Chapter 4

FOSTERING THE DIGITAL TRANSFORMATION AMONG PEOPLE, FIRMS AND GOVERNMENT

On 21 August 1991, the Republic of Latvia declared the restoration of independence, only two weeks after the world's first website went online. Latvia has overcome many challenges since, such as the 2008 international financial crisis, and new challenges lie in the future such as a shrinking working age population, and addressing the fallout of the COVID-19. Raising productivity and fostering use of digital technologies can help in meeting these challenges.

Latvia has advanced strongly in Internet usage. The government is a leading user among European countries of digital technologies, but the private sector lags far behind. Developing a comprehensive national digital strategy, with an adequate level of resources, can help Latvia further increase the usage of digital technologies by individuals, firms and government, as discussed in this chapter. The chapter examines individual usage, obstacles to more sophisticated use, and policies to increase usage (e.g. improving basic digital skills) including during the COVID-19 pandemic. It explores the low use of digital technologies among firms, especially e-commerce, current policies to increase digital skills in the workplace and programmes to encourage digital uptake among firms. Finally, the chapter looks at steps being taken to increase usage of digital technologies in government and provides policy recommendations.

Usage of digital technologies by individuals

Internet use by group

Latvia's population are moderate Internet users, in line with the trend in neighbouring countries with a similar level of GDP (Figure 4.1). Differences exist among demographic groups (based on age, education and gender), but are also mirror those of peer countries (Figure 4.2). Narrowing such differences is essential to achieving the goals of the Information Society Development Guidelines (see Chapter 7).

Figure 4.1. Internet users by educational level in selected OECD countries, 2018 or latest available year

As a percentage of all individuals aged 16-74 in each category
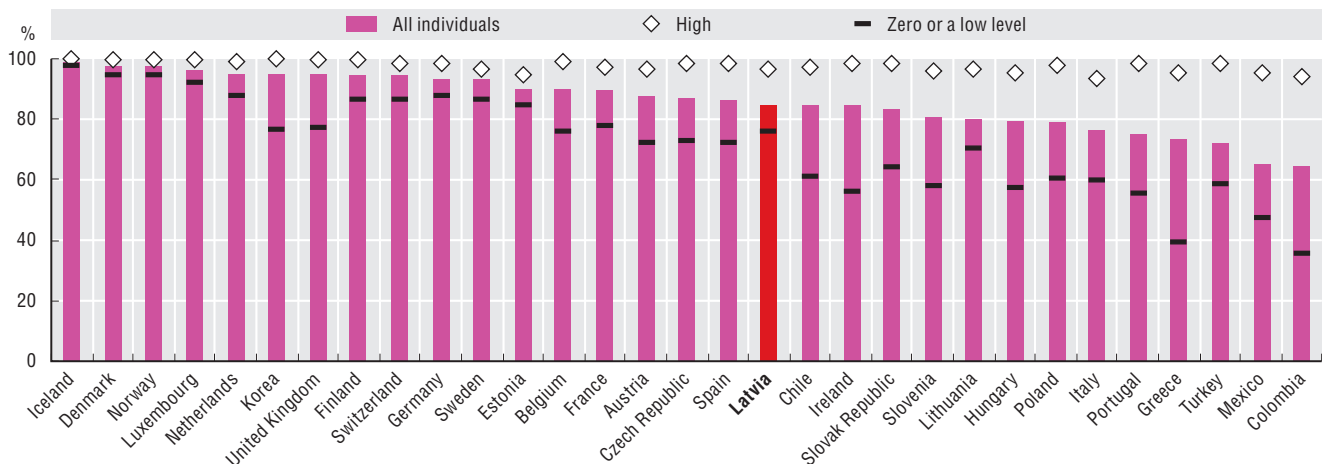
Notes: Unless otherwise stated, Internet users are defined for a recall period of three months. For Colombia, the recall period is 12 months. For the United States, no time period is specified.

Source: OECD (2018a), *ICT Access and Usage by Households and Individuals* (database), *http://oe.cd/hhind* (accessed in March 2020).

However, in recent years adoption of the Internet has proceeded at a gradual pace (Figure 4.3), with the share of individuals using the Internet weekly at a slower rate than the EU average (European Commission, 2018a). This trend can be explained in part by stagnation in adoption among those on lower incomes, as differences based on age and education have been narrowing (Figure 4.4).

In addition, a fifth of households lack a broadband connection (Figure 5.5). Many households indicate a low demand for Internet access at home: although the most common reason households claim for not having access to the Internet at home is a lack of need, cost and a lack of skills as factors, especially in

poorer households. The reported lack of need for Internet access among poorer households can reflect a lack of awareness of its benefits or different priorities (Figure 4.6). This low rate of connection applies to both rural and urban households (Figure 4.7).

Figure 4.2. Internet users by category in selected OECD countries, 2018 or latest available year
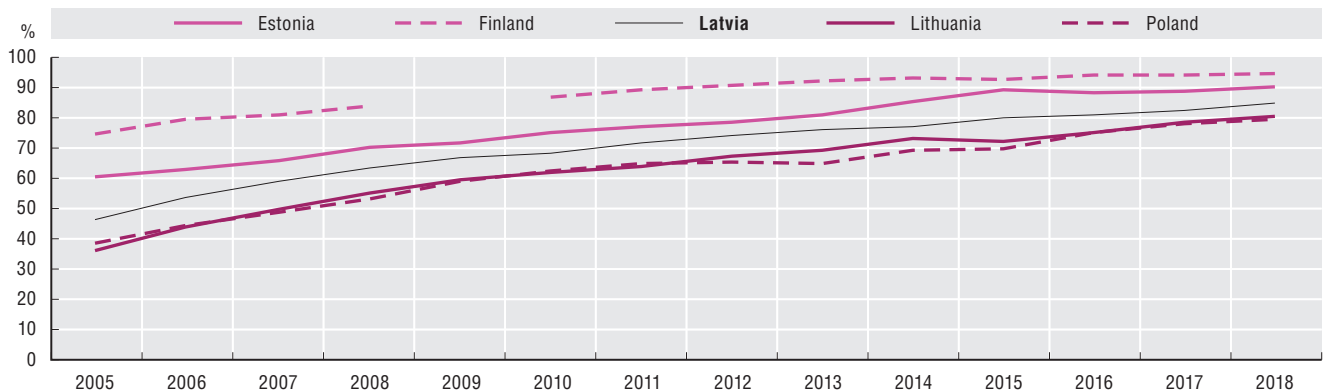
As a percentage of all individuals aged 16-74 in each category
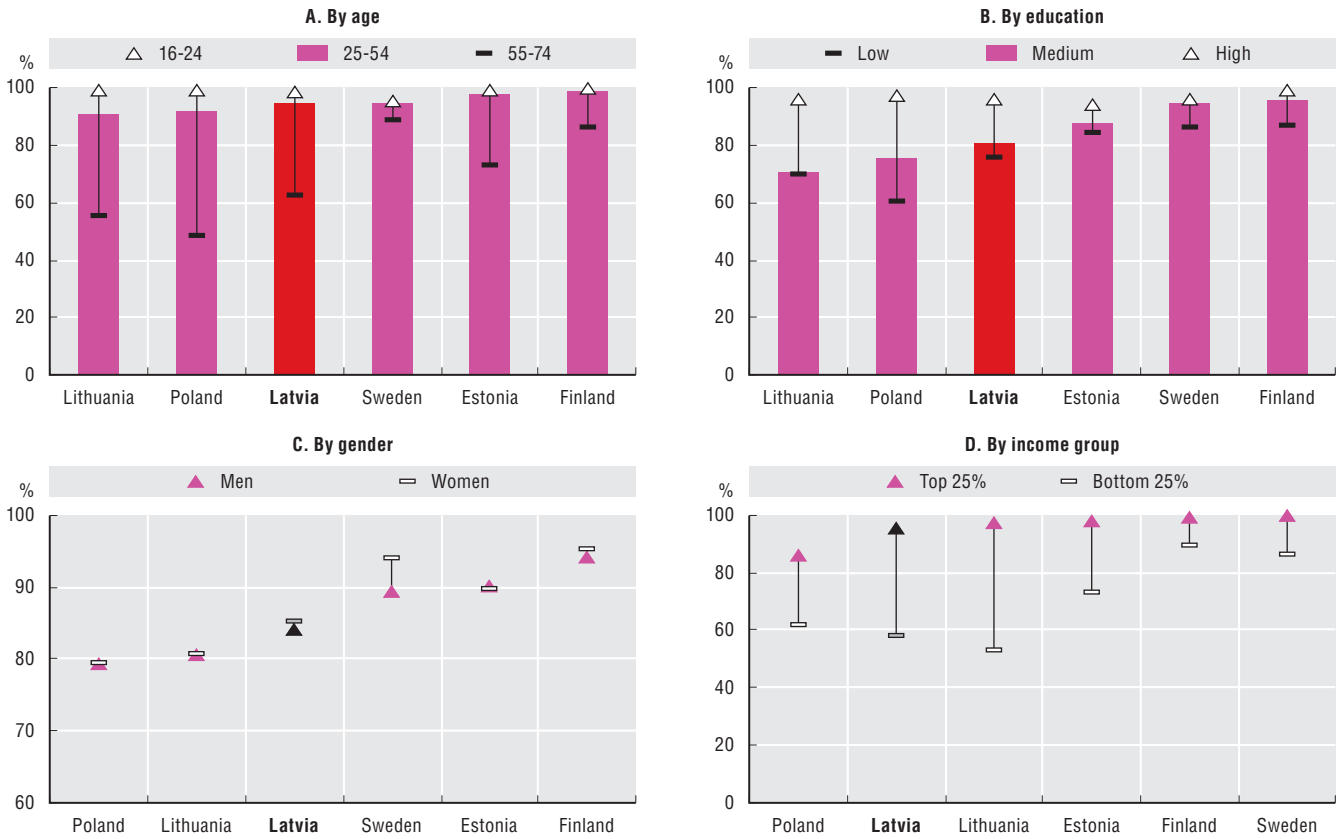
Source: OECD (2018a), *ICT Access and Usage by Households and Individuals* (database), *http://oe.cd/hhind* (accessed in March 2020).

Figure 4.3. Trends in Internet users in Latvia and selected OECD countries, 2005-18
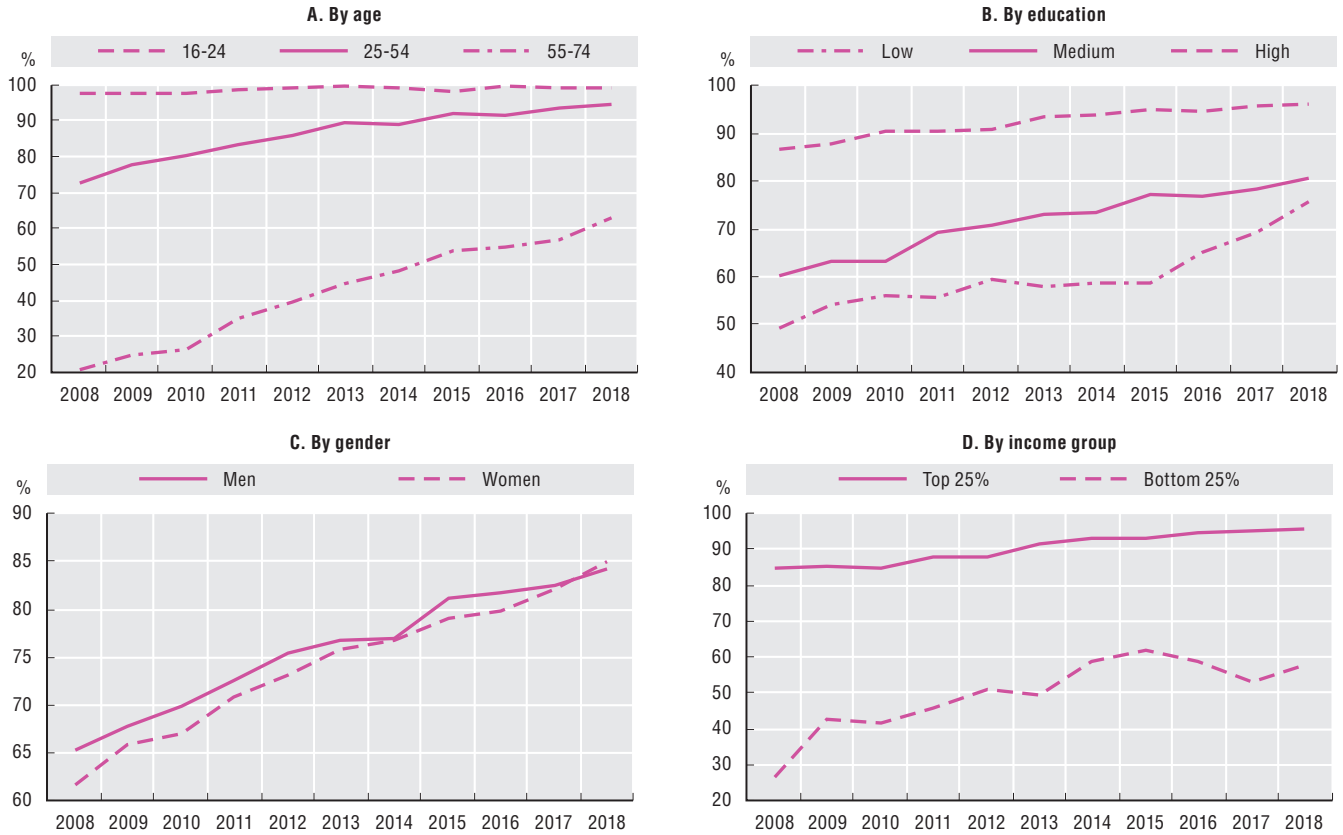
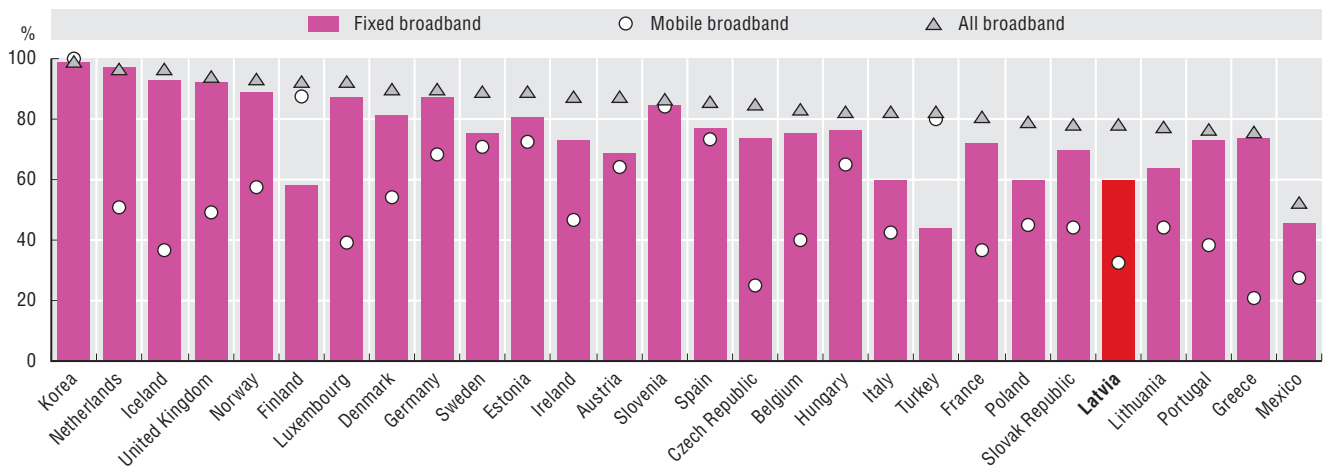*As a percentage of all individuals aged 16-74*

Source: OECD (2018a), *ICT Access and Usage by Households and Individuals* (database), *http://oe.cd/hhind* (accessed in March 2020).

Figure 4.4. Trends in Internet users by category in Latvia, 2008-18

As a percentage of all individuals aged 16-74 in each category

A. By age

B. By education

C. By gender

D. By income group

Source: OECD (2018a), *ICT Access and Usage by Households and Individuals* (database), *http://oe.cd/hhind* (accessed in March 2020).

Figure 4.5. Internet access at home in selected OECD countries, 2018

As a percentage of households with broadband access at home

Source: OECD (2018a), *ICT Access and Usage by Households and Individuals* (database), *http://oe.cd/hhind* (accessed in March 2020).

Figure 4.6. Reasons for not having Internet access at home in Latvia, 2018

As a percentage of all households

Source: Eurostat (2020c), *ICT Usage in Households and by Individuals* (database), *https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esms.htm*.

