



Towards European Leadership on Innovation

Recommendations for the next Digital Single Market

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Introduction

The digital sector is a significant driver for economic growth in the European Union. According to the latest data available from all Member States, the EU's ICT sector contributed close to €570bn in value to the economy in 2015, or almost 4% of the EU's GDP – and the digital sector's importance for our economy is growing quickly. From 2010 to 2015, ICT services grew by 15% in value added. Over the same period, job growth in ICT services hit 17.3%, amounting to roughly one million new jobs across the Union.¹ Therefore, more than ever before: Good digital policy is simply good economic policy.

The digital transformation of all economic sectors requires a cross-sectoral approach to digital policy. To maintain competitiveness, a bold and coherent European digital strategy is needed, acknowledging the horizontal impact of the digital transformation on our economy and society. With its Digital Single Market initiative, the Juncker Commission recognised the importance of the digital sector and initiated a process of regulatory harmonisation in Europe to strengthen digital innovation and technology. In the upcoming legislative term, this process should be expanded with digitalisation as the primary driver for European economic policy.

The ambitious overarching objective of this new agenda should be to achieve digital sovereignty: Fostering digital sovereignty means strategically investing in innovative technologies to be developed in Europe, as well as being able to autonomously understand and use digital technologies in both the public and the private sector. A digitally sovereign Europe will be defined by its leadership on global technological innovation, not by the height of its protectionist regulatory walls. The EU should embrace the principles of an open economy and open Internet in close and free collaboration with its global partners. A Europe aiming for digital sovereignty encourages and rewards innovation; it does not restrict or sanction nascent businesses and developing technologies. Rather than allowing for rivalry between the old and the new economy, Europe should build on its existing wealth of expertise in fields like engineering, IT, manufacturing and the creative industries by crafting a legal framework that incentivises these sectors to go digital and thus ensures their long-term global competitiveness.

In the past, incoherence between policies hampered the objectives of the Digital Single Market – from the growth of technologies like AI to the support of the European startup ecosystem. A coherent digital strategy will assess all policies with regard to their adverse impact on the digital priorities of the Union. A concrete measure to this end should be the mandatory introduction of a digital dimension to the impact assessment of new legislative initiatives. Such an approach to policy would also tie in perfectly with the substantial investments in the digital sector in the next Multiannual Financial Framework and ensure an ideal leveraging effect.²

1 [ICT Sector Data from Eurostat](#)

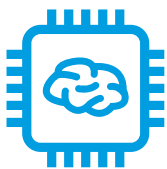
2 [Press Release on the Digital Europe Programme](#)

A holistic digital strategy should furthermore have three overarching policy objectives:

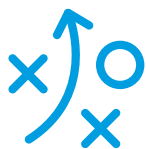
1. Leadership in key enabling technologies like AI, High Performance Computing and Robotics;
2. A supportive regulatory framework to nurture innovation in traditional industries, grow startups and enable new business models;
3. Forward-looking social policies to help navigate both industry and citizens through the transition to the digital world of work and education.

With these initial reflections in mind, we would like to propose a set of recommendations designed to tackle the most critical challenges the EU will face in the coming legislative period. The recommendations below are not a complete list, but constitute a range of policy areas in which, given the right policies, the European Union can achieve the highest benefit for the growth of the digital economy in the next legislative period and beyond.

Six key messages for our digital future



Digital transformation means zero hour for the world economy: Similar to previous industrial revolutions, past achievements count little in a world reshaped by new technologies – the best horse carriage cannot compete with a motorised car. We are all challenged to understand the digital transformation and to **rethink work processes and business models** on all levels to shape this global transformation according to European values.



Digitalisation is a means to an end: Rather than being an end in itself, digitalisation is a process that enables new ways to arrive at desired outcomes. This is why **it has to be thought more from a purpose and deployment-oriented perspective**. The starting point of decisions in policy, research and investment should always be to ask questions such as: How can it solve known problems, how can it identify previously undefined problems, how can it streamline complex processes and reduce bottlenecks?



Coherent digital policy is key: Given the cross-sectoral nature of digitisation, a major challenge is to identify and avoid negative impact of policy decisions on agreed European digital objectives. Only through policy coherence and coordination will the EU achieve the ambitious leverage targets of the substantial investments envisaged in the coming Multiannual Financial Framework. This can be achieved **by regularly assessing all policies with regard to their adverse impact on the digital priorities** of the Union.



Open technologies for an open world: Through its genesis down to the way it works in practice, the digital economy is essentially open. This openness should be reflected in the standardisation and harmonisation of rules, **which should not fragment, restrict or sanction businesses and developing technologies**. Europe has to build bridges between the old and new economy as well as to foster global partnerships in order to become a true shaper of the digital transformation.



Digital representation for a digital world: The EU should follow the example set by some of its Member States and establish offices to reflect its digital ambitions. **A digital ambassador could represent European interests** and take note of European concerns. European Parliament party groups should appoint **speakers on digital policy** to ensure the coherence of their policies.



