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GLOBAL STRATEGY GROUP

Global Strategy Group

UNPRECEDENTED UNPREDICTABILITY: DIGITAL TRANSFORMATION - THE FUTURE OF JOBS AND TRADE IN A DIGITALISED WORLD

Discussion notes for the 2017 Global Strategy Group

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Introduction: Setting the Scene

1. Starting in the back-offices of businesses, the digital transformation has already been under way for about half a century, yet it is only now that it has risen to the top of the policy agenda. In 2016, 83% of adults in the OECD area accessed the Internet (Figure 1) and 95% of firms in OECD countries had a high-speed connection to the Internet. Another distinguishing feature of the era is the invention and global surge of smartphones – today, there are 99 mobile broadband subscriptions per 100 people in the OECD, almost one per person (Figure 1) with OECD mobile data use surging by 37% between 2015 and 2016. The fact that most people now own a constantly connected super-computer (equivalent to a super-computer from the mid-1990s) shifts the impact from the economy to broader society.

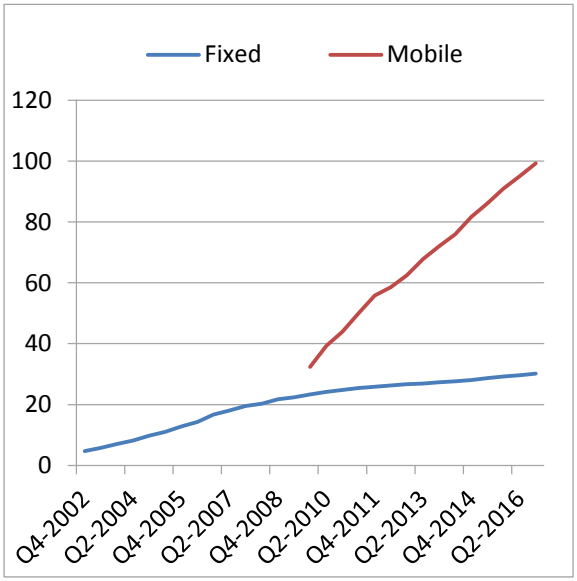
2. As a "general purpose technology" akin to electricity, digital technologies have induced a digital transformation which already affects the way the economy and society operates. Ongoing shifts can be categorised into "vectors" that propel change in: 1) the scale, scope and speed of business; 2) the ownership, assets and economics of value generation; and 3) the nature of relationships, the operation of markets and the formation of digital ecosystems.[1] Changes in scale, scope and speed are the result of converting information into digital bits that can be processed and analysed by computers. This process has become exponentially cheaper and faster and affects the nature of assets that generate value, how ownership is imparted and where value is generated. In turn, these changes affect the structure and operation of markets, allow the formation of platforms and ecosystems and ultimately affect how relationships – both economic and social – are developed, maintained and located. Data, which is processed through software and transmitted over networks, is a key driver that underpins these changes.

3. The digital transformation creates unprecedented opportunities for productivity growth, environmental protection and improved well-being. At the same time, it raises new issues for inclusive growth and ensuring that digitalisation does not increase inequalities in well-being. Related concerns range from how to address the impact of screens on children, to issues about competition raised by the network effects in some parts of the digital industry and the rise of data as a tool for gaining competitive advantage, how to maintain equality before taxation across companies, or avoid or mitigate the potential threats to individuals' privacy and the arrival of new security risks.

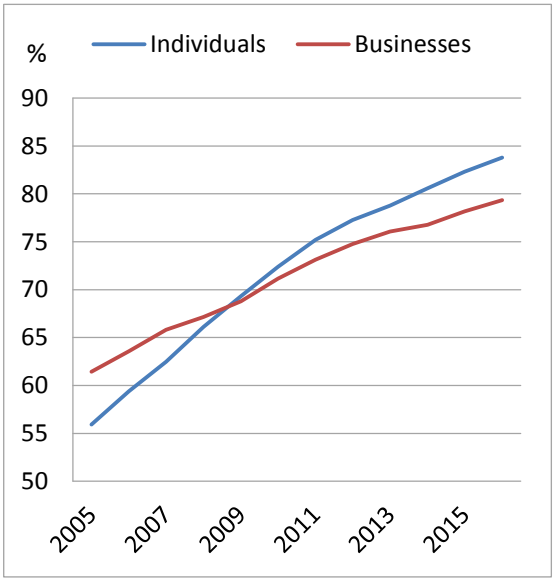
[1] See "Vectors of Digital Transformation", DSTI/CDEP/GD(2017)4/REV1, prepared under the Going Digital project.

Figure 1. The growth of digital connectivity across the OECD

Fixed and mobile broadband penetration, 2002-2016, OECD



Share of individuals and businesses using the Internet, 2005-2016, OECD



Source: OECD, Broadband Portal, http://oe.cd/broadband, and estimates based on OECD, ICT usage databases for households and businesses: http://oe.cd/hhind and http://oe.cd/bus.

4. Many benefits of the digital revolution are accruing to those towards the bottom of the income distribution and excluded or marginalised. For example, digital tools have made possible services like mobile payments that allow disadvantaged populations to be banked and gain access to government services, reducing disparities. And the Internet can be a powerful democratising device, making an essentially limitless amount of information available to virtually everyone. At the same time, however, the digital revolution can be the source of new divides or exacerbate existing ones. Notably, as the connectivity gap diminishes for the OECD, new gaps are emerging based on the ability of businesses and individuals to actively exploit the new functionalities of digital tools. This gap may be fuelling a split in productivity gains between the frontier firms and others, which may in turn be a contributing factor to income inequality.

5. While progress is being made, there is some urgency to ensure that an inclusive foundation for the digital era is set as we embark on another stage of transformation that involves the deployment of interconnected things and people with networked devices generating constant flows of data. These ("Big") data can be analysed using powerful new tools which in turn can feed machine learning and further progress in artificial intelligence. This combinatorial innovation will redefine competitiveness across a wide cross-section of industries and businesses, and it is incumbent upon policy to use this shift to reduce differences and address long standing policy challenges, rather than to accentuate existing gaps and problems.

6. In this sense, the digital transformation does not affect governments' fundamental policy objectives such as the need for quality jobs, good health, more equal opportunities, or clean air, but it does affect how these goals can be achieved. In transportation for instance, policy must now factor in automated vehicles that provide new opportunities, as

well as risks. In education, the digital transformation has the potential to make life-long learning accessible to everyone. And with respect to taxation, the digital transformation raises fundamental questions about longstanding tax principles, at the same time as potentially helping tax administrations broaden the base for tax revenues.

