

Digitalization for the people

**An agenda for more
growth, better
education and equal
opportunities in the
G20 countries**



Preface

The debate about digitalization and its consequences has moved center stage in our society. Most actors in the realms of politics, the economy and the media have now grasped the fundamental upheavals that digitalization brings. It is therefore only logical that a topic of such universal relevance should belong on the agenda of the G20, the central forum for economic cooperation between the leading industrialized and emerging countries. This year's German presidency creates a unique opportunity to discuss the global challenges associated with digitalization as a focal point of questions about our economic, political and social future and, in the process, to express the German and European perspectives on these issues.

It is important to make a powerful statement in favor of fairness and equity in the design and execution of digitalization. Global value chains have improved the lives of people throughout the world, and digitalization undoubtedly harbors still greater growth potential. However, these benefits have so far eluded many people, and many even now look back on a decade of economic stagnation. In Europe and the USA, this has contributed to a resurgence of populist movements that now advocate economic and political isolationism. Movements critical of globalization are growing in emerging countries too. The citizens of the G20 countries will consent to a bold step into the digital future only if they themselves do not rank among the losers of globalization and digitalization.

In its capacity as a non-partisan think tank and a voice of the European Internet and digital economy, the IE.F has, in collaboration with Roland Berger, identified the key areas in which a digital G20 agenda must take action. This paper outlines possibilities to shape digitalization in a way that is of benefit to the people and reconciles economic growth, better education and equal opportunities. The objective is to establish open markets and transparent competition as the cornerstones of digital growth stimuli, giving people the opportunity for social advancement and greater economic prosperity. We look forward to constructive collaboration and critical dialogue with everyone interested in working toward this goal.



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Five actions for a fair digital transformation

- 1. Ensure fair and free competition in the digital arena**
- 2. Create innovation-friendly conditions**
- 3. Press ahead with the no-gaps expansion of broadband**
- 4. Promote forward-looking education as a key to social mobility**
- 5. Ensure diversity of opinion in digital media**

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1 AN UNCERTAIN WORLD

Globalization and digitalization have driven major advances in the economy and society in recent decades. This progress has had a particularly powerful impact on the lives of people in developing and emerging countries. Today, fewer people suffer from hunger, more children are educated at school, a global middle class has taken shape, and child mortality has receded. These positive developments are in part attributable to the work done by international forums for cooperation such as the G20.

The very foundations on which this successful model is built are, however, currently being called into question. Especially in industrialized nations, protectionist aspirations are gaining ground, opposing free world trade and fueling skepticism toward the political classes. This protectionist sentiment is rooted in a sense of uncertainty whose cause must, to some extent, be looked for in the socioeconomic upheavals that are accompanying globalization and digitalization. Exactly where the lines of political and social conflict are drawn varies from country to country. Yet global value chains and technological progress are perceived everywhere as a threat to jobs and welfare systems; and this perception nourishes the fear of loss rather than communicating the opportunity for gain. The real economic corollary to this phenomenon is low growth in the industrialized countries, where fewer people have been able to benefit from globalization and digitalization than in the emerging countries.

Europe in particular looks back at a lost decade. In the long run, the continent will be able to keep populist and protectionist streams of thought from growing stronger only if it offers its citizens a better economic outlook in

the form of growth and an attractive labor market. This kind of economic upswing in Europe would inject significant stimulus for global growth and help stabilize the world's fragile political situation. Accordingly, it can only be in the interests of all G20 members to see Europe gain fresh momentum and thus play a part in ensuring a stable world order. Digitalization harbors the strongest potential for greater productivity, better jobs and a more equitable society. Europe must therefore put this potential to good use.

The German G20 presidency is taking an important first step, establishing digitalization as a focus of the forum going forward. In the run-up to the G20 summit, the digital ministers of the biggest industrialized and emerging countries will therefore meet for the first time on April 6–7, 2017. This meeting presents a unique opportunity to discuss digitalization as a focal point of questions about our economic, political and social future. At the joint G20 German presidency/OECD conference on Key Issues for *Digital Transformation in the G20* in January, the OECD spelled out the main challenges arising from digitalization and formulated a series of policy recommendations. These include privacy and data security, consumer protection and the development of Industry 4.0 standards.

However, the potential afforded by digitalization goes far beyond joined-up production in the context of what is known as the fourth industrial revolution. Accordingly, this paper addresses three topics that, from the perspective of the European Internet economy, are of pivotal importance to the G20 in general and Europe in particular:

1. Our prosperity is built on free trade and fair competition – a principle that is all the more valid in the digital world. The global economy is being shaped by large digital platforms that generate considerable benefits for consumers and companies as marketplaces, drivers of innovation and advertising media. The problem is that, as customer benefits multiply alongside the growth of a digital network, so too does the market power of the platform operator. In building digital ecosystems around their core services, US and Chinese platforms in particular have demonstrated the substantial systemic importance that establishes them as dominant market players in the Internet economy. These platforms of systemic importance can pose a threat to competition by dictating the rules of the global digital economy and driving or keeping new competitors out of the market.

2. Ambitious digital companies in Europe and the emerging countries suffer from home-made problems. Bureaucratic procedures, regulations that penalize innovation and lack of access to funding all slow the progress of start-ups, making it difficult to both launch and grow new companies.