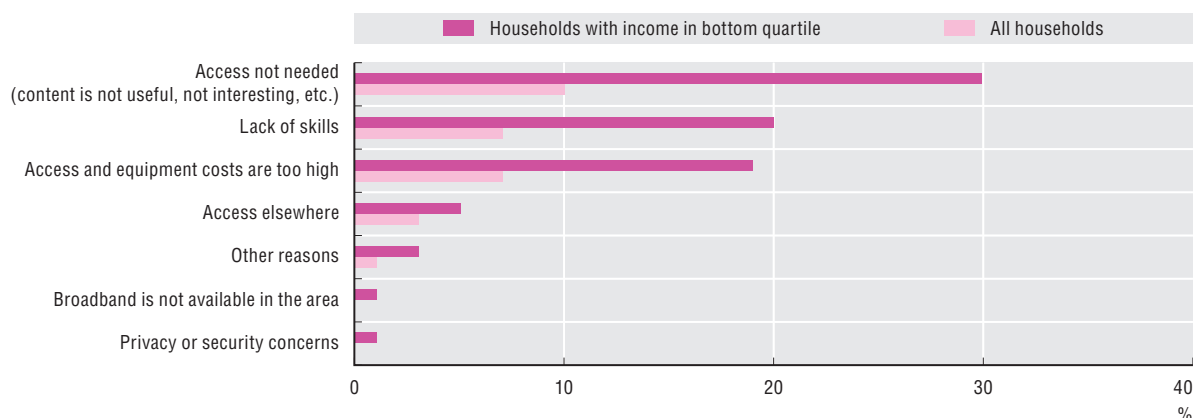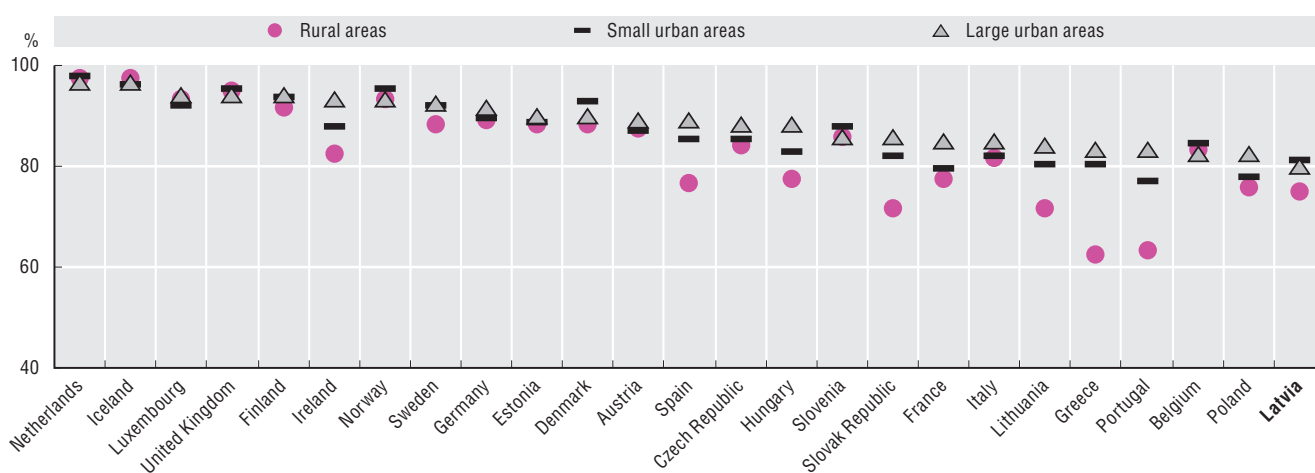**Figure 4.7. Rural-urban gap in broadband access in Latvia and selected OECD countries, 2018**

Percentage of households with broadband access at home

Source: OECD (2018a), *ICT Access and Usage by Households and Individuals* (database), *http://oe.cd/hhind* (accessed in March 2020).

The uses individuals make of the Internet

Although a substantial proportion of Latvia's inhabitants do not use the Internet (see above), those who do make relatively diversified and complex use of the Internet (OECD, 2019a). Among Internet users, use of e-banking and interacting with public authorities is above the OECD average. However, few have taken online courses, in line with the overall low trend for participation in continuing education and training (see below). As with other OECD countries, minor gender differences persists in Internet usage, with women more likely to use social media than men, and considerably more likely to access health information (Figure 4.8).

However, Latvia lags behind other countries with a similar proportion of Internet users in terms of participation in e-commerce. Given the advanced level of participation in other activities (e.g. e-banking and interacting with public authorities), such low participation can be explained by the lack of Latvian firms selling online (see next subsection). Less than half of Internet users have made an online purchase in the past year and even fewer have made a sale online. This is in part due to the size of Latvia's older population, as purchases by those aged 16-24 is closer to the OECD average (OECD, 2018a). In addition, online purchases tend to be low in value (Figure 4.9). Latvia has already achieved the target of 35% of inhabitants buying online by 2020 (Information Society Development Guidelines, Chapter 6) (Eurostat, 2020a); therefore, a more ambitious target is appropriate.

Figure 4.8. Internet use by individuals in Latvia, 2017 or latest available year

As a percentage of Internet users performing each activity
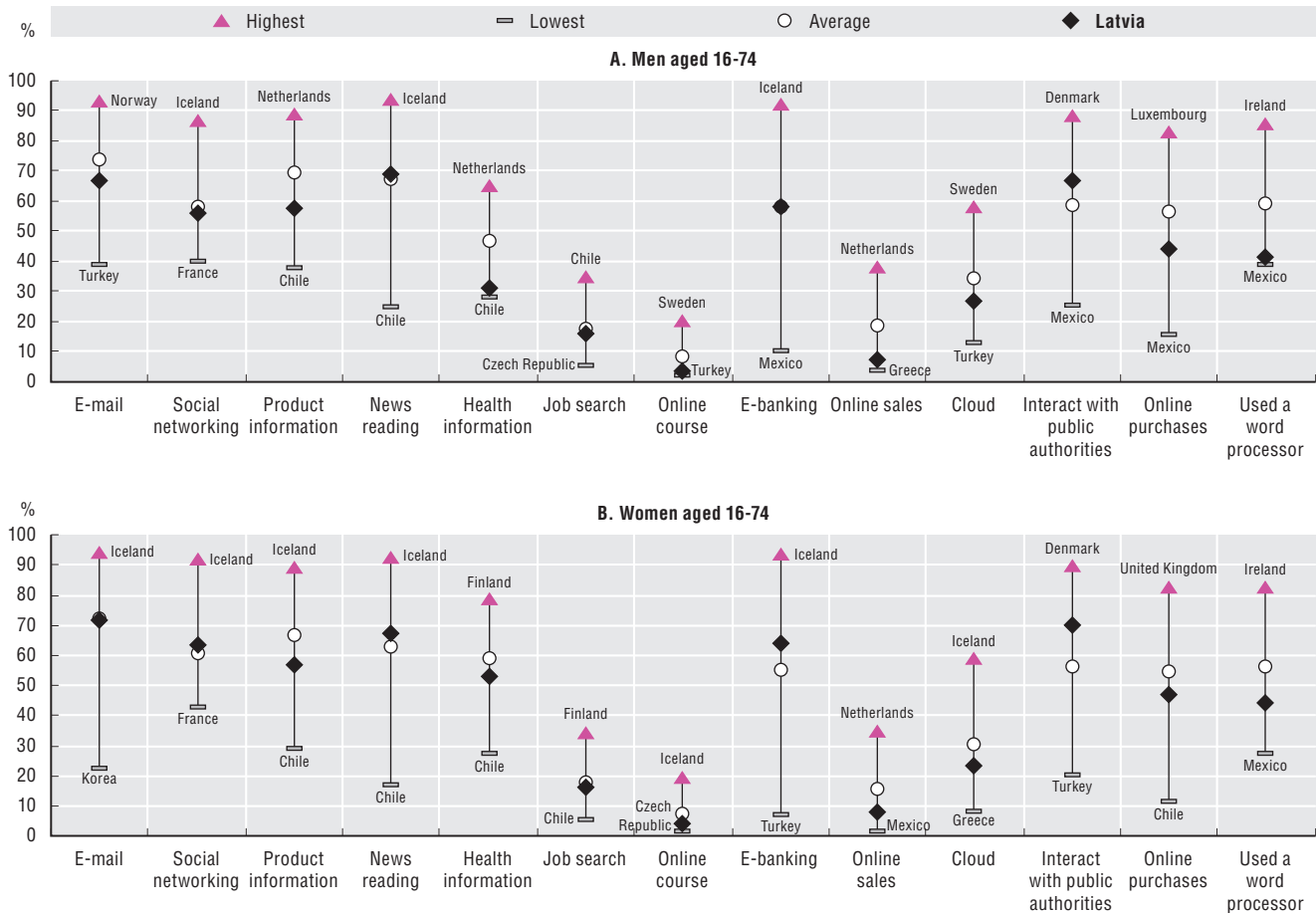
Source: OECD (2018a), *ICT Access and Usage by Households and Individuals* (database), *http://oe.cd/hhind* (accessed in March 2020).

Promoting ICT usage among individuals

Several programmes are in place to encourage ICT usage among individuals. These focus mainly on providing individuals with the skills to use digital technologies effectively, but tend to be small in scale. The adoption of a community-based approach to promoting use of digital technologies, and combining this strategy with other strategies (e.g. connecting with the diaspora), could increase uptake.

Since 2010, the Latvian government has aimed to raise awareness of the possibilities of ICTs through participation in European Digital week (previously E-skills week), which aims to inform the public of the benefits of improving their digital skills and the possibilities of training. In 2019, Digital Week was organised by the Latvian Information and Communication Technology Association (LIKTA) and the Ministry of Environmental Protection and Regional Development (Vides Aizsardzības un Reģionālās Attīstības Ministrija, VARAM), with over 500 events in 74 towns and cities (KISC, 2019a). In addition, Latvia has sought to increase the use of government e-services through the My Latvija.lv! Do Digitally! (Mana Latvija.lv Dari Digitali!) campaign (see below). Making use of web analytics to examine the effect of such programmes could help Latvia ensure that resources are used effectively.

The Ministry of Culture has sought to increase effective use of the Internet (in line with the Cultural Policy Guidelines "Creative Latvia 2014-2020") by promoting the creation of Latvian language online content. Latvia's Centre for Cultural Information Systems (Kultūras Informācijas Sistēmu Centrs, KISC) aims to preserve Latvia's cultural heritage by establishing digital archives of newspaper and journals as well as other materials such as historic posters, postcards and photographs, which are currently stored in Latvia's museums, archives and libraries (KISC, 2019b). In addition, the portal *biblioteka.lv*

allows people to access local content produced by public libraries, while a selection of Latvian language books and translations can be accessed for free via the 3td.lv online portal. KISC also provides training to librarians. In addition, the government has attempted to boost the amount of locally produced and Latvian language content, by developing translation tools, grammar correctors and online terminology databases.

Figure 4.9. Online purchases in Latvia and selected OECD countries, 2018

As a percentage of all individuals
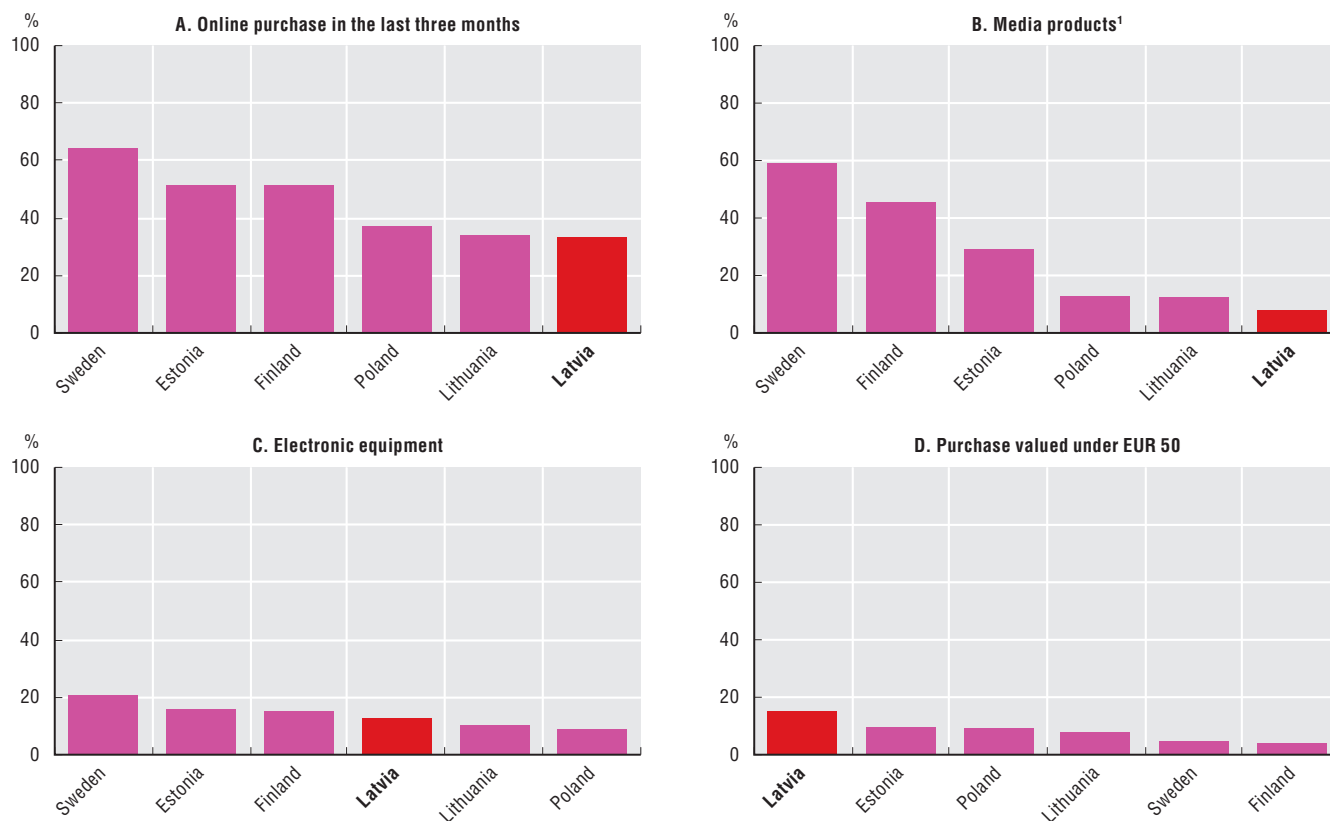
1. Media products include films and music; or books, magazines and e-learning material; and computer software.

Source: Eurostat (2020c), *ICT Usage in Households and by Individuals* (database), *https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esms.htm*.

As in many other countries, distant learning has been key to sustaining education in Latvia during the shutdown following the COVID-19 pandemic. Despite the challenges raised by the sudden shift from in-person teaching to e-learning, distant learning has accelerated digital uptake in education dramatically, with effects that are likely to persist after the crisis (see Box 4.1).

Box 4.1. Distant learning during the COVID-19 pandemic

On 12 March 2020, the Latvian government declared a state of emergency and closed all schools, immediately raising the challenge of how to continue educating children in Latvia. The education system responded by delivering distance learning utilising a mixture of traditional and digital tools.

The Ministry of Education and Science (MoES) prioritised the continuity of academic learning and support for teachers and students who lack the skills for online or independent study. Accordingly, the National Centre for Education developed guidelines for the implementation of distance learning, providing advice and guidebooks for parents and teachers online.

Box 4.1. Distant learning during the COVID-19 pandemic *(cont.)*

Guidelines for evaluating students were also issued and included recommendations to allow students greater flexibility in demonstrating their abilities (e.g. writing or creating videos). In addition, schools have been given the autonomy to prioritise the aspects of the curriculum they deem most appropriate (MoES, 2020).

A mix of technologies have been used to deliver the curriculum. Approximately 440 hours of lessons for primary and secondary students have been broadcast on free-to-air television, with sign language available for children with hearing difficulties. In addition, students can access lessons via the Your class (Tava klase) website, while teachers have made use of tools such as Edurio to give tests and questionnaires, as well as widely used applications such as WhatsApp. Finally, the National Film Centre of Latvia has allowed free access to films related to the curriculum for Latvian students.

Given the existence of a digital divide, there was a risk that some children could be left behind. To address this possibility, the MoES has made digital devices available to the approximately 5 000 students (about 3% of all school pupils) who lacked access to such tools. In addition, some schools have prepared and distributed packages of printed materials to pupils.

While digital technologies are not a substitute for traditional classrooms, they do provide certain benefits, including making activities such as homework more interactive and effective as a learning tool. Latvia has been monitoring distance learning through the use of weekly surveys, and the lessons learned from the use of digital technologies may influence how education is delivered in the future.

Improving skills forms an important part of efforts to increase ICT usage

Absence of basic digital skills hinders greater use of ICTs by individuals, with half of the adult population in Latvia lacking such skills (e.g. the ability to move or copy files between folders) (Figure 4.10). Gender differences in this area are minor, although a greater share of women (30%) have above basic skills than men (24%), in contrast to other EU countries (Eurostat, 2019a). In addition, differences between rural and urban areas are moderate (Figure 4.11).

Figure 4.10. Individuals with basic or above basic digital skills[1] in Latvia and selected OECD countries, by sex, 2017

As a percentage of all individuals
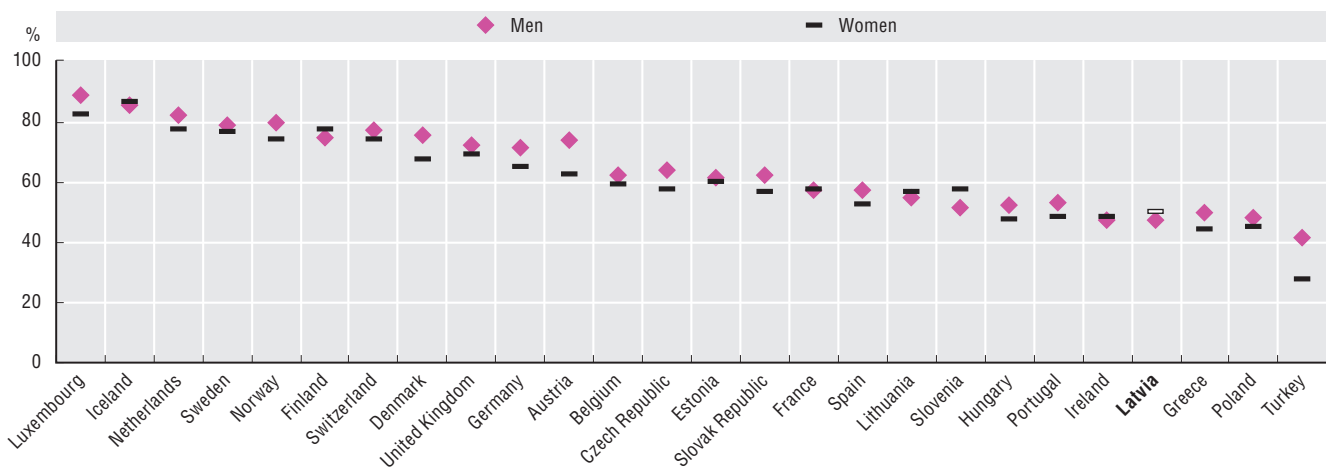
1. Those with basic skills have performed one of the following tasks: copied or moved files or folders, saved files on Internet storage space, obtained information from public authorities/services' websites, found information about goods or services, and sought health-related information. "Above basic digital skills" refers to the ability to perform two or more such activities.