Digital literacy, a lifetime project: The digital transformation disrupts our professional and personal lives. Individual adaptation to an environment increasingly dependent on digital technology **requires adequate technical and social skills**, which have to be **taught throughout a life-time from an early age onwards**. This will help people to make choices, understand developments and find employment in a rapidly growing field.

1 Advancing Key Technologies

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Key enabling technologies will be increasingly relevant for advancing the digital transformation across industries. Future policy initiatives, aimed at maximising technologies' positive potential in industries as varied as public health, tax collection, research, engineering and data processing, need to take their horizontal nature into account. Defining central application areas and taking the appropriate policy measures to contain risks and channel benefits for the common good as well as coordinating the uptake in public and private undertakings of all sizes will be crucial.

1.1 Artificial Intelligence

Strong incentives for founding companies and attracting international talent are the bases for a successful future in AI. Relevant knowledge has to be disseminated across all industries so that the domain-specific knowledge is linked with technology-specific expertise. Access for SMEs to technology, computing capacities and datasets has to be facilitated. In AI, algorithms generate added value from datasets by transforming data into information. Given the complexity of AI systems, trust is the most important requirement for uptake. Collecting trustworthy data requires substantial efforts and resources from companies and need to be protected by IP regulation. The purpose of processing data changes sometimes, depending on how the system develops and learns. The GDPR already allows such a change under specific circumstances, and these provisions need to be kept.

- **Support startups and talent:** We need a European visa scheme for tech talent to reverse the tech brain drain. In a similar vein, an EU-wide strategy to fund startups is important. The EU should also support national tax breaks for companies driving research on key technologies like AI.
- **From the basics to deployment:** We need to bridge the gap between our leading position in fundamental research and the lagging market uptake of products and services. Knowledge and technology transfer between academia and industry should be encouraged. To this end, close cooperation with industry on funding priorities is necessary. More should be invested in deployment-oriented research.

- **The big regulatory picture:** AI is closely intertwined with data protection regulation. To enable AI research and deployment in Europe, we need compatibility with data protection standards, allow compatible data processing, and protect complex data corpus. Given the technology's horizontal nature there should be a scrutiny reservation for new rules to ascertain if they interfere with the aim of facilitating AI uptake.

1.2 Distributed Ledger Technologies

Distributed Ledger Technology (DLT) is moving beyond the hype. After proofs of concept and the crypto boom, we are now starting to see the first real deployment of DLT solutions, a trend we should expect to continue throughout the following legislative period. This deployment is by no means limited to the financial sector, but spreads horizontally across industries, from trade and logistics to connected mobility. The capacity of DLT to improve processes in a wide variety of industries also raises the stakes for regulatory intervention.

- **Set the stage:** The EU should strive to reduce legal uncertainty and ensure the compatibility of DLT with existing regulation in fields like data processing (GDPR) and anti-money laundering requirements.
- **Harness ICOs:** Taking the increasingly popular fund-raising instrument of ICOs out of the legal grey area and maximising their potential to raise money for innovative ideas should be a priority.
- **Decrypt crypto:** Cryptocurrencies' propensity for money laundering and financing other criminal activities should be curbed to legitimise the technology as a whole.
- **Recognise smart contracts:** Smart Contracts have the potential to streamline complex administrative processes, from public administration to private sector procurement. The EU should therefore recognise smart contracts as a viable alternative to traditional contracts.

1.3 High Performance Computing

High Performance Computing (HPC) capacities are crucial to preserving Europe's digital sovereignty. A billion-euro industry in itself, High Performance Computing is also of increasing importance to traditional industries, from automobile, to aerospace and agriculture. HPC is thus quickly becoming a key ingredient for economic growth in the digital age.

- **Learn from the past:** Europe should focus on the entire value chain, from hardware to software. So far, software providers have largely been absent from projects like ETP4HPC, leading to a damaging disconnect between hardware and software vendors.
- **Emphasise growth:** Industrial applicability and scalability should lie at the core of the EuroHPC project to maximise its contribution to economic growth.

- **Build global partnerships:** Europe should harness the knowledge of global academia and technology companies. International cooperation is vital to facilitate the growth of the European HPC ecosystem, including manufacturing capacities, software engineering, and research.

1.4 3D Printing

Europe is a world leader in manufacturing. 3D printing will be a central technology in maintaining this leadership, and will be increasingly applied in development and production processes in sectors as diverse as car manufacturing, aviation, mechanical engineering, and health devices. To facilitate this transformative process, we believe it is crucial to take action both on the national and on the European level.

- **Train the workforce:** Knowledge about the technology should be swiftly integrated into all relevant education programmes. Digital knowledge will become indispensable in jobs previously untouched by IT.
- **Make regulations compatible:** 3D printing is intertwined with legal areas such as product liability, copyright, IP rights, environmental regulation, and trade rules. These rules have to be adjusted based on practical experiences and in conjunction with the private sector. Technology neutrality has to be the guiding principle.
- **Facilitate uptake:** SMEs, startups and large companies should be incentivised to employ and experiment with 3D printing techniques. Private and public sector should recognise the opportunities of 3D printing and work jointly on further developing the technology.