Another issue is that, as the Internet economy opens up new markets, it falls foul of legacy regulations that are ill-suited to the digital world. This prevents innovation, leaves growth potential unused and restricts the variety of products and services available to consumers.

3. Lastly, from a political perspective, we must critically examine who reaps the benefits of globally con-

nected value chains today and who will do so in the future. In the (former) emerging-market countries, integration into the global economy has freed millions of people from poverty. It is important that the benefits of digitalization should also become visible in the prospect of individual prosperity – all over the world. If we fail to shape a fair and equitable digital transformation, we risk losing opportunities for advancement, which would impair social mobility. Whole swathes of the population would end up as the losers, fueling a further resurgence of populist tendencies. In many industrialized countries, a large proportion of private households are already looking back on a decade in which prosperity has stagnated or real income has even been eroded.

Faced with these challenges, the G20 must take resolute action. This paper advocates close transatlantic collaboration as the driving force to establish fair rules for the digital economy in the major economies and beyond. Despite the dominance of American platforms, industrialized and emerging countries should nevertheless keep their markets open to digital business models from the USA. In return, the digital superstars – especially those on the West Coast of America – must play their part in creating the conditions for fair competition in the Internet economy.

At the same time, the G20 countries must strengthen the innovative capabilities of their own digital hubs. This will involve modernizing and reducing bureaucracy and aligning regulation with conditions in the digital economy. It also concerns access to capital to ensure that

innovative companies can tap sufficient financial resources in both the start-up and growth phases. Additionally, the rules that currently apply in some sectors of the economy must be reassessed. Examples include passenger transport and tourism – sectors in which innovative business models often stumble upon the hurdle of existing regulations.

Investment too must be stepped up if a divide between society's digital winners and losers is to be avoided. In the digital age, the no-gaps provision of broadband Internet access is fundamental to a just and fair economic order. That is true for certain structurally weak regions in the industrialized countries, but even more so for the emerging-market countries. The UN sees comprehensive and affordable access to the Internet as an aspect of one of its sustainable development goals (the successors to the *millennium development goals*). The international community also needs the G20 to take the lead in launching a global education initiative to get schoolchildren fit for the digital world and enable workers to adapt to the changes ahead. Relevant aspects include the proper handling of digital media and the rampant flood of information.

Globalization and connectivity have freed millions of people from poverty. If we are serious about writing the next chapter in this success story, we must now stand up for free trade and fair conditions in economy and society – also, and especially, in the context of the advancing digital transformation.

**This paper
advocates close
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2 **WHAT IS AT STAKE**

Shortly after taking office in January, US President Donald Trump announced higher customs duties to reduce his country's trade deficit. This step aligns with the view he expressed before moving into the White House: that other economies are getting rich at the expense of the United States. The president's perspective equates the USA's negative trade balance with a loss of prosperity for American citizens, suggesting that international trade is a zero-sum game that only one of the trading partners can win. At first glance, it therefore seems only logical for President Trump, in keeping with his "America First" slogan, to be keen for customs duties to protect the US economy against competition from abroad. In light of this reasoning, it would be negligent to assume that the new US government's protectionist leanings will soon "blow over".

Up to now, there has been an unwritten agreement: The USA has allowed exports from Europe's and China's manufacturing industries to access its market. In return, Europe has set aside its self-interest in protecting its own digital services companies and kept the European market open to US platforms and their digital business models. If the USA were to now impose import duties on European exports, that would be tantamount to terminating this informal agreement. For their part, the Europeans could counter by revoking the unwritten goods-versus-platform agreement. As a consequence, US digital service providers would have heavily restricted access – or no access at all – to the European market. China, whose trade surplus with the United States is more than double that of the European Union, moved quickly and radically and has already implemented a

similar model. Protected by the "great firewall of China", Tencent and Alibaba have emerged as large platform operators with an extensive reach.

In response to protective US tariffs, regional pockets of digital protectionism could spring up around the globe. In this scenario, individual countries and groups of countries would isolate their economies in the hope that, as a result, an independent regional digital economy will develop. Such actions would have grave consequences, as the example of Europe clearly shows: The 500 million consumers in the EU-28 make this continent one of the US platforms' most important markets:

- eBay generates nearly one sixth of its revenue in Germany alone.
- The European market contributes more than one fifth of Apple's operating profit and accounts for close to a quarter of its total revenue.
- Facebook too would lose almost 25% of its revenue – and 349 million monthly active users – without the European market. Every European user generates more than twice as much revenue for the company as their counterparts in Asia.

There are still growth markets in Asia and Africa waiting to be conquered by digital platforms. The Chinese Internet giants at least have a footprint or are already on the advance on both continents, however. Losing the entire European market would therefore badly hurt America's West Coast digital platforms.

Yet the Europeans would likewise lose out if they walled in their Internet economy as a reaction to the USA's pro-

The response to the possibility of US protectionism cannot be to build regional digital fortresses – neither in Europe, nor in the rest of the G20.

protective tariffs. The market-leading platforms are successful because they provide tremendous benefits to the customer. Without them, European consumers would be deprived of a broad spread of digital services for which, at least in the short term, there is no substitute.

