

EXECUTIVE SUMMARY

As the cost of data collection, storage and processing continues to decline dramatically and computing power increases, social and economic activities are increasingly migrating to the Internet. Technologies, smart applications and other innovations in the digital economy can improve services and help address policy challenges in a wide range of areas, including health, agriculture, public governance, tax, transport, education, and the environment, among others. Information and communication technologies (ICTs) contribute not just to innovation in products, but also to innovation in processes and organisational arrangements.

As well as a catalyst for growth, digital technologies may be disruptive, with far-reaching effects on productivity, employment and well-being. While new technologies create opportunities for businesses (especially SMEs), workers and citizens to engage in economic activity, these technologies are also likely to displace workers doing specific tasks and may further increase existing gaps in access and use, resulting in new digital divides and greater inequality.

This report provides an assessment of G20 economies' performance with respect to digitalisation (Part I) and examines some of the most pressing policy challenges in areas spanning from access to digital infrastructures to digital security to legal frameworks (Part II). Part III includes a set of 11 core policy recommendations that could underpin a comprehensive G20 digital agenda. Overall, the report aims to help identify the policy mix that will enable G20 economies to best maximise the benefits of an increasingly digitalised global economy, and one in which governments, trading partners, and individuals are all engaged together to ensure that the digital transformation is inclusive.

The following is a brief description of the content of the report. It must be read in conjunction with the key policy recommendations in Part III.

Assessing digitalisation in G20 economies

A set of indicators on digital infrastructure, access to and use of digital technologies, innovation in the digital economy, the skills needed to participate effectively in the digital economy, and metrics around trust, illustrate G20 economies' performance with respect to digitalisation. While G20 countries' performance varies significantly, in part linked to each economy's stage of development, it is clear that those economies that do not have strong digital infrastructures do not perform as well in many of the other areas, in part because digital infrastructures are a foundational element. G20 economies that are relatively isolated geographically tend to engage strongly online, as shown by web presence and e-commerce transactions. With respect to innovation, a relatively small number of G20 economies dominate. An important gap in cross-country comparable metrics on trust is also evident. G20 economies can usefully work together to further develop cross-country comparable metrics in areas such as e-commerce and business use of sophisticated digital technologies (e.g. cloud computing and big data analytics, among others). New areas, such as trust and the IoT, are the next frontier. All countries need to work together to fill the data gaps and in doing so enabling better benchmarking, evidence building, policy development, and the identification and prioritisation of reforms, taking into account each G20 economy's level of development.

Access to digital technologies and services

Despite the rapid spread and uptake of digital technologies, adoption and use vary among G20 economies by demographic categories, industries and firm size, raising concerns about the inclusiveness of the digital transformation. Barriers to the access and effective use of digital technologies typically include some combination of a lack of high-quality and affordable infrastructure; a lack of trust in digital technologies and activities; a shortage of the skills needed to succeed in the digital economy; a more reactive than proactive approach to the openness of the Internet; services trade barriers; high costs and poor access to financing for smaller firms; barriers to the reallocation of resources across firms and sectors; and a lack of interoperability of standards. These barriers can be ameliorated by developing and implementing comprehensive national digital strategies that would encompass actions to enhance competition in telecommunication markets and improve Internet access for disadvantaged groups, SMEs and regions; elevate the importance and clarify the objectives of policies and practices to address digital security and privacy risks; reduce firm-level barriers and enable complementary investments; ensure life-long learning mechanisms to improve workers' skills; ensure Internet openness and cross-border data flows; and foster firm dynamics within the economy.

Digital infrastructures

It is essential that G20 economies continually invest in the development of digital infrastructures to meet existing and future demand. They provide the foundation for many new services, applications and business models. They are also crucial in underpinning and enabling the digital innovations that are transforming production, including in the context of Industrie 4.0. Key barriers to the deployment of high-speed networks and services include the nature of the infrastructure itself (monopolies, duopolies), which can give rise to high barriers to entry. In addition, geography, administrative barriers, regulatory uncertainty, and high capital expenditure, access to spectrum, and in some countries, a lack of basic infrastructure (e.g. electricity) particularly in rural areas, can be stumbling blocks. An important area for policy action involves establishing national broadband plans with well-defined targets and reviewing them regularly. These plans should ideally address the key barriers to the deployment of high-speed networks and services and include measurable targets to address the policy challenges associated with ensuring competition and investment. It is also important that these plans include targets associated with the important technical enablers, such as access to Internet exchange points and spectrum, among others.