1.5 Connectivity & 5G

The Gigabit & 5G revolution is happening right now, and Europe is facing strong international competition. Gigabit network infrastructure, however, is crucial to enable the next stage of the digital and industrial transformation. Connected driving on roads and rail, machine-to-machine communication and other vital technologies of the next decade benefit greatly from high-speed connectivity – for instance, smart mobility, energy and connectivity are becoming increasingly inseparable.

- **Deliver on goals:** To prepare Europe for the digital future, the availability of infrastructure upgradable to Gigabit speed for households, availability of gigabit connectivity for socio-economic drivers including industrial zones, and 5G coverage along significant routes of transportation by 2025 should be provided in a joint effort by all institutional and industry players.
- **Maximise investment:** Providing incentives for private investment and securing a fair environment for investment and competition is the basic requirement for the essential legal and planning certainty for all companies.

- **Invest intelligently:** Public funds should not pre-empt or strain private investment and should therefore be limited to the supply of gigabit connectivity to those areas where commercial investment is not feasible.
- **Accelerate 5G:** The allocation of spectrum in Europe needs to be more harmonised and coordinated to strengthen investment, allocate appropriate spectrum in a timely manner, and prevent inefficient or discriminatory auction designs. At the same time, nationwide high quality mobile networks need to be fostered, and a common market based on a technology-neutral regulatory approach should be created to support innovation potentials on a global scale.

2 Governing the Digital Economy

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Adapting existing regulation to facilitate the digital transition of our economy is one of the key challenges for the next European Commission. The advancement of the digital economy requires an inclusive legislative framework that guarantees the security, availability and accessibility of data, while also supporting startups and established companies as they employ new business models in their transition to the new digital paradigm.

2.1 Internet and Data

One of the key challenges for the next legislative term will be to find a balance between preventing the abuse of data while at the same time encouraging its exchange and processing for the benefit of our economy. We have identified four key areas to this end: Cybersecurity, Data Protection & Policy, Platform Regulation and Digital Trade & Data Flows.

2.1.1 Cybersecurity

As infrastructure and industrial processes are increasingly grounded in and operated with data, these systems become more complex, multiplying potential targets for malevolent cyberattacks. Particularly with regard to cybersecurity, the EU is only as secure as its weakest link. EU institutions should therefore carefully monitor and reduce security discrepancies without watering down existing standards.

- **Drive international standards:** In a global market, no conflicting regional standards should be created. Coherence has to be guaranteed. Wherever possible, tried and tested standards and norms need to be applied. In case a European approach is deemed necessary, the standard should be pushed for adoption on an international level.
- **Involve industry for a risk-based approach:** Soon, most devices will be connected and most services will be digital. From a cybersecurity perspective, these products and services will have different levels of criticality, which should be defined in close cooperation with industry. With regard to the coordination between European governments, industry and the Commission, the involved stakeholders should be working on certification schemes in a transparent manner, which is paramount given that the necessary expertise is rare and in high demand.
- **Strengthen ENISA:** We welcome the extended role and capacity of the European Union Agency for Network and Information Security (ENISA). Its role will be particularly important regard-

ding the increased level of harmonisation. A permanent mandate, more resources and personnel are necessary to exchange best practices and to support policy-making and implementation. At the same time, questions of public security need to remain with national authorities.

2.1.2 Data Policy

The digital economy depends on the collection and processing of data, which enables companies to improve their products, digitise internal structures, develop new business models and adapt to consumers' needs. Data is driving European economic growth and will do so for the foreseeable future, which is why a well-balanced legal framework needs to be established. The necessity of collecting, processing and exchanging data for the evolution of business models and products needs to be conjoined with legitimate data protection and privacy concerns.

- **Limit localisation requirements and enable access to data:** Bitkom supports the free flow of data in the EU and welcomes the EU's efforts in this regard. Data localisation requirements should therefore be avoided. This principle should also extend to trade agreements. Given the importance of data for all relevant groups, access should follow the principle »as open as possible as closed as necessary«; handling of datasets shall be determined by deliberation in a transparent way in full respect of the rules for trade secrets, intellectual property and competition. Access to data should also follow the principles laid out by the European Commission communication »Towards a common European data space«³ and the GDPR.
- **Embrace co-regulation:** Technology evolves quickly. Self- and co-regulation measures create transparency while being easily adaptable to new technological developments. Where appropriate, the European institutions should support industry in drafting voluntary codes of conduct or certificates as a complement to regulation to provide room for innovation in an international context.
- **See the big picture:** Data protection and privacy policies affect a wide range of policy areas such as consumer protection, intellectual property rights, copyright and the development of new technologies. New laws that impact on data processing and collection practices such as text-and-data mining should be carefully balanced, keeping potential negative spill-over in mind.
- **Foster trust and security online:** Data-based innovations change all aspects of life, both for consumers and businesses. Policy-makers must support industry in fostering trust by setting clear rules for data protection and cybersecurity that can be implemented across the EU and serve as example for global standards.
- **Support implementation:** More support for businesses, particularly SMEs and startups, in the implementation of data protection rules is urgently needed.⁴ This could be achieved by establishing regular consultation and dialogue between businesses and the relevant supervisory bodies.