Given the global balance of power in the Internet economy, the digital future would leave Europe behind. One main reason why US companies wield so much market power is that they have occupied key positions at the interface to the customer. Digital platforms act as network nodes and matchmakers in multi-sided markets. They set standards and reduce risks – and, in so doing, facilitate highly efficient transactions. They also have tremendous capacity to collect and analyze customer data. All of which makes the US platforms hugely important to Europe's companies: as market penetrators, as sales channels, as advertising media, as drivers of innovation and as business partners.

Strict digital isolation would, therefore, in no way benefit the European economy, partly because many companies in Europe also use the big US platforms as their central customer interface. These companies would lose a crucial intermediary to their customers – in the domestic market, but also worldwide. There is also reason to fear that the innovative force of many technology-driven and globally networked companies would be paralyzed if US platforms were no longer allowed an unfettered presence in Europe. These platforms are indispensable business enablers on the one hand, but also role models in terms of innovative capabilities and value-added potential.

The worst consequence of all would be that, in pursuing a strategy of digital isolationism, Europe would remove the very cornerstone of its prosperity. Open trade, the freedom to innovate and fair competition are what have made this continent successful. On the other hand, mercantilism, statism and monopolies have always gone hand in hand with a loss of welfare. That is why the response to the possibility of US protectionism cannot be to build regional digital fortresses – neither in Europe, nor in the rest of the G20.



3
**TIME FOR
ACTION**

Irrespective of the US government's concrete decisions, the G20's digital ministers should, when they meet in April, take the initiative to stop the spiral of protectionist escalation before it gets going. Close transatlantic collaboration between Europe and the United States should be the driver of this initiative. In the context of this transatlantic cooperation and as a sign of goodwill, Europe should continue to give the US platforms access to the European (single) market. The decision to waive digital isolationism should, however, be made contingent on the US platforms cooperating in the establishment of fair competitive conditions for the European Internet economy.

These regulatory ground rules could set the tone for an innovative and equitable digital economy across all G20 member states. And that could prevent the digital status quo from becoming entrenched and the big US and Chinese platforms from carving up the global market between them. The objective must be to nurture an open, vibrant and global Internet economy whose lifeblood is the innovative strength of all regions that participate.

However, whether or not this goal is reached does not depend on fair competitive conditions alone: The individual countries must also strengthen the ability of their economies to innovate. Above all, this has to include tearing down bureaucratic obstacles and regulation that is detrimental to innovation, both of which slow or prevent the launch and growth of new companies with innovative business models.

The political upheavals currently taking place worldwide also make it clear that an open economy and free trade depend on the backing of broad sections of the electorate. If the gains realized by globalization and digitalization are distributed too unequally throughout society, if there are too many losers, this creates fertile soil for populist and protectionist movements. For this reason, the G20 must take the lead, setting an example as global pioneers in creating the conditions for an equitable economic order in a digital world. The development policy and industrial policy achievements of recent years must be carried forward into the digital age.

3.1 Ensuring fair and free competition in the digital arena

Digital platforms are the most powerful exponents of the Internet economy. In their capacity as the de facto switchboards of the global Internet, companies such as Alphabet/Google, Apple, Facebook and Amazon ("GAFA") have attained systemic importance. Without them, nothing goes on the Internet today. The extent of this dependency was highlighted recently when, on February 28, 2017, no fewer than 54 of the world's 100 largest online retailers came to a standstill. Why? Because a typographical error by a software technician at Amazon's cloud subsidiary Amazon Web Services (AWS) caused virtually the entire server infrastructure on the East Coast of the US to fail. Estimates indicate that this system error cost the companies listed on the S&P 500 index alone around USD 150 million.

This dominant market and competitive position and the associated systemic importance for the entire economy (not just the Internet economy) are reflected in many figures: The revenue created by large platform companies today is equivalent to the gross domestic product of entire developed economies. Apple alone, for example, generates roughly as much economic output as Finland. Similarly, the market valuation of the seven most important digital platforms is equivalent to all companies listed in the Euro Stoxx 50 index taken together. →A

A constant stream of new stock market, revenue and profit records underscores the global triumph of digital platforms – a triumph built on the many benefits they provide to consumers and business customers. Their innovations not only increase the diversity of digital services, but also tap new markets by adopting innovative business models. This leads to a win-win situation: Consumers benefit from new offerings, lower prices and greater market transparency, while small and medium-sized enterprises in particular can sell their products and services on a large scale to clearly defined target groups. Since digital platforms also reduce transaction costs, they have the potential to improve economic efficiency and productivity. Bearing in mind the welfare effects that platforms generate, there is justification for their prominent position in the global economy.