Financing digital infrastructures and new business models

Further investments in digital infrastructures, especially high-speed broadband networks, are essential to supporting vibrant, innovative and inclusive digital G20 economies. Financing hurdles related to digital infrastructure investment include high capital costs, susceptibility to changes in market conditions, low rates of return in rural and remote areas, and a lack of accurate data for making informed investment decisions. Encouraging investments in and sharing of data – itself an important 21st-century infrastructure – is also needed. Challenges related to financing digital infrastructures include issues linked to data curation and investment incentives, trust (privacy and digital security risk management), data evaluation, pricing, data ownership and intellectual property rights (IPRs). Access to finance is also a key challenge for innovative enterprises that are seeking to implement new business models based on digital technologies. There are a number of areas in which the G20 could play a role to help address some of these concerns, including by strengthening infrastructure deployment through public and private financing; improving framework policies to foster financing of digital infrastructures and new business models; exchanging experiences and good practices on national initiatives aimed at creating a more entrepreneurial culture; and encouraging investor participation in crowdfunding platforms.

Open, voluntary standards, grounded in bottom-up and market-led approaches, are an important tool in the context of fast-developing technologies. Such standards and related guidelines are needed to maintain current levels of safety, ensure trust based on enhanced levels of digital security and privacy, improve energy and resource efficiency, and address emerging social and organisational challenges brought about by the digital transformation. The development of standards and standards-based interoperability are critical for the development of Industrie 4.0 and the IoT, including smart cities and smart mobility. The key to success lies in inclusive standards development, built on collaboration and co-operation among the many players that make up the standards ecosystem. Advanced governance frameworks – building upon both existing public- and private-sector-led processes and new multi-stakeholder initiatives for the benefit of all – are necessary to effectively address the complexity of today’s interlinked issues in successful Industrie 4.0 development and deployment. G20 leaders could support the adoption of best practices and policies that enable all relevant actors, including SMEs, to more effectively work together to help foster an interoperable environment in support of the IoT and Industrie 4.0.

Regulation of the ICT sector

The convergence of fixed-line communications, wireless communications and broadcasting over the Internet has created a need for countries to review their regulatory frameworks and public policy objectives to ensure that all market participants have incentives to continue to innovate, compete and invest. Ensuring a 21st-century approach to the ICT sector involves removing regulation where it is no longer necessary or extending the scope of regulation to new service providers. It may also entail creating converged regulators and/or adjusting regulatory powers so they can oversee all elements of bundled services and ensure consistent consumer protection. Promoting competition in the converged communications environment is another important challenge. At the G20 level, a comparative analysis of the effects of convergence on competition and innovation across countries would help to further inform policy actions. The analysis could include elements such as the regulatory environment, mergers and acquisitions, investment and revenue, access paths (fixed, mobile and machine-to-machine (M2M)) and network neutrality rules among others. The development of a “converged analytical framework” to benchmark G20 countries could contribute to a more informed debate on the effects of specific policy actions.

Digital security

Digital security risk has traditionally been approached as a technical problem but the changing nature and scale of digital security risk is driving G20 economies to re-evaluate their strategies and policies in this area. In recent years, many governments and stakeholders have emphasised the importance of considering digital security risk from an economic and social perspective. G20 economies could develop strategies, supported at the highest level of government, to create the conditions for all stakeholders – including SMEs – to manage digital security risk to economic and social activities and to foster trust and confidence in the digital environment. G20 economies could also initiate international arrangements that promote effective privacy and data protection across jurisdictions, including through the development of national privacy strategies that would foster interoperability among frameworks. Such privacy strategies should incorporate a whole-of-society perspective that adjudicates across competing priorities while providing the flexibility needed to take advantage of digital technologies for the benefit of all. To address the need for better evidence on digital security and privacy risk, G20 economies could explore opportunities for strengthening co-operation and international arrangements that promote greater sharing of good practices and information.