³ EC Communication [Towards a common European data space](#), from 25 April 2018

⁴ Our latest survey shows that by September 2018, only one quarter of German companies were fully compliant with the GDPR, <https://www.bitkom.org/Presse/Presseinformation/Germany-Little-Progress-in-Implementation-of-GDPR.html>

2.1.3 Platforms

Platforms are crucial drivers for growth and innovation in the digital economy. Leveraging their potential requires a harmonised legal framework and healthy competition. Dialogue between the private and public sector is crucial to foster understanding, particularly as developments in the B2C field are now moving into the B2B area. The B2B (or B2B2C) platform environment differs from market transaction platforms, as they are incorporated into vertical, specific ecosystems and require domain know-how. Stimulating industry uptake also depends on legal certainty and innovative regulation. Europe cannot afford to pass on these developments, but instead needs to embrace and advance them.

- **Targeted and consistent:** Rules should be as targeted, principle-based and proportionate as possible in order to avoid legal uncertainty regarding scope and application. They should not hinder the development and growth of the platform ecosystem or establish any barrier to entry for new economic actors. Instead, rules should focus on encouraging a diverse platform ecosystem based on transparency and clear contractual relations.
- **Protect algorithms:** Algorithms are the core of platforms and constitute trade secrets by which a company differentiates itself from its competitors. Algorithms deserve protection under intellectual property rights. In order to avoid manipulation, algorithms should not be completely transparent. However, the way in which they function should be explained to both private and business users of platforms.
- **Limited liability:** The eCommerce-Directive is the principal building block of the platform economy and the internet as a whole. It is a key enabler for growing platforms in Europe, balances requirements for platforms to behave responsibly with enabling open communication, and has incentivized platforms to innovate new means to deal with illegal content online. Without the legal principle of limited liability in particular – as formulated in the eCommerce directive – platforms could not emerge. It should remain the guiding principle of platform regulation at EU level. To address complex issues such as illegal content on platforms, Bitkom favours a better application of the notice-and-take-down procedure.

2.1.4 Digital Trade & Data Flows

European industry is deeply intertwined with the global economy. We therefore welcome EU efforts to conclude free trade agreements with our international partners. Increasingly, data is a crucial part in the international exchange of goods and services. It therefore should also take centre stage in future free trade negotiations, with the aim of negotiating reliable regimes on the cross-border flow of data.

- **Foster trust:** Talks on data flows should always be accompanied by discussions on data protection and security, in the interest of achieving a reliable relationship of data exchange.

- **Create transparency:** The principle of cross-border data flows should be enshrined through accountable, transparent and legally binding obligations.
- **Facilitate exchange:** Mandated localisation for data storage or ICT infrastructure should be explicitly prohibited. Any exemptions from this rule, for example for protection of privacy or national security, should be clearly defined in accordance with WTO principles, and be transparent as well as non-discriminatory.
- **Brexit:** Data flows between the EU and the UK should be undisrupted and unrestricted following the exit of the UK from the EU. Mutual exchange of data should be based on adequacy agreement, recognising equally high standards in the UK and the EU.

2.2 Sectoral Transformation

Virtually all sectors of our economy are affected by the digital transformation. As digital technology disrupts and improves upon traditional business models, it also poses new regulatory challenges, a number of which we address below.

2.2.1 Intelligent Mobility & Logistics

Traditionally, the mobility sector is one of the most important and well-performing industries in Europe. Therefore, it is crucial that we take full advantage of the digital transformation of mobility, for instance with regard to connected and automated cars, mobility platforms, but also services, personal transportation and logistics. If done right, the benefits for safer and cleaner mobility in Europe are enormous. Obtaining these benefits will require the full commitment of the EU, Member States, cities and other stakeholders, not least in strengthening investments in transport infrastructure.

- **Foster legal certainty:** Legal certainty for autonomous driving is necessary to make Europe a global leader. Test areas should feature low regulatory thresholds and space for experimentation. Mobility should not end at national borders, and we require an international, or at least a European legal framework.
- **Facilitate data use:** The legal conditions on the collection, processing and use of mobility data have to be created in such a way that they enable data-based business to promote digital mobility.
- **Develop a vision for connected and intermodal mobility:** Connected Mobility is much more than connecting cars – it needs to integrate different modes of transport like public transport, ride sharing, car sharing, bike sharing, and e-scooter sharing and autonomous bus shuttles. Intermodal mobility concepts should be supported by an enabling legal framework at the national and local level. The EU should play an active role in sharing existing best practices to inspire Member States and cities.

