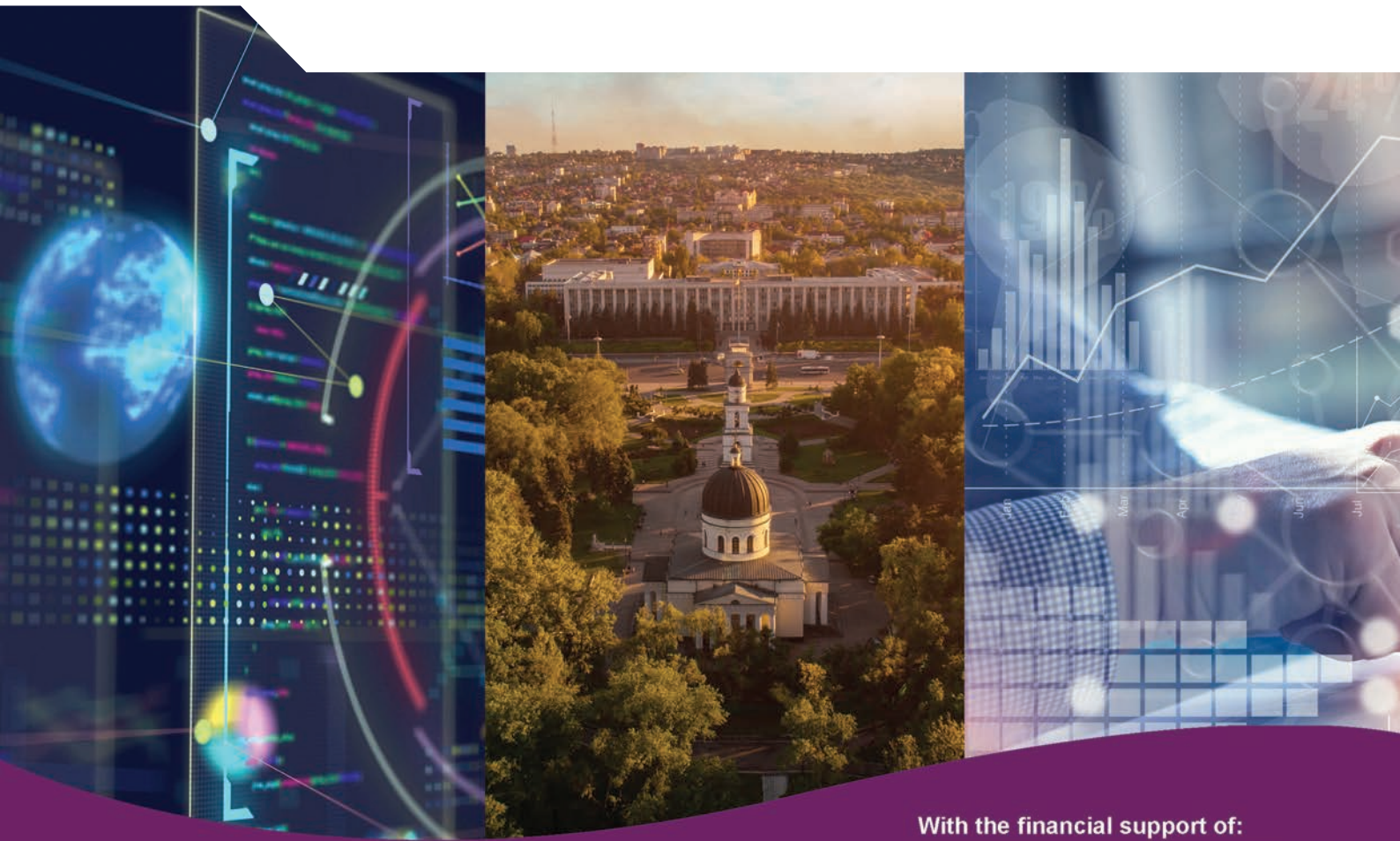




Promoting Digital Business Skills in the Republic of Moldova



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Promoting Digital Business Skills in the Republic of Moldova

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Foreword

The Government of the Republic of Moldova has been devoting significant policy efforts over the past years fostering private-sector development, including the growth of small and medium-sized enterprises (SMEs). The OECD has been supporting this work through successive projects on SME policies, carried out in close co-operation with the Ministry of Economy and other public and private stakeholders involved.