Source: Eurostat (2020c), *ICT Usage in Households and by Individuals* (database), *https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esms.htm*.

Figure 4.11. Rural–urban gap in digital skills in Latvia and selected OECD countries, 2017

Individuals with basic or above basic digital skills,[1] as a percentage of all individuals

1. Those with basic skills have performed one of the following tasks: copied or moved files or folders, saved files on Internet storage space, obtained information from public authorities/services' websites, found information about goods or services, and sought health-related information. "Above basic skills" refers to the ability to perform two or more such activities.

Source: Eurostat (2020c), *ICT Usage in Households and by Individuals* (database), *https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esms.htm*.

Improving ICT education and e-skills is a core focus of the Information Society Development Guidelines. Programmes have been created to improve the basic skills of users, in addition to providing training in more advanced skills sought by employers (see section below). The government has developed several policies to promote digital literacy among adults in Latvia, which have been implemented through the network of public libraries.

Public libraries act as free access points for the Internet and as centres for the development of basic digital skills. In 2008, KISC received funding from the Bill & Melinda Gates Foundation and the Latvian government to provide 4 000 computers to Latvia's public libraries as part of the Third Father's Son (Trešais Tēva Dēls) programme. Broadband connections were provided for libraries, and free Wi-Fi was made available. Librarians were trained to assist users and a training programme on basic IT skills was developed targeting those with low levels of income and education, rural inhabitants and older citizens, with a similar programme developed for children (KISC, 2015). In addition, over 450 public Wi-Fi hotspots were created (managed by 76 municipalities) as part of an ERDF-funded project (over 4 400 free Wi-Fi spots are also available which do not receive public funding).

The Third Father's Son programme has proven successful, however the responsibility for replacing equipment and providing basic ICT training has fallen to municipalities. In addition, many of the online training materials (available on the KISC website) are now outdated. Updating these materials would help to ensure that libraries can continue to offer help to those who wish to acquire basic digital skills. In addition, municipalities should be obliged to ensure that equipment is maintained and replaced as required, with funding made available from central sources.

However, given the low level of digital skills among the Latvian population, greater efforts are warranted. At present, most resources for developing basic digital skills are targeted at school-going children (see below). In Colombia, an initiative to link programmes to develop digital skills among children with evening programmes to develop the skills of their parents proved successful, and could also be beneficial in Latvia (OECD, 2019b).

Latvia should build on the success of the Third Father's Son programme by creating a community-based programme to boost the digital skills of those in more rural locations and older Latvians. Although a programme of "digital agents" exists, this focuses on promoting the use of government digital services rather than more general usage. Instead, Latvia should give grants to partners, such as NGOs or local community groups, in order to train digital mentors to highlight the benefits of ICTs, an approach that has proven successful in Australia and Norway (Box 4.2). Latvia should first

work with focus groups consisting of those make relatively little use of ICTs (e.g. the elderly), to discover the barriers they face and to examine the ways in which greater use of digital technologies would benefit them. The outcomes would feed into the development of a training programme to be delivered by digital mentors.

Box 4.2. Australia and Norway take community-based approaches to encouraging digital literacy among adults

The Australian Be Connected programme aims to raise the digital literacy of older Australians, and to address social problems by reducing feelings of loneliness and increasing community connection. The Department of Social Services gives grants to 2 500 local partners (e.g. community organisations) to train digital mentors who then take a community-centred approach to teaching basic skills such as online shopping, sending e-mail and using social media.

In Norway, the Digidel programme of 2017 aimed to promote digital literacy and inclusion. Focus groups centred around groups that do not regularly use ICTs (including the elderly and immigrants), were created to understand the barriers they face and how they might benefit from using these tools. Training activities then took place facilitated by local libraries, NGOs and firms.

Given the stated government goal of strengthening connections with the Latvian diaspora, Latvia could exploit digital technologies to interact with members of the diaspora digitally (Cross-sectoral Coordination Centre, 2017). The first stage of this initiative would involve training Latvia's older inhabitants to use social media, to enable them to maintain contact with relatives abroad. Basic use of the Internet can serve as a gateway for more sophisticated use by Latvia's inhabitants. The second stage of the initiative would require active promotion through social media of online content maintained by KISC.

Usage by individuals: Conclusions

Latvia's continued efforts to increase the share of individuals making effective use of the Internet have resulted in progress, although a sizeable minority still lack basic skills. Libraries and community-based programmes can help provide these people with the digital skills they lack. In addition, greater use of existing resources can be made to establish virtual links with the Latvian diaspora abroad. The recommendations in this section are summarised in Box 4.10.

However, in order to increase the participation of consumers in e-commerce, it will be necessary to increase the share of Latvian firms that make effective use of digital technologies. This issue is discussed in the following section.

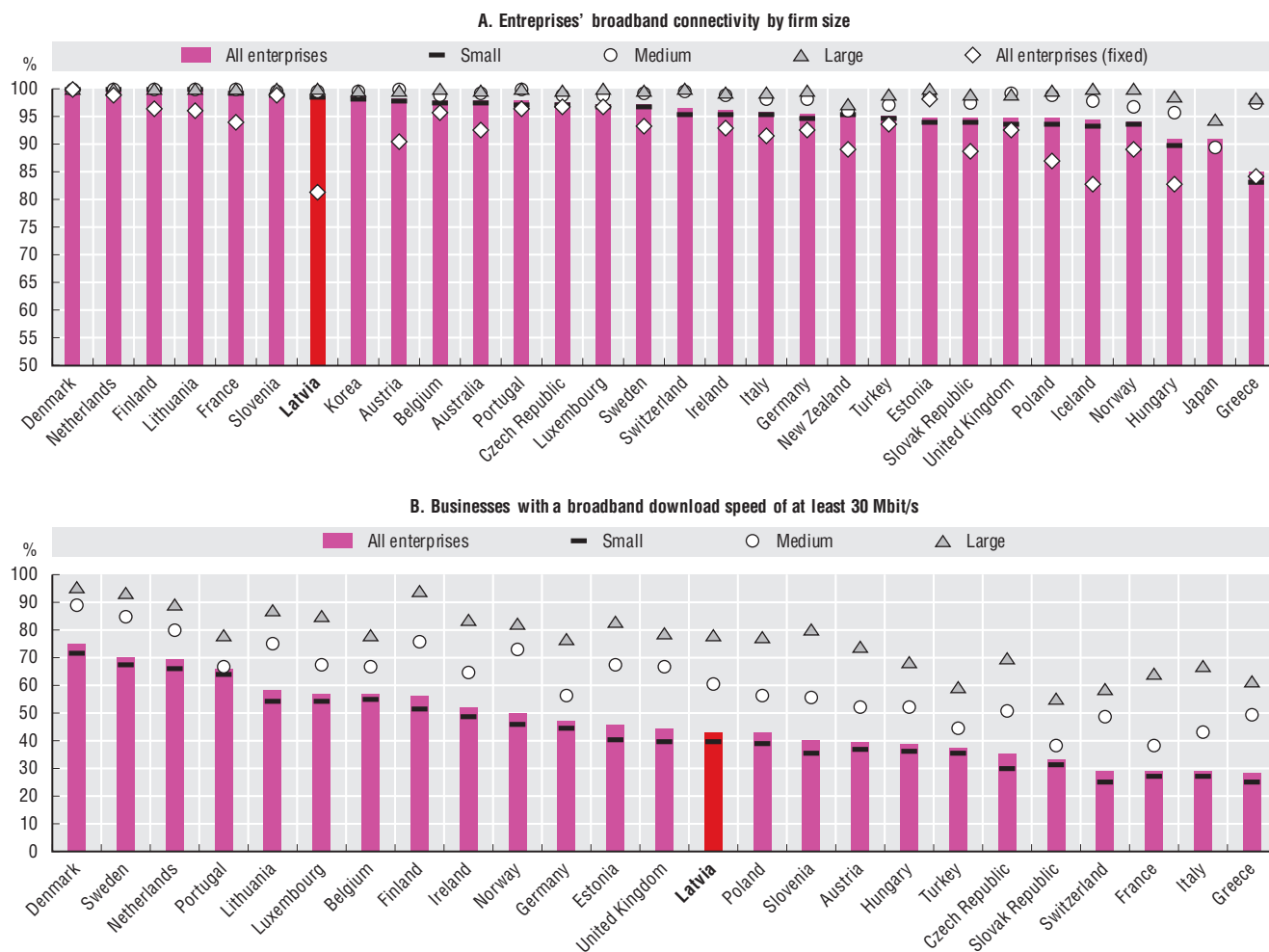## Usage of digital technologies by firms

In order to raise living standards, it is necessary for Latvia to raise economic growth and productivity. Latvian industry has a large proportion of low-tech firms and labour productivity lags behind neighbouring Baltic countries, due to a slowdown in productivity growth following the financial crisis (European Commission, 2018b; OECD, 2019c). In addition, the wide dispersion of productivity among firms, especially in the administration and support sectors, suggests that only a few advanced firms are making use of new technologies (OECD, 2019c). Greater adoption of digital technologies, especially among smaller firms, has the potential to help raise productivity.

Current rate of ICT usage by firms

Latvian firms lag behind those of other OECD countries in their use of ICTs. Although most firms are connected by broadband to the Internet, a relatively low share (80%) have fixed connections (which tend to offer higher speeds), leading overall to moderate connection speeds (Figure 4.12).

Figure 4.12. Business connections to fixed broadband in Latvia and selected OECD countries, 2018 or latest available year

As a percentage of all firms with ten or more employed persons

A. Entreprises' broadband connectivity by firm size

B. Businesses with a broadband download speed of at least 30 Mbit/s

Notes: Only enterprises with ten or more employees are considered. Size classes are defined as: small (10-49 employees), medium (50-249 employees) and large (250 employees or more). For Japan, data refer to businesses with 100 or more employees instead of 10 or more; medium-sized enterprises have 100 to 299 employees and large ones 300 or more.

Source: OECD (2018a), *ICT Access and Usage by Businesses* (database), *http://oe.cd/bus* (accessed in March 2019).

In addition, involvement among firms in e-commerce remains low, despite the willingness of Latvians to engage in a broad range of Internet uses, such as e-banking (Figure 4.13). Latvia lags behind the OECD average in terms of the number of firms with a website, and although the number of firms that make e-purchases is in line with the OECD average, the share of firm turnover generated from web sales is among the lowest in the European Union (Figure 4.14). Indeed, Latvian firms are unlikely to achieve the target of 15% of turnover coming from Internet sales by 2020, as set out in the Information Society Development Guidelines.

In addition, Latvia lags further behind the OECD average in terms of the use of more sophisticated technologies such as enterprise resource planning (ERP) software, the use of customer relationship management (CRM) software and radio-frequency identification (RFID) technology (Figure 4.15) (OECD, 2018b).

Figure 4.13. Internet use by businesses in selected OECD countries, 2018 or latest available year

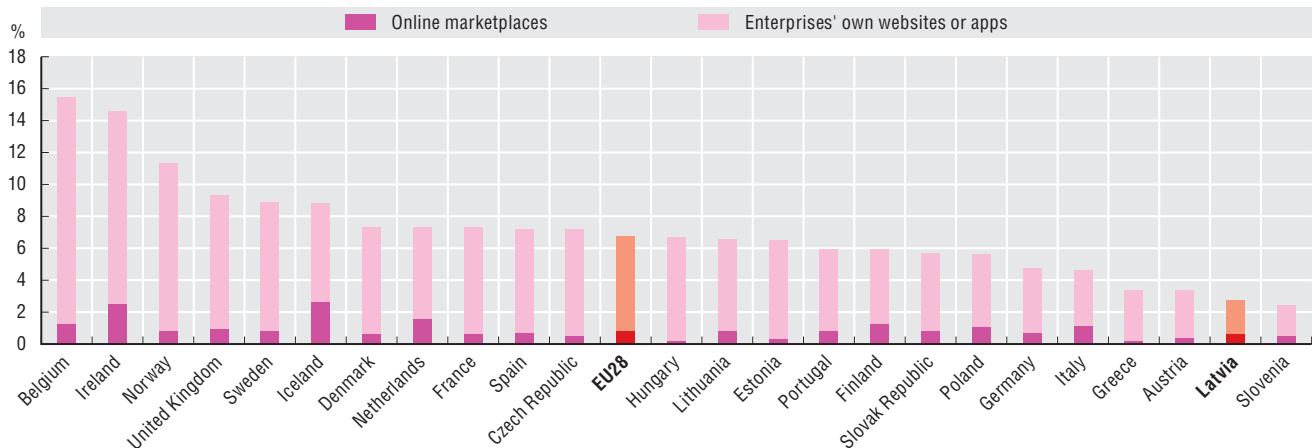*As a percentage of all firms with ten or more employed persons*

Note: Only enterprises with ten or more employees are considered.

Source: OECD (2018a), *ICT Access and Usage by Businesses* (database), *http://oe.cd/bus* (accessed in March 2019).

Figure 4.14. Turnover from web sales in Latvia and selected OECD countries, 2017

As a percentage of total turnover

Source: Eurostat (2019c), *E-Commerce Statistics* (database), *https://ec.europa.eu/eurostat/statistics-explained/index.php/E-commerce_statistics*.

Obstacles to greater usage of digital technologies

Adoption of ICTs is held back by a variety of factors. These include a large proportion of small firms, which tend have lower ICT adoption rates; an absence of workers with adequate skills to take full advantage of ICTs; and a lack of workers with complementary skills such as management needed to transform work practices in firms.

## Latvia has a large proportion of small firms

Latvia has a large share of micro and small firms, with employment concentrated in the latter (Figure 4.16).

Smaller firms face barriers to the adoption of ICTs, including difficulties accessing finance with which to invest in ICTs. Lending to SMEs has remained low since the financial crisis (OECD, 2019d). In addition, relatively few firms are managed by professional managers (instead being run by family members), which can hinder the adoption of modern managerial approaches that are complementary to digital technologies (Figure 4.18) (Andrews, Nicoletti and Timiliotis, 2018; OECD, 2019c). Indeed, Latvia has a shortage of professionals with managerial and administrative skills (Figure 4.19). As a result, a large

pool of small firms have shown no productivity growth in recent years, suggesting a lack of ability to absorb new technologies (OECD, 2019c). Indeed, Latvia's SMEs have been reluctant to make even basic use of digital technologies, such as the use of social media (Figure 4.17).

Figure 4.15. Business use of advanced digital technologies in selected OECD countries, 2017 or latest available year

*As a percentage of all firms with ten or more employed persons*
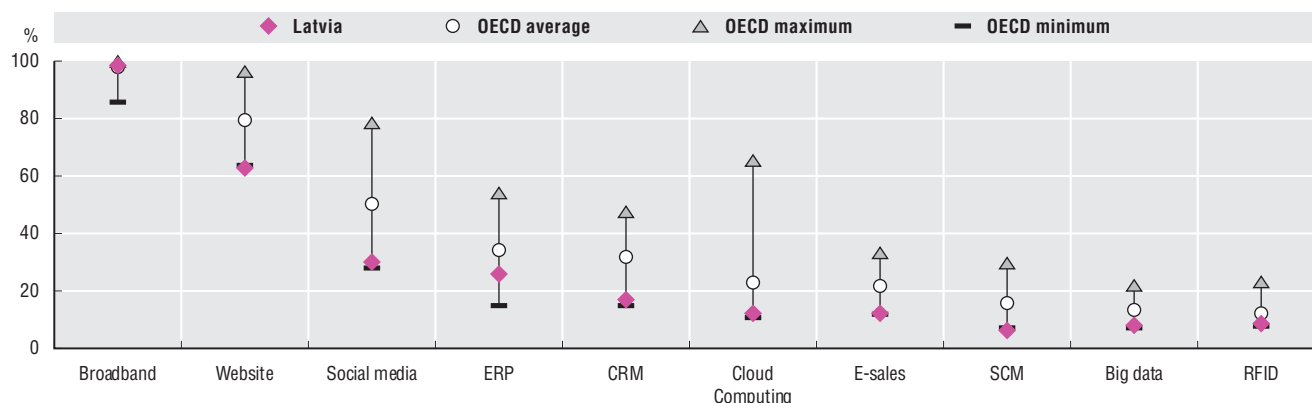
Notes: Data cover 26 OECD countries and correspond to the share of businesses with ten or more employees a with broadband connection (fixed or mobile), with a website or home page, using social media, using enterprise resource planning (ERP) software, using customer relationship management (CRM) software, purchasing cloud computing services, receiving orders over computer networks, sharing electronically information with suppliers and customers (SCM), using radio-frequency identification (RFID) technology and having performed big data analysis (2018 data).

Source: OECD (2017c), *ICT Access and Usage by Businesses* (database), *http://oe.cd/bus*; Eurostat (2020c), *ICT Usage in Households and by Individuals* (database), *https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esms.htm*.

Figure 4.16. Employment by firm size in Latvia and selected OECD countries, 2016

As a percentage of all persons employed
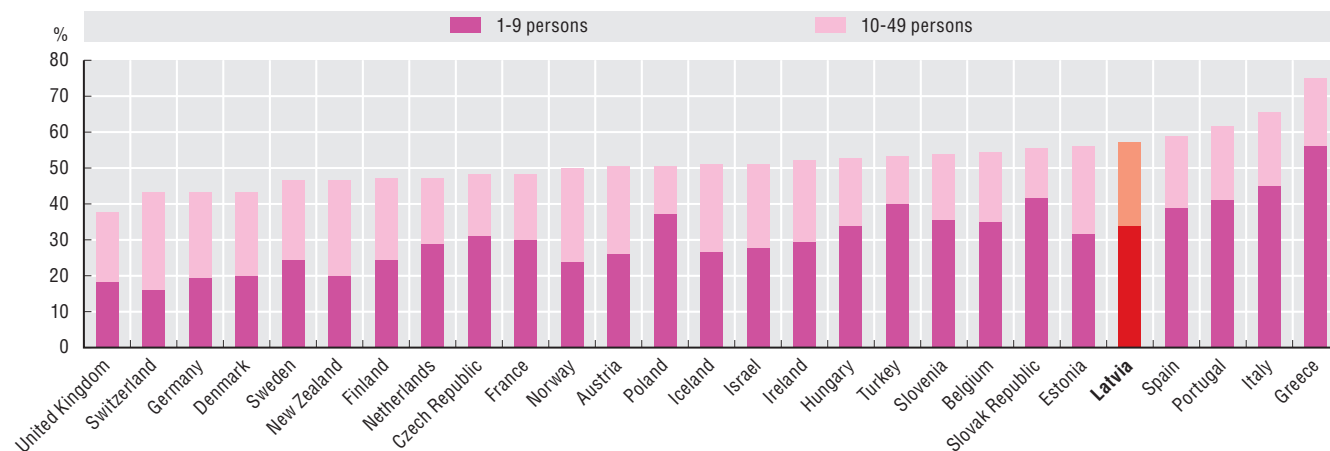
Source: OECD (2020), *OECD Structural and Demographic Business Statistics (SDBS)* (database), *https://stats.oecd.org/Index.aspx?DataSetCode=SSIS_BSC_ISIC4* (accessed on 6 May 2020).