- **Free competition on standards:** Communication between cars and between cars and infrastructure (C-ITS) should be encouraged in a technologically neutral way. Regulations should not stipulate which technology should be used. The market should be enabled to select the most efficient solution on basis of technological and economic considerations
- **An integrated communication ecosystem:** Increasing connectivity through communication between different traffic modes and mobility participants needs to be promoted. When it comes to defining the best suitable communication standard, European legislation should not exclude any of the available technologies. Indeed, an integrated ecosystem needs to be promoted in which different technologies can co-exist. The principles of backward compatibility and interoperability need to be strengthened in order to ensure that such an ecosystem can develop.
- **Federalise national customs clearance:** The EU should work towards a European Single Window, in which independent areas of customs clearance (Union Customs Code, UCC) and electronic freight transport information (eFIT) should be harmonised. Bitkom proposes the concept of a Federal Platform for the EU in which national customs clearance systems could remain at the centre.

2.2.2 Digital Manufacturing

Digital Manufacturing, or Industry 4.0, describes the optimisation of the entire supply-chain by connecting systems and appliances involved in industrial and manufacturing processes through the Internet of Things (IoT). An important feature of IoT is its parallel development in various domains, e.g. smart production, smart manufacturing, smart home, smart grid, and smart agriculture. Merging IT and sectors that had previously been less relevant for IT is another trademark of industry 4.0/IoT.

- **Infrastructure and interoperability:** Accelerate the rollout of 5G network infrastructure. Build a reference model that identifies the minimal standardisation requirements necessary for interoperability. However, this reference model needs to take into account the evolving nature and diversity of Industry 4.0 and IoT, and a full-fledged single communications standard should therefore not be expected in the short term.
- **Security and data exchange:** The exchange of data and information is a critical precondition for the large-scale deployment of industrial IoT systems. It is therefore crucial that regulation does not impede on this exchange. Cybersecurity is vital to provide a secure environment for doing business
- **Value creation:** Due to the transformation of supply chains, value creation is shifting from hardware and software sales to providing services. This requires bringing together multiple stakeholders to develop digital solutions for affected industry segments.

- **Empower platforms:** IoT Platforms are of central importance for Industry 4.0, because they enable the link between machines, devices and applications. In order to facilitate the uptake of these platforms for companies and SMEs, data protection and data integrity have to be facilitated through adequate guidance by the authorities.

2.2.3 FinTech & Digital Banking

Europe does not have a single financial market, but is instead fragmented into 28 different regimes (or soon 27), setting high hurdles for customers from other EU member states, inhibiting the use of innovative technical infrastructure, hindering cross-border investment and thus directly impacting the availability of funding for innovative companies, startups, and citizens. In this fractured environment, harmonisation is desperately needed.

- **Think from the customer's perspective:** An overarching goal should be a seamlessly digital financial services experience for customers, without any requirements for physical signatures or paper trail and with access to the best services independent of the country of origin.
- **Harmonise regulation:** National, fragmented regulation and heterogeneous implementation of the anti-money laundering directive 4 (AMLD4) hinders secure and efficient electronic know-your-customer (eKYC) processes across borders, which are essential, especially for scaling B2C business models vital to Europe's digital economy.
- **Enable digital innovation:** Existing regulation almost entirely prevents the use of cloud technology by banks, although the use of cloud services is significantly more secure than currently used, outdated IT infrastructure. In particular, the audit and access rights hinder outsourcing to cloud service providers through banks. Furthermore, requirements for pooled audits of cloud service providers should be clarified and CSPs should be directly supervised by the competent financial authority.

2.2.4 Media & Copyright

Cultural and creative goods like music and film profit immensely from the digitisation of services. Value creation in these areas can be rethought entirely. At its best, the digital transformation renders creative content more diverse, eases access for the consumer and enables widespread participation in cultural experiences. However, these potentials are often not exploited to their fullest extent.

- **Facilitate dialogue while adhering to liability principles:** We recommend developing appropriate fora for dialogue between different stakeholders to overcome perceived differences between the digital and the creative economy. The liability regime for illegal content determined in the e-Commerce Directive (eCD) and refined in several judgments is well-engineered, balanced, and gives opportunities to address contemporary challenges regarding illegal content online.

