Chapter 6

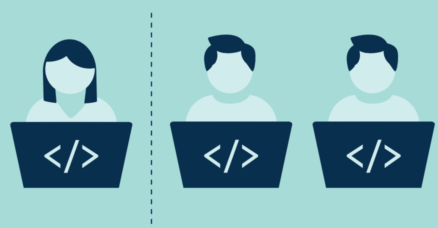
PROMOTING SOCIAL PROSPERITY

SOCIETY

About 12% of people post **opinions on civic or political issues online**.

Use digital technologies to increase civic and political engagement.

More than twice as many young men than women **are able to program**.



Address digital divides, e.g. by gender, age and level of education.

About 9% of 15-year olds say they **are subject to cyberbullying**.

Balance the opportunities and risks of using digital applications for mental health.

Digital technologies can help **tackle key domestic and international issues**, e.g. improve environmental protection and health care for all.

Harness the potential of digital technologies to address great societal challenges.

PROMOTING SOCIAL PROSPERITY: WHAT MATTERS MOST FOR POLICY?

Address digital divides to increase inclusiveness

- Divides by gender, age, educational attainment and income level reduce digital inclusion. Thirty-two percent of 55-65 year-olds have no computer experience or have failed core information and communication technology (ICT) tests, compared with 5% of 16-24 year-olds. More than twice as many young (16-24 year-old) men than women in the OECD can program.
- Promote foundational skills (e.g. literacy, numeracy) for all, including by offering incentives for and easing access to adult learning and improving the recognition of skills acquired after initial education so that everyone can participate in a digital society. Social policies that support mobility and redistribution can also reduce digital divides.

Use digital tools to tackle collective challenges

- Harness the potential of digital technologies and data to address collective challenges like environmental protection and healthcare.

Boost civic engagement through digital government strategies

- In 2017, the number of people posting opinions on civic or political issues online ranged from 4% to 24% across the OECD.

Assess the societal impacts of digital technologies by striking a balance between opportunities and risks

- Societal impacts of digital technologies are complex and involve both opportunities and risks. Over half of people in the OECD use social networking to increase personal connections, but about 9% of 15-year olds say they have been cyberbullied.
- All stakeholders, including the technical community, the business community, trade unions and civil society, have a role to play in understanding societal issues and developing appropriate responses as digital transformation progresses.

Digital transformation affects society and culture in complex and interrelated ways as digital technologies dramatically change the ways in which individuals, firms and governments interact among and with one another. Societal effects of digital transformation are complex because overall impacts are often not clear-cut and may vary across countries. For example, digital technologies provide opportunities to enhance access to information (a free and interconnected Internet), improve health care (e.g. telemedicine), and enrich education (e.g. massive open online courses). On the other hand, challenges arise related to work-life imbalances; the segregation of people into relatively isolated, like-minded groups; negative mental health outcomes such as screen addiction, depression and cyberbullying, including among children; and the emergence of digital divides (e.g. in skills). For digital transformation to work for growth and well-being, it is essential that public policies support a positive and inclusive digital society.

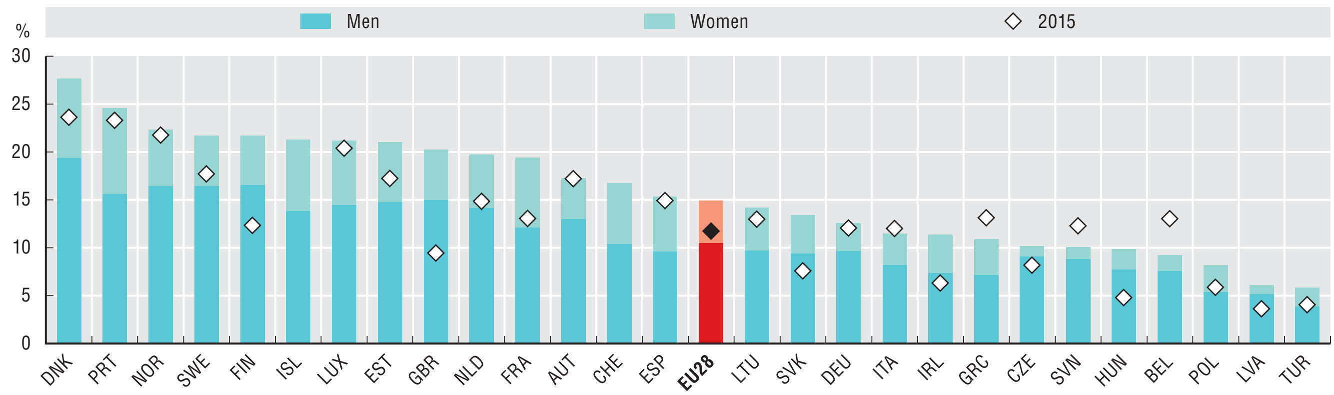
Address digital divides to increase inclusiveness

Despite the rapid overall uptake of digital technologies, divides still persist along different dimensions including gender, age, income and educational level. Across the OECD in 2016, 83% of women on average used the Internet, slightly less than men (85%), but with significant variation across countries (OECD, 2019[1]). The gap in Internet usage was highest in Turkey (18 percentage points), which also exhibited the largest usage gap between young and elderly users of the Internet (over 66 percentage points). Across the world, over 250 million fewer women than men are online, although advances are being made in many countries to close this gap (OECD/G20, 2018[2]).