7. The digital transformation is a particularly difficult challenge for governments for several reasons. First, there is the speed at which the transformation is happening, making it hard for policy to keep up. The industrial revolution took place over the course of a century, but the digital revolution, and especially the current phase, has been underway for less than a generation and may be accelerating. The second issue is the rise of new digital intermediaries or platforms that are displacing old intermediaries and redefining markets and relationships more broadly. Due to the economies of scale and network externalities inherent in digital businesses, these platforms are currently controlled by a handful of firms. Nevertheless, they are also shaping a new space for entrepreneurial decisions, strategies and business models, whose implications are still unfolding. Thirdly, the virtual nature of these platforms means that they can have a near global presence with a very small physical footprint. This complicates traditional standard policies based on national boundaries such as taxation, country-of-origin or physical-presence requirements governing trade and the concept of relevant market in competition policy. These factors underscore the multi-disciplinary nature of digital transformation, which requires policymaking to rise above today's policy silos and work across governmental and national boundaries. The lack of an integrated approach to the digital transformation increases the risk that policies in one area will have unintended, and possibly adverse, impacts on another, or that opportunities for synergies that enhance positive effects will be missed.

8. There is uncertainty on how the digital transformation will unfold, but it is clear that governments can use digital tools to improve policy design, deployment and evaluation while still adhering to legitimate restrictions to protect privacy and enhance security. Moreover, they can help shape the digital transformation so that it supports core policy objectives and helps improve people's lives. With the ongoing development of digital technologies (i.e. the so-called "Internet of Things") and new techniques (e.g. machine learning and artificial intelligence), policy makers must work to ensure that the opportunities offered by the digital transformation are used to improve the well-being of all citizens. This requires understanding the challenges, working collectively to learn from each other, engaging with stakeholders including civil society to build consensus, and devising policies that help workers and citizens in adjusting to the transition, ensuring that these changes do not come at the cost of inclusion.

9. In this regard, the global reach of the Internet and the characteristics of the digital era in turn may require a global, multi-stakeholder approach to achieving policy objectives. For example, the proliferation of embedded sensors in many objects ("Internet of Things") which generate data provides an ability to monitor the environment, optimise traffic, improve agricultural yields and measure changes in the ocean (e.g. stocks of fish), amongst other possibilities. Realising these opportunities for the benefit of all will require large cross-border data flows, which can be analysed, interpreted and acted on by individual entities (i.e. countries, international organisations, firms). These expanded data flows will underscore the need for new multilateral approaches that embrace the digital era and the new solutions it makes possible. For instance, expanding approaches based on interoperability among policy regimes, such as the one between the US and Europe on transborder flows of personal data (first agreed as a "safe harbour" agreement and now revised as the EU-US "privacy shield") are more compatible with the digital era.

Such approaches may help avoid fragmentation of the network and serve to maintain network openness and the economic and social gains this brings.

10. As borders become more porous due to the digital era, new multilateral agreements may also be needed for previously "domestic" rules such as competition policy, labour tax allocation and the provisioning of public services, potentially necessitating rethinking how these policies are administered. In this regard, large digital firmss are beginning to match or exceed the public role once played by the post office, public broadcasting, civil defence agencies, libraries or public meeting places, by providing basic public services like maps, libraries, public video, mail, messaging, emergency messages and employment offers. In other cases, dominant global platforms may be asked by governments to help in the implementation of public policies on the behalf of the public. Examples are already emerging of platforms working closely with IGOs to respond to emergencies. In some cases, governments may choose to develop or support multilateral platforms that meet specific public needs, effectively creating "virtual" multilateral institutions. An example is the OECD Global Recalls Portal where, rather than creating a new international body to collect and exchange information on product recalls, a platform performs this function[2]. Existing services now provided by international organisations such as response to epidemics or emergencies are increasingly augmented by global platforms, many of which are provided by private firms[3]. Such global platforms may also be asked by governments to help in the implementation of public policies on the behalf of the public.

11. Against this backdrop, a key objective of the OECD's "Going Digital" project[4] is to improve awareness and understanding of the issues and their policy implications, help governments learn from each other and share the fruits of the active policy experimentation currently under way. The window for action is now, so that effective measures and strategies are in place when they are needed.

Session 1 – Harnessing Digital for Inclusive Growth: Opportunities and Challenges

Breakout 1: Building the Skills of the Future

12. The digital transformation, coupled with globalisation, demographic changes and other megatrends, is deeply affecting the nature of work in OECD economies - including the types of jobs, and where and how they are carried out. It is transforming the skills workers need; moreover, workers will increasingly have to learn new skills during their working lives to adapt to changes in their jobs. To benefit from new, higher wage employment opportunities, workers need ICT foundation skills, as well as socio-emotional skills, such as teamwork, flexibility and resilience. Higher levels of education provide an important safeguard against the risk of automation – according to OECD estimates, fewer than 5% of workers with a tertiary degree are currently at a high risk of losing their job to automation, on average, compared to 40% of workers with a lower secondary degree[5].

[2] See: https://globalrecalls.oecd.org/front/index.html#/recalls

[3] (e.g. https://www.google.org/publicalerts)

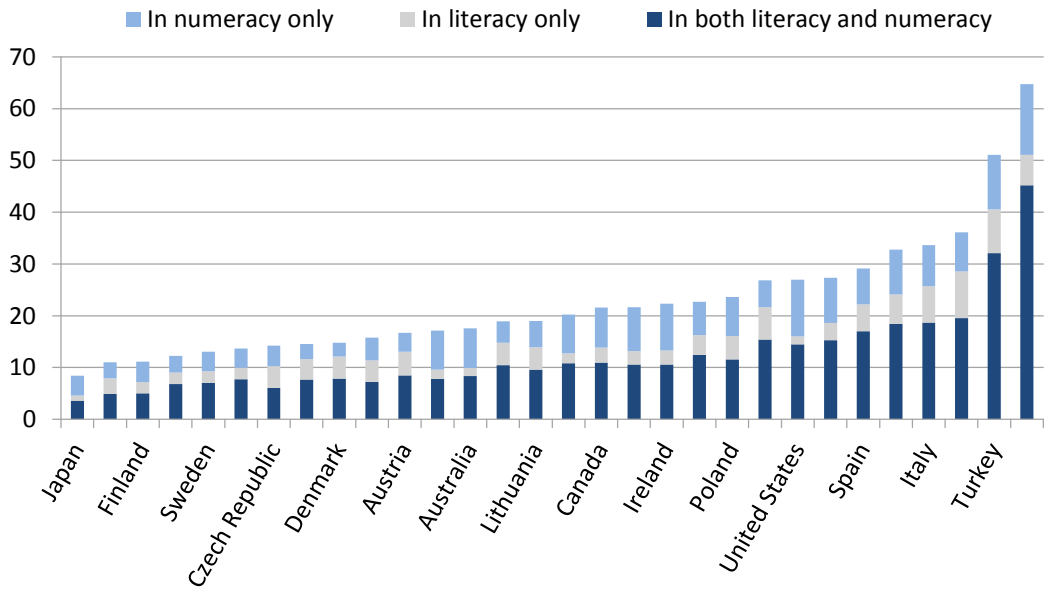
[4] http://www.oecd.org/going-digital

[5] See Arntz, M., T. Gregory and U. Zierahn (2016), "The Risk of Automation in OECD Countries: A Comparative Analysis", *OECD Social, Employment and Migration Working Papers*, No. 189,