- **Remove roadblocks and outdated, bureaucratic processes:** We require a technology-neutral and flexible framework to enable digital innovation of the creative economy. In this specific context, the Online SatCab Directive/Regulation has been a good – yet still insufficient – step forward. Further technology-neutral frameworks are needed. The unequal copyright levies systems in several EU member states, for instance, are based on an outdated and insufficient hardware concept. This kind of compensation for harm creates obstructions and significantly hinders the Digital Single Market.
- **Defend our freedoms:** We advise caution in designing suitable legislative measures to counter Hate Speech or Fake news as well as illegal content online. Measures have to be evaluated carefully with regard to their potentially adverse effects on fundamental rights like freedom of expression and press. Co-regulation is a viable way forward, allowing rapid reaction to new developments and limiting the risk of censorship. Political decisions on upload-filter to prevent copyright infringement have to be reviewed carefully.
- **Evaluate Copyright Reform:** The EU's Copyright reform, namely the Copyright-Directive and the Online-SatCab-Regulation, has been unprecedented in its controversy. Decisions on TDM, upload-filter, neighbouring rights for press publishers and direct injection were fiercely contested and need to be evaluated carefully in their implementation.

2.3 Reforming Governance and Processes

Beyond the regulation of data and specific economic sectors, the digital economy also impacts more fundamental government functions, such as its tax regime, promotion of innovation and the very way government runs its public administration.

2.3.1 Taxation

A fair and balanced tax regime is vital to ensure European competitiveness. In a globalising world, with global business models, the only viable solution to treat potential imbalances must equally be of a global nature. At the same time, taxation is an important policy instrument, and Member States should be free to adapt and adjust their tax regime to fit their economic model. This should not preclude a degree of convergence between tax regimes of Member States, but differences in tax regimes should be able to account for the heterogeneity of their economic structure.

- **Prevent double taxation:** Any tax proposal should be carefully assessed to avoid double taxation. The current EU proposal, for instance, does not sufficiently distinguish between a tax on turnover or revenue and thus does not fit into the current international system of tax agreements preventing double taxation.

- **Stay fair:** We support fair taxation on the basis of internationally agreed standards, but caution against disadvantaging European actors by unilaterally imposing taxes. Likewise, digital business models should not be disadvantaged relative to traditional business models.
- **Stay global:** A viable regime should be found on a global level, and be compatible with WTO rules. Regional solutions are doomed to be too narrow in scope to grasp the complexities of a digitalised business model. The OECD is a suitable forum for international debate on tax reform.

2.3.2 Startups

Startups drive innovative ideas and business models – they play a crucial role in supporting the digital transformation of industries and in maintaining the technological competitiveness of Europe. However, comparably few European startups have become global players, and Europe ranks 3rd on the number of unicorns by region, behind the US and China.⁵ Central reasons for this are a lack of institutional support, comparably low access to venture capital and a fragmented legal framework.

- **Close the venture capital gap:** Europe is falling behind its global competition in raising venture capital. In coordination with the Member States, the Commission should incentivise institutional investors to invest in young, fast-growing companies and VC funds. This should also entail easier cross-border access to Venture Capital.
- **Procure from startups:** Startups need better access to public procurement. Accordingly, the EU should move from elimination of risks to reasonable risk management as a standard for public procurement. Characteristics such as longevity of a company, high turnover and a large number of employees should no longer be the primary criteria for suitability. Rather, the assessment should focus on the suitability of the proposed solution itself.
- **Ease administrative burden:** An EU-wide limited liability company model could significantly decrease bureaucratic obstacles for startups. Furthermore, administrative one-stop shops should become the norm for startups. Where possible, administration should be entirely digitalised, following the example set by frontrunners like Estonia.
- **Foster ecosystems:** The EU should dedicate funding in its budget for the creation and support of local startup ecosystems, potentially building on the already existing Digital Innovation Hubs and with equity-based funding support from institutions like the European Investment Bank.

5 [World Economic Forum, 07 November 2017](#)

2.3.3 Government & Business Processes

Digitising government & business processes will unlock immense efficiency gains and increase productivity across industries. Legacy processes, often paper-based and inefficient, burden governments, but also businesses— from SMEs to multinational corporations – with unnecessary bureaucracy. The Commission should therefore set out to facilitate and support the transition to fully digital administration processes in all professional environments.

- **Define European standards:** For both businesses and administrations, standardisation and seamless interaction of digital formats and procedures is crucial to facilitate their widespread adoption. We therefore encourage the European Commission to assist the Member States in developing European standards whilst also encouraging the recognition of international standards.
- **Support transition for SMEs:** Smaller companies provide high financial cost as the main obstacle on their transition to digital management. Therefore, the EU should recognise digital business processes as a crucial part of digital infrastructure and financially incentivise investments for smaller companies.

2.3.4 Research & Innovation

Research and innovation are cornerstones of the digital economy. In our knowledge society, research results are the assets that can be turned into tangible economic growth and prosperity. The European Commission's priorities in future programmes like Horizon Europe and Digital Europe acknowledge this importance and are a vital contribution toward achieving these goals, but should follow a set of guidelines to maximise their positive impact.