The gender gap is starker when considering programming skills. Across the European Union, more than twice as many young men (aged 16-24) than women have learnt to program (Figure 6.1). Only those with programming skills will be able to shape the development of digital technologies (e.g artificial intelligence), which could create biases.

6.1. More young men than women can program

Share of 16-24 year-olds who can program, by gender, as a percentage of all Internet users, 2017



Note: See Chapter notes.[1]

Source: OECD (2019[3]), *Measuring the Digital Transformation*, *https://dx.doi.org/10.1787/9789264311992-en*, based on Eurostat[4], *Digital Economy and Society Statistics* (database), *https://ec.europa.eu/eurostat/web/digital-economy-and-society/data/comprehensive-database* (accessed September 2018).

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Women are also less likely to study science, technology, engineering and mathematics (STEM) or to pursue careers in the ICT sector. These divides seem to emerge early; by the age of 15, only an average of 0.5% of girls across the OECD wish to become ICT professionals, compared to 5% of boys, while twice as many boys as girls hope to become engineers, scientists and architects. This gap persists later in life, with women representing about 30% of all tertiary graduates in the natural sciences, engineering or ICT fields in the OECD in 2015 (OECD, 2017[5]). Perhaps unsurprisingly, there are fewer women in STEM professions (OECD/G20, 2018[2]) and fewer female entrepreneurs (OECD/EU, 2017[6]) – and those women that do start businesses in the ICT sector face socio-cultural gender bias when raising capital (Breschi, Lassébie and Menon, 2018[7]).

Looking beyond gender, age is another a determinant of Internet usage. Older people (aged 55-74) were less likely than those aged 16 to 24 to use the Internet in every OECD country for which data were available in 2016 (OECD, 2019[1]). Still, just over 60% of women aged 55-74 across the OECD reported that they used the Internet in 2017, with similar outcomes reported by men of the same age bracket. Data on adult competences find that on average, 32% of those aged 55-65 have no computer experience or have failed core ICT tests, compared with just 5% of 16-24 year-olds (OECD, 2017[8]). As populations age and more public services move online, including health services, lower participation from older people could emerge as a policy concern. For older people, the use of digital tools like the Internet can also be an important source of social engagement and information (OECD, 2019[9]).

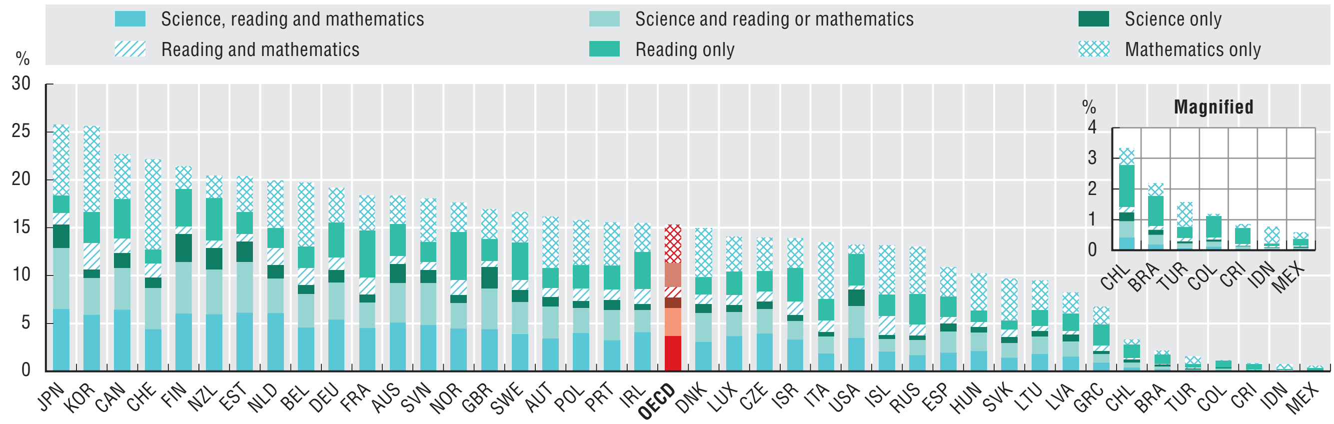
Similar divides persist along other dimensions. For example, digital divides exist with respect to geography, especially when considering rural and urban populations (see Chapter 2). In addition, those with low or no formal education reported lower rates of Internet usage than those with tertiary education in every OECD country for which data were available (OECD, 2017[5]), but the gap ranged from just 4 percentage points in Norway to 60 percentage points in Greece. Similarly, those with higher formal education tend to use the Internet for more productive and professional activities than those with lower levels of education (see Chapter 3), underscoring the necessity of boosting skills to improve the inclusiveness of digital transformation for all groups.

In a fast-moving digital landscape, ensuring foundational skills in science, literacy and numeracy can help enable all groups to participate in a digital society. Those who use the Internet in a diverse and complex way also tend to have better literacy and numeracy skills than those who use the Internet mainly for communication and leisure activities (OECD, forthcoming[10]), suggesting that these foundational skills are necessary for sophisticated personal activities in the digital age. A minimum level of proficiency in reading and numeracy serves as a basis for using digital technologies and to thrive in digital-intensive workplaces (see Chapters 3 and 5).