Besides their dominant market and competitive position, the platform companies' origins are striking as well: The seven biggest operators all come from the United States and China. Indirectly, a number of other economies also benefit from the welfare effects of the

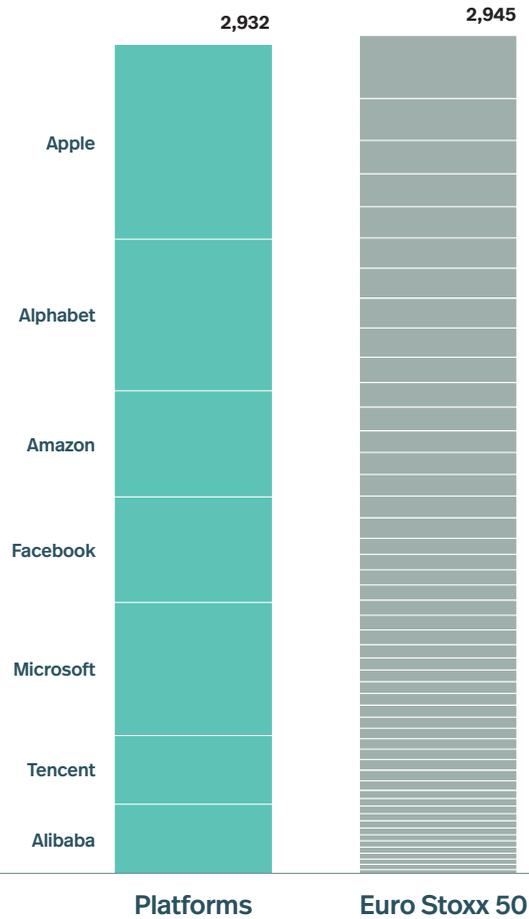
platform economy. Even so, it is questionable whether, under the prevailing competitive conditions, these economies are in a position to establish platform-based business models of their own. There are already visible signs of a tendency toward a monopolistic platform economy that could pose a threat to fair competition and become an obstacle to the success of new platform players.

There are good reasons for this assessment: Acting as intermediaries, digital platforms occupy the central interfaces to consumers. In doing so, they secure access to exclusive customer knowledge. They then exploit this position (plus their vast capital reserves) to penetrate upstream and downstream links in the value chain. Having started life as a search engine operator, Alphabet/Google, for example, has developed a whole universe of platform applications (operating system, browser, mapping, messaging, video streaming, app store, etc.) and acquired more than 200 firms. This verticalization strategy enlarges platform operators' data pool and further protects their market position. It thus becomes increasingly difficult for competitors to gain their own access to customers and scale up their business models independently of those platforms that have attained systemic importance.

Platforms use vertical integration to create their own ecosystems that bring software, service, content and even hardware together, and that also integrate the offerings of third-party providers. The latter benefit from this collaboration, because they can sell their products or services on an established marketplace frequented by

A The market valuation of the seven most important digital platforms is equivalent to all companies listed in the Euro Stoxx 50 index combined

Market capitalization [EUR billion]



Source: Bloomberg; Roland Berger (data status: March 23, 2017)

many consumers. However, the biggest winners from this symbiosis are the platforms themselves: Via a standardized programming interface, they can make use of the attractive innovations of external developers while at the same time retaining control of the products and services on offer (as well as the customer data). By taking the form of ecosystems, digital platforms generate enormous economies of scale that yield huge benefits for the customer. Also, as the providers of infrastructure with systemic importance, they assume a very powerful, almost impregnable market and competitive position.

This prominent position of digital platforms creates the risk of market foreclosure and the formation of a monopoly. In light of currently observable competitive practices, it is highly likely that incumbent platform companies will exploit their control over infrastructure of systemic importance (in the form of customer and programming interfaces) to the detriment of their competitors. An ambitious G20 agenda that targets a transparent, innovation-friendly Internet economy must put in place the conditions for fair competition – conditions that respond to the new market realities of the platform economy.

The driving force and the blueprint for a reform in the direction of more transparent, innovation-friendly rules of competition for the Internet economy should be the transatlantic cooperation described above. In a best-case scenario, the USA and Europe would work together to establish the right framework for conditions that ensure fair competition. The ensuing regulatory framework would encompass many different areas of

law and, hence, many individual measures. From the perspective of the European Internet economy, three main principles must be heeded when redesigning this legal framework:

Data portability. Consumers should be given the right to take their data with them when they change providers. Both the United States and the EU already have rulings that target the portability of user data, but they relate solely to personal data from which a living individual is identified or identifiable. However, consumers should have the right to take all data of personal value with them, including such aspects as playlists and photo albums which, in the absence of portability, create a powerful lock-in effect. Since platforms that dominate the market are constantly creating new de facto standards, only open interfaces and optimal interoperability can ensure that other market players too are able to build on these standards.

The unbundling of vertical services. Platforms of systemic importance should not be able to seal their upstream and downstream products and services off from competitors. It follows that vertical services in closed systems must be rigorously unbundled wherever they put competitors at upstream or downstream links in the value chain at a disadvantage. This applies in particular to preinstalled products and services.

Platform neutrality. Platforms of systemic importance should assume a neutral stance in respect of business partners and competitors, and should grant them access to their infrastructure without discrimination. This guar-

antee of access based on neutrality concerns both the inclusion of external providers' products and services and the associated terms of use and payment systems.

When establishing these principles and creating a legal framework to safeguard competition, international cooperation should be targeted to ensure that competition in the Internet economy adheres to uniform standards. Only then can countries be kept from scrambling for the lowest possible regulatory denominator. And only then will innovation-friendly competition be realized in the digital world. The G20 can play an important part in making this happen.

3.2 Creating innovation-friendly conditions

The dominance of large platforms is not the only thing that hinders the growth and innovative strength of the global digital economy. Regulatory frameworks that are out of date, unsuitable and/or excessively complex are another factor. To foster a vibrant Internet economy, the G20 must in particular improve conditions surrounding the launch and scaling up of new businesses. Cumber-some bureaucracy and a jungle of regulatory norms drive up the cost of starting new companies.