The large share of small firms can, in part, be explained by a reduced 15% microenterprise tax regime, which includes social security and personal tax, including for employees (OECD, 2019e). To qualify, the firm must not employ more than five people, the monthly income of any employee cannot exceed EUR 720 (compared to a minimum wage of EUR 430), and firm turnover must not exceed EUR 40 000 (reduced from EUR 100 000 in 2018) (MoF, 2018). This discourages firms from growing above these thresholds, and can lead to firms under-declaring their income (Jacobs et al., 2017).

Figure 4.17. Use of advanced digital technologies by firm size in Latvia and selected OECD countries, 2017

*As a percentage of all firms with ten or more employed persons*

▲ Medium   ─ Small

A. Social media
B. Enterprise resource planning
C. Customer relationship management
D. Supply-chain management
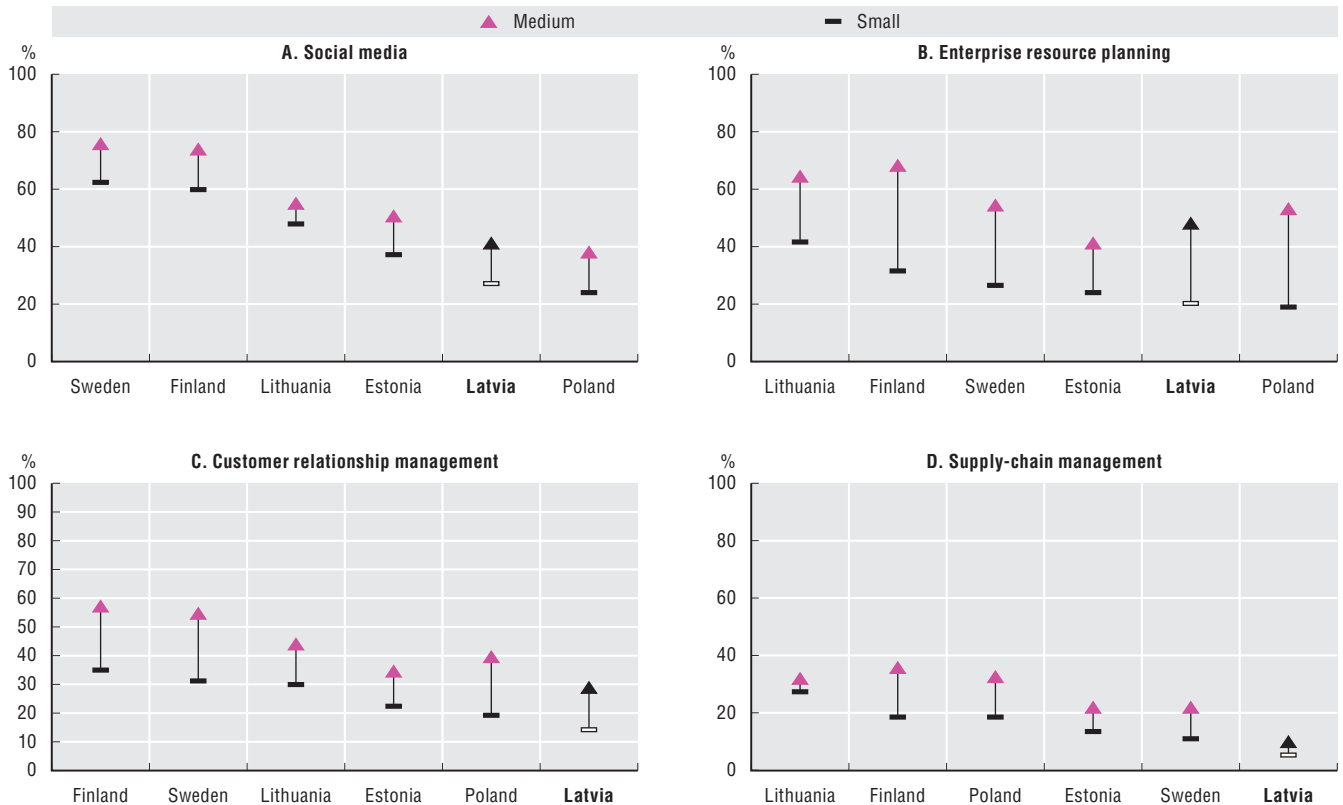
Note: Size classes are defined as: small (10-49 employees) and medium (50-249 employees).

Source: OECD (2017c), *ICT Access and Usage by Businesses* (database), *http://oe.cd/bus* (accessed in February 2020).

Latvia also has a high degree of informality, which can hinder the adoption of digital technologies. The informal economy in Latvia is estimated to represent almost 25% of GDP, with 10% of employees not reported to the authorities, many of whom are migrant workers (Sauka and Putniņš, 2019). Informality can inhibit digitalisation as informal firms may wish to remain small to avoid detection, while the under-declaration of income can lead to unwillingness among banks to lend money (Perry, 2017; OECD, 2019c).

Figure 4.18. Reliance on professional management in selected OECD countries, 2017-18
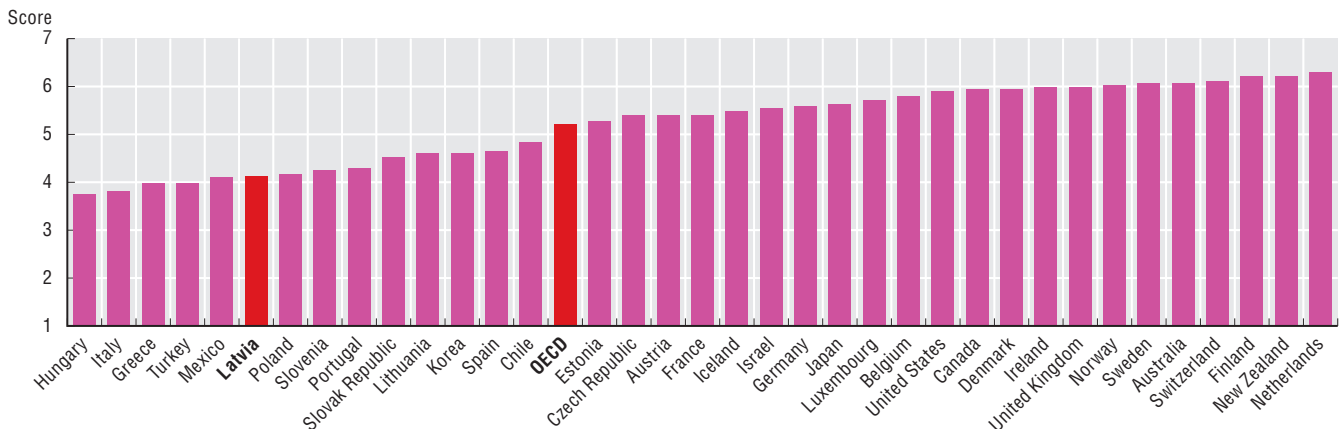
Note: Score based on responses to the question: "In your country, who holds senior management positions in companies? [1 = usually relatives or friends without regard to merit; 7 = mostly professional managers chosen for merit and qualifications]".

Source: World Economic Forum (2017), *The Global Competitiveness Index Historical Dataset 2007-2017, https://tcdata360.worldbank.org/indicators/fin.loc.eqy. mkt?country=BRA&indicator=525&viz=line_chart&years=2007,2017*.

Digital technologies are being used in Latvia to reduce informality. For example, it is now compulsory for construction firms to electronically record the working hours of workers and to register all those who enter a construction site (e.g. through the use of a card or mobile device). The resulting data are uploaded to a central database (VEDLUDB) which can be access by the tax authorities (OECD, 2019c). In addition, in 2017 a plan was launched that made electronic record-keeping cash registers compulsory, with 88% of such devices replaced by September 2019. The State Revenue Service has also been using ICTs to better target people for tax audits (OECD, 2019c). Latvia could build on this progress by creating a system of automatically reporting payroll information, similar to Australia's Single Touch Payroll system. Under this system, business payroll software automatically reports data to Australia's tax authorities as employees are paid, reducing compliance costs for businesses and individuals, and enabling earlier detection of firms that do not meet their tax and social security obligations (Australian Taxation Office, 2019).

Laws have also been changed to remove obstacles to the use of digital technologies and to reduce the cost of complying with regulations. Red tape has been reduced for businesses, for example through the use of online one-stop-shops for setting up firms (OECD, 2017a). In 2015, the Electronic Document Law was amended to remove previous restrictions on the use of electronic signatures (e.g. for private businesses or family law), and online registrations of firms and electronic registration of property without a notary are now possible (OECD, 2017a). In addition, from 2019 digitally signed documents must be accepted by affiliates to the Latvian Council of Sworn Notaries (e.g. financial institutions), which will further reduce the need for notarised documents (Valdani Vicari and Associati, 2019).

Greater efforts are needed to promote the use of digital technologies in small firms

At present, Latvia is focused on increasing digital skills (see below) but lacks policies to increase the usage of digital technologies among small firms, as well as a strategy for digitalising the private sector. While several programmes exist, such as the X industry hackathon run by the Latvia IT Cluster, these are small in scale and tend to be incorporated into innovation policies (see Chapter 5). In part, this is a consequence of projects being chosen based on the availability of EU funding, rather than clear national priorities.

In order to promote the digital transformation, Latvia should develop a strategy for digitalising SMEs that focuses on creating conditions whereby SMEs are willing to adopt digital technologies and invest in complementary knowledge-based assets and digital security. These conditions include enablers (e.g. infrastructure and the regulatory environment), firm-drivers (e.g. the availability of finance and skills); and the existence of technologies (e.g. digital platforms and services that facilitate the use of AI and big data) (OECD, 2019f).

Expanding workshops that teach small businesses simple ways to engage in e-commerce (e.g. through the use of online platforms) could help boost the adoption of such technologies and help more efficient firms gain market share. In addition, Latvia could develop a nationally funded programme to promote the adoption of existing technologies among Latvian SMEs, and offer a number of grants to firms across different sectors. Such an approach would act as an impetus for competitors to adopt more efficient technologies and business practices. In addition, tax incentives could be offered to encourage small firms to invest in ICTs.

Given the hesitancy that Latvian SMEs have shown in adopting digital technologies, Latvia should select a small number of firms to act as "digital champions". This approach has already been used in Australia, where 15 small firms were chosen and given intensive support (Box 4.3). Successful Latvian SMEs from sectors with low digital uptake could be selected as "digital champions" and granted public support based on their proposal for digitalisation. The success of such "digital champions" would demonstrate the value of digital technologies and spur other firms to adopt them in order to maintain or increase their market share.

For sectors where several firms already use digital technologies, more support should be given to help laggard firms catch up with leading firms. Austria has already implemented this approach offering consultancy advice to firms on how to modernise (Box 4.3). In sectors where firms already face competition from highly digitalised firms, laggard firms should pay for this service.

Box 4.3. A wide range of supports are available to help firms digitalise

Countries offer a wide range of supports to help firms digitalise, ranging from grants that subsidise investments in digital technologies to training to help firms implement investments at their own cost.

Australia's Small Business Digital Champions project supports 100 small businesses. The project has a total budget of AUD 8.9 million, and provides up to AUD 18 500 in assistance, with additional support from partner firms. Of these small businesses, 15 were chosen as Digital Champions and received mentoring from high-profile business people to guide them through the digital transformation. This process is then documented and showcased online. The programme is complemented by the "Digital Solutions" programme of the Small Business Advisory Service, which focuses on firms in regional locations. SMEs pay a (subsidised) fee for advice on implementing digital technologies, such as websites, e-commerce, social media and small business software. The programme also offers advice on online security and data privacy.

In Denmark, the Danish Business Authority distributes grants (valued at approximately EUR 1 300) to 2 000 SMEs under the SMV:Digital programme. The grants are used for private consultancy to help the SMEs identify digital opportunities with a special focus on e-commerce, prepare business cases for digital transformation and implement digital solutions.

Portugal also has a grant scheme to assist SMEs with the use of digital technologies in fields such as e-commerce, online marketing, website development and big data. The grant covers 75% of eligible expenses up to EUR 7 500 for projects that take up to one year to implement (European Investment Bank, 2019).

Austria does not offer grants, but does help SMEs digitalise through the KMU Digital programme. The programme includes: 1) an online tool to allow firms assess their level of digital maturity; 2) an individual consultation to examine what can be improved and how; 3) a consultation focused on the specific needs of the firm (in areas such as e-commerce, IT security, data protection and digitalisation of internal processes); and 4) digital skills training courses for entrepreneurs and employees.

Finally, Chile's innovation agency recently launched the Digitalise Your SME (*Digitaliza tu Pyme*) programme to which provides e-commerce courses (78 hours of classroom experience), in which small business owners can learn about digital marketing, the use of social networks and electronic commerce. By the end of the programme, participants should understand processes associated with e-commerce such as the use of online platforms.

*Source*: Digital Economy Outlook policy questionnaire.

Skills required for the digital transformation

In order to increase the adoption of ICTs, Latvian firms need workers that have the necessary skills to make effective use of digital technologies. Improving skills has therefore been a main plank of the Latvian government's approach to increase the use of digital technologies among firms (Cross-sectoral Coordination Centre, 2017). Firms need workers with basic computer skills as well as ICT specialists to operate new systems. In addition, they require employees with advanced literacy and numeracy skills and workers with a tertiary education, in order to profit from the new working methods introduced by digitalisation. However, there is no single strategy for skills development; instead, there are varying strategies targeting different education levels and devised for different purposes (e.g. training teachers and promoting cybersecurity) (European Commission, 2019a).

Latvia will need to increase the number of workers with basic computer skills and the number of ICT specialists in order to sustain the digital transformation. The ability to use ICTs was a prerequisite or preferred in over half of job vacancies in 2018, although over half of those in Latvia lack even basic digital skills (EURES, 2018) (Figure 4.10). In addition, there is a shortage of workers with a knowledge of computers and electronics (Figure 4.19). Finally, ICT graduates earn a high wage premium, indicating substantial demand for their skills (Figure 4.20).

## Figure 4.19. Skill shortages in Latvia, 2017
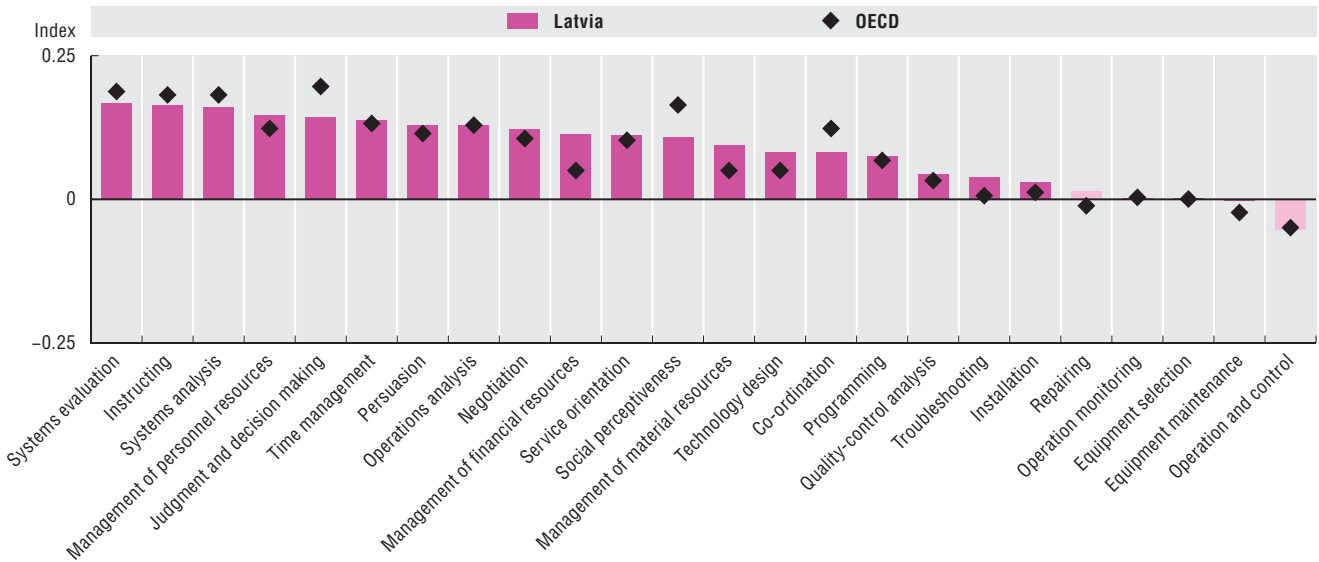
Note: Skills shortages (positive values) occur when the skills sought by employers are not available in the pool of potential recruits, whereas skills surpluses (negative values) occur when the supply of certain skills is higher than the demand for them.

Source: OECD (2018c), *Skills for Jobs – Latvia Country Note, www.oecdskillsforjobsdatabase.org/data/country_notes/Latvia%20country%20note.pdf*.