However, performance in reading and mathematics varies considerably across countries (Figure 6.2). These differences have implications not only for cross-country comparative performance, but also for existing digital divides, as those with the foundational skills to use the Internet for more sophisticated activities, like learning or seeking jobs and information, are better placed to thrive in the digital age.

6.2. Foundational skills, like science, numeracy and literacy, are essential skills for life

Top performers in science, mathematics and reading, as a percentage of 15 year-old students, 2015



Note: Top performers in science, mathematics and reading are students aged 15-16 who achieved the highest levels of proficiency (i.e. Levels 5 and 6) on the OECD PISA's assessment.

Source: OECD (2019[3]), *Measuring the Digital Transformation*, *https://dx.doi.org/10.1787/9789264311992-en*, based on OECD, *PISA 2015* (database), *https://www.oecd.org/pisa/data/* (accessed December 2018).

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Other complementary skills (e.g. social and emotional skills) are increasingly valued by employers (see Chapter 5) but also more generally by societies. These skills can be developed through strategies that focus on students' feelings and relationships, like role-playing, collaborative-based pedagogies, gaming, case studies, social problem-solving approaches and through extracurricular activities, such as sports and the arts (Le Donné, Fraser and Bousquet, 2016[11]). These strategies can also help re-engage low-performing students who lack motivation at school.

Divides in the distribution of skills may be somewhat compensated for by holistic education and skills policies that support learning and skills development throughout the life cycle. Governments and firms can promote adult learning by offering incentives (e.g. through the tax system), easing access to formal education for adults, and improving the recognition of skills acquired after initial education (see Chapter 5) (OECD, 2017[12]). This issue is also highlighted in the first pillar of the OECD Framework for Policy Action on Inclusive Growth (Box 6.1).

6.1. Making growth inclusive in the digital age

Inequalities of income, wealth and opportunity are increasing both within and across countries in the OECD and beyond (OECD, 2017[13]). These changes are linked to declining productivity growth, with implications for broad-based economic growth and development (OECD, 2018[14]). To address these inequalities, the OECD launched the Inclusive Growth Initiative in 2012 to respond to the worldwide increase in inequality and help governments put well-being at the centre of policy making.

One central tool of this initiative is the Framework for Policy Action on Inclusive Growth (OECD, 2018[15]), which aims to help governments ensure a more equitable distribution of the benefits from economic growth along three major axes:

- Invest in people and places that have been left behind, which highlights the promotion of life-long learning and the acquisition of skills, increasing social mobility, improving health and enhancing access to affordable housing, promoting regional catch-up and investing in community well-being.
- Support business dynamism and inclusive labour markets, which underscores the need to improve technology diffusion, innovation and entrepreneurship, as well as resilient labour markets and good jobs for all.
- Build efficient and responsive governments, which advocates for good governance and people-centred digital government strategies, as well as a whole-of-government approach to designing economic and development policies.

The Framework for Policy Action on Inclusive Growth addresses policies through the lens of economic and social actors, a complementary perspective to the OECD Going Digital Integrated Policy Framework, which takes a policy domain approach.

Source: OECD (2018[15]), *Opportunities for All: A Framework for Policy Action on Inclusive Growth*, *https://dx.doi.org/10.1787/9789264301665-en*.

Social policies can also help to address a range of digital divides. For instance, while highly skilled workers are often already (internationally) mobile and able to follow higher returns for wages (OECD, 2008[16]), attention should focus on social policies, like housing, that can facilitate geographic mobility for low-skilled workers. Redistribution policies, such as tax and benefit policies, can also help ensure that no one is left behind, and that the benefits of digital transformation are broadly shared. Beyond financial support, it is also important that in-kind transfers are used to help those that benefit relatively less from digital transformation. Patterns of redistribution may also need to be reconsidered in light of changes to the nature of work (Causa, Vindics and Akgun, 2018[17]), which intersects with the challenges for workers in the digital age (see Chapter 5).

Use digital tools to tackle collective challenges

Digital technologies hold promise for better environmental management and protection. In particular, digital technologies can directly affect energy consumption by promoting smarter and more continuous management of electricity, for example through the widespread use of so-called "smart" metres.

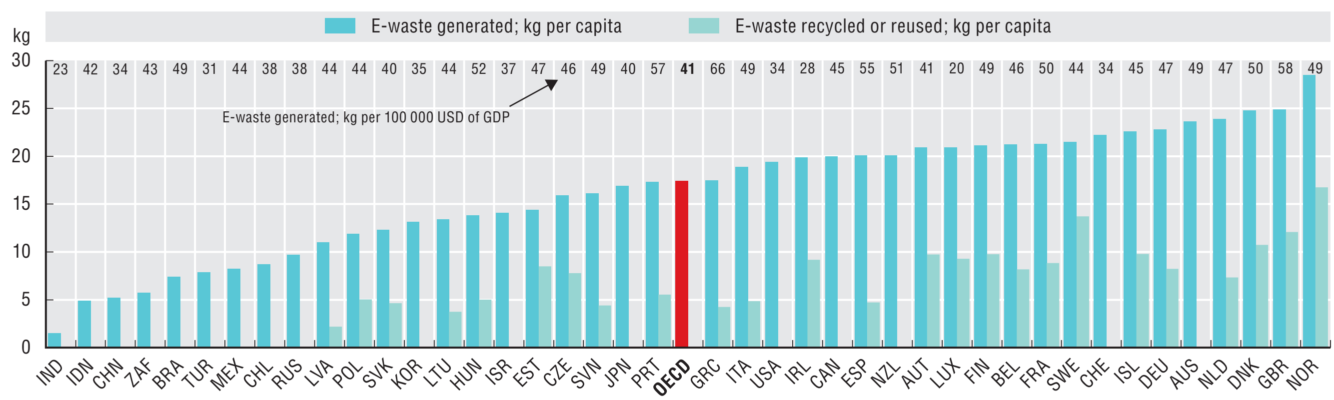
Digitalised energy systems can also better identify who and how energy should be delivered, with potential impacts on long-term sustainable energy production.