In its annual *Doing Business* rankings, the World Bank compares business regulations in 190 countries – and highlights the major bureaucratic obstacles that start-up entrepreneurs have to overcome in each one. →B

A scramble for the lowest regulatory denominator can be avoided only if competition in the Internet economy adheres to uniform standards.

The World Bank's analysis looks not only at the burden of bureaucracy, but also the overall regulation-driven effort involved in starting a company. That includes interactions with authorities, but also with auditors and notaries. On average, start-up entrepreneurs in the G20 countries must work through seven different processes to get their company registered. The obstacles to starting a business are particularly low in Canada, where a newly launched company can commence legal operation after only two distinct process steps. In contrast, Argentina requires 14 processes that must be completed before a company can come into legal existence. With five process steps, the EU beats the average for most of the G20 countries.

When company start-ups are delayed by bureaucratic and regulatory processes, that puts the brakes on an economy's ability to innovate. To exploit the potential of digitalization, the G20 needs to vastly simplify the process of starting a new business. A first step would be to expand e-government. Digitizing administrative processes would enable governments to reduce frictional losses and simplify the creation of digital initiatives. Estonia is setting a good example: In this country, *e-residency* gives every person in the world the chance to register a company and operate it from anywhere in the world.

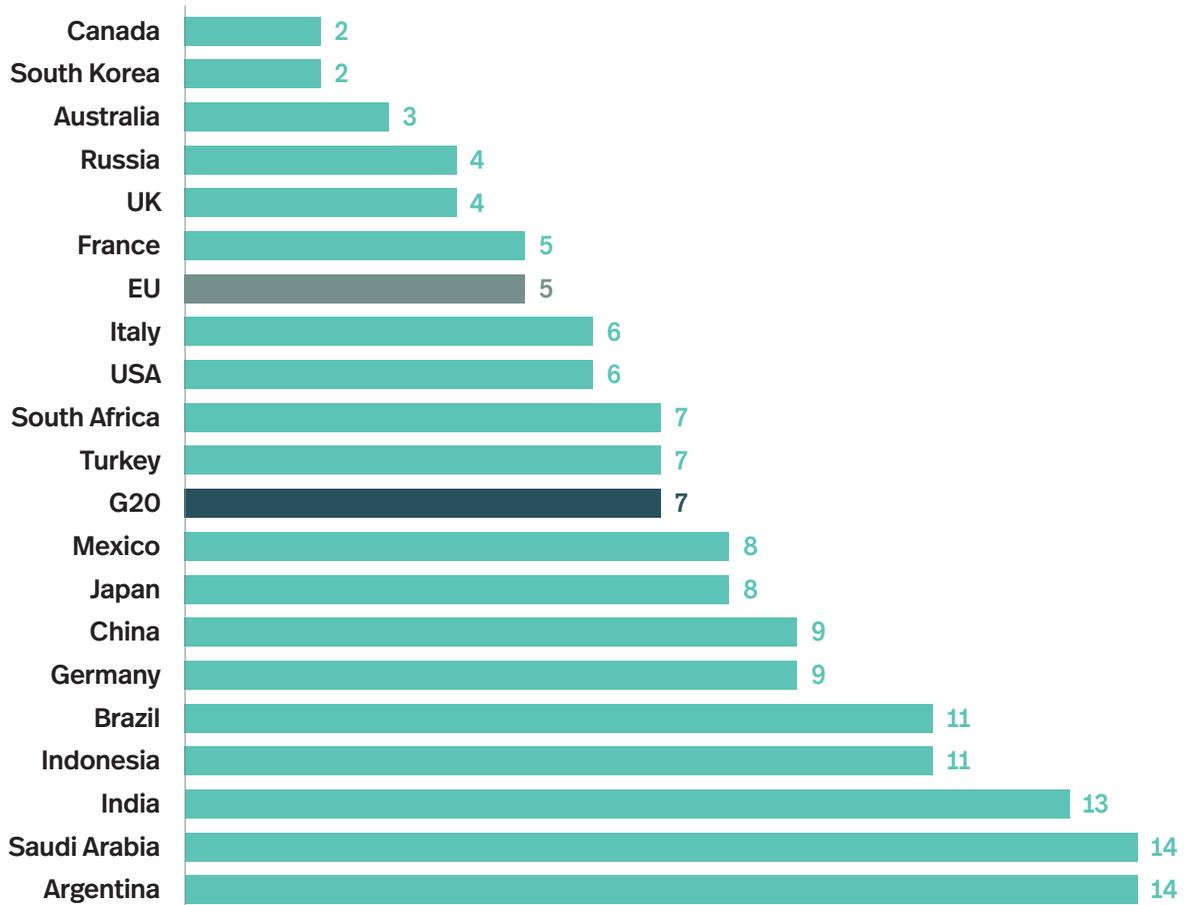
This innovative idea should encourage the EU as a whole to implement further simplifications for start-ups. Following the Estonian example, the practice of registering a company should be standardized and digitized across all EU countries – ideally in the form of a Europe-wide one-stop shop that deals with all the issues and formal-

ities relating to the launch of a new business. It would also be useful for the EU to introduce a uniform legal form for start-ups. One possibility would be a European private company that is recognized throughout the EU. The aim of this move would be to reinforce investors' and corporate customers' confidence in start-ups with international operations. To make it easier for start-ups to raise capital during the growth phase, it may also be worth considering the introduction of a kind of "stock corporation lite". This new legal form could simplify standard procedures (such as holding an annual general meeting) without undermining the protection of its creditors and investors. Additionally, the EU should press ahead with unifying the capital market, above all to make it easier for small and newly launched companies to tap venture capital. This applies to both start-up funding in the form of private equity and the procurement of capital during the growth phase.

