of global Internet concerns are issuing voluntary statements of commitment to data protection and some are even calling for an intensification of digitisation by the international community – particularly in the area of facial recognition. This readiness to carry out an active, as well as a regulatory, role in shaping the process of digitisation is likewise reflected in the large number of those who support the setting of innovative frameworks in the digital area, such as the *Contract for the Web* or the *Paris Call*. If Europe wants to utilise this momentum, it must not only act decisively and with the support of its partners, but also present a united front. In this respect, the establishment of this kind of unity – despite different cultural imprints with regard to the acceptance of technology, divergent concepts of regulation and often divergent interests – presents one of the biggest political challenges.

Whom to call?
Europa need a tech
ambassador.

There is currently a
momentum to shape
digitisation on the
international level.

- 1 See e.g. Schwab, K. 2016: The 4th industrial revolution, (Series of the World Economic Forum), New York, NY or Brynjolfsson, E./McAfee, A. 2014: The second machine age: Work, progress, and prosperity in a time of brilliant technologies, New York, NY.
- 2 Central key technologies and innovations for the digital future are, among others: Artificial Intelligence, Big Data Analytics, Super and Quantum Computing, the Internet of Things and 5G.
- 3 These scenarios should be combined with setting up and more broadly communicating studies that analyse the necessity of deploying key digital technologies and their risks in a discriminating way. It would also be possible to tie this approach in with the accumulated experience of a comparable project – namely, the “eEnvisioning Digital Europe 2030” project, which was funded within the framework of the EU’s Seventh Framework Research Programme in 2011. For further information, see http://www.foresight-platform.eu/wp-content/uploads/2011/09/FFP-Brief-No.-194_Digital-Europe20301.pdf.
- 4 See: http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication_de.pdf
- 5 Here, one must for example mention the Strategy for Innovation Union, the 2020 Horizon Strategy, the European Digital Single Market Strategy and the Digital Strategy of the Commission.
- 6 For basic information on this point, see Tonurist, P. 2018: New approaches in policy design and experimentation, in: OECD (2018), OECD Science, Technology and Innovation Outlook 2018: Adapting to Technological and Societal Disruption, OECD Publishing, Paris, pp. 241-260, online at: https://www.oecd-ilibrary.org/docserver/sti_in_outlook-2018-en.pdf?expires=1554194502&id=id&accname=oid047262&checksum=9A186A65D834987B6DB623109B3F9432.
- 7 See also <https://ec.europa.eu/digital-single-market/en/open-data>.
- 8 For basic information on this point, see <https://ec.europa.eu/digital-single-market/en/policies/cybersecurity>.
- 9 This does not so much imply a transfer of sovereign rights to EU institutions in this area, but rather that the EU would play a more powerfully coordinating role.
- 10 See: http://europa.eu/rapid/press-release_MEMO-18-3651_en.htm
- 11 For possibilities in the field of AI, see for example EU Science Hub 2018: Artificial Intelligence: A European Perspective. chap. 10.1. to 10.2., which can be viewed at: <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/artificial-intelligence-european-perspective>.
- 12 The first initiatives in this regard have already been started up. Thus, for instance, the targeted funding of concrete digital security solutions is a special focus of the JEDI initiative. See: <https://jedi.group/#ourmissions>
- 13 https://ec.europa.eu/germany/news/20171027-forschungsprogramm-horizont2020_de
- 14 When one examines the coordinated plan for Artificial Intelligence, this necessity has already been formulated with a special focus on AI and also underpinned with suggestions from institutions. However, the aspects suggested there should not simply be applied to AI. Rather, it would be important to examine how to achieve better European networking with an eye to the diversity of technological drivers of digitisation. For the coordinated AI Plan, see <https://ec.europa.eu/digital-single-market/en/news/coordinated-plan-artificial-intelligence> and for the more fundamental approach AI4EU, see <https://ec.europa.eu/digital-single-market/en/news/artificial-intelligence-ai4eu-project-launches-1-january-2019>.
- 15 A further field in which transatlantic endeavours in the field digital security can already be observed is the cross-border exchange of digital evidence that is currently being promoted. See http://europa.eu/rapid/press-release_IP-19-843_en.htm
- 16 With an eye to also involving the private sector in particular, the EU could link up with existing endeavours, such as the Paris Call for Trust and Security and the Contract for the Web. For the Paris Call for Trust and Stability, see https://www.diplomatie.gouv.fr/IMG/pdf/paris_call_text_-_en_cle06f918.pdf and for the Contract for the Web: <https://contractfortheweb.org/de/>.
- 17 For an explanation of this term as well as a delimitation of the concept of self-sufficiency, I recommend the paper “Leitplanken Digitaler Souveränität des BMWI” (English translation of title: “Guardrails of digital sovereignty issued by the German Federal Ministry of Economics and Technology”) as a good introduction. See https://www.de.digital/DIGITAL/Redaktion/DE/Downloads/it-gipfel-2015-leitplanken-digitaler-souveraenitaet.pdf?__blob=publication-file&v=1
- 18 Mainstays of a values-based European path in shaping digitisation are the principle that no one should be left behind in the digital revolution (see e.g. <https://www.eesc.europa.eu/en/news-media/news/no-one-should-be-left-behind-digital-revolution>) and the principle that the human being should stand as the subject at the centre of shaping the process of digitisation (the human-centred approach).
- 19 Among other countries, Denmark has already appointed such a technological ambassador. See: <http://techamb.um.dk/>.

Imprint

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