The increased digitalisation of energy-intensive sectors (see Chapter 4) also holds promise to increase the energy efficiency and sustainability of many economic and social activities. For example, the transport sector currently accounts for 28% of global final energy demand and 23% of global carbon dioxide emissions from fuel combustion. The largest share of this transport energy demand (36%) comes from road freight vehicles like long-haul trucks (OECD/IEA, 2017[18]; ITF, 2017[19]). But applying digital and data-driven solutions to trucking operations and logistics could reduce the need to take such trips, with potential reductions in road freight energy use of 20% to 25% (OECD/IEA, 2017[18]; ITF, 2017[19]).

On the other hand, digital transformation enables more purchases across borders (see Chapter 8), which could change the global distribution of environmental footprints (De Backer and Flaig, 2017[20]), and nationally implemented recycling regimes and principles like extended producer responsibility may also be affected (Börkey, 2017[21]). Similarly, demand for digital technologies may increase energy and resource demands associated with ICT production and use, offsetting some of the environmental gains they can bring. Global electronic waste (e-waste), including mobile phones and the growing number of sensors and other technical components embedded in a variety of connected products, has been increasing since 2014 as ICT uptake increases and replacement cycles for digital technologies become shorter (Baldé et al., 2017[22]). However, e-waste production differs across countries (Figure 6.3) and, encouragingly, data available for European countries indicates that they recycled or re-used approximately 40% of the volume of e-waste produced in 2016.

6.3. E-waste production and recycling varies across countries

E-waste generation and recycling or reuse, kg per capita and per 100 000 USD of GDP, 2016



Notes: kg = kilogramme; GDP = gross domestic product. See Chapter notes.[2]

Source: OECD (2019[3]), *Measuring the Digital Transformation*, *https://dx.doi.org/10.1787/9789264311992-en*, based on OECD calculations based on Baldé et al. (2017[22]), *The Global E-Waste Monitor 2017. Quantities, Flows, and Resources*, *https://www.itu.int/en/ITU-D/Climate-Change/Documents/GEM%20 2017/Global-E-waste%20Monitor%202017%20.pdf*; Eurostat, *Waste electrical and electronic equipment (WEEE) Statistics;* OECD, *Annual National Accounts* (database), *www.oecd.org/sdd/na* (accessed December 2018).

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Health care is another collective challenge where digital technologies hold great potential. For example, health care providers can improve care and potentially reduce costs by digitising health records, using new surgery machinery, expanding tele-care and tele-consultation, and implementing mobile health technologies. Digital technologies also hold particular promise for the long-term care of the elderly, a concern as societies across the OECD age (OECD, 2017[8]).

At the same time, big data and data analytics drive personalised care, while increasingly mobile digital technologies help improve knowledge about health status, disease progress and levels of motor and cognitive function. Canada, Denmark, Finland, New Zealand, Singapore, Sweden, the United Kingdom (England and Scotland) and the United States are the most advanced OECD countries in connecting health data and reaping the benefits (OECD, 2017[23]). However, data-driven health services also raise new challenges related to personal data protection and privacy, security, control and ownership, transparency and accountability, and quality and safety, many of which can be addressed through good health data governance. To date, the benefits of digital technologies have been hindered by fragmented data governance systems (Oderkirk, 2017[24]).

A hallmark of digital transformation is the increased availability of information for users. This is also the case for health information; in recent years, online business models have emerged that make use of this information to educate patients, explain diseases and ailments and enable the delivery of health advice. Across the OECD, 45% of Internet users look for health information online (OECD, 2019[9]), ranging from 71% in the Netherlands to under 20% in Australia.

The use of digital technologies could also have uncertain impacts on the mental and emotional well-being of people, including children. For many people aged below 18-years old, being online is normal; the typical 15-year old in the OECD spent more than two hours every weekday online after school in 2015 (OECD, 2017[25]). Approximately 62% of 15-year olds in the OECD chat online and 73% participate in a social network daily or almost daily (OECD, 2017[5]). While it is difficult to draw a clear connection between the use of digital technologies and health impacts (OECD, 2018[26]), more than half (54%) of 15-year olds surveyed across the OECD in 2015 reported agreeing or strongly agreeing with the statement "I feel really bad if no Internet connection is possible" (OECD, 2018[26]). This might simply reflect how central digital technologies are to modern social life, particularly for so-called "digital natives", but these and other findings have raised concerns among parents and policy makers (OECD, 2018[26]), and require monitoring in the future.

Boost civic engagement through digital government strategies

When governments first began experimenting with digital tools, they largely focused on digitising public services ("e-government"), ranging from the digital collection of taxes, payments of fines and dues, applications for public benefit programmes, permits and licenses, etc. (Warf, 2014[27]). Recently, governments have designed digital government strategies to increase civic engagement (OECD, 2017[28]).