Skills and the digital economy

To ensure that all people can engage in and benefit from the digital economy and adapt rapidly to new and unexpected occupations and skill needs, education and training systems in G20 economies should place a stronger emphasis on promoting ICT generic skills, ICT specialist skills, and ICT-complementary skills, including foundational skills, digital literacy, higher-order critical thinking skills as well as social and emotional skills. Greater efforts are also needed to raise the skills of those adults with weak literacy, numeracy and digital skills to enable them to fully participate in the digital economy and society. At the same time, digital technologies are creating new opportunities for skills development. Seizing these opportunities requires a process of institutional learning, where actors are given sufficient scope to experiment with new tools and systematic assessment of outcomes leads to the selection of the most effective practices. Barriers to access these new technologies must be addressed, as well as concerns about the quality of online education and the lack of recognition for learning outcomes. The development of more effective strategies in G20 economies that enable all people to adapt to and excel in the digital economy, including through the use of ICTs and other technologies to upgrade skills, is essential.

Digitalisation, SMEs, start-ups and dynamism

Important differences in ICT adoption and usage exist between large and small firms, with SMEs facing several barriers to adopting ICTs and digital technologies in their operational activities, in particular in having the resources to acquire the necessary complementary knowledge-based assets, such as organisational and human capital. It is essential to help promote adoption of these digital technologies among SMEs because they can help overcome some of the traditional barriers to investing in digital technologies, including the often high, upfront sunk costs of these investments, and allow them to switch more rapidly from one technology to another to avoid being locked in. Comprehensive national digital strategies that take into account SMEs, policies that facilitate access to finance, and SME engagement with competency centres and/or technology diffusion extension services, can be helpful in this regard. Moreover, business dynamism in many G20 economies has declined, especially following the crisis and particularly in ICT-producing and ICT-using sectors, raising concerns about innovation. Policies that can help boost business dynamism include facilitating access to finance, building on the *G20/OECD High-level Principles on SME Financing*. Pro-competitive product market regulations and employment protection legislation that is not overly stringent can also foster dynamism and the adoption of certain digital technologies. Policies that facilitate the mobility of workers as well as training and skills development are important to help smaller firms compete with larger, established incumbents.

Consumer rights in the digital era

Despite the steady increase business-to-consumer e-commerce, there remains considerable untapped potential. Well-tailored consumer protections and competitive markets are essential to build the trust needed to further develop these markets for the benefit of consumers and businesses alike. More effective implementation of consumer rights is essential for e-commerce to reach its full potential. Policy frameworks in the OECD and UN offer an excellent starting place, but likewise require a greater implementation commitment by governments. Cross-border and cross-sectoral enforcement co-operation is but one area for further work. In an increasingly data-centric environment, approaches like data portability offer promise but require further study to ensure that they work for both consumers and businesses. At the same time, G20 economies could usefully explore the issue of platforms and consumer trust with a view to assessing if concerted G20 action could help strengthen consumer trust. Consumer choices in this information-intensive environment are impaired by challenges relating to complexity and uncertainty, sometimes compounded by misleading or fraudulent business practices. The expanding reach of platforms – including peer platforms – poses special challenges to consumer trust, while at the same time opening up new opportunities.

Digitalisation and legal frameworks

Digitalisation is changing the world faster than many laws have evolved. G20 economies should develop mechanisms to periodically review their legal frameworks and, where appropriate, update them to ensure that they are well-suited to the increasingly digitalised world. Designing and implementing a whole-of-government approach to digitalisation is crucial in this regard because advances in one area can be mitigated by retaining the status quo in another. One important legal area that is being affected by digitalisation is competition, which may need to undergo some adjustments in the digitalised context, such as a shift towards looking at data as the most vital competitive asset in some markets, different approaches to market definition and market power, and a greater focus on international co-operation and co-ordination among competition authorities. The G20 may wish to develop tools for assessing the particular complexities of competition in the digital era. Online platforms create new markets and opportunities, but also raise a range of economic and social challenges. Governments should consider updating laws to address factors that unnecessarily make working through online platforms less attractive, the lack of clarity in certain regulations, tax issues that emerge with the proliferation of small revenues earned via platforms, and consumer and privacy protection of online market participants. More broadly, G20 economies could undertake analysis of the opportunities and challenges raised by online platforms and how different policies may help address them.

The ongoing digitalisation of our economies and societies will only expand and deepen; the G20 must be ready to make the most of it. This report has helped chart an innovative, ambitious, and pro-active digital agenda, for the G20 and beyond. It is essential that the G20 work together to build a brighter common future, using the multi-stakeholder model that has served so well. Only by taking a pro-active, 21st-century approach to the digital economy will the G20 maximise the enormous potential the digital economy holds for our economies and well-being.