13. Yet more than 20% of workers in OECD countries lack the basic literacy and numeracy skills that provide the basis for future learning (Figure 2). Data from the PIAAC Survey of Adult Skills show that, on average across the 33 participating countries and regions, 55% of workers lack the basic problem-solving skills that are needed in a technology-rich environment. Younger people are better prepared for the digital era than older people but even among youth, many are only able to solve simple problems. Worryingly, shortages in computer skills are emerging in almost all countries for which data is available. Moreover, only half of citizens in OECD countries have basic financial digital literacy skills. This jeopardises their short- and long-term financial resilience and wellbeing, and weakens their ability to benefit from digitalisation.

14. On the positive side, gender gaps in general ICT skills and the use of software at work tend to be quite small in most countries, and gender differences in the frequency of the performance of tasks at work involving the use of socio-emotional skills, such as self-organisation, are almost negligible. However, women lag behind men when it comes to numeracy, which may limit their ability to grasp new job opportunities in some fields[6].

Figure 2. The proportion of low performers in literacy and/or numeracy, workers



Source: OECD, 2017 Skills Outlook, calculations based on the Survey of Adult Skills (PIAAC) (2012 and 2015), www.oecd.org/skills/piaac/publicdataandanalysis.

OECD Publishing, Paris, http://dx.doi.org/10.1787/5jlz9h56dvq7-en and OECD (2016), "Automation and independent work in a Digital Economy", *OECD Policy Briefs on the Future of Work*, May 2016, http://www.oecd.org/ employment/emp/Policy%20brief%20-%20Automation%20and%20Independent%20Work%2 0in%20a%20Digital%20Economy.pdf

[6] See Grundke, R., et al. (2017), "Skills and Global Value Chains: A Characterisation", OECD Science, Technology and Industry Working Papers, No. 2017/05, OECD Publishing, Paris, http://dx.doi.org/10.1787/cdb5de9b-en and OECD(2016), Skills Matter: Further Results from the Survey of Adult Skills, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264258051-en

15. OECD countries must ensure that education equips students with the necessary knowledge, skills and abilities so that they have the best possible foundation to "learn how to learn" over their lifetimes. Longer working lives and technological change will make adult learning even more important to give workers – and especially low-skilled workers – opportunities to upskill and reskill. Workers with the lowest levels of skills face additional barriers to training in the form of higher risk aversion, more binding credit constraints and reduced access to information, and are 40 to 60 percentage points less likely to receive training than higher skilled workers.[7] Countries should encourage on-the-job training, certification of skills acquired through work experience, better skills use in the workplace and improved skills assessment and anticipation systems. Older workers and citizens will present particular challenges for skills policies. Ensuring that women and other underrepresented parts of the population have the requisite digital skills and opportunities to fully engage in the digital era, as workers and as citizens, will be an important part of making the digital transformation inclusive. This will entail promoting female participation in STEM studies, ensuring that women do not face biases that curtail entrepreneurship, have access to training opportunities, and do not face barriers to lifelong learning.

- *How can policy support lifelong learning for workers and especially those who lack basic digital skills (e.g. low-skilled, the aged)? What good practices are emerging?*
- *Which digital skills are going to be crucial to thrive in the labour markets of tomorrow? How should skills development be financed and delivered meeting local and national needs?*
- *To what extent does ensuring that citizens have the right skills to prosper in the digital age require broader policies encouraging social mobility?*

Breakout 2: Accompanying the impact of digital transformation on jobs, remuneration, social protection

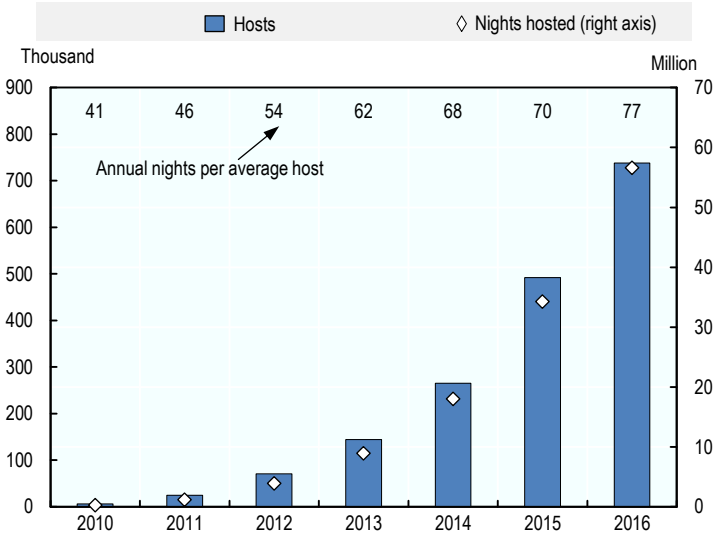
16. As with previous major technological innovations such as the steam engine, electricity or the assembly line, digital transformation will be economically and socially disruptive and will lead to important job gains and job losses. Major innovations of the past often resulted in net job losses in the short-term, but these were quickly unwound, and the innovations made possible the creation of much larger numbers of new jobs, many of them more productive and rewarding than those that they replaced. The most recent OECD estimates indicate that, based on existing technology, 14% of jobs in OECD countries are currently at a high risk of automation. However, with technologies like artificial intelligence moving quickly ahead, estimates of job automation are a moving target. On the one hand, the introduction of new technologies is a slow process due to economic, legal and societal hurdles, and often does not take place as expected. On the other hand, routine work in sectors like legal services, radiology, financial services and software engineering is increasingly becoming susceptible to automation.