The shift from e-government towards digital government strategies underscores the need to move away from top-down assumptions about citizens' and businesses' needs and to foster greater openness and public engagement to bring people into the design, development, delivery and monitoring of public policies and services (citizen-driven approaches). It also involves the establishment of organisational and governance frameworks to further collaboration with internal and external stakeholders to improve the delivery of better policies and services by letting the needs of the users drive decisions on services.

Digital tools impact civic engagement in a variety of ways, notably by enabling governments, citizens and other stakeholders to interact in a more open and transparent way. In 2017, the share of people posting opinions on civic or political issues online ranged from 4% to 24% across the OECD (OECD, 2019[3]), suggesting that citizens may be receptive to this form of engagement.

A majority of OECD countries have started using ICTs to engage with stakeholders, and over 30 OECD countries use ICTs to conduct public consultations over the Internet (OECD, 2018[29]), with potential impacts on their coverage and efficiency (OECD, 2018[29]). Regulators can use digital tools to liaise with consumer organisations, academics and the technical and business communities to monitor trends and remain abreast of technological developments. As information is increasingly gathered by private organisations, there may be increased need for collaboration among stakeholders to achieve public policy goals.

The use of digital technologies by governments enables the development of more people-centric and user-driven policies. Digital government strategies can empower users to access digital public services at their convenience and in new ways, including through enhanced interaction with public administrations within and across tiers of government. When the provision of services is fragmented across disparate public agencies, many governments have adopted the "once-only" principle, which seeks to reduce the burden on individuals, institutions and companies by ensuring they only have to provide certain standard information to public authorities once (European Commission, 2017[30]). Digital one-stop shops can also ease access to information and assistance, such as for job seekers. More detailed information that governments can gather through interacting with citizens online can also allow more personalisation of public services and better targeting of public policies.

Assess the societal impacts of digital technologies by striking a balance between opportunities and risks

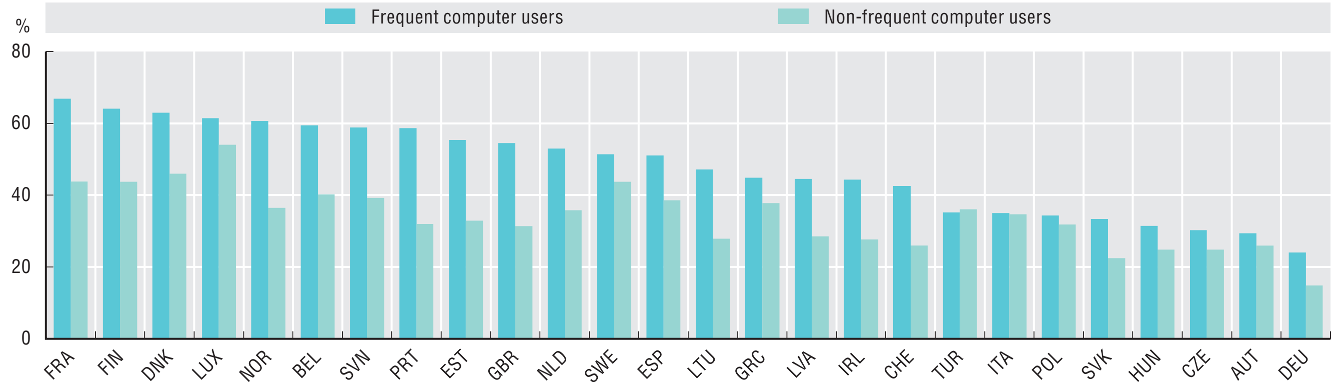
Digital transformation also introduces new or heightens existing social issues, whose overall or aggregate impacts may not be clear. As digital transformation progresses, the onus is on stakeholders, including governments, the business community, trade unions, the technical community and civil society, to collaborate and manage these issues as they evolve.

There are a range of social issues that have emerged or become heightened as digital transformation progresses. For one, the ubiquity of digital technologies means that people can engage in more flexible working arrangements, such as teleworking, which can help families manage schedules that do not map well to a regular working day. However, research suggests that telework opportunities are largely available to the high-skilled (Billari, Giuntella and Stella, 2017[31]), and more than 80% of people in Austria, the Czech Republic, Germany, Greece, Hungary, Italy, Latvia, Poland, Portugal, Slovakia, Spain, and Turkey report that they have never tele-worked (OECD, 2019[9]).

At the same time, the fact that it is possible for workers to connect to work from home during all hours can lead to high levels of stress. For example, a study of working adults in the United States suggests that time spent on emails and the expectation for workers to monitor their emails after working hours reduced job satisfaction with their work-life balance (Belkin, Becker and Conroy, 2016[32]). In addition, recent work (OECD, 2019[9]) finds a positive and significant relationship between the frequent use of computers at work and the share of European workers who experience work-related worry at home (OECD, 2019[9]). Overall, workers who frequently use a computer are 7.8% more likely to experience worries about work at home than those who do not (Figure 6.4).

6.4. Computers and work stress go hand-in-hand

Individuals worrying about work outside working time, as a percentage of individuals using computers at work, 2015



Note: See Chapter notes.[3]

Source: OECD (2019[3]), *Measuring the Digital Transformation*, *https://dx.doi.org/10.1787/9789264311992-en*, based on OECD calculations based on Eurofound (2015[33]), "European Working Conditions Survey 2015", *https://www.eurofound.europa.eu/surveys/* (accessed November 2018).