Figure 4.20. Relative earnings of tertiary-educated adults in the OECD, by field of study, 2017

25-64 year-olds with income from employment (full and part-time workers); upper secondary education (all fields) = 100
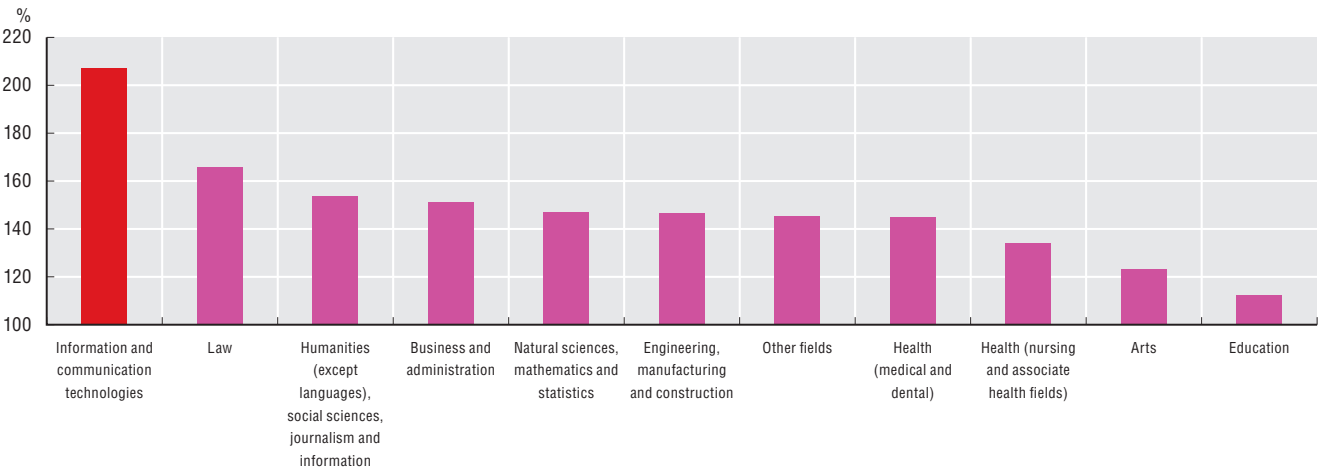

Source: OECD (2019g), *Education at a Glance: OECD Indicators, https://dx.doi.org/10.1787/f8d7880d-en*.

Nevertheless, it seems unlikely that the Latvian economy is ready to absorb the 3 000 new ICT graduates per year set as a target by the MoE (2018). The proportion of working age graduates with an ICT qualification is only slightly below the OECD average (OECD, 2019g). In addition, ICT specialists are poorly allocated, with over half of ICT graduates working in a field other than ICT, a share in line with Finland and Lithuania but higher than in Sweden, Estonia and Denmark (OECD, 2018e). This leaves Latvia with the lowest share of employees working as ICT specialists in the European Union, with the female share of ICT specialists halving from 30% in 2008 to 14% in 2018, driven by a fall in the absolute numbers of female ICT specialists (while the total number of ICT specialists rose) (Eurostat, 2019b). However, only 45% of firms that posted vacancies for ICT specialists encountered difficulties in filling these rolls, indicating easier hiring conditions than in most European OECD countries (Eurostat, 2020b). This suggests that the main driver of the lack of digitalisation among firms is the absence of incentives and a lack of workers with basic computer skills, rather than a lack of ICT specialists.

Figure 4.21. Firms finding it difficult to hire ICT specialists in Latvia and selected OECD countries, 2019

As a percentage of all firms posting vacancies for jobs requiring ICT specialist skills
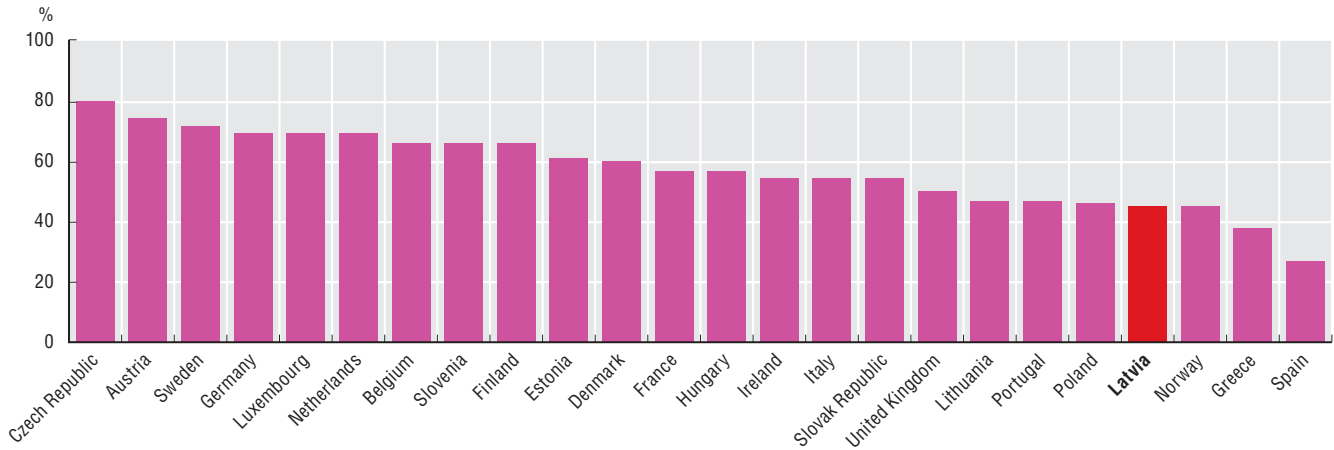
Source: Eurostat (2020b), *Hard-to-fill ICT Vacancies: An Increasing Challenge*, https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20200221-1 (accessed in February 2020).

Latvia also lacks the general skills necessary for the digital transformation (Box 4.4). Globally, greater use of ICTs has increased demand for generic and specialist ICT skills, as well as complementary skills such as online marketing and big data analysis (OECD, 2016a). Latvia has made large strides in raising educational attainment, with the share of 25-34 year-olds with a tertiary degree rising from 25% in 2007 to 42% in 2017, close the gap with the OECD average. Demand for graduates is evident from their higher earnings and employment prospects (OECD, 2018d). However, despite these gains, a large share of workers report being under-skilled for their job, while over-skilling is low and problems with quality of education remain, as evidenced by the mediocre literacy and numeracy skills of teenagers (OECD, 2019h; 2017a). In addition, there is a shortage of complementary skills, such as administration and management (Figure 4.19). Finally, low participation in life-long learning and a lack of in-work training hampers Latvia's efforts to adjust to the changing needs of the economy and to upskill those with low educational attainment.

Box 4.4. The digital transformation requires a broad mix of skills

In order to benefit from digitalisation, countries and their inhabitants need a broad range of skills, both to make effective use of the Internet, and to ensure they are not be left behind by changes in the labour market. This need for cognitive, socio-emotional and digital skills is the focus of the *OECD Skills Outlook 2019: Thriving in a Digital World* (OECD, 2019a).

Better literacy, numeracy and problem-solving skills are becoming essential for making effective use of the Internet and determining the reliability of online information. In addition, socio-emotional skills are a necessary aid for parents seeking to help their children confront issues such as cyberbullying. Conversely, lack of skills is an important factor that helps explain why some people do not access the Internet from their home.

A broad mix of skills is also necessary in the workplace as demand for skills changes. Technology is developing at an accelerating pace, creating new jobs while destroying others. Routine low-skilled tasks are being completed increasingly by new technologies, while demand grows for workers to undertake non-routine, cognitive tasks. It is therefore necessary for countries to ensure that training polices are in place to help workers adapt and find higher quality jobs. Such life-long learning can be assisted by improving the accessibility and quality of training at all stages in life.

Steps taken to improve digital skills

The demand for skills, such as those of ICT specialists, is likely to increase as firms embrace the digital transformation. Latvia has been taking steps to improve the skills of its workforce: the Information Society Guidelines aim to increase the ability of individuals to take advantage of opportunities offered by digitalisation; develop the skills of individuals, entrepreneurs and those in the public sector; train ICT specialists with the skills needed in the labour market; and introduce algorithms and digital literacy into school curricula. In order to achieve these aims, Latvia has been reforming its education and training system.

As it is not possible to predict with accuracy what skills will be required in the future, it is important that Latvia's inhabitants have the opportunity to update their skills throughout their working life (on the basis of a good general education in early life). In addition, they must be able to access continuing education in order to maintain and update their skills. Moreover, education and training institutions must be responsive to changes in demand for skills, as covered in the recent publication *OECD Skills Strategy Latvia: Assessment and Recommendations* (OECD, 2019i).

Latvia is gradually rolling out a revised general education curriculum (from pre-school to secondary education), moving from a knowledge-based curriculum to one grounded in competencies, through the ESF-funded "Competency Approach to Education Curriculum" project (more popularly known as Skola 2030) (MoES, 2020; VISC, 2019). The new curriculum aims to develop digital literacy as a transversal skill across all study areas, with the basics of coding taught from primary school onwards. In addition, computing will be taught in primary school from grade 4 onwards. The new general education curriculum is being gradually implemented as of September 2019 in pre-schools and September 2020 in primary and secondary schools (beginning with grades 1, 4, 7 and 10). The curriculum highlights the importance of developing digital and media literacy and ICT skills among students, and facilitating the use of ICTs as teaching aids (OECD, 2017a).

In addition, secondary school students pursue the ICT-related subjects "Computing" and "Design and Technologies", learning about topics including computer algorithms, languages and networks, and image, video and audio-processing, among others. Students have the option to continue with these subjects, or to study other topics such as coding, digital design or robotics at a more advanced level.

The digital transformation can also bring new challenges, such as cyberbullying, as noted above. Several organisations serve in the frontline to protect children from new digital threats in Latvia. For example, a phone line exists for children to report cyberbullying, while the "Superheroes on the Internet" collaboration between Net-Safe Latvia and the police promotes online child safety (Burns and Gottschalk, 2019). While Latvia is addressing such topics through the new curriculum, there is a risk that advice will become outdated as technologies change. Therefore, the MoES should consult with a wider group of stakeholders, such as the Latvia's Safer Internet Centre (Latvijas Drošāka Interneta Centrs), on a regular basis, to obtain advice on updating the curriculum.

In order to encourage an interest in ICTs among students and persuade them to pursue a career in ICT, Accenture Riga, Riga Technical University and MAK IT have formed the Start(it) Foundation. The foundation collaborates with Latvia's National Centre for Education to offer teaching aids and learning materials via an online portal (Startit.lv), as well as training for teachers. Over 400 teachers use their materials in over 300 schools, with over 15 000 people accessing the portal.

Adequate training of teachers is essential to ensuring the success of curriculum reforms and improving on previous outcomes. As in most OECD countries, Latvian schools that used ICTs most had the worst outcomes for reading, maths and science, reflecting the need for greater training of teachers (OECD, 2019a). Although a relatively high share (three-quarters) of teachers have had training in the use of ICTs as part of recent professional development activities, only half feel well prepared for the use ICTs in teaching. Although this is trend in line with the OECD average, further progress is needed to improve performance (OECD, 2019j).

Initial teacher training programmes have undergone reform to coincide with ongoing changes to the general education system. In addition, a new one-year study programme has been introduced for those who already hold a tertiary degree (e.g. in STEM subjects). The new programme includes development of ICT skills, and modules on using ICT in the learning process and developing digital content, among

others. Attracting STEM and ICT specialists to the teaching profession at secondary level may prove difficult. Teacher salaries in Latvia are low and have a flat wage structure, although school heads have some flexibility to raise a teacher's salary within the limits of the overall salary budget for the school (OECD, 2019i). Therefore, it may be necessary to pay teachers with STEM qualifications an additional allowance from national resources.

Vocational education is being reformed

Vocational secondary schools also offer training as ICT specialists for occupations including computer programming and systems technicians, among others. Vocational education is currently being reformed through the introduction of modular programmes. Modular updates allow schools to avoid a complete overhaul of the programme while giving students greater flexibility to follow topics in line with their interests. In addition, all modular programmes include a mandatory ICT component, which may be integrated into other modules. Finally, Latvia has established professional qualification requirements to align with the European Qualifications Framework (EQF) (OECD, 2019k).

Latvian vocational education and training (VET) has undergone modernisation, becoming less centralised with an increase in collaboration between local employers and VET schools, while the number of VET institutions has decreased as a result of consolidation. However, VET faces challenges such as high dropout rates, and institutions experience difficulty in attracting talented students. Greater use of career guidance for parents and students could help increase take up of vocational education. The EU-funded Effective Management for VET Schools (SO 8.5.3.) programme should be mainstreamed as a national programme (financed through national sources) when EU funding ends, as the initiative raises standards in VET schools. Meanwhile, co-funding Sector Expert Councils (SECs) could help raise the market relevance of VET (OECD, 2019i).

However, links between VET schools and firms could be improved. Latvia should increase the proportion of time students spend in work-based learning, which could help foster close links between schools and employers, and enable schools to adjust rapidly to the changing needs of employers – an issue of particularly importance for the rapidly changing skill requirements of ICT specialists. Indeed, several ICT-related firms in Latvia have demonstrated a willingness to play an active role in Latvia's education and training system. Although firms can receive a subsidy for the salaries paid to students participating in work-based learning, the administrative burden involved is high, and the subsidy is only available to firms without a tax debt. Latvia should therefore simplify the procedures to claim this incentive (OECD, 2019i). In addition, the provision of work-based courses in schools should be consolidated with direct links to employers.

Employer representation at the school level could also be further enhanced. Since 2016, all vocational schools include representatives of local employers on collegial advisory bodies, which support strategic governance. In addition, Vocational Education Competence Centres (VECCs) are responsible for approving new modules (OECD, 2019k). However, although SECs give employers a say in VEC curricula, such councils are not very representative (OECD, 2019c). Latvia could therefore increase the proportion of the curriculum determined at the school level. For example, in Slovenia, 15% of the content of programmes is decided by schools in co-operation with local companies (in addition to 25% of course time being devoted to work-based learning) (OECD, 2017b).

Latvia could also experiment with apprenticeships in ICT-related occupations – an approach already in use in other countries. For example, Austria, which has a well-developed system of dual education, introduced a three-year e-commerce merchant apprenticeship programme in 2018, to fill roles such as e-commerce manager in firms (WKO, 2018). The main incentive for firms to provide work-based learning (through apprenticeship programmes or in association with VET schools) should be the opportunity to access needed skills, rather than financial inducements. Latvia should therefore ensure a reduced administrative burden on participating firms and a high standard of training to enable apprentices to be productive. The government and/or social partners should also offer support or training to participating firms to help them design work practices that maximise learning. In addition, the government should monitor the training provided to ensure apprentices benefit from the programme (OECD, 2018f).

Higher education institutions are not increasing the numbers of ICT graduates

Latvian higher education institutions (HEIs) provide both professional and academic higher education, and accept students based on national centralised exam results (OECD, 2019e). A large number of HEIs are spread across the country producing positive effects on tertiary attainments (European Commission, 2018b). Public and private HEIs co-exist, though private ones tend not to offer STEM courses (OECD, 2019k). A slightly below OECD average (22%) proportion of graduates study in STEM fields, lower than in other Baltic countries. However, only 3% of Latvia's graduates aged 25-64 are in ICT fields, below the OECD average (though 5% of doctoral graduates are in ICT fields, above the OECD average) (OECD, 2019g; 2019c).

Latvia has introduced policies to increase the number of STEM and ICT graduates. The government has shifted public scholarships from social science to STEM, with a target of 27% of funding for scholarships in STEM fields by the end of 2020 (OECD, 2019k, 2019c). This move has led to an increase in the number of people studying STEM subjects, with the proportion of new graduates with a degree in ICT rising to 5% in 2017 (from 4.4% in 2015) – the seventh highest in the European Union (Eurostat, 2020c). However, the absolute number of students graduating from ICT courses has not increased, due to the high number of dropouts (Figure 4.22) (OECD, 2019k). In addition, Latvia has been unable to find suitable applicants to receive all the STEM scholarships offered, a consequence in part of the shrunken youth population.

Figure 4.22. Total number of tertiary ICT graduates in Latvia, 2013-17
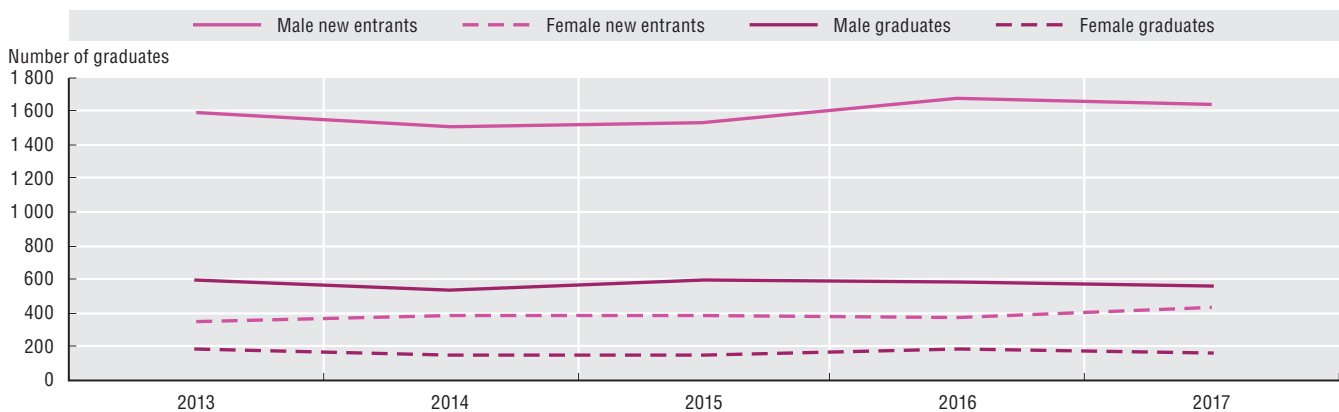
Note: New entrants comprise the total new entrants to tertiary programmes, from short-cycle tertiary education to doctorate level.

Source: Eurostat, Education administrative data from 2013 onwards.