Any moves to create innovation-friendly conditions must nevertheless go beyond merely simplifying the launch and funding of new companies. All over the world, the business models of new companies in particular run up against regulatory barriers – or cause them to be erected in the first place. The way governments and administrations have reacted to the rapid growth of housing broker Airbnb and the legal disputes surrounding ride service platform Uber are two telling examples of this phenomenon. During Germany's presidency of the G20, suitable regulation for fintechs has likewise been put on the agenda. The aim here is to guarantee fair and transparent conditions of competition in the market for digital financial services.

B In the G20 countries, company founders must complete an average of seven administrative processes before starting a business

Number of administrative processes



Source: World Bank; Roland Berger

These examples show that new business models present a challenge not only to old economy incumbents, but also to the very rules of competition in their existing form. On the one hand, digital companies are penetrating heavily regulated sectors such as passenger transport, where they encounter practically insurmountable hurdles. On the other hand, digital business models are opening up new and as yet unregulated markets in the first place, which then triggers debate about new regulatory frameworks.

Given the multi-faceted nature of digital business models, it is important for the legislator to strike the right balance and regulate in such a way that innovations are not hindered, while fair and transparent conditions of competition are created at the same time. Government regulation is necessary in order to establish and protect markets that function smoothly. Yet regulatory hurdles must not be misappropriated to guard incumbent players against new business models at the expense of the consumer. The way in which the EU's new Payment Services Directive (PSD II) adapts the rules governing the finance industry to the digital world thus marks an important step forward: Opening up the market for payment transactions has made it easier for aspiring fintechs to compete with established financial service providers and supply consumers with innovative offerings.

Based on these principles, the G20 must agree international guidelines for regulation, but must also stake out the freedoms that are to be permitted for new business models. The aim has to be to establish a global marketplace for digital services where transparent rules ensure

fair competition – between incumbents and start-ups, but also between the digital giants of today and the innovative new companies of tomorrow.

3.3 Enabling digital prosperity for all

The protectionist sentiments that can be seen all over the world pose a threat to free trade and the global economy. The G20 must therefore address the fears of the future that people associate with globalization and digitalization and discuss possible solution strategies. If the macroeconomic benefits of a connected world do not have a positive impact on citizens' individual welfare, every liberal economic order is at risk of losing its legitimacy. The members of the G20 must make sure that all citizens can benefit from the digital transformation of the economy and society.

Concrete strategies for dealing with the social challenges presented by digitalization must be developed by the countries themselves. But the G20 should use this year's summit to agree upon common goals in three essential areas: the no-gaps provision of high-speed, future-proof Internet access (primarily based on fiber optics); the promotion of education as a key resource in the digital world; and a guarantee of diversity of opinion on the Internet.

3.3.1 No-gaps expansion of broadband

Endeavors to create the right framework for new growth will succeed only if people have access to the digital world. Across-the-board Internet connectivity increases an economy's productivity and efficiency, but also makes a society more inclusive. Conversely, if entire regions or social strata are excluded from using the Internet, greater inequality can be expected as a result. For this reason, the UN has included providing the world with affordable access to the Internet in its *sustainable development goals*. →C