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Digital technologies and the data they use and create also raise complex questions about their impact on society. Artificial intelligence (AI) has the potential to generate enormous societal benefits in many arenas (OECD, 2016[34]). For example, some may find that smart home appliances such as Alexa, Google Assistant and Siri make their lives easier, and other AI applications hold promise including to ease the loneliness of the elderly. But the ability of AI algorithms to learn, analyse and produce output that may be opaque even to its creators raises new policy challenges (OECD, 2018[35]). As a result, AI has risen to the top of policy agenda, with issues around ethics, fairness, transparency, accountability, safety and privacy featuring prominently (Box 6.2) (OECD, forthcoming[36]).

6.2. Artificial intelligence in society

AI systems detect patterns in enormous volumes of data, radically improving the accuracy and lowering the cost of predictions, generating productivity gains and spurring innovation to address many pressing problems.

Yet alongside its tremendous benefits, AI – notably some types of machine learning – raises new types of concerns compared to previous technologies. First, abstract mathematical relationships can become "black boxes" that are too complex for any person to understand, even the person that designed the AI system. Second, some AI systems iterate and evolve over time and can even change their own behaviour in unforeseen ways. Third, a specific outcome or prediction may only appear when an AI system encounters specific conditions and data, and is not necessarily repeatable. Finally, evolving and increasingly autonomous products and services raise new types of safety issues.

A major focus of discussions in AI policy circles relates to fairness and to the data that AI systems rely on. Machine learning algorithms reproduce the biases implicit in the training data used (e.g. racial and gender biases as well as stereotypes). Much focus today is placed on accidental impacts of AI, for example potential bias in the operation of machine learning algorithms estimating the probability of recidivism (OECD, forthcoming[36]).

Safety and accountability are also major policy issues. Driverless vehicles may well make driving safer, improve quality of life and reduce environmental impacts, but they also raise questions about jobs, safety, liability, security, privacy and transparency, as well as possible ethical choices (e.g. which person to "save" in the event of an unavoidable fatal accident) (OECD, forthcoming[36]; OECD, 2018[35]). More broadly, there is often a trade-off between designing AI systems for accuracy and designing systems that are transparent and accountable.

There is also clear tension between the accuracy of AI systems – which require vast quantities of representative and curated data – and data protection. At the same time, algorithmic correlations weaken the distinction between personal and other data: AI systems can often infer sensitive and personal data and correlations from proxy variables. Developments in the Internet of Things (IoT) further exacerbate challenges to privacy protection. In particular, the ubiquity of IoT devices in public spaces (smart cities, work places), for example, may have a chilling effect on individual liberties, as individuals become aware, or are under the impression, that they may be identified and their activities monitored, leading to a perceived form of surveillance (OECD, forthcoming[36]). Privacy concerns also come to the fore with the increasing use of connected IoT devices of a highly personal nature (wearable devices, smart homes and "quantified self") that facilitate the gathering of personal data unbeknownst to the individual.

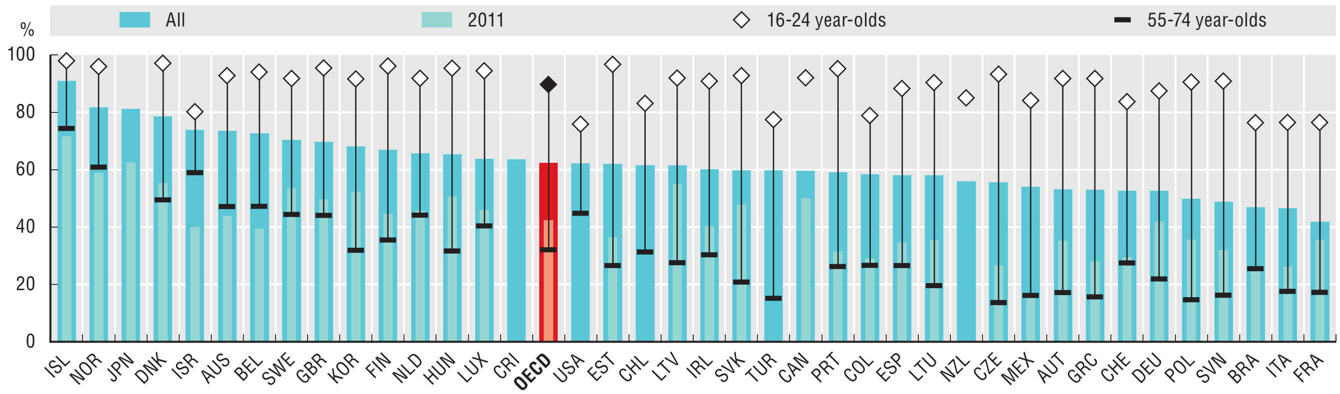
High-level guiding principles agreed among the widest number of countries can help ensure that AI contributes to social prosperity. The OECD created an international multi-stakeholder AI expert group (AIGO) in July 2018 to scope principles to guide a human-centric approach to AI in society that fosters trust in, and adoption of, AI (OECD, 2018[37]). Achieving the right balance – weighing the benefits of AI and mitigating the risks – is at the heart of the expert group's task and the overall efforts of the OECD to develop and share principles for AI in society.