- **Foster ecosystems:** The creation of innovative ecosystems that facilitate cross-border cooperation between multinational corporations, SMEs, research institutes and universities is equally crucial for the economic future of Europe.
- **Increase budgets:** In order to keep pace with international competitors, European research funding should be increased significantly. Ideally the annual budget growth within the Framework Programme is continued.
- **Ensure applicability:** Deployment-oriented innovation and research are crucial for the development, dissemination, and application of new knowledge and for early access to future markets. An application-oriented approach will strengthen Europe's competitiveness in the global economy.
- **Involve industry:** Research programmes in the past have often neglected to tap into the potential of existing businesses. In the future, their expertise should be consulted on a more regular basis, e.g. by involving more industry stakeholders in the Horizon selection process.

- **Open Access – as open as possible, as closed as necessary:** Return on investment is the crucial precondition for a company to invest in research. If companies were obliged to disclose all results of research done with public partners to competitors by default, they would lose this incentive and hence participation in public research programmes would be stifled. Research partners should therefore be able to decide whether they want to share the research results of their specific project with the public.

3 Fostering the Digital Society

3 Fostering the Digital Society

Digital transformation is having a profound impact on the way we learn, work and interact with each other as societies. In the process of adjusting to the new economic paradigm, we should not neglect the social dimension of this transition. As new jobs are created and old ones disappear, public authorities play a decisive role in supporting affected individuals, both by adapting existing social welfare institutions to this new reality and by enabling the workforce to acquire essential digital competences. The digital transformation bears great potential for inclusion and integration. It is important that both governments and economic actors fully exploit these new opportunities to ensure that every member of society can benefit from the digital transformation building on features such as accessibility, mobility and connectivity.

3.1 Future of Work

Digital transformation is fundamentally challenging the way we work. 9-to-5 jobs are disappearing; workers are combining self-employment and salaried work in new ways, digital platforms create new opportunities. We expect this development to continue in the near future, posing significant challenges for social welfare systems that were modelled on the work relationships of the industrial era. Through the wave of intelligent automatisations countless new jobs will be created – many of which we cannot even imagine yet – such as in social services, art and culture, entertainment, leisure, education and environmental activities. Creative jobs will become more important. The role of the state is to monitor and facilitate the transformative process.

- **Take stock:** We recommend reassessing our social welfare system, including the compatibility of our pension systems with the future of work. Where European coordination is possible, it should be embraced.
- **Enable flexibility:** Work that is flexible and can be tailored to an individual lifestyle is increasingly in demand. In a first step, labour laws should therefore be adapted to our times, without forcing collective agreements. Instead, laws should allow for greater flexibility and enable people working from home to fully embrace this way of working.

3.2 Digital Skills

Education is of the utmost importance for the digital transformation of our professional, economic and social lives. In many parts of Europe, education systems struggle to meet professional demands for digital competencies. Meanwhile, many traditional jobs will soon disappear and every professional activity will soon require some knowledge of digital technologies, raising the stakes for developing successful retraining programmes. The Commission's dedication to Digital Skills, e.g. in the Digital Europe Programme, is therefore highly laudable. However, the complex competencies in this field, with many remaining on the national or even regional level, should be taken into account.

- **Incentivise education:** Companies and employees should be incentivised to advance their knowledge in digital skills, e.g. through tax incentives. SMEs in particular require institutional support in designing strategies to increase the digital competences of their employees.
- **Establish a European educational standard:** Mutual recognition of school and university graduations should be complemented by cooperation on curricula, promotion of digital skills and lifelong learning on all levels of education.
- **Ensure diversity:** Women are still underrepresented in IT-related fields and in many other places, which raises questions about both the education system and about the career profiles in this sector. It is evident that, especially in areas such as AI, quality data is essential and that unconscious bias can be harmful. Lack of diversity in any area of the workforce or leadership will foster unconscious bias in technological and business development. The continued promotion of diversity is therefore an essential objective and prerequisite for a successful digital transformation.
- **Make inclusion a reality:** Digital technology can build a bridge for those members of our society who suffer from physical and mental disabilities. Digital transformation is a success only if it improves the lives, participation and economic opportunities of all members of society.
- **Attract expertise:** Europe will not be able to cover demand for IT experts through education alone. IT experts from other parts of the world should be incentivised to come to Europe.
- **Integrate refugees:** Digital technologies can assist the integration of refugees through digital transmission of knowledge and language skills, while preparing them for the new world of work.

Bitkom is Germany's digital association. Founded 1999 in Berlin through a merger of various industry associations, we represent more than 2,600 companies of the digital economy. Our membership spans more than 1000 SMEs, over 400 startups and virtually all global players. Our members offer a wide range of software technologies, IT-services, and telecommunications or internet services, produce hardware and consumer electronics, operate in the digital media sec-

tor or are in other ways affiliated with the digital economy. Bitkom advocates innovative economic and digital policies as well as an update of the education system for the digital age. A strong European digital policy and a fully integrated digital single market are at the heart of Bitkom's concerns, as well as establishing Germany as a key driver of digital change in Europe and globally. We support policies for the digitisation of the economy, public administration, education, work, as well as data protection and security.