Latvia's higher education sector is currently modernising 300 STEM programmes, including ICT programmes. About EUR 70 000 will be spent on using ICTs to facilitate learning. The infrastructure used in ICT study programmes will also be modernised (including for 4 vocational programmes, 13 bachelor-level programmes, 13 master-level programmes and 7 doctoral programmes). The government also wishes to decrease fragmentation among study programmes (OP's SO 8.2.1), and 14 HEIs are implementing European Social Fund (ESF)-funded projects to develop 5 ICT study programmes, including programmes in languages other than Latvian.

Developing links between firms and HEIs can help improve the flow of information to HEIs regarding in-demand skills. Latvia has made progress in improving such links through programmes to boost innovation and research and development (see Chapter 6). In addition, some firms provide scholarships and offer traineeships to academic staff and students (Finance Latvia Association, 2019). Overall, however, links between HEIs and firms are not widespread and external stakeholders are not represented on university boards, making them less responsive to the changing economy (OECD, 2019i) (European Commission, 2018b). Building on existing links will help maintain the relevance of ICT programmes. This can be achieved by allowing employers to participate in course design and motivating a larger proportion of students to choose work placements. In addition, Latvia should introduce a legal framework for work-based learning in tertiary education (OECD, 2019i).

In addition, greater support for modular programmes combining ICT modules with other subjects (e.g. business) can help disseminate ICT skills across a wider range of Latvia's graduates. To this end, Riga Technical University (RTU) and Riga Business School, and the University of Latvia (LU), in

association with the Finance Latvia Association (an industry body) and Accenture, have established a bachelor degree programme entitled "Computer Science and Organisational Technologies".

Increasing students' knowledge of course outcomes can help them select the most appropriate course, and drive up standards. In order to improve quality assurance of Latvian education, in 2018 the Quality Agency for Higher Education (AIKA) joined the European Quality Assurance Register for Higher Education (EQAR) for a period of five years (OECD, 2019l). ICTs could also be used to improve students' knowledge of employment prospects. Since 2017, the MoES has been tracking graduate outcomes including data on graduate employment status, field of work, salary, and information about the institution and study programme that students decided to attend. The Ministry plans to make the data publicly available (OECD, 2019i).

A number of programmes also encourage women to pursue careers in ICT. In 2016, Riga Tech Girls was founded to encourage girls and women to develop digital skills, increase the visibility of women in the ICT sector, and establish a professional network of women in the ICT sector.

Unemployed workers have access to digital training

Traditionally, Latvia has offered limited social protection and spent below average on active labour market policies (ALMPs) (OECD, 2019k; 2019c). In recent years, however, the country has worked to improve its training system for unemployed workers, and labour market activation has shifted from providing jobs in the public sector to employment incentives and rehabilitation of the long-term unemployed (OECD, 2019k).

Latvia uses a system of training vouchers to provide training opportunities to jobseekers. The State Employment Agency (SEA) profiles ALMP participants based on self-reported information about the unemployed person and an interview with a caseworker. A SEA website then provides job seekers looking for training with information on competing training providers (e.g. the job finding rates of past participants) and labour market forecasts by occupation. Both formal training leading to accredited skills and more basic, informal training are provided. Informal training tends to last 42 days on average, compared to 91 days for formal training. Those lacking the ICT skills necessary to use the system are referred for informal ICT training. In 2018, over 18 000 people participated in the programme, with about 14 000 undertaking informal training, boosting their chances of finding a job (OECD, 2019k).

Informal IT training has been a popular choice for participants, with a 40-hour training course available for those with no ICT skills. In 2016, the most attended informal courses were basic IT (1 400 participants rising to 2 000 in 2017) followed by advanced IT skills (1 200 participants). In contrast, from 2012 to 2017 only about 1 000 people undertook formal training in ICT (compared to over 3 600 for formal training for welders) (OECD, 2019k). The SEA also provides ten digital skills upskilling programmes that last for 120 to 150 hours, as well as two vocational training ICT programmes. Short-term courses for older workers are also available and the SEA provides e-learning. The SEA meets annually with employers to ensure its courses meet the evolving needs of the labour market.

Latvia participates in the regional project Young ICT Women (No. 2017-1-094) which aims to teach digital skills to young women (ages 15-29) who are at risk of being excluded from the labour market. The Latvian operation is co-ordinated by LIKTA (with funding from the European Economic Area and Norway Grants Fund for Youth Employment) and will run from September 2018 to August 2021 (LIKTA, 2019; 2018). However, the programme is small (with the aim of reaching 700 women across seven countries). In addition, it is difficult to see how lessons learned could be transmitted to the SEA.

Greater use could be made of collected data

Latvia has its disposal a rich source of data comprising information from the SEA, the Social Insurance Agency, the Population Registry and the Social Assistance Database (OECD, 2019k). The SEA uses this information to produce a short-term labour market skills forecast (while the MoE produces a medium to short-term forecast.) A raining commission (*apmācību komisija*) uses these reports as a basis for setting fields of study for unemployed workers each year. Latvia's Digital Agenda and e-Government Strategy could make greater use of online tools for jobseekers at low risk of long-term unemployment, while web-scraping could help them find vacancies that are not registered with the SEA. In addition, data could be used to better monitor the effects of ALMPs (OECD, 2019k).

Although the Latvian State Education Information System (VIIS) collects data on education programmes, institutions and staff from early childhood education and care to higher education, certain data (e.g. characteristics of school staff) are in some cases unreliable. In addition, data on non-formal education and training and professional qualifications granted by non-public institutions are not collected, and electronic records of the qualifications people attained in the past are not available. To improve this situation, the Ministry is modifying the VIIS by linking it with higher education graduate tracking data and adult learning data (OECD, 2019i). The VIIS, the Unemployment Accounting and Registered Vacancy Information System (BURVIS) and the information system for the ESF project Improvement of Professional Competence of Employed Persons could also benefit from better linkages. In addition, data matching techniques could help create a more comprehensive picture of life-long learning (OECD, 2019i).

Firms lag behind in providing in-work training

Latvian firms invest relatively little in the skills of their workers, especially with regard to ICT training. Relatively few firms assess their future skills needs, and EEA enterprises are unwilling to invest in training due to the risk of trained employees moving abroad to obtain higher wages (VARAM, 2013). In addition, participation in life-long learning is very limited, with low-skilled workers less likely to take part in adult education (OECD, 2019c; 2017a). This is particularly stark in the case of provision of ICT training, with even larger firms lagging behind (Figure 4.23).

Figure 4.23. Businesses providing ICT training to their employees in Latvia and selected OECD countries, 2012 and 2018

As a percentage of all firms in each size group
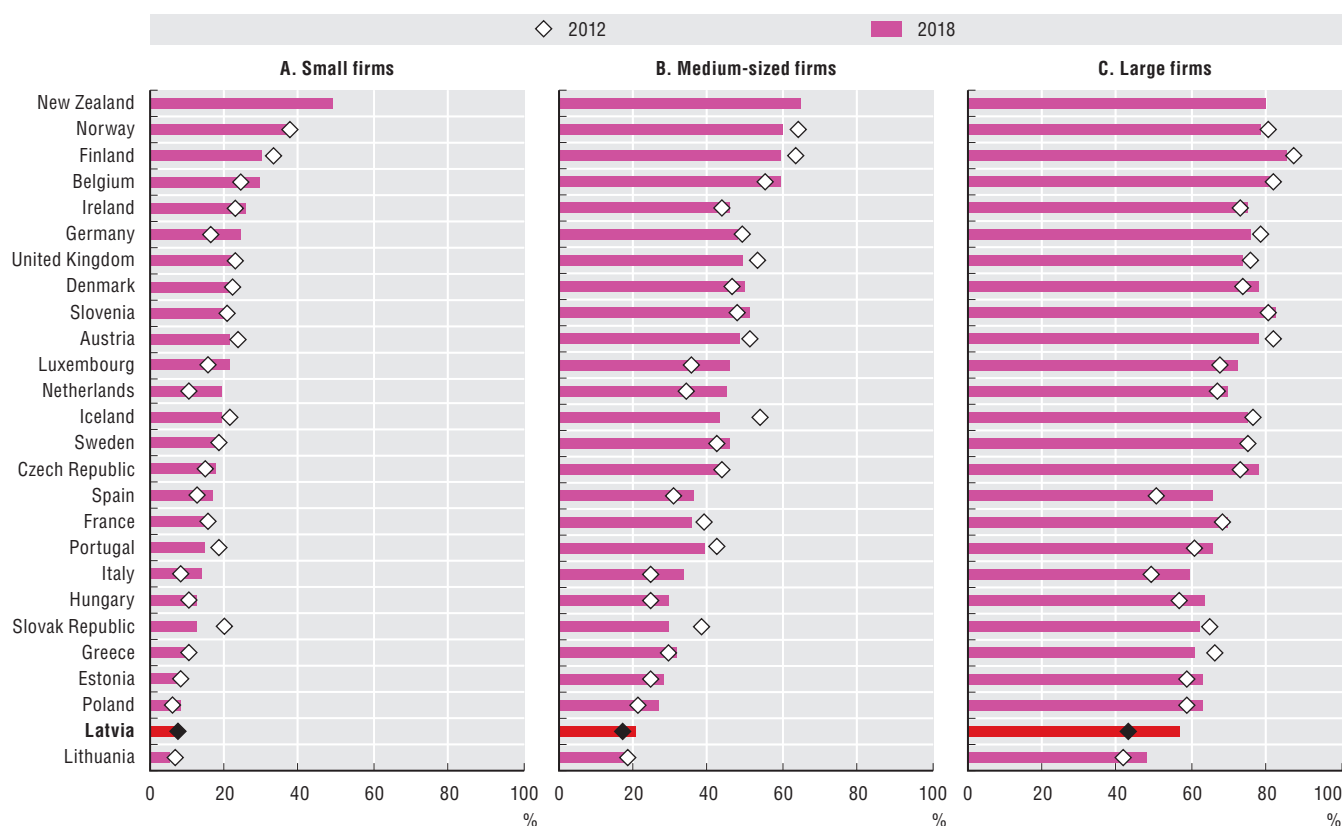
Notes: Data refer to businesses with ten or more employees that provided any type of training intended to develop the ICT-related skills of their employees within the last 12 months. Data for New Zealand refer to 2016 and Iceland to 2014. Data for medium-sized firms in Portugal refer to 2017. Small firms have up to 49 persons employed, medium firms 50 to 249 persons employed, and large firms 250 or more persons employed.

Source: OECD (2017c), *ICT Access and Use by Businesses* (database), *http://oe.cd/bus*.

Latvia has two main ERDF programmes that support digital training for firms: "Technology training" (action number 1.2.2.1), which provides financing for ten industry associations to train ICT specialists; and "Non-technology training" (action number 1.2.2.3), which includes training in the use of ICTs. These programmes are implemented by industry associations, such as LIKTA. In addition, the more generally oriented ESF-funded project Developing Professional Competencies of Employees (SO 8.4.1) aims to improve, among others, the ICT proficiency of adult employees with low skills.

The project Training of ICT Professionals to Promote Innovation and Industry Development (no. 1.2.2.1/16/A/003) has been designed to raise the skills of ICT professionals and help overcome the shortage of such individuals within Latvia. The project was run by LIKTA, and trained 1 630 ICT professionals from 77 firms up to March 2019 at a cost of EUR 1.8 million (with EUR 900 000 financed by the European Union) (EsFondi.lv, n.d.).

In order to provide ICT training to self-employed workers and staff in micro and small firms across several of Latvia's regions, LIKTA initiated the project For the Development of Innovation and Digital Technology Training for Small and Micro Business Operators in Latvia (no. 1.2.2.3/16/I/002), running from December 2016 to December 2020. Businesses are evaluated to ascertain their needs and the tasks of their employees, and then appropriate training is recommended, which covers topics such as data security, digital marketing and digital tools for customer service, among others. Participants that complete the training receive a certificate. The aim is to train 6 500 participants at a total cost of EUR 2.7 million (70% funded by the ERDF) (EsFondi.lv, 2015).

Box 4.5. Changing the education and training system to keep up with a changing economy

Adapting Latvia's education and training system is crucial to meeting the needs of a changing economy and society. With this in mind, Latvia is developing a National Medium-term Strategy for Education and Skills (2021-2027). This strategy is the main focus of *OECD Skills Strategy Latvia: Assessment and Recommendations* (OECD, 2019i), which examines all stages of Latvia's education and training system, from early childhood to tertiary education, and onward to continuing adult education, with a focus on improving the skills of students, fostering life-long learning, reducing skills imbalances and improving governance of the skills system.

The report finds that an adaptable workforce is necessary for Latvia to take advantage of the opportunities offered by the digital transformation. Highly qualified teachers can help students achieve the foundational literacy and numeracy skills early in life that will allow them to be more adaptable in later life. Latvia should continue to develop the skills of Latvia's aging teachers (i.e. by linking teacher appraisal with continuing professional development), and assess and evaluate schools to ensure accountability.

Fostering a culture of life-long learning can also help adults keep pace with a changing economy. This can be achieved by increasing awareness of opportunities to participate in life-long learning and reducing barriers to participation, while increasing provision and quality. In addition, Latvia should move beyond reliance on European Structural Funds for adult education to seek a broader spectrum of funding sources, and VET schools should increase the training offered to adult learners.

The education and training system itself must also respond to changing needs. The tertiary education system could improve its level of responsiveness by increasing collaborations between HEIs and employers, such as through work-based learning. In addition, governance of education and training could be more responsive to changing demand, for example by creating partnerships with social partners to draft skills policies.

Finally, the responsiveness of the labour market could be enhanced by easing the migration of skilled workers from abroad and facilitating mobility within Latvia.

In addition, the Latvian Chamber of Commerce and Industry (LCCI) is implementing a project entitled "Productivity Evolution 2" (no. 1.2.2.3/16/I/001), which focuses on raising productivity in small firms across a wide range of sectors. Training covers areas such as accounting and hotel management, and can include the use of ICTs. The project aims to train over 4 700 people in 285 firms by the end of 2020 (LCCI, 2017), and as of November 2019, over 1 850 employees and 199 firms had participated at a total cost of EUR 1.7 million (with EUR 900 000 provided by the ERDF) (LCCI, 2019).

Employers are hesitant to pay for training for their workers for fear of losing them to other firms, with Latvia performing poorly overall in terms of funding of adult education (OECD, 2019m; 2019i). Latvia should therefore create a shared training fund, and charge employers a training levy (as a percentage of gross wages). Firms can then draw from this fund to pay for non-firm specific training (including training to use new digital tools), or be refunded the levy in the form of training vouchers. Such levy-grant systems currently operate in France, Italy and Poland (among others) (OECD, 2019m). As workers can face obstacles to participating in training, such as financial barriers or family responsibilities, the fund could also cover part of a worker's salary during the training period (OECD, 2019n).

Easing migration and accessing the skills of foreign ICT workers

Latvia's skill shortages are exacerbated by policies that hamper the return migration and immigration of skilled workers. In particular, strict Latvian language requirements for many professions can discourage the return migration of Latvians with a foreign spouse (OECD, 2016b). Although Latvia is becoming a popular destination for foreign students, only a small number stay after graduation, though the government aims to increase this proportion to 10% by 2030 (OECD, 2017a). In addition, the government recently took action to ease labour market tests for shortage occupations (OECD, 2019c). The minimum necessary salary to be offered to a foreign worker has been reduced from 50% above the average wage to 20%, and the number of days the position must be registered with the SEA as vacant has been reduced from 30 days to 10. Given the high demand for ICT specialists, Latvia should abolish labour market tests for those able to prove experience working in the field or an appropriate qualification, as is the case in Germany and the United Kingdom (Box 4.6). In addition, removing labour market tests for individuals that have completed their studies in Latvia would help ease skill shortages (OECD, 2019c). Finally, a tax credit for student loans could be particularly attractive for those that studied abroad and would help attract workers with much-needed skills.

**Box 4.6. Germany and the United Kingdom use simplified procedures to hire ICT specialists from abroad**

Germany's new Skilled Immigration Act has simplified the hiring of skilled migrants from outside the European Union, in particular ICT specialists. Workers from outside the European Union with an appropriate qualification and a level of proficiency in the German language no longer need to have a work contract to reside in Germany, but can instead obtain a six-month residence permit allowing them time to find a job. ICT specialists do not need evidence of an appropriate qualification if they can prove that they have worked in the role for several years. In addition, employers no longer have to show that they were unable to find such expertise within the European Union (Zech, 2020).

The United Kingdom has also simplified procedures for hiring ICT specialists from abroad. Those applying for a job included on the Shortage Occupation List (which includes ICT specialists) do not need to meet the requirement of a minimum salary of GBP 30 000, allowing less experienced workers to find a job within the field. As in Germany, employers no longer have to pass the Resident Labour Market Test to prove that they were unable to find a suitable worker within the European Union (gov.uk, 2020).

Use of freelance workers also gives firms access to an extended workforce. In particular, greater use could be made of online labour, as Latvia is unusual in terms of the low proportion of software development and technology tasks in online labour markets, with writing and translation having greater importance (Figure 4.24) (OECD, 2019a).