Digital technologies, and particular digital applications like social networking, may lead to a softening of the distinction between public and private space. Social networking typically enables personal interactions between people, while also allowing individuals to communicate to many people at once. Across the OECD, just over 60% of people used the Internet to access social networks in 2018. Social network usage increased in every OECD country for which data were available between 2011 and 2018, with an average increase of over 20 percentage points (Figure 6.5). On average in the OECD, almost 90% of people aged between 16 and 24 used social network sites in 2018, in comparison to just 32% of older people.

Digital transformation changes the ways in which people communicate with one another, as many offline interactions increasingly have an online component. There is competing evidence about whether online interactions supplement, complement or displace offline social contacts (OECD, 2019[9]). On the one hand, an increase in the use of online social interactions can help users to communicate with each other and decrease the cost of staying in touch, thereby reinforcing existing relationships or establishing new ones, regardless of distance. This can have potential positive impacts on identity, belonging and feelings of loneliness.

6.5. Social networking is prevalent

Individuals who used the Internet to access social networking sites, by age, as a percentage of Internet users in each age group, 2018



Note: See Chapter notes.[4]

Source: OECD (2019[3]), *Measuring the Digital Transformation*, *https://dx.doi.org/10.1787/9789264311992-en*, based on OECD[1], *ICT Access and Usage by Households and Individuals* (database), *http://oe.cd/hhind* (accessed December 2018).

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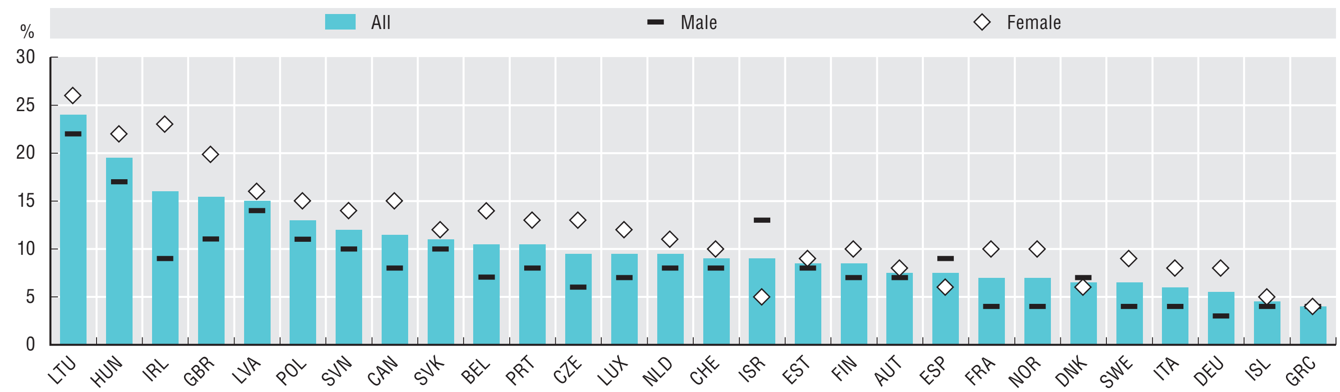
On the other hand, digital transformation also enables the easier and faster dissemination of potentially negative social interactions, including cyberbullying, hate speech and discrimination against specific groups. Many forms of online interactions are comparatively more detached than those undertaken in real-life, but the barriers to participation may also be lower.

Children and those who are most vulnerable may face the most risks and experience the most damaging outcomes as a result of negative online interactions. Children use the Internet for a variety of purposes, including receiving content, interacting with social networks or engaging in participatory activities like blogging or gaming (Hooft Graafland, 2018[38]). About 9% of 15-year olds in the OECD reported being subject to cyberbullying (Figure 6.6) although the share could be higher as victims are often reluctant to self-report. In 24 of the 28 countries for which data were available, young girls aged were more likely than boys to report having been cyberbullied, but they are also more likely to chat online daily or almost daily than boys (OECD, 2017[5]).

6.6. Many children across the OECD report having experienced cyberbullying

Children's exposure to cyberbullying through messages, by gender, as a percentage of all children aged 15 in each group, 2013



Note: See Chapter notes.[5]

Source: OECD (2019[3]), *Measuring the Digital Transformation*, *https://dx.doi.org/10.1787/9789264311992-en*, based on WHO (2016), *Growing up unequal: gender and socioeconomic differences in young people's health and well-being, Health Behaviour in School-aged Children (HBSC) study: international report from the 2013/2014 survey, Copenhagen.*

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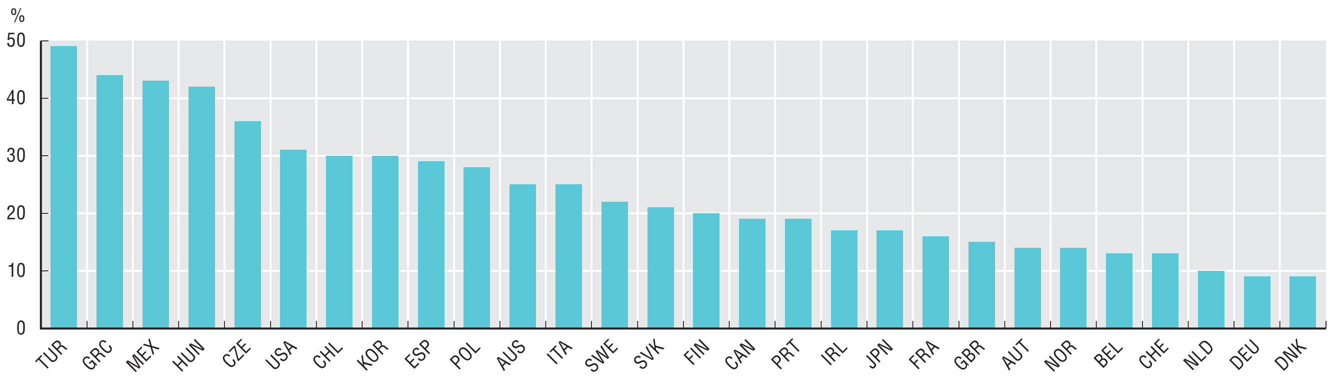
Digital technologies enable communications across geographically dispersed communities, and have created new opportunities for people to share and consume news and interact with the political process. They also enable new forms of organisation and identification, and empower individuals to take part in social or political discussions (OECD, 2019[9]). At the same time, as individuals increasingly consume information online or through social network intermediaries, the rapid spread and potential algorithmic reinforcement of particular views has become a topical issue.