[7] OECD (2013), OECD Skills Outlook 2013: First Results from the Survey of Adult Skills, OECD Publishing, Paris.
http://dx.doi.org/10.1787/9789264204256-en

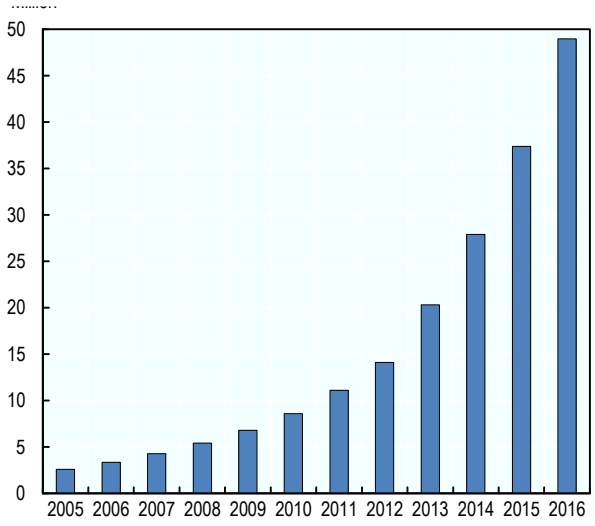
17. Digital transformation is also changing the way work is organised. The 'sharing' economy, though still small in scale (Figure 3), allows businesses to access a larger pool of potential workers and suppliers, enabling some people to access work for the first time and others to take advantage of more flexible work options. However, there are also real concerns that new forms of work could lead to lower job security and quality. 'Sharing' economy jobs potentially limit workers' access to union representation, wage setting mechanisms and social protection. Women for example may be able to take advantage of the opportunity to work with increased flexibility, but often at the risk of foregoing significant benefits: for example across the European Union, an estimated 46% of self-employed women aged 15-49 are not entitled to maternity benefits (EC, 2015).

Figure 3. The growth of the platform economy

Airbnb hosts and nights hosted in the United States and major European markets



Registered users on Upwork and Freelancer



Source: OECD, 2017 Digital Economy Outlook.

18. Therefore, while beneficial on the whole, the digital transformation will inevitably create losers as well as winners. National and local governments have an important role in helping people adapt to these changes and help people affected move to a new and high-quality jobs as quickly as possible and provide support to those who are unable to make this shift. Governments need broad policy action to help people adapt to these changes and support those who lose out from the transformation in the world of work, helping them move to a new and high-quality job as quickly as possible. In addition to action on skills, countries should provide workers displaced by digital transformation with active job search assistance, measures to improve their employability and adequate income support. Interventions need to come early in the unemployment spell, and be coupled with retraining and requalification so that displaced workers can take advantage of new job opportunities arising elsewhere in the economy. Re-training opportunities should be skill-centred (as opposed to job-centred) so that displaced workers can move between different jobs or sectors by building on the skills they already possess rather than starting from scratch.

19. Countries will also need to adapt social protection policies to emerging forms of work. Social protection systems need to be modernised to extend coverage and ensure portability of social benefit entitlements, including potentially through individual accounts, universal basic income programmes, and new technological tools that enable better service delivery, administration, and identification of needs.

- *How can workers be supported in finding new job and career pathways through public/private as well as national/local efforts? How should social policy instruments be adapted to accompany the impacts of digital transformation? What good practices are emerging?*
- *How can governments better engage with social partners and civil society to address the challenges that lie ahead?*

Breakout 3: Facing the challenges of data management

20. More data are being generated every week than in the last millennium: a figure that will rise further as more people, devices and objects become connected to the Internet. Data are not new, but their management was cumbersome and labour-intensive before they became digital. The growing use of data holds the promise of significantly accelerating research and the development of new products, processes, organisational methods and markets – a phenomenon known as data-driven innovation (DDI)[8]. The economic and social benefits of DDI are particularly noticeable in data-rich sectors such as science, health care, transportation and public administration. More generally, Big Data and analytics are increasingly being used to enhance public service delivery and facilitate the identification of emerging governmental and societal needs and transform the ways in which governments operate. Data and their analysis can result in greater productivity across the economy, and firms using DDI have raised productivity faster than non-users.

21. Despite the acknowledgment of its economic and social benefits, re-use of data across organisations, sectors and countries remains below its potential, as individuals, businesses and governments often face barriers to data re-use, while sometimes also being reluctant to share. Competition and the social and economic risks associated with the possible revelation of confidential information (i.e. personal data and trade secrets) are often cited as the main reasons for individuals and organisations not to share their data. Identifying which data to share and defining the scope and the right mechanism for sharing and re-using (restriction) may pose a challenge, in particular for individuals, who are increasingly wary of the re-use of their personal data, and SMEs, which tend to have limited knowledge and face greater resource constraints for investments in digital security.

22. A key challenge for citizens, businesses and governments is how to participate in the global data ecosystem while at the same time respecting legitimate considerations of individuals' and organisations' interests and different policy approaches among countries. Striking this balance will be difficult, but failing to recognise the relative costs and benefits will be a large lost opportunity. Policy makers will be challenged by a bundle of

[8] OECD (2015), *Data-Driven Innovation: Big Data for Growth and Well-Being*, OECD Publishing, Paris. DOI: http://dx.doi.org/10.1787/9789264229358-en

new issues as they grapple with data such as the attribution of responsibility and liability for inappropriate decisions. The potential risk of significant social and economic costs to third parties from automated, data-driven decisions will require careful examination of the appropriateness of fully automated decision-making, and an assessment of when human intervention may be required. It will also require considering the means through which the transparency of the processes and algorithms underlying these automated decisions (i.e. algorithmic transparency) can be increased, while preserving intellectual property rights (IPRs). Data analytics that enable precise discrimination may result in greater efficiencies, but also reinforce stereotypes limiting individuals' freedom; conversely it could help correct for inherent human biases. The key challenge to tapping into the potential of DDI includes addressing individuals' concerns of harms caused by privacy violations and the potential to undermine societal core values and principles, such as autonomy, equality and free speech.

23. Seizing the benefits from data for growth and well-being therefore requires government action. Policies are needed to encourage investments in data, to promote data sharing and reuse, including across borders (see also discussion of digital trade in Session 2 below), and to protect security and privacy. Moreover, new concerns are emerging that will require a policy response, e.g. around automated decision making, discrimination based on algorithms, and the emergence of a "data divide," based on who owns, collects and analyses the data.

- *How can policy foster the benefits of data-driven innovation while ensuring security and privacy? How can countries ensure that data flows across borders? In which situations should legitimate public policy concerns restrict these data flows? How can differences between countries be accommodated to ensure that information flows freely over the Internet? What good practices are emerging?*
- *Given the importance of data and its analysis to economic performance and social welfare, how can governments better utilise data in the provision of services?*

Breakout 4: Harnessing the digital transformation for firms

24. With 95% of firms in OECD countries having high-speed Internet in 2016, a good foundation is available for firms to harness the benefits of digital transformation, although regional variations (particularly in more rural areas) persist. But access alone does not imply that firms are able to use the technology effectively; many firms are not yet using many of the productivity-enhancing applications that can drive productivity and improve business performance. For example, only some 40% of large firms and 20% of all firms in OECD countries are engaged in selling via e-commerce (Figure 4). Indeed, the widening of productivity differences across OECD countries between leading and lagging firms (and, in parallel, leading and lagging regions) suggests that many firms are not yet able to turn the potential of digital technologies into stronger productivity performance. Partly, this is because the digital transformation is not just about the technology, but about the way technology is combined with other changes and investments within firms.