The Republic of Moldova (Moldova hereafter) has made digitalisation a policy priority. The country is currently preparing its *Digital Transformation Strategy 2023-2030*. This new policy document will emphasise the topic of digital literacy as well as digital business skills, with a view to improving private-sector competitiveness. In support of these efforts, the OECD launched a new project on promoting digital business skills in Moldova on 15 February 2022. This work builds on OECD expertise on digitalisation policies, including the regional report [Beyond COVID-19: Advancing Digital Business Transformation in the Eastern Partner Countries](#), launched in November 2021. Throughout 2022, the OECD provided guidance to Moldova on how to build a conducive ecosystem and set the right policies to further advance the development and uptake of digital business skills among its SME population.

To this end, the OECD carried out desk research and fact-finding exercises with local stakeholders and international experts, analysed the current state of play, and eventually suggested policy options. Three working group meetings, gathering senior policy makers from Moldova, private sector representatives and international practitioners and experts from OECD countries, as well as EU and OECD representatives, have also fed into the report. The project also benefitted from very valuable inputs from a designated senior expert on digitalisation issues from the Government of Latvia, Mr Kaspars Nesterovs as lead reviewer.

This report summarises the main findings and provides policy options to 1) strengthen the institutional and policy framework for digital skills; 2) improve digital skills assessments and anticipation, in order to better understand digital skills needs and develop tailored policies; and 3) step up support to help firms acquire digital skills through training activities and targeted measures to tackle barriers to SMEs' digital skills development.

This work stream was implemented within the framework of "EU4Business: From Policies to Action – Phase 2" in the Eastern Partnership, with the financial support of the European Union (EU). The project was co-financed by Romania.

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Representatives of several Moldovan Ministries, government agencies, private sector associations, non-governmental organisations and other stakeholders should be acknowledged for their active participation and their availability to exchange with the OECD team and share very valuable insights for the development of this note.

In particular, the OECD would like to extend its gratitude to Deputy Prime Minister and Minister of Economic Development and Digitalisation Dumitru Alaiba, to former Minister of Economy Sergiu Gaibu, to Andrei Cusca (Head of IT and Digital Economy Policies directorate), Inga Pascal (leading consultant), Diana Lungu (Communication advisor) and Diana Tutu. The Organisation is also grateful to ODA (formerly ODIMM) for their very valuable support and contributions, including to the following representatives: Dumitru Pîntea (interim Director General), Marin Ghenciu (Deputy Director), Rodica Crudu and Silvia Cangea-Digolean (Head and Deputy head of international co-operation department, respectively), and Isae Spinu (Head of SME digitalisation and IT support).

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The report, as well as working group discussions, benefitted from very insightful inputs from representatives of the private sector, notably Ana Chirita (Strategic Projects Director of the Moldovan Association of ICT Companies and Senior Project Co-ordinator at Tekwill), Natalia Bejan (CEO, StartUp Moldova), and Sergiu Rabii (Future Technologies).

A number of international experts shared valuable insights and experience that fed into the report and working group discussions, including Kaspars Nesterovs (Consultant, Public Administration Development Department, State Chancellery, Latvia), Urve Mets (Programme Co-ordinator, OSKA, Estonia), Atis Migals (EU4Digital Facility Digital Skills Stream Leader & Senior Consultant), Luca Marcolin (Economist, OECD Directorate for Employment, Labour and Social Affairs), Marco Bianchini and Madison Lucas (Economist and Policy analyst, respectively, at the OECD Centre for Entrepreneurship, SMEs, Regions and Cities).

The project is carried out as part of the EU4Business: From Policies to Action – Phase 2, implemented by the OECD in the Eastern Partnership, with the financial support of the European Union under its EU4Business initiative. The project was co-financed by Romania. Gerald Audaz and Jeanne Robles (team leader and programme manager, respectively, at DG NEAR, EU Commission), the EU delegation to Moldova, the Ministry of Research, Innovation and Digitalisation of Romania and Gabriela Butu (Counsellor, Embassy of Romania to France) provided important guidance and support for this project.

This report was written under the guidance of Andreas Schaal, Director of the OECD Directorate for Global Relations and Co-operation, and William Tompson, Head of the OECD Eurasia Division.

The project was managed by Daniel Quadbeck, Senior Policy Analyst and Head of the Eastern Europe and South Caucasus Unit, and Francesco Alfonso, Economist and Deputy Head of Unit, both from the OECD Eurasia Division.

The main author of this report is Salomé Will, with support provided by Lea Banger (both OECD Eurasia Division).