Disinformation is a related concern that has gained attention recently, as digital technologies facilitate its faster and wider dissemination. Disinformation is defined as all forms of false, inaccurate, or misleading information designed, presented and promoted to intentionally cause public harm or for profit (European Commission, 2018[39]). While disinformation is neither new nor necessarily illegal, some have raised concerns that it negatively impacts individuals and society more broadly (European Commission, 2018[39]; UK House of Commons, 2018[40]; Ministry of Foreign Affairs of Denmark, 2018[41]; Swedish Civil Contingencies Agency, 2018[42]). While difficult to measure precisely, one measure of the extent of disinformation is self-reported exposure to "completely made-up stories" (Figure 6.7), which shows that many individuals across the OECD have reported being exposed to disinformation. However, this share varies substantially across countries, from nearly 50% of respondents in Turkey to under 10% in Germany and Denmark, and trends are unclear.

6.7. Reported exposure to disinformation varies across the OECD

Share of individuals who reported having come across completely made-up stories in the last week, 2018



Source: OECD (2019[3]), *Measuring the Digital Transformation*, *https://dx.doi.org/10.1787/9789264311992-en*, based on Newman, N. et al. (2018 [46]), *Reuters Institute Digital News Report 2018, http://media.digitalnewsreport.org/wp-content/uploads/2018/06/digital-news-report-2018.pdf?x89475.*

StatLink https://doi.org/10.1787/888933915392

It should be noted, moreover, that self-reported measures can be misleading, and this particular measure captures the individual's perception of the veracity of information provided in the story, rather than the actual degree of accuracy. This measure also does not necessarily capture the overall aggregate impact of disinformation, as it does not measure how many people have actually read these stories or have been affected by them. Although the extent of disinformation is not yet clear, it has risen high on the policy agenda in many countries. Some of the most popular social network sites have implemented measures against disinformation (Facebook, 2018[43]), while some governments are considering changes to communication and broadcasting laws to combat disinformation (Funke, [2019[44]], cited in UNESCO, [2018[45]]). Addressing the challenges posed by disinformation in the digital age and preserving the opportunities in the information environment will require broad, whole-of-society efforts involving individuals, firms and governments.

Notes

Israel
The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

1. Figure 6.1: For Italy, data refer to 2016.
2. Figure 6.3: Electronic waste (or e-waste) refers to all items of electric and electronic equipment and its parts that have been discarded by its owner as waste, without the intent of reuse. In this analysis, it covers six waste categories: 1. Temperature equipment; 2. Screens, monitors; 3. Lamps; 4. Large equipment; 5. Small equipment; and 6. Small IT and telecommunication equipment. E-waste ratios per USD are based on the GDP expressed in current PPPs for the year 2016. E-waste collection data are available at: *http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_waselee&lang=en*. For Italy and Slovenia, data refer to 2015. Data on recycling or reuse are only available for the European Union countries and Norway.
3. Figure 6.4: Frequent computer use refers to workers who use digital devices at work at least three quarters of the time.
4. Figure 6.5: Unless otherwise stated, Internet users are defined as individuals who accessed the Internet within the last 3 months. For Korea and New Zealand, the recall period is 12 months. For the United States, the recall period is 6 months. For Australia, data refer to the fiscal years 2016/17 and 2010/11 ending on 30 June. The information provided is drawn from responses to a question whose wording differs slightly to that requested: "Activities of Internet access at home, in the previous 3 months – Social networking". For Brazil, data refer to 2010 and 2016. For Canada, data refer to 2010 and 2012. For Chile, data refer to 2017. For Colombia, data refer to 2012 and 2017. For Costa Rica, data refer to 2017 and to individuals aged 18 to 74 instead of 16-74. For Israel, data refer to 2010 and 2016 and relate to Internet usage for discussion and communication groups, such as: chats, forums, WhatsApp, Facebook, Skype, Twitter, etc. Data refer to individuals aged respectively 20 and more instead of 16-74 and 20-24 instead of 16-24. For Japan, data refer to 2012 and 2016 and to individuals aged 15-69 instead of 16-74. For New Zealand, data refer to 2012. For Korea and Switzerland, data refer to 2010 and 2017. For Mexico, data refer to 2013 and 2017. For the United States, data refer to 2017.
5. Figure 6.6: Children's exposure to cyberbullying refers to the share of children aged 15 who report having been cyberbullied by messages once.

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