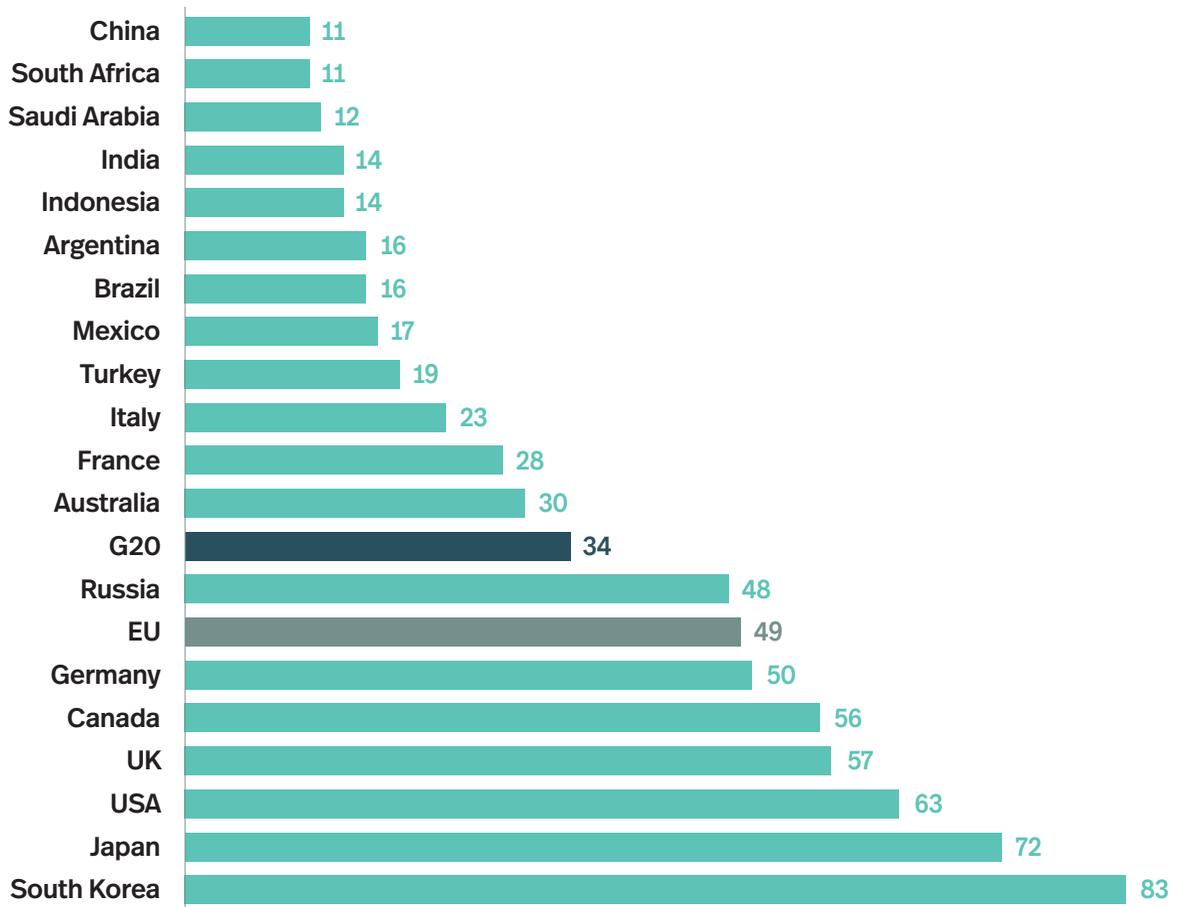
The status quo regarding digital infrastructure in the key industrialized and emerging countries shows the need for an investment initiative: Only every third Internet connection in the G20 has a data rate of at least 10 Mbit/s. Larger bandwidths must be made available if we are to take the leap into the Gigabit society. This is where the G20 governments must act: For private investors, expanding high-speed, future-proof Internet connectivity is often economically attractive only in urban areas. If nationwide coverage is to be ensured, national and regional governments must step in as a source of stimulus. Government initiatives tend to be particularly successful if they are linked to dynamic competition between broadband providers.

How no-gaps broadband expansion is implemented in practice depends on national and local factors. Especially in emerging countries, the importance of wire-based data transmission is waning. In these countries, early adoption of the 5G mobile communication standard will

The macroeconomic benefits of a connected world must have a positive impact on citizens' individual welfare.

C Only every third connection to the Internet in the G20 has a data rate of over 10 Mbit/s

Connections to the Internet with a data rate of over 10 Mbit/s [%]



Source: Akamai; Roland Berger (data status: Q4 2016)

be particularly important to deliver broadband coverage in structurally weak regions. Irrespective of the precise technology mix, no-gaps coverage with high-speed Internet connectivity (based on a future-proof fiber optics backbone) is a fundamental prerequisite for growth and development in the digital world. This being the case, the G20 should commit to systematic broadband expansion.

3.3.2 Promoting education as the key to individual success in the digital economy

A competitive digital economy cannot be built on high-speed connectivity alone, however. People and their abilities are at the heart of economic activity, and that will not change in the future. That is why a leap forward into the digital economy can only work if it is flanked by an education strategy that spans both schooling and ongoing education in vocational contexts. Contrary to some forecasts, digitalization will not be directly linked to high unemployment. The demands placed on the world of work will change, however, and they will do so faster than in the past. In the digital world of work, soft skills such as abstract thinking, sound judgment, a willingness to learn and the ability to work in a team will become increasingly important. The G20 should agree to the goal of enabling people in work and education to continually adapt to the changing requirements of digital working life.

It is practically impossible to define the specific qualification profiles that work will require tomorrow. Some see programming as the new *lingua franca*. There is no

doubt that the ability to think in terms of algorithms, to develop and master them, is an advantage these days. Yet it also takes a pioneering spirit, methodological knowledge, creativity and a readiness to take risks to transform algorithms into sustainable business models. This explains the importance of giving schoolchildren a solid basic education, teaching them to work their way into new content independently and to think critically about issues. Especially in the information-packed digital age, it is vital to be able to distinguish essential from non-essential and, on this basis, to make good decisions. Moreover, digital expertise in the sense of media skills should be a compulsory element of every curriculum at all levels of education. Only then will schoolchildren learn to understand sociocultural contexts and interdependencies in the digital world, and thus become mature, empowered consumers.

It is equally imperative to ensure that greater importance is attached to lifelong learning. Workers must be given the opportunities and the skills they need to adapt to the changes brought about by digitalization and keep pace with new requirements at all times. As with school education, it is important for companies to encourage and indeed insist on ongoing development and training throughout individuals' entire working lives. More so than in the past, advanced education must become an integral component of personnel development. That means structuring the analysis and planning of training needs and courses, for example. With the aid of personnel development that is tailored to digitalization and the opportunities it affords, companies will derive even greater benefits from the potential of their people. For

their part, employees can develop new skills and knowledge, try out new things and carve out attractive career prospects for themselves.