25. Effective use of new technology requires that workers have appropriate skills to use the technology; that firms invest in new business models, organisational change and innovation and adopt new management practices; and that digital-intensive start-ups can grow and prosper. Ensuring sound competition is key in allowing new firms to challenge incumbents, efficient firms to grow, and inefficient ones to exit, thus helping boost economic growth and living standards. This in turn requires well-designed product and

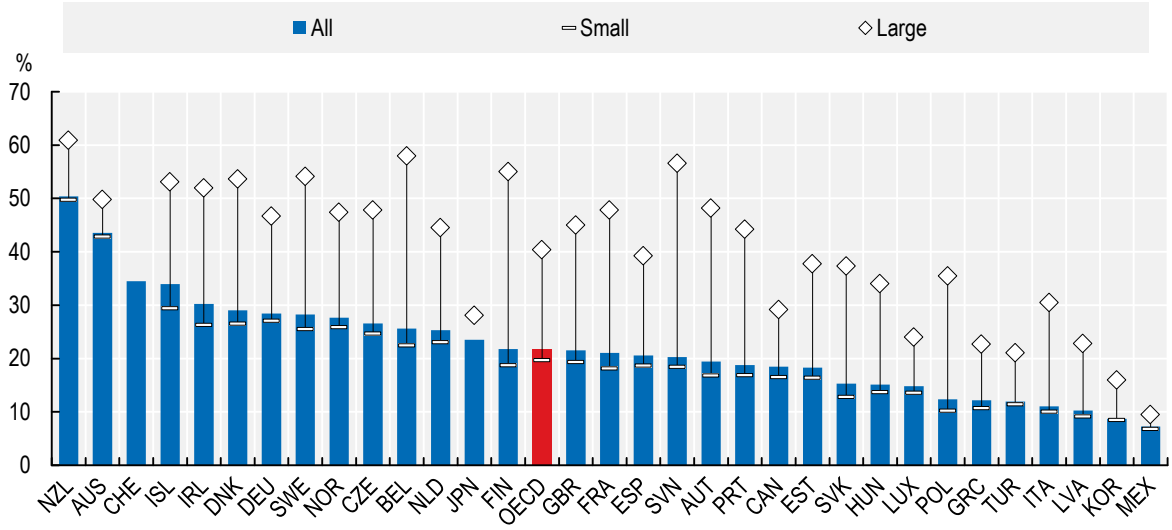
labour market regulations, insolvency regimes that do not unduly inhibit corporate restructuring and penalise entrepreneurial failure, and a set of financial and tax policies that do not discourage financing for early stages and growth, including equity. The potential for digitalisation to improve the efficiency of financial systems and result in the provision of cheaper and more demand-driven financial products and services can further bolster this process.

26. SMEs, in particular, face challenges in the use of ICT, although they also have important opportunities, such as the development of "born global" small firms, global e-commerce, better access to a range of financing instruments, improved understanding of internal processes, markets and the business environment through data analytics, or the outsourcing of key business functions, all of which can help improve performance. Platforms, where peer-to-peer transactions often take place, increase the supply of a number of products and services and allow trades that otherwise would not happen. This can facilitate SMEs' access to customers and help them reach international markets. The adoption lag of SMEs is mainly due to a lack of key capabilities, e.g. human resources and management expertise, and a lack of investment in complementary assets. For instance, lack of investment in in-house innovation and organisational capabilities limits the capacity of SMEs to take full advantage of new technologies to enhance data analytics, engage in e-commerce, or increase participation in knowledge networks. Enabling SMEs to fully harness the digital transformation to boost their competitiveness and take up entrepreneurial opportunities can help ensure growth is inclusive, as well as boost productivity as these firms find new niches in global value chains[9].

[9] See OECD (2015), The Future of Productivity, OECD Publishing, Paris.

Figure 4: Enterprises engaged in sales via e-commerce, by size of firm, 2015

As a percentage of enterprises in each employment size class



Source: OECD (forthcoming), Science, Technology and Innovation Scoreboard 2017, OECD Publishing, Paris.

27. Comprehensive national digital strategies that take into account SMEs, policies that facilitate access to finance, and SME engagement with competency centres and/or technology extension services, can be helpful for SMEs. National digital security strategies can also help address the specific needs of SMEs by providing them with practical guidance and the appropriate incentives to adopting good practices. More generally, the digital transformation and the emergence of new business models is changing the world faster than many rules and regulations affecting business have evolved. Governments should therefore periodically review their regulatory frameworks and, where appropriate, update them to ensure that they are well-suited to the increasingly digitalised world and continue to support growth and well-being.

- *What policies can governments pursue to encourage investment in the digital transformation? What are the key elements of an enabling environment and what policy approaches can government take?*
- *How can policy best enable firms in all cities and regions to harness the digital revolution? What good practices are emerging that can help SMEs seize the benefits of the digital transformation?*

Session 2: Digital transformation across borders: Taxation, Trade, Competition and Development

Breakout 1: Cross-border digitalisation and trade

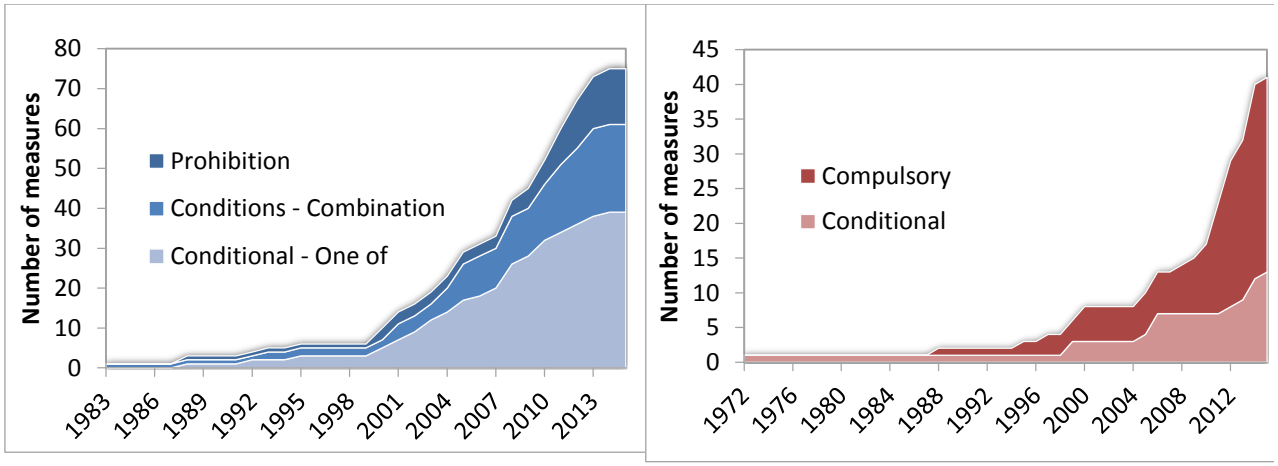
28. The digital transformation is enabling firms to adapt their business models to respond rapidly to changing demand, increasingly tailoring solutions that combine goods and services. The distinction between goods and services is becoming increasingly difficult and porous, with consequences for how we think about trade and market openness in a digital world.