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Acronyms and Abbreviations

AI	Artificial intelligence
ANOFM	Agenția Națională pentru Ocuparea Forței de Muncă [National Employment Agency]
ANRCETI	National Regulatory Agency for Electronic Communications and Information Technology of the Republic of Moldova
ATIC	Moldovan Association of ICT Companies
BEEPS	Business Environment and Enterprise Performance Survey
CERT	Computer Emergency Response Team
CIS	Commonwealth of Independent States
COVID-19	Coronavirus disease 2019
CRM	Customer Relationship Management
DigComp	Digital Competence Framework for Citizens
EaP	Eastern Partnership
EBRD	European Bank for Reconstruction and Development
eIDAS	Electronic identification and trust services
ERP	Enterprise Resource Planning
ETF	European Training Foundation
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit [German Corporation for International Co-operation]
GNI	Gross national income
HR	Human Resources
IBM	International Business Machines Corporation
ICT	Information and Communication Technology
ILO	International Labour Organisation
IMF	International Monetary Fund
IoT	Internet of Things

IT	Information Technology
ITU	International Telecommunication Union
KPI	Key Performance Indicator
LMO	Labour Market Observatory
MOOC	Massive Open Online Course
NBS	National Bureau of Statistics of the Republic of Moldova
NDS	National Digital Strategy
ODA	Organizația pentru Dezvoltarea Antreprenoriatului [Moldova's Organisation for Entrepreneurship Development] – formerly ODIMM
ODIMM	Organizația pentru Dezvoltarea Sectorului Întreprinderilor Mici și Mijlocii [Moldova's Organisation for the Development of Small and Medium Enterprises Sector] – reorganised as ODA in July 2022
OECD	Organisation for Economic Co-operation and Development
PAS	Action and Solidarity Party
PISA	Programme for International Student Assessment
SME	Small and Medium-sized Enterprises
SMEPI	SME Policy Index
STEM	Science, technology, engineering and mathematics
UNDP	United Nations Development Programme
US	United States
USAID	US Agency for International Development
USD	United States Dollars
VET	Vocational Education and Training

Key economic indicators: Moldova

Key macroeconomic indicators for Moldova, 2016-2021

Indicator	Unit of measurement	2016	2017	2018	2019	2020	2021	2022 ¹	2023 ¹
GDP Growth*	Percentage y-o-y	4.4	4.2	4.1	3.6	-8.3	13.9	0.0	2.3
Inflation*	Percentage average	6.4	6.5	3.6	4.8	3.8	5.1	28.5	13.8
Government balance ²	Percentage of GDP	-1.5	-0.7	-0.9	-1.5	-5.3	-2.6	-6.2	-6.0
Current account balance*	Percentage of GDP	-3.6	-5.8	-10.8	-9.5	-7.7	-11.6	-12.8	-12.4
Exports of goods and services**	Percentage of GDP	32.3	31.1	30.1	30.6	27.1	30.6	-	-
Imports of goods and services**	Percentage of GDP	55.3	54.5	55.7	55.3	49.9	58	-	-
FDI net inflows**	Percentage of GDP	1.1	1.5	2.6	4.2	1.3	1.8	-	-
General government gross debt*	Percentage of GDP	39.2	34.9	31.8	28.8	36.6	33.1	36.0	38.3
Domestic credit to private sector**	Percentage of GDP	25.6	22.8	23.2	24.8	27.9	-	-	-
Unemployment*	Percentage of total labor force	4.2	4.1	3.1	5.1	3.8	3.5	3.5	3.5
Nominal GDP*	USD billion	8.1	9.5	11.3	11.7	11.5	13.7	14.0	14.3

Note: ¹ Latest forecasts available; ² General government net lending/borrowing (Percent of GDP).

Source: * (International Monetary Fund, 2022^[1]); ** (The World Bank, 2022^[2]).

Executive summary

SMEs account for 99% of all businesses in Moldova generating 60% of total employment, but only 39% of turnover. Despite considerable policy efforts, their potential remains largely untapped: SMEs remain concentrated in low-value-added sectors such as retail and wholesale trade, and still lag larger firms and EU levels in terms of productivity.

Successive crises have posed additional challenges: Moldova was one of the countries hit most severely by COVID-19, taking a significant toll on individuals and firms alike: 70% of small and medium-sized enterprises reported being affected by the COVID-19 pandemic, e.g., experiencing decrease in market demand, supply chain disruptions, and partially or fully stopping operations. Survey data from the World Bank on the impact on business operations by size class show the disproportionate impact borne by SMEs. This is partly explained by the over-representation of SMEs in the sectors hit hardest (wholesale and retail commerce and agriculture). Russia's full-scale invasion of Ukraine put additional strains on the economy, creating an urgent need for humanitarian assistance for large numbers of Ukrainian refugees, as well as causing trade disruptions and sharp rises in transport, energy and commodity prices.