4 Annex

4 Annex

Bitkom Positions & Guidelines by Topic | As of 15 November 2018

Our papers are primarily written in German; should you be interested in a topic without an English-language position, please do not hesitate to get in touch with our Brussels office (Benjamin Ledwon, Head of Office, b.ledwon@bitkom.org; Torben David, European Digital Policy Officer, t.david@bitkom.org).

1 Advancing Digital Technology

1.1 Artificial Intelligence & Robotics

- Artificial Intelligence. economic importance, social challenges, human responsibility ([↗DE/EN](#))
- Understanding Artificial Intelligence as an automation of decision-making ([↗DE](#))
- Cognitive Machines – A milestone for scientific work ([↗DE](#))

1.2 Distributed Ledger Technologies

- Blockchain Banking ([↗DE](#))
- Fact sheet Blockchain and data protection ([↗DE](#))
- Token Generating Events as a foundation for growth financing ([↗DE](#))

1.3 High Performance Computing

- Bitkom position on the implementation of EuroHPC ([↗DE](#))

1.4 3D Printing

- Bitkom position on 3D Printing ([↗DE](#))
- 3D Printing location Germany: A plan to strengthen manufacturing in Germany ([↗DE](#))

1.5 Connectivity & 5G

- Roll-out of fibre in Germany: potentials for acceleration on municipal level ([↗DE](#))

2 Governing the Digital Economy

2.1 Internet and Data

2.1.1 Cybersecurity

- Bitkom position on the Cybersecurity Act ([↗DE/EN](#))

2.1.2 Data Policy

- Machine Learning and the transparency requirements of the GDPR ([↗DE](#))
- EU consultation on building the European data economy ([↗EN](#))
- Bitkom position on the Public Sector Information Directive ([↗EN](#))
- Bitkom position on the ePrivacy Regulation ([↗EN](#))
- Bitkom position on text-and-data mining ([↗DE](#))

2.1.3 Platforms

- Bitkom position on the Platform to Business Regulation ([↗EN](#))
- Bitkom position on the Recommendation on illegal content online ([↗EN](#))
- Bitkom position on the Regulation on preventing the dissemination of terrorist content online ([↗EN](#))

2.1.4 Digital Trade & Data Flows

- Bitkom position on the horizontal provisions for cross-border data flows ([↗DE](#))

2.2 Sectoral Transformation

2.2.1 Intelligent Mobility & Logistics

- Digital Mobility Platforms – surveys, opinions and policy recommendations ([↗DE](#))
- Bitkom position on the electronic freight transport information Regulation ([↗EN](#))
- Bitkom position on the Cooperative Intelligent Transport Systems (C-ITS) Delegated Act ([↗EN](#))

2.2.2 Digital Manufacturing

- IoT platforms – Current trends and challenges ([↗DE](#))
- Fact sheet on Industry 4.0 business models ([↗DE](#))
- Ensuring interoperability for cross-domain communication ([↗DE](#))

2.2.3 FinTech & Digital Banking

- Bitkom perspective on the EU FinTech Action Plan ([↗DE](#))

2.2.4 Media & Copyright

- Bitkom position on the SatCab Regulation ([↗DE](#))
- Bitkom position on Article 13 of the Copyright Directive ([↗DE](#))
- Bitkom position on text-and-data mining ([↗DE](#))
- Bitkom position on competition in the audiovisual media sector ([↗DE](#))

2.3 Governance Reforms

2.3.1 Taxation

- Taxation of the digital economy ([↗DE](#))

2.3.1 Startups

- Bitkom Startup Report 2017 ([↗DE](#))

2.3.2 Government & Business Processes

- Bitkom Digital Office Index 2018 ([↗DE](#))

2.3.3 Research & Innovation

- Bitkom position on Horizon Europe ([↗DE](#))

3 Fostering the Digital Society

3.1 Future of Work

- Bitkom position on Work 4.0 ([↗DE](#))

3.2 Digital Skills

- Digital Education – recommendations for education in Germany ([↗DE](#))
- On-The-Job Education 4.0 – Establishing digital training schemes ([↗DE](#))

Bitkom represents more than 2,600 companies of the digital economy, including 1,800 direct members. Through IT- and communication services alone, our members generate a domestic annual turnover of 190 billion Euros, including 50 billion Euros in exports. The members of Bitkom employ more than 2 million people in Germany. Among these members are 1,000 small and medium-sized businesses, over 500 startups and almost all global players. They offer a wide range of software technologies, IT-services, and telecommunications or internet services, produce hardware and consumer electronics, operate in the digital media sector or are in other ways affiliated with the digital economy. 80 percent of the members' headquarters are located in Germany with an additional 8 percent both in the EU and the USA, as well as 4 percent in other regions of the world. Bitkom promotes the digital transformation of the German economy, as well as of German society at large, enabling citizens to benefit from digitalisation. A strong European digital policy and a fully integrated digital single market are at the heart of Bitkom's concerns, as well as establishing Germany as a key driver of digital change in Europe and globally.

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