While reinforcing lifelong learning on the basis of advanced education programs, it is essential also to promote a culture of learning. Workers should be given the chance to develop in line with their individual interests and pursue their own ideas and projects. As a result, greater recognition will be given to informal skills, for example. Employees will develop and acquire new capabilities and competencies even outside the context of official training courses. Both channels should be rewarded and encouraged so that a thirst for knowledge and self-initiated development and training become a regular feature of professional life.

The Internet economy can only be truly free and innovative if the macroeconomic benefits of digitalization translate into superior individual opportunities for prosperity. It is therefore of pivotal importance to constantly adapt and adjust educational offerings in line with the changing conditions in the digital world.

3.3.3 Ensuring diversity of opinion in digital media

The importance of social networks to public opinion and the formation of political will gained high visibility for the first time during the upheavals in the Arab world that captured the world's attention as the *Arab Spring* in 2011. The population used Facebook, Twitter and YouTube to gather information and mobilize. Social networks suddenly became a relevant news channel, along-

side the established media. This example illustrates the role of digital platforms and media in disseminating news and shaping political opinion. Via social networks, news can be spread quickly and without filtering. This possibility creates new freedoms and can boost the diversity of opinions.

However, there is also a downside to the fact that the selection and articulation functions performed by traditional media are losing ground to new, network-based, direct news and opinion forums. Although the potential for diversity of opinion has increased, users can be seen to be retreating into closed groups. In these digital echo chambers, like-minded people congregate to reinforce the opinions they share. News streams are filtered based on whether or not messages fit the group's worldview. This trend is driven not only by patterns of usage, but also by the algorithms applied by digital platforms.

Tim Berners-Lee, inventor of the World Wide Web, recently drew attention to this problem: Platforms benefit when users actively click links and likes. The better the content on offer matches their own interests and opinions, the more frequently they do this. For this reason, news and messages that correlate to the user's personal preferences are shown more often than other news. This logic facilitates the emergence of self-referential systems in which everything from one-sided accounts to brazen fiction ("fake news") makes the rounds and can have a lasting influence on the political will. At this point, social networks actually undermine the diversity of opinion they themselves made possible.

The G20 should acknowledge the important role played by digital platforms in general and social networks in particular in widening the freedom and diversity of opinion. At the same time, social networks should be called on to develop rules and procedures for the handling of inaccurate or fake news. Government intervention in the freedom of information and opinion must remain taboo, provided there is no threat to higher-ranking legal interests such as the protection of fundamental personal rights. The answer to the challenges of the digital world must be sought in digitalization itself. With a view to preserving diversity of opinion in social networks, one option might be to use applications from the discipline of artificial intelligence that test the truth content of news reports in real time and flag fake news as such for the user.

If social networks want to remain true to their role as diverse and independent information platforms, their newsfeeds must cover a broader range of views. In particular, these networks must develop mechanisms with which to assess the objectivity and trustworthiness of news. Leading platforms have understood the problem and are already working on solutions. Facebook, for example, is looking to adapt its algorithm to give users a wider array of news messages. The new Google service Perspective provides a programming interface with which users' comments in newsgroups and opinion forums are filtered for troublemakers. This allows site operators to keep a cap on the cost of moderating comment sections. If these examples set a precedent and if companies in the digital industry honor their responsibility, social networks can take on a significant role as promoters of freedom and diversity of opinion.

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4
**LEVERAGING
THE POTENTIAL
OF
DIGITALIZATION**

Digitalization is rightly seen as a disruptive force in the economy and in society. It brings with it new challenges, but above all new opportunities. If we actively and constructively shape digitalization, this creates new potential for growth: People are presented with opportunities for advancement and inclusion, better living standards and, overall, a society of more equal opportunities. That, however, can happen only if governments respond promptly to the challenges of digitalization and stake out the right framework with regard to competition, regulation, infrastructure, education and diversity of opinion.

To coincide with the meeting of the G20's digital ministers in preparation for the Hamburg summit, this paper outlines key actions that, in the view of the European Internet economy, would contribute to the success of the digital transformation. Transatlantic cooperation should ensure fair and transparent competitive conditions in the platform economy, for example. This cooperation can become the driving force behind a set of globally valid rules for the digital economy. In addition, the G20 must agree to a better framework for digital companies. Excessive bureaucracy and regulation stifles the growth of ambitious firms. At the same time, new digital markets are emerging that require healthy, balanced regulation in order to create and maintain free competition. As the world's biggest economies, the G20 should also take the lead and step up investment in digital infrastructure and in education. Lastly, the digital ministers of the G20 countries should seize this opportunity to take concerted action and call on the operators of social networks to reinforce diversity of opinion and continue to promote the freedom of opinion.

In light of the political upheavals around the globe, the biggest industrialized and emerging-market countries must work together to successfully shape our digital future. The proposals presented in this paper can serve as the key tenets of a global agenda for successful digital transformation. Digitalization will also bring many changes to the developing countries and reforming states that are not represented in the G20. The governments of these countries must therefore likewise act swiftly to exploit the potential of digitalization in order to boost economic growth and facilitate a more equitable society. The aim of a fair and innovative Internet economy that genuinely benefits people all over the world can be realized only if we work together.

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