29. Goods and services have generally been addressed separately in trade negotiations, yet the absence of commitments in some services could undermine access for some goods, and vice versa. While traditional trade issues such as trade facilitation are becoming more important as e-commerce is leading to a large increase in small parcel trade, new issues are arising from measures affecting the cross-border flow of data.

30. Data now form an integral part of the production process in many industries and firms, are an asset that can be traded and a means to deliver services. As noted in Session 1 above, the growing volume of data exchanged across borders has given rise to concerns about security, the protection of privacy, intellectual property rights and audit and regulatory reach. This has in turn led to government actions to restrict cross-border transfers of data or to require that data be stored locally (Figure 5). Reaping the benefits of digital trade will require dialogue among countries and stakeholders on approaches to ensure the interoperability of differing regulatory regimes for data, and to identify least trade restrictive ways of meeting key public policy objectives.

Figure 5: Stock of identified data measures

a. cross-border transfer restrictions *b. local storage requirements*



Source: OECD.

31. Digital technologies change trade relationships, between and within goods and services. There can be substitution effects - as when streaming services replace DVDs (goods). Or combinations of goods and services, as when a business sends plans for a toy

to a consumer who 3D prints it abroad -- in which case, a design service crosses the border, but ultimately produces a good, raising questions for trade policy about whether trade rules covering goods (more liberal) or services should apply. Digital transformation creates new relationships -- both substitution and complements -- between modes of service supply: businesses may no longer need to establish a commercial presence in a country (mode 3) to offer services, but can do so through cross-border digital delivery (mode 1) -- but they may also need to send personnel to support the sale (mode 4). In goods, e-commerce platforms have led to huge increase in the number of small packages crossing borders, posing new challenges for customs processes, risk management (e.g., for counterfeits) and revenue collection. Small packages are placing the de minimis threshold (the minimum value below which no tariffs or taxes are collected) under pressure: too low a threshold risks longer clearance times undermining just-in-time delivery and making it harder for SMEs to benefit from digital trade, but too high a threshold may favour foreign over domestic producers, if only foreign producers are VAT exempt, as well as having revenue implications.

- *What are the implications of digital trade for international trade agreements and the current trade rules?*
- *Trade negotiators have long sought to balance the legitimate pursuit of key public-policy objectives and the benefits of open global trade. Are there lessons that could be helpful for balancing the free flow of data, security, and privacy? Are trade agreements the right forum for addressing this issue? What scope is there for a greater international dialogue on such issues, who should this dialogue involve and where might such a dialogue take place?*

Breakout 2: Cross-border digitalisation and tax

32. The emergence of new business models and changes in the value chain as a result of digitalisation of the economy raises important questions for tax policymakers.

33. The 2015 report on Action 1 of the OECD/G20 Base Erosion and Profit Shifting (BEPS) Project focused on this issue, and concluded that the digital economy cannot be ring-fenced, with digitalisation increasingly permeating the entire economy. The report concluded that there were no unique BEPS issues arising from digitalisation, but recognised that certain features of digitalisation and the new business models associated with it were exacerbating some BEPS issues. While it was clear that the full range of measures outlined in the OECD/G20 BEPS Package would mitigate some aspects of these BEPS issues, the report also identified a number of "broader" direct and indirect tax challenges of digitalisation. In the area of indirect taxation, the new rules applying the "destination principle" to VAT/GST on cross-border sales has given countries the tools needed to effectively tax cross-border digital transactions. Nonetheless, a number of broader direct tax challenges remain, such as nexus (the fact that businesses can have a large economic presence in a jurisdiction with minimal or no physical presence), data (namely, the increasing role of data and the growing value of its analysis in new business models), and characterisation of payments (the blurring of traditional distinctions, such as for example, between goods and services as evidenced in the case of cloud computing).

34. At the same time, new technologies are offering new opportunities to tax administrations allowing them to enhance services to taxpayers, improve tax compliance and reduce the informal economy, as well as to more effectively detect and investigate tax evasion and avoidance. This includes new tools such as the OECD-procured Common Transmission System for the secure exchange of tax information, which has proven to be

a cost-efficient platform for governments that deploys new technology to enhance international cooperation. The tax system itself can also be used to support investments in research & development, driving innovation.

- *How can the right balance be found between the need to foster innovation and secure the benefits of digitalisation, while at the same time ensuring an efficient tax system that treats all firms equitably regardless of their business model?*
- *Are further efforts required to ensure that tax administrations can collaborate and draw on new technologies to achieve their objectives in the most efficient and effective ways?*

Breakout 3: Cross-border digitalisation and competition

35. Digital transformation has the potential of increasing cross-border transactions and indeed many innovative companies operate in a number of countries worldwide, yielding substantial consumer benefits, as judged by consumers' interest in using new services. But globalisation can only bring its full benefits in an inclusive manner if competition is fair in a well-functioning market. Some barriers remain, for instance different regulatory frameworks across countries can make it difficult and costly for companies to expand internationally, and regulations often restrict the circulation of data. In some sectors, cross-border sales are still negligible[10].

36. Whether regulations and enforcement tools should be adapted in light of digital transformation is an open question. Many competition authorities actively engage in advocacy activities in their jurisdictions and have over time recommended specific changes to their countries' regulations.

37. Examples of sectors whose traditional business models are changing in response to the digital transformation abound, ranging from retail to financial services and transportation. The digital transformation has enabled the creation of new markets and has blurred the boundaries between sectors, therefore potentially enhancing competition further. Other trends led by the transformation may have unclear effects on competition. Innovative companies sometimes collect vast amounts of data from consumers and use Big Data to offer data-driven services. Data-driven "network effects can improve the quality of the product or the service", but can lead to the concentration of users and data[11]. While Big Data can improve competition by increasing innovation and the creation of customised products, it can also become an asset or input used by firms to enhance their market power and engage in exclusionary practices. Collection of Big Data is common in industries that benefit from strong network effects, such as social networks, and economies of scale and scope can be substantial in this area, which may contribute to enhance market power. Computer algorithms are increasingly being used by companies to improve their pricing models, to customise services, to predict market trends and to

[10] One example is the financial sector, as reported by a 2016 study for the European Commission, see https://ec.europa.eu/info/system/files/study-digitalisation-01072016_en.pdf.

[11] OECD (2016), Big Data: Bringing competition policy to the digital era, Secretariat Background Paper, DAF/COMP(2016)14, http://www.oecd.org/daf/competition/big-data-bringing-competition-policy-to-the-digital-era.htm.

optimise business processes. Algorithms can potentially enhance competition or, on occasion, could increase the risks of collusion, though there are few known cases so far[12].