Figure 4.24. Online hiring by occupational group in Latvia and selected OECD countries, 2018

As a percentage of all projects/tasks posted on online platform by country of employer
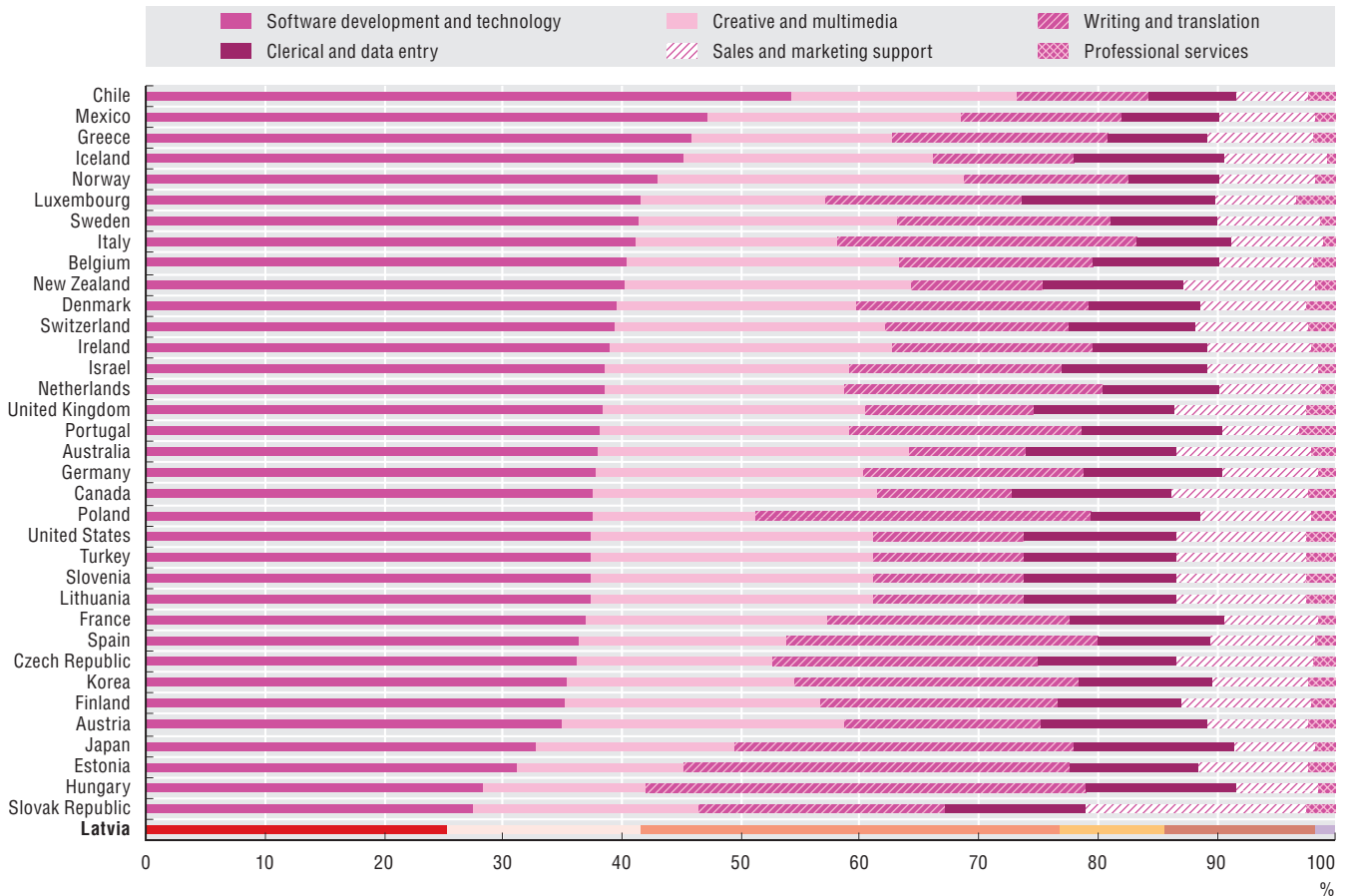
Notes: Each bar displays employer countries' share of projects/tasks posted on online labour platforms between January and July 2018, by the occupation of project/task. For example, for projects/tasks posted online by employers based in Chile, over 50% of these were related to software development and technology, and 20% to creative and multimedia. The Online Labour Index tracks all projects and tasks posted on the five largest English-language platforms, which account for at least 70% of all traffic to online labour platforms. The occupation classification builds on that used by Upwork.com.

Source: Kässi and Lehdonvirta (2018), *Online Labour Index: Measuring the Online Gig Economy for Policy and Research*, *https://mpra.ub.uni-muenchen. de/86627* (accessed on 20 June 2018).

Usage by business: Conclusion

Latvian firms have advanced in their use of digital technologies, but still lag behind other OECD countries. While boosting the digital skills of the Latvian workforce will be necessary to help firms adopt digital technologies, there is currently a lack of incentives for firms to adopt such technologies. The recommendations in this section to boost the uptake of digital technologies and improve digital skills are summarised in Box 4.10.

While firms are an important driver of the digital transformation, use by government also plays a key role. This is discussed in the following section.

Usage of digital technologies by the government

Adoptions of ICTs by the government sector can act as a powerful driver of adoption by firms and households. In Latvia, increasing the use of digital technologies and data by government is an important component of the Information Society Development Guidelines. Use of online services and e-health, as an alternative to face-to-face consultations, can also help Latvia address some of the challenges created by the COVID-19 pandemic. In line with the digital government strategy, Latvia has made strong

advances in the delivery of online services and provision of open data, becoming one of the leading countries for digital government in the European Union (European Commission, 2019b). Nevertheless, to date Latvia has focused largely on improving the efficiency of public services and has yet to take full advantage of the ability of digital technologies to change how services are designed and to use data to improve policy making.

Current strategy for use of ICTs by government

Latvia's strategy for digital government is presented in the Information Society Development Guidelines, with further details added in the Concept for Improvement of the Public Service System (January 2015) and the Public Administration Reform Action Plan 2017-2020. In part, the strategy was driven by the need to increase efficiency in the public sector due to budget constraints following the international financial crisis. The Information Society Development Guidelines focus mostly on plans to improve internal processes in the public sector, and the delivery of services digitally, although mention is made of the use of ICTs to redesign processes (Box 4.7).

Box 4.7. Latvian's Information Society Development Guidelines

The Information Society Development Guidelines include two sets of Action Directions related to increasing the use of ICTs in government.

The following actions are included under **advanced and effective public administration**:

- modernisation of basic public administration processes
  - ❖ transformation and optimisation of basic processed
  - ❖ digitalisation of basic operational processes
  - ❖ digitalisation of support processes
  - ❖ collaboration between public administration processes
- public e-participation and e-democracy
- single public administration data space
- optimisation of ICT infrastructure.

The following actions are included under e-services and digital content for public:

- opening of public administration data and transaction services to other users
- shared platforms and service development for provision of public services
- provision of official e-mail addresses to inhabitants and entrepreneurs
- digitalisation of public services
- automated issuing and acceptance of electronic invoices
- digitalisation and accessibility of cultural heritage
- stimulation of Latvian language usage in the digital environment
- e-health solutions for efficient, safe and patient-oriented health care.

The strategy links with the Latvia as a Data Driven Nation framework, which aims to build a society that makes intensive use of data generated in the public and private sectors. The plan was approved by the Information Society Council and consists of three pillars: 1) data democracy and accessibility; and 2) data-enabled citizen engagement; and 3) data-driven innovations/innovative data commercialisation.

The Ministry of Environmental Protection and Regional Development (VARAM) is the lead ministry for digital government policy. The State Regional Development Agency (VRAA) forms part of VARAM and operates centralised services (e.g. the citizen portal Latvija.lv, the data exchange platform VISS.gov.lv and e-payments) for municipalities and state agencies. The VARAM monitors all digital government projects funded by the ERDF, ensuring their compliance with government ICT architecture.

However, Latvia faces some challenges in implementing its strategy, notably the lack of a co-ordinated ICT procurement strategy, with ministries instead making their own decisions. Although VARAM is exploring ways to improve services for citizens (including scenarios that involve interacting with different agencies, such as when someone is establishing a firm), the Ministry lacks the power to make decisions mandatory. In addition, staff may lack the necessary skills, while some agencies may not consider digitalising services to be a priority. Consolidating funding for digital government into a single ministry, such as VARAM, which also has responsibility for developing the digital government strategy, could help ensure more streamlined delivery of the government's digital government strategy (see Chapter 7). Alternatively, co-ordinating mechanisms (e.g. a representative committee to co-ordinate digitalisation) combined with policy levers (e.g. budget thresholds or funding mechanisms) could help improve co-ordination.

In addition, Latvia lacks a civil service-wide training strategy. Training in IT and digital skills is not currently considered a priority for civil servants, although online learning is available (OECD, 2019o). Such a strategy should include training in the use of ICT, as well as in the design of services to ensure ease of use for service users. In addition, greater progress could be made in sharing lessons learned from digitalisation across the public sector by developing a manual of good service delivery practices. This could constitute a first step in the creation of a civil service culture to promote the digital transformation. The United Kingdom has already created such a manual which includes a 14-point service standard that public services must meet, including technical requirements and design standards to ensure ease of use by the public, and ways of measuring success such as web analytics (Government Digital Service, 2019).

Colombia has dealt with some of these challenges through its Online Government Excellence Programme (*Programa para la Excelencia en Gobierno Electrónico*), which aims to promote an innovation culture within public sector management. The programme includes workshops and virtual courses for public servants, in addition to graduate and postgraduate training. Such a centralised programme can help create a community of digitalisation experts, and help apply lessons across the public service. In addition, Colombia offers a Seal of Excellence (*Sello de Excelencia*) for online government services and procedures that reach a high standard. This helps to raise awareness of successful digitalisation projects within the public sector.

Progress in digitalising services

In July 2017, the Latvian government introduced new regulations (Cabinet of Ministers Regulation No. 402) for the digitalising of public services. Where feasible (and taking into account cost-effectiveness), public entities must provide a service electronically if the service is requested 5 000 times within a year, or if it accounts for at least 10% of all services provided by that entity. In addition, the service must be digitalised if it improves availability of the service and convenience for clients, and reduces the administrative burden or the costs of providing the service. The regulation also outlines the approach to be used to ensure that services are user friendly and service providers publish performance indicators (e.g. the proportion of attempts to use the service that are not completed). Service providers must ensure that accessing a service electronically is faster for recipients than the analogue alternative, or comes at a lower cost.

Latvia has digitalised services in many sectors in recent years. For example, the SEA has been using ICTs to improve services for the unemployed (see above), and the State Education Development Agency processes applications online for the education of employed adults. In 2018, Latvia also launched the Travel Safe (Ceļo droši) app to warn people of risks abroad and to advise them of courses of action in the event of an emergency (European Commission, 2019c). Government e-services can be accessed via the Latvija.lv portal, which provides information, consultation options and eProcedures (e.g. uploading of forms, fully automated electronic services and online payments) (European Commission, 2019c). Over 800 e-services are available to the public, with over 100 added in 2019. Almost 700 000 registered users made use of a service in 2019 (VRAA, 2019).

In April 2018, the government launched the My Latvija.lv! Do Digitally! (Mana Latvija.lv Dari Digitali!) campaign to encourage inhabitants to make use of available e-services. The campaign included training for 6 000 national and local government officials to help the general public use e-services. In addition, the government developed video tutorials on how to use the services and carried out an information

campaign via traditional and online media. From 2017 to 2019, the number of people registered with the national services portal increased by a quarter (to over 1 million), nearly doubling the share of users. These indicators suggest a successful campaign; however, the increase could be due to other factors. More granular performance indicators made possible by digital technologies could identify, for example, whether hits to websites increase in the days following an information campaign. Greater use of such web analytics could help ensure that resources are used in the most effective manner.

Digitalisation of services is being facilitated by the creation of electronic IDs, in conjunction with the establishment of a legal framework for mandatory electronic identification. These physical cards include biometric data that can be read electronically, allowing the holder's identity to be verified and enabling the creation of a valid electronic signature. They can be used as ID and travel documents. Although eIDs have been issued since 2012, from 2023 onwards having an eID will become mandatory (Office of Citizenship and Migration Affairs, 2020). In addition, a new app allows people to use a smart phone to authenticate their e-Identity and digitally sign contracts. The use of this app increased during the COVID-19 pandemic (eParaksts, 2020).

In addition, the Latvian government is moving to a "digital by default" principle for communicating with the population, although those without Internet access can opt out or make use of local Unified Customer Service Centres (see below). Official electronic addresses were introduced under the Official Electronic Address Act on 1 March 2018, in order to ensure secure communications between public bodies and individuals. As of June 2018, all public bodies have electronic addresses (from which point individuals may also get an electronic address) and 3 000 public entities have an obligation to only send documents electronically in response to an inquiry by the public. From 2020, businesses will also have electronic addresses (European Commission, 2019c).

Making services "online only" (as is the case with the state land support service) can act as a driver of adoption of digital technologies among firms and households. Latvia has ensured that digital-only services are accessible via Unified Customer Service Centres (see below), thus ensuring accessibility for those who do not use the Internet.

These measures have resulted in services becoming more user friendly. The proportion of people who only download official forms has fallen, with more people completing forms online (Figure 4.25). In addition, an above average proportion of users use the Internet to interact with public authorities (Figure 4.8).

Figure 4.25. Trends in the use of online services in the European Union, 2010-19

As a percentage of all individuals aged 16-74
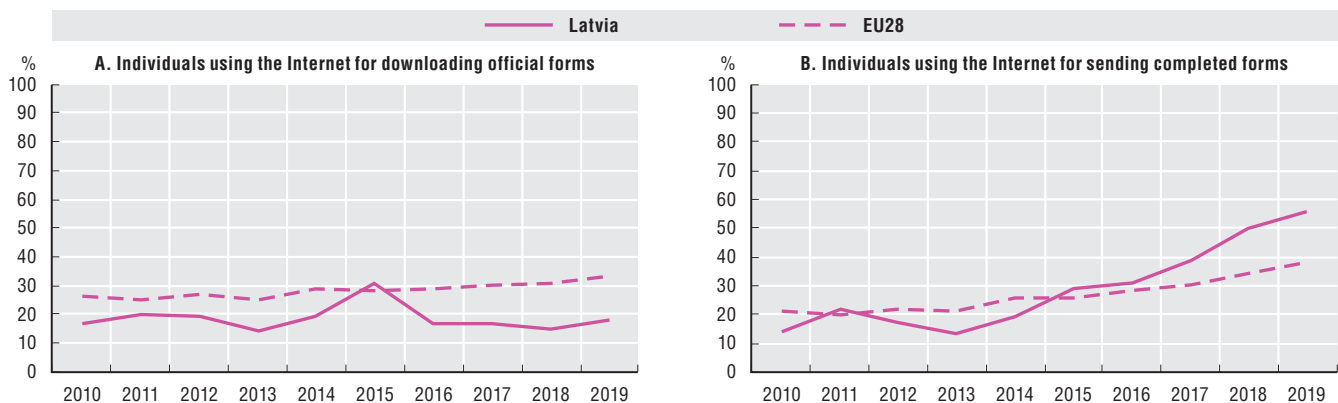
Source: Eurostat (2020c), *ICT Usage in Households and by Individuals* (database), *https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esms.htm*.

Digitalising business interactions with the state is also been a priority of the Business Environment Development Measures Plan 2017-2020 (Cross-sectoral Coordination Centre, 2017). Indeed, digital communication is mandatory in some sectors; for example, as of 2019, all documents related to the construction of new buildings must be submitted via an online portal. Latvia should create incentives for businesses to interact with government online, such as by prioritising businesses that access

services digitally (e.g. by issuing permits or payments more quickly to firms that interact online). In addition, Latvia should develop a schedule for which services to businesses are only delivered online.

### *Considerable progress has been made in digitalising health services*

The goal of Latvia's e-health policy is to improve the efficiency of health care delivery by improving the sharing of information and reducing the time spent by medical practitioners on bureaucratic activities. The benefits of e-health have become even more apparent during the COVID-19 pandemic. The e-Health policy aims to enable individuals to more easily control their health care; reduce the time that patients waste in contacting medical institutions; make it easier for medical practitioners to access a patients records, while reducing duplication of entry; and increase the reliability and security of health care data. It is estimated that digitally transforming the health system could bring benefits equivalent to 8% of health expenditure (OECD, 2019p). Such benefits are likely to be large due to the size of Latvia's aging population and associated increases in health problems.

Since 2016, personal electronic health records have been available to patients and health professionals, albeit with some limitations (e.g. the absence of immunisation data). In addition, since 2018 e-prescriptions have become mandatory for state-reimbursed drugs, and sick leave certificates can only be issued electronically, with the system linked to social insurance payment of sickness benefit (European Commission, 2018a). Medical practitioners can electronically refer patients to a specialist or for a diagnostic test, prepare medical documents and view documents prepared by other health practitioners during a consultation, but may also deny a patient the right to view certain medical information. Patients can grant or refuse access to their information, although early problems regarding data privacy has dented confidence in the system among some of Latvia's population (European Commission, 2019c; Menshikov and Volkova, 2019).

However, a relatively low share of Internet users access health information online, with the proportion particularly low for men (Figure 4.8). In addition, the share of people who make medical appointments online is relatively low (Figure 4.26). Greater regulatory certainty regarding the privacy of health data could help foster the development of a booking platform for medical appointments, similar to the Doctolib platform used in France and Germany, the information gleaned from which could be useful in monitoring the health of Latvia's aging population. Greater use could also be made of data currently being collected, for example to predict flu epidemics and advise vulnerable people about vaccinations.

Figure 4.26. Individuals who made an appointment with a health practitioner on line in Latvia and selected OECD countries, 2012 and 2018

As a percentage of all individuals aged 16-74
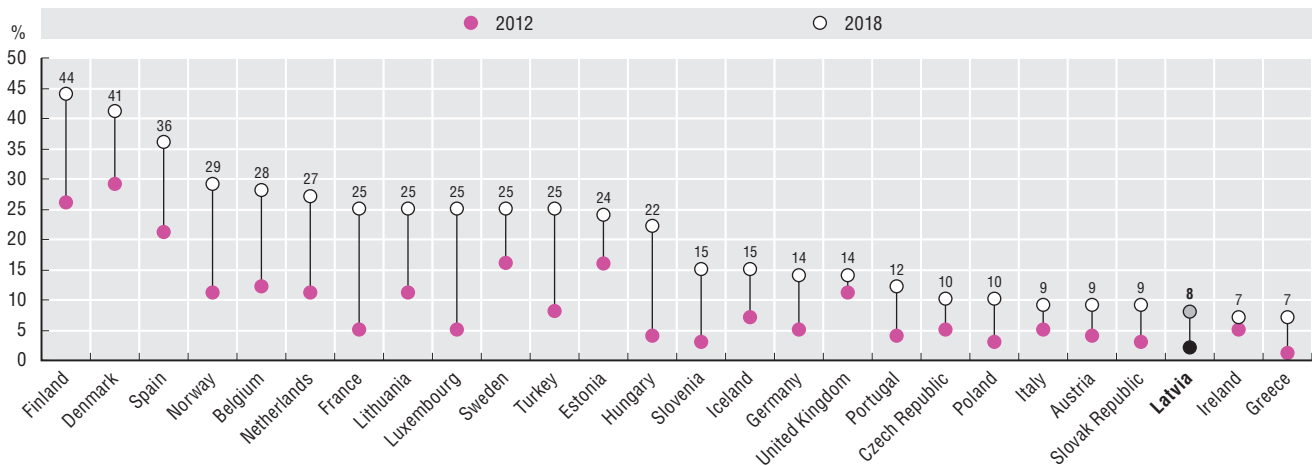
Source: Eurostat (2020c), *ICT Usage in Households and by Individuals* (database), *https://ec.europa.eu/eurostat/cache/metadata/en/isoc_i_esms.htm*.