38. Platforms enable peer-to-peer transactions while creating new business models or disrupting traditional business methods. Platforms can reach customers more easily and, in many instances, retailers use them to sell on the internet. A hearing held by the OECD in June 2017 suggested that existing principles answer the key questions that arise in the context of platforms, for example on determining the market boundaries and assessing market power, provided that small but important adjustments are made to the techniques used in the analysis[13]. The most important of these adjustments is to account for network effects, taking into account the fact that platforms are often more attractive to users on one side when they successfully recruit users on another side. Competition law enforcers should give particularly careful consideration to allegedly exclusionary conduct in platform markets. Some features of the digital sector, such as economies of scale and scope and network effects, can favour the emergence of dominant firms. While care should be taken not to confuse market gains by more competitive companies and abuse of dominant positions, it is worth exploring whether economies of scale may be a greater challenge for maintaining competition than previously realised. In addition, the growing use of computer algorithms by firms to improve their pricing models, customise services and predict market trends, while undoubtedly associated to significant efficiencies and better and more tailored products and services, is also raising concerns of possible anti-competitive behaviour as they can make it easier for firms to achieve and sustain collusion without any formal agreement or human interaction.[14] To avoid possible difficulties in the future, it is important to reflect on whether there is a need to modernise antitrust regulations and enforcement to accommodate this new reality.

39. Competition authorities are taking action against situations involving improper conduct or undue extension of market power. However, enforcement challenges from cross-border digitalisation will require enhanced cooperation among competition authorities, reinforcing information-sharing and investigation assistance, notably in order to prevent businesses from taking advantage of jurisdictional inconsistencies.

- *What are the main competition issues as a result of increasing cross-border digitalisation?*
- *Are economic efficiency and consumer welfare enhanced by cross-border digitalisation?*
- *Are policy changes needed to address these competition issues or is the current structure of competition law and regulatory oversight sufficient?*

[12] OECD (2017), Algorithms and Collusion: Competition Policy in the Digital Age www.oecd.org/competition/algorithms-collusion-competition-policy-in-the-digital-age.htm.

[13] See the Competition Committee Hearing on "Rethinking the use of traditional antitrust enforcement tools in multi-sided markets" at http://www.oecd.org/daf/competition/rethinking-antitrust-enforcement-tools-in-multi-sided-markets.htm.

[14] OECD (2017), Algorithms and collusion: competition policy in the digital age, available at http://www.oecd.org/competition/Algorithms-collusion-competition-policy-in-the-digital-age.htm

Breakout 4: Harnessing digitalisation for development

40. Digitalisation is not just a rich world phenomenon - across the globe, people and governments are taking advantage of digital technologies to enhance their businesses, public services and social activities. Broadband networks can play a transformative role in enabling individuals, businesses and governments to interact with and among each other, and 40% of the world population is now connected to networks, up from 4% in 1995. A large body of evidence is now emerging that shows digitalisation can give rise to a more inclusive society and better governance arrangements; enhance access to key services such as health, education and banking; improve the quality and coverage of public services and political participation; expand the way individuals collaborate and create content; and enable people to benefit from access to global markets and greater diversity and choice in products, as well as lower prices. It is not for nothing that the United Nations Sustainable Development Goals pick out access to information and communications technology and universal and affordable access to the Internet as one of the key targets (9c) to transform our world, echoing the objective already elaborated by the UN's Broadband Commission for Sustainable Development.

41. The digital transformation also offers the chance to empower women in developing countries, if the digital gender divide can be narrowed. This challenge has been recognised at the highest levels, including the recent G20 Roadmap for Digitalisation agreed by G20 Digital Economy Ministers in April, which foreshadowed action across a range of policy areas to address the barriers that may prevent women from fully participating in the digital economy. For women, digital technologies could make a significant contribution to engagement in the formal labour market and seizing the full benefits of their efforts. In a study by GSMA, for instance 64% of working women across 11 low- and middle-income countries said that they have (or would have) greater access to business and employment opportunities because of mobile phone technologies[15]. A survey of Kenyan women found that almost all had a M-pesa mobile banking account and over three-quarters of them transacted at least twice a week, with 95% saying they sent money to their relatives and (for the 37% owning a business) 96% saying M-pesa helped them scale their venture[16]. At a more basic level, the "Better than Cash Alliance" initiative to spur digital payments is helping to boost transparency, security and financial inclusion for women. A case study of Bangladesh's garment production sector (whose worker population is 80% female) found that digital payments reduced the risk of loss or theft of wages for workers, and enhanced the ability to save[17].

42. However, there are significant challenges, the first being the critical role of digital infrastructure in the ability of countries to take full advantage of the digital transformation. Here, there is much room for improvement, not least because of major "supply side" challenges in encouraging investment and competition, extending

[15] GSMA (2015), Connected Women 2015: Bridging the Gender Gap: Mobile access and usage in low- and middle-income countries, GSMA Connected Women Global Development Alliance. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/Connected-Women-Gender-Gap.pdf

[16] Kombo, L. (2017), "Mobile money is growing women's empires in Kenya", 21 March. http://msurvey.co.ke/blog/2017/3/21/mobile-money-is-growing-womens-empires-in-kenya.

[17] Better than Cash Alliance (2017), "Digitizing Wage Payments in Bangladesh's Garment Production Sector", March. https://www.betterthancash.org/tools-research/case-studies/digitizing-wage-payments-in-bangladeshs-garment-production-sector

broadband beyond urban areas into rural and remote areas, and upgrading networks to match rising demand. Demand-side issues such as low levels of income, education and local content production add additional challenges to improving affordability and ensuring services are relevant to users[18]. In addition, in some countries, a lack of basic electricity and road infrastructure are primary hurdles to overcome before digital technologies can reveal their promise. Experience shows that well-designed regulatory tools and ambitious digital strategies with robust competitive forces can make a substantial difference.[19]

43. A second challenge for developing countries may be the evolution of global value chains in a world where the digitalisation of production could reverse the importance and length of GVCs and reorient global production and trade back towards OECD countries. A recent forward-looking exercise based on the formulation of different scenarios for the next 10-15 years has explored the way in which the future of GVCs may be different to the past[20]. Robotics, automation, computerised manufacturing and artificial intelligence all could reduce the advantages of production in low-labour-cost emerging economies, posing some concerns about premature deindustrialisation. Moreover, the absorption of these technologies in developing countries could pose challenges for governments in managing structural adjustment, notwithstanding the important gains for productivity and sustainable economic growth that could be made. While certain labour-intensive industries which predominate in many developing countries, such as garments, shoes and leather, furniture, textiles and food, may be less susceptible to automation, technological change could quickly alter the equation[21]. Governments in developing countries need to prepare, not least though sound labour, skills and social policies, as well as robust framework policies that underpin business dynamism and unleash the potential of entrepreneurs.