Further progress in health requires a national digital strategy, stronger governance of health data, greater institutional and operational capacity (e.g. by giving the workforce and the public the skills to make effective use of new systems), and clear laws regarding the privacy of health data. Finland, the

Czech Republic and Sweden shave all made good progress in meeting the requirements for the digital transformation of the health sector (Box 4.8) (OECD, 2019p). Latvia should ensure the interoperability of data and ICT systems within the health sector. In addition, the government should create clear policies to protect private data, and only link data from different data sources with the consent of patients (see Chapter 5). Finally, research using health data can be facilitated through the creation of a one-stop shop, possibly in association with an HEI, for those who wish to access health and social care data.

Box 4.8. Establishing clear rules is necessary to facilitate the sharing of medical data

The OECD *Recommendation of the Council on Health Data Governance* (OECD, 2016c) offers guidance to countries on how to manage the risks – and reap the rewards – of health data. It includes 12 principles, such as ensuring that individuals are aware of how their data are used, and making sure that individuals processing personal data receive training in privacy and data security.

Several countries have implemented strategies to regulate the sharing of health data.

Sweden's digital health strategy aims to increase data sharing between various public authorities and citizens while maintaining privacy and data security, and ensuring the interoperability of data and ICT systems within the health system. In Sweden, patients can access their electronic health records which include information on their vaccine history, test results and referrals, among others.

Meanwhile, Finland's My Kanta allows those with a Finnish personal identity code to access medical records, manage consents (for sharing data and organ donation) and to see how their data have been used. Only 4% of users in Finland have opted out of sharing their medical data for research purposes. In addition, Finland is creating a one-stop shop for those who wish to access health and social care data for research reasons, which will act as a single entity to approve the use of data (OECD, 2019p).

Finally, the Czech Republic is developing an Act on eHealth and Secure Data Sharing between HealthCare Providers, as the current, fragmented legislation makes effective management of the e-health system impossible. The goal is to establish core rules, procedures and standards, including safety for digitalisation of the health sector. In addition, the Act aims to define rules, competences and rights with regard to increasing patient involvement in the health care system.

Greater use of digital technologies can help Latvia face the challenge of an aging population, including increasing pressure on the health system, as evidenced recently by the need to cope with patients who may have a highly contagious illness, such as COVID-19. Latvia should therefore develop pilot programmes for telemedicine and pursue those with clear benefits, while facilitating the spread of best practice. Although telemedicine is permitted, legislation is not yet in place to govern its use (in contrast with Denmark, Finland and Poland) – including whether a patient must be physically present with a medical practitioner when a prescription is written. Denmark has experienced success with telemonitoring: the home monitoring of patients with chronic obstructive pulmonary disease has become mainstream following a randomised control trial, and another telemonitoring programme is being used for babies born pre-term. Video consultations are also being used (Oliveira Hashiguchi, 2020). As inequalities in digital literacy mean that those most likely to benefit from telemedicine are least able to take advantage, such policies should be combined with community-based initiatives to improve digital literacy.

The use of data and algorithms can be especially useful for supporting patients with complex needs, such as elderly individuals being treated with several medicines simultaneously (OECD, 2019p). The Nordic Council (Denmark, Finland, Iceland, Norway and Sweden) has created a Nordic Programme on Health and Welfare to strengthen research co-operation in these areas (OECD, 2019p). Creating a similar programme among the Baltic States could help pool resources to face common health and welfare challenges.

Use of ICTs to improve services

Latvia has gone beyond the digitisation of existing processes and is now in the early stage of using digital tools to change how services are delivered. The tax authority is using data to better target tax audits, while the SEA is using digital tools to assess the needs of the unemployed (see above). However, the government could capitalise further on the data collected through digitalisation to provide more targeted and personal services (Box 4.9).

Digitalisation has also allowed Latvia to change how it delivers services to the public. In 2011, the country adopted a "one-stop shop" principle to access public services, whether in person or digitally, and since 2014 a network of state and municipal Unified Customer Service Centres (VPVKAC) has been operational. These centres offer digitalised services from various bodies, such as the State Revenue Service (SRS) and SEA, available across 78 municipal centres. In total, over 800 government services have been digitalised. Although VARAM created the one-stop shop principle, individual agencies are responsible for delivering services. Individuals can use the "Less Burden" web-tool or the Futbols app (available only in Latvian) to rate services and submit proposals for improvements to services, which are then evaluated by the State Chancellery.

Latvia has also developed e-participation processes. In 2013, a petition website (manabalss.lv) was launched where any Latvian citizen aged 16 or over can propose and electronically sign an initiative. If an initiative receives 10 000 signatures, it is added to the agenda of Parliament. In December 2015, a regulation was passed allowing citizens to submit petitions electronically (if the submission includes a way to verify the electronic signatures) (European Commission, 2019c). However, only a relatively small proportion of the population use this tool to voice their opinions to public officials, and only 7% use the Internet to express their opinions online (OECD, 2019i; 2019q).

Latvia has also been making use of digital technologies to help overcome the language barrier for inhabitants that do not speak Latvian as their first language. The machine translation portal Hugo.lv enables English and Russian speakers to access Latvian language information and e-services. Latvia plans to supplement this service with the creation of a virtual assistant, to allow individuals to make use of e-services in their preferred language. In addition a company, Tilde, is researching translation technologies (NIFO, 2018).

Box 4.9. Promoting digitalisation in regional locations

Promoting digitalisation in regional locations is a priority for Nordic countries – and the topic of the Nordregio report *Governing the Digital Transition In Nordic Regions: The Human Element*, which found that regional digitalisation is a human rather than technical process (Randall and Berlina, 2019).

Helsingborg, in southern Sweden, stands out as successful example of embracing digitalisation. Under the Mayorship of Palle Lundberg, rather than developing a strategy to improve municipal work processes, the municipality emphasised experimenting and learning. In addition, the process focused on the needs of citizens rather than IT systems. Finally, digitalisation was considered the responsibility of all municipal employees and residents of the city.

On the basis of this approach, the city developed the platform My Helsingborg to access services and Smart Helsingborg to allow residents to create services. A space was also created for residents to borrow new technologies and experiment with them. As a result, in 2015 Helsingborg won an award for the best IT municipality in Sweden. This was followed in 2016 by an award for the leading e-commerce city in southern Sweden.

In this case, the key factor for success was long-term political support and leadership that encouraged experimentation and was willing to tolerate failures if lessons were learned.

The creation of an annual workshop involving both public servants and researchers, such as academics, where ministries demonstrate how they use data to improve decision making, could foster the sharing of ideas and expertise within the Latvian public sector. In addition, Latvia should support the creation of a social research unit, either within a state agency, or as part of an HEI, to analyse data and recommend new services. The unit would either have the competency to conduct such research in house, or would

outsource it to universities. In addition, the unit should have the ability to make anonymised micro-data available for approved research projects by outside organisations (taking into consideration privacy concerns).

Latvia has made substantial progress in improving services, although further steps are needed to develop a data-driven public sector. Usage of data can help the government enhance planning of services and anticipate demand peaks, in addition to improving planning and monitoring. It can also help boost public trust in government. Such steps require a strong vision and leadership, coherent implementation, rules and guidelines for the use of data, as well as data infrastructure and architecture (OECD, 2019r).

More government data are now publicly available

Making government data publicly available can enable firms to develop new apps that make use of such data, allow researchers to investigate ways to improve public service delivery and heighten transparency, which in turn increases trust in government. At present, there is low trust in public institutions, with Latvia ranking below the OECD average in The World Bank's Worldwide Governance Indicators (WGI), performing poorly for Control of Corruption, and Voice and Accountability (OECD, 2019e; 2019k).

Increasing the openness of data has been a government priority and considerable progress has been made in this regard, with the government approving a new Open Data Strategy (Latvijas Atvērto Datu Stratēģija) in 2019 (Figure 4.27). The Information Society Guidelines (2014-2020) include a requirement that data must be available for use and re-use as part of their five criteria for state information systems. In addition, Latvia is making efforts to comply with the European Public Sector Information Directive. In July 2017, the government approved the Third Action Plan for Open Government Partnership. This includes plans to develop an open source public data portal, a research and publication database, and a database of state-owned capital companies. Latvia also plans to produce a portal for the circulation of draft legal acts, modernise the statistics portal and take measures to reduce red tape (*www.mazaksslogs.gov.lv*) (State Chancellery, 2017).

Figure 4.27. Open Useful Re-Usable data (OURdata) Index 2019

Source: OECD (2019o), *Government at a Glance 2019*, *https://dx.doi.org/10.1787/8ccf5c38-en*.

In 2017, the Latvian Open Data Portal was launched making available over 260 datasets. Public institutions publish data in a machine-readable format, together with metadata, in line with an order of the Cabinet of Ministers (European Commission, 2018a). Institutions are responsible for the published data but receive support from VARAM, while the State Regional Development Agency (VRAA) (an agency of VARAM) operates the portal. All the data are also available via the European Data Portal (European Commission, 2019c). However, efforts to make more data available ran into difficulties, as some of the most valuable data (e.g. geospatial address data) constitute a source of income for agencies.

As a result of these efforts, the availability of open data has increased considerably since 2014 (Table 4.1). Data on government spending and geospatial data (on postcodes and maps) have become freely available, while data previously freely available in a limited form (e.g. transport timetables, government budgets, election results and legislation) are now available in a machine-readable form under an open licence. This can facilitate the creation of apps and other digital tools, in line with Latvia's intention to create innovative services in the private sector through digital public administration. Openness can also have the benefit of increasing transparency and accountability and, thus, improving trust in public institutions.

Table 4.1. More government data has become publicly available

Change in openness of government data since 2014

	Data exists	Available digitally	Publicly available	Free of charge	Available online	Machine-readable	Available in bulk	Open license
Transport timetables	P	P	P	P	P	+	+	+
Government budget	P	P	P	P	P	+	P	+
Government spending	P	P	+	+	+	+	+	+
Election results	P	P	P	P	P	+	+	+
Company register	P	P	P	P	P	P	P	+
National maps	P	P	P	P	P	P	+	+
National statistics	P	P	P	P	P	P	+	+
Legislation	P	P	P	P	P	+	+	+
Postcodes/zip codes	+	+	+	+	+	+	U	+
Pollutant emissions	P	P	P	P	P	P	+	P

Note: "P" = previously available in 2014; "+" = added subsequently; "U" = unavailable.

Sources: Bojars and Liepins (2014), "The state of open data in Latvia: 2014"; questionnaire responses.

All open data are published under an open licence and are available free of charge. Latvia has made particular efforts to ensure the availability of valuable geospatial data. In part, the availability of open data has been driven by a seminar campaign which sought to inform ministries and their agencies of the importance of open data. This awareness-raising effort was accompanied in September 2018 by an open data "hackathon".

The government should do more to promote an open data ecosystem within Latvia. Alongside a social research unit (see above), Latvia could create a prize fund to award grants and prizes to tertiary-level students who make use of open data in their coursework, and give prizes to other researchers and software developers who use open public data to solve problems to the benefit of the public.

Using government procurement to promote the digital transformation

The government could make greater use of public procurement rules to encourage SMEs to adopt digital technologies. At present, public procurement accounts for a fifth of GDP. Latvia's electronic procurement system is managed by the State Regional Development Agency and can be used by municipalities and state agencies. In 2017, eCertificates, which provide information about suppliers, were added to the system to simplify procedures for firms. Since January 2019, all tenders must be submitted electronically for amounts over EUR 10 000 (European Commission, 2019c). In addition, the National Electronic Procurement system now uses standardised forms to reduce the administrative burden for firms. Latvia's e-procurement system is also integrated with the tax register (European Commission, 2018a) (OECD, 2018g; 2019o). The government should build on this infrastructure by

necessitating electronic invoices for procurement in a standardised machine-readable format (as is standard in Norway).

Although Latvia has a green public procurement plan, the government does not use public procurement to support innovation (European Commission, 2018b; OECD, 2019e). Creating a website to allow SMEs to find smaller value public contracts, such as the Contracts Finder website in the United Kingdom, could encourage Latvian SMEs to increase their use of digital technologies. Similarly, Colombia has created a Virtual Shop (*Tienda Virtual*) for firms that have signed a price framework agreement with Colombia's central procurement authority. This portal allows government entities (including municipalities) to directly purchase commonly bought items from firms. Creating a similar portal could act as a driver for smaller firms to engage in e-commerce.

Usage by the government: Conclusion

Increasing government use of digital technologies and data constitutes an important part of Latvia's Information Society Development Guidelines. The use of online services and e-health, as an alternative to face-to-face consultations, can also help Latvia address some of the challenges created by the COVID-19 pandemic. While Latvia has made strong advances in the delivery of online services and provision of open data, further steps are necessary to seize digital opportunities.

Conclusions and policy recommendations

Latvia has made considerable progress in the use of digital technologies. Government usage has acted as a driving force for firms and households, with individuals using the Internet to interact with public authorities and many interactions with firms now occurring exclusively online. Nevertheless, important gaps remain, particularly regarding the use of e-commerce by Latvian firms.

However, at present Latvia lacks a national strategy for promoting Internet use among firms and individuals. In addition, the absence of a "whole-of-government" approach means that some opportunities are missed, such as the use of recently digitised cultural heritage resources to connect with the Latvian diaspora. Developing such a strategy will be necessary for Latvia to take full advantage of the digital transformation. A summary of the recommendations from this review is presented in Box 4.10.

Box 4.10. Policy recommendations

Increasing Internet use among individuals

- Use web analytics to evaluate the success of efforts to promote Internet usage.
- Update training resources provided under the Third Father's Son programme and give libraries resources from a national fund to maintain equipment.
- Create a community-based programme targeted especially at older Latvians to boost their use of digital skills, as already exists in Australia and Norway. Give grants to partners (e.g. NGOs or local community groups) and train digital mentors.
- Create a two-pronged digital diaspora programme to link Latvia's inhabitants with family abroad and to disseminate digital cultural resources.
- Link the teaching of digital skills to children with evening training sessions for parents, as has been done in Colombia.

Increasing digital uptake by firms

- Introduce a system whereby business payroll software automatically reports data to Latvia's tax authorities as employees are paid, similar to Australia's Single Touch Payroll system.
- Create a "digital champions" programme, as in Australia, whereby the government supports digital adoption by a small number of SMEs in sectors with low usage of ICTs.

Box 4.10. Policy recommendations *(cont.)*

- Offer consultancy and management advice to laggard firms in sectors with a number of digitally mature firms, to help them catch up with leading firms, as has been done in Australia and Austria.

Reforming the school curriculum

- Pay teachers of STEM subjects an additional allowance to overcome the shortage of such teachers.
- Consult regularly with services and NGOs that directly assist children with digital issues, such as the Safer Internet Centre (Latvijas Drošāka Interneta Centrs), for advice on updating the curriculum.
- Make greater use of career guidance to increase interest among students in ICT-related training and jobs.
- Strengthen links between vocational schools and firms, employing ICT specialists and increasing the proportion of work-based learning.
- Simplify procedures to receive incentives for providing work-based learning.

Reforming higher education

- Support the development of modular degree programmes that include ICTs.
- Give employers a more direct role in influencing university curricula and increase the proportion of time spent by students in work placements.
- Introduce a legal framework for work-based learning in tertiary education.

Improving digital skills among the workforce

- Make greater use of online tools and courses for jobseekers at low risk of long-term unemployment.
- Match data from training and state employment agency databases to improve monitoring of the effects of active labour market policies.
- Create a shared training fund for employees, as in Poland and France, out of employers' contributions to gross wages.
- Abolish labour market tests for foreign ICT workers with adequate experience or qualification, as is the case in Germany and the United Kingdom, and for those that have completed their studies in Latvia.
- Expand tax deductions for higher education tuition fees to include a deduction for student loans.

Improving the delivery of digital government

- Consolidate funding of digital government projects into a single ministry that sets priorities according to a national digital strategy.
- Create a civil service-wide training programme for use of ICTs and the design of services. This can be implemented (as in Colombia) through workshops and virtual courses for public servants, in addition to graduate and postgraduate training.
- Develop a manual of good service delivery practices, as has been done in the United Kingdom, outlining key principles for delivering a good online service and measuring success.
- Create incentives for businesses to interact with government online by prioritising businesses that access services digitally (e.g. by issuing permits or payments more quickly to firms that interact online).
- Develop a timetable for government to deliver services to businesses exclusively online.
- Develop legislation to govern the use of telemedicine, similar to the Act on eHealth and Secure Data Sharing between HealthCare Providers in the Czech Republic.

Box 4.10. Policy recommendations *(cont.)*

● Create a one-stop shop, possibly in association with an HEI, for those who wish to access confidential health and social care data for research, such as is the case in Finland. Support the creation of a social research unit to analyse data generated by digital services and recommend new services.

● Develop pilot programmes for telemedicine.

● Create a prize fund for tertiary-level students who make use of open data in their coursework, as well as for researchers and software developers who use open public data to address societal challenges.

● Host an annual workshop to allow ministries to demonstrate their use of data to improve public services.

● Create an online platform to allow small firms to sell low-value items to central government and municipalities.

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Note

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.

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