- *What are the main blockages for developing countries to harness digital technologies for their economic and social advancement?*
- *What role can international collaboration play in ensuring a globally inclusive digital transformation?*

[18] OECD (2016), "Digital Convergence and Beyond: Innovation, Investment and Competition in Communication Policy and Regulation for the 21st Century", OECD Digital Economy Papers, No. 251, OECD Publishing, Paris. http://dx.doi.org/10.1787/5jlwvzzj5wvl-en

[19] OECD and IDB (2016), Broadband Policies for Latin America and the Caribbean: A Digital Economy Toolkit, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264251823-en

[20] De Backer, K. and D. Flaig (2017), "The future of global value chains: Business as usual or "a new normal"?", OECD Science, Technology and Industry Policy Papers, No. 41, OECD Publishing, Paris. http://dx.doi.org/10.1787/d8da8760-en

[21] OECD (2017), The Next Production Revolution: A report for the G20, OECD. https://www.oecd.org/g20/summits/hamburg/the-next-production-revolution-G20-report.pdf

Session 4. Addressing Challenges to International trade and Investment

44. Making trade work for all requires governments to take a much more integrated policy approach, both domestically and internationally. Domestically, governments need to create the environments where the benefits from trade can materialise through policies that encourage opportunity, innovation, and competition. They also need to do more to bring everyone along, to ensure that temporary setbacks do not turn into lifelong disadvantages, through investments in inclusive growth.

45. But domestic action is not enough. Governments also need to work together, using the full range of international economic cooperation tools, to address concerns about the level playing field for international trade and investment. This international economic cooperation toolkit is how countries manage exchange across difference, and it ranges from legally binding multilateral rules, to international standards, to voluntary guidelines and codes of conduct, to dialogue. Countries agree international 'rules of the road' because it is in their interests to do so: for fair competition, or because benefits are greater and risks avoided where everyone acts together. Yet there is more to do to fill the gaps and unfinished business in the rules governing international economic exchange, and also to ensure that everyone is sticking to the rules.

46. Central to this system is the rules-based international trading system embodied in the WTO, complemented by rules that countries agree under plurilateral and bilateral trade agreements, as well as bilateral investment treaties. Many other tools of international economic cooperation exist, including for example ILO core labour standards and various OECD initiatives.

OECD standards: contributing to a level playing field for international trade & investment

47. The 2017 OECD Business and Finance Outlook highlighted the negative impacts caused by the lack of a level playing field in international trade and investment. While the impact on business opportunities, jobs, wages, and overall well-being also depends on the specific circumstances of the country, industry and region concerned, there are a number of areas where OECD standards and instruments could play a greater role:

- *Cross-border cartels.* Collusion through cross-border cartels denies consumers and growth firms the benefits of competition. The average number of countries with firms participating in known cartels has tripled in 10 years. More than two hundred and forty cross-border cartels were detected and fined in the recent 15 years, affecting USD 7.5 trillion in sales. OECD instruments on bid rigging, dealing with hard-core cartels, and the way to enhance co-operation between competition agencies are all designed to deal with this problem.
- *Undue government support to internationally active SOEs*. Today a quarter of the top 50 global companies are state-owned enterprises compared with just a couple of them 15 years ago. SOEs operating internationally can enjoy special advantages from governments that undermine competitive neutrality, generate negative excess capacity spillovers, and prompt restrictive responses from recipient countries. Adhering to the OECD Guidelines on Corporate Governance of SOEs, together with the development of a global transparency standard for SOEs as called for by the 2017 MCM, could go a long way to addressing the problem.

- *Transnational anti-bribery.* Almost 40 per cent of world exports today originate from countries that are not Parties to the OECD Anti-Bribery Convention, double the percentage when the Convention entered into force. A recent OECD quantitative study shows that only investors from countries Party to the Convention have reduced their exposure to corrupt destinations. Major G20 and other economies not yet Party to the Convention could make a significant contribution to a fairer trading system by joining the Convention.
- *Social and environment standards.* Human right abuses, breaches of labour rights, and serious harm to the environment too often continue to affect global supply chains, particularly in industries such as extractives or textiles and clothing. Due-diligence strategies in supply chain management have strong potential to improve social and environmental outcomes and reduce disruptions to trade and international investment flows with benefits for productivity and sustainable growth. The OECD Guidelines for Multinational Enterprises and related supply chain due diligence guidance are well suited to this task.
- *Uneven levels of market openness for investment.* While they have made progress in recent years, G20 countries that do not adhere to the OECD Investment Declaration and its National Treatment instruments are still many times more restrictive toward inward international investment than the average of adhering countries, based on the OECD FDI Restrictiveness Index. More large economies adhering to the OECD investment instruments including the Codes of Liberalisation would improve mutual market access and benefits from FDI openness.

48. The complex system of rules and instruments that countries use to govern their international economic relations is critical for both individual countries and the global economy, but raises challenges in ensuring coherence across the system. This coherence is becoming ever more important at a time where global integration and digitalisation are seeing the development of new business models, with new interdependencies between trade and investment.

Trade and investment, evolving business strategies, and GVCs

49. The channels through which the relationship between trade and investment works are still not well understood, and complementarities are generally not taken into account in liberalisation and other policy-reform efforts. While Global Value Chains (GVCs) have sharpened the interdependencies between trade and investment and enhanced their complementary effects, at the international level trade and investment rules are neither comprehensive nor inter-linked, and as a result are inadequate to address the reality of new business models.

50. The fragmentation of the international regime, in turn, often reflects lack of adequate mechanisms for policy coordination between trade and investment at the national level. The resulting complexity engenders costs and uncertainty, which reduce investor confidence and can impact decisions on international operations, especially for small and medium-sized enterprises (SMEs) who could be viable investors but which are ill-equipped to manage the costs and risks they face. Improving policy coherence can be one of the best opportunities to make global GVCs more inclusive and productivity-enhancing.

51. To help address this gap, the OECD is developing a range of new tools and analysis to better understand the linkages between trade and investment, from developing new data on MNEs and interdependencies between trade and investment in GVCs to deepen understanding of the benefits for countries and the rules that impact on firm strategies, to analysing provisions in trade agreements and related investment agreements to help countries identify where greater coherence can be achieved.

- *How can governments make the international trade system work better for more people? What are the priorities for filling gaps in international rules?*
- *How can OECD standards contribute to levelling the global playing field for trade and investment? What can be done to reinforce their effective implementation and to expand adherence to major players?*
- *How can improved understanding of the interdependencies between trade and investment contribute to greater coherence of trade and investment policies at the international level? How can the international trade and investment regime work better so that benefits are more widely shared?*