The digital transformation offers numerous opportunities and benefits that could help businesses tackle some of the challenges they encounter. Digital tools can help firms improve processes and lower costs by adopting Enterprise Resource Planning (ERP) and/or Customer Relationship Management (CRM) systems, for instance, while the use of social media or websites, combined with big data analytics, enables businesses to reach new markets and gain better understanding of customer needs. These technology-induced improvements result in higher productivity, increased export and investment potential, and higher wages for employees. Digitalisation can also help enterprises better weather economic crises, as digitalised firms have proved more resilient to disruptions.

Digitalisation has already brought significant benefits to Moldova: ICT has been one of the most dynamic and fastest-growing economic sectors in the country over the past years, now amounting to 7.6% of GDP and close to USD 400m of export revenues. The Government of Moldova supported this rapid growth via dedicated policy actions, implemented in co-operation with a very active private sector. However, Moldovan SMEs in non-IT sectors remain stuck at the beginning of their digitalisation journey: in 2020, less than 17% reported having successfully integrated digital tools in their activity. This is closely linked to persisting skills shortages and mismatches, which pose, *inter alia*, a major barrier to SME digitalisation: 20% of firms see the lack of an adequately educated workforce as the main obstacle to doing business (vs. 11% in Europe and Central Asia), and employers cite the lack of skills and experience as the main cause of labour shortages. This issue particularly affects SMEs, which encounter more difficulties in attracting and retaining skilled workers, as well as up-skilling or reskilling their workforces.

Building on Moldova's existing policy efforts, the OECD supported the country in designing policies to equip individuals and firms with the digital skills they need, taking stock of the progress achieved and identifying key challenges. Looking at the four main categories of digital skills, the OECD provided policy analysis and recommendations to feed into the new National Digital Strategy and upcoming policy initiatives. The resulting report is built around three main components:

- **The institutional and policy framework for digital skills:** Moldova has been making significant efforts to develop digital skills. The topic has been included in several policy documents, such as the previous National Digital Strategy (NDS) *Digital Moldova 2020*, which set digital literacy as a key objective and resulted in improvements in the education system. Nevertheless, previous policy documents left some aspects of digital skills policies unaddressed, such as lifelong learning and digital business skills. The previous NDS reportedly suffered from implementation gaps due to a lack of project implementation capacity, economic and political instability, and insufficient budget allocations. The new *Digital Transformation Strategy 2023-2030* should therefore be more comprehensive and set clear policy objectives, associated with measurable targets and budgets, to improve both implementation and monitoring. As for the digital skills ecosystem, Moldova has drawn on a strong and institutionalised public-private co-operation, with private sector initiatives complementing the policy approach and offering a wide range of additional services. Future policy initiatives would benefit from a whole-of-government approach by involving all relevant governmental actors, including the Ministry of Labour and the National Employment Agency who have been less involved so far, and other stakeholders outside the government (e.g., employers and teachers). The collaboration among relevant stakeholders could be facilitated by the creation of a National Digital Skills and Jobs Coalitions, also with a view to bringing Moldova closer to EU standards and practices.
- **Measuring digital skills and anticipating future needs:** this report provides, *inter alia*, a gap analysis of Moldova against the indicators included in the OECD's Going Digital Framework, showing that Moldova has been collecting data on digitalisation, but that intelligence on digital skills remains limited. Skills anticipation tools also remain at a nascent stage, and firms still lack awareness of their skills levels and needs. Moving forward, Moldova could complement existing assessments with dimensions on digital skills (data collection, digital skills framework, self-assessment tool for digital skills), and strengthen skills needs anticipation practices, including at company-level.
- **Providing targeted support for SMEs to develop digital skills:** Moldova's SME agency ODA (formerly ODIMM) has been developing programmes to support SME digitalisation, which included training and mentoring components, and plans to incorporate digitalisation as a crosscutting component in existing trainings. Digital skills training opportunities were further enhanced by public-private sector co-operation. However, the range of support to improve SMEs' digital skills specifically remains limited. Moving forward, Moldova should assess the quality of trainings offered so far and step up these initiatives, while helping SMEs overcome barriers to digital skills development by raising awareness of the support available, strengthening incentives for on-the-job training, and building SMEs' capacity and learning culture through peer-learning between SME managers and entrepreneurs, including with the Moldovan diaspora.

Summary of recommendations: way forward

Objective	Recommendation	Way forward
Enhance policy effectiveness through a well-defined National Digital Strategy and an enhanced multi-stakeholder approach	Set clear objectives, measurable targets, and estimating costs for the new NDS	Ensure the NDS' comprehensiveness by extending the range of policy domains covered (e.g., life-long learning opportunities, digital security,...)
		Set clear policy objectives, associated with measurable targets and budgets
	Broaden and strengthen participation of all relevant stakeholders in digital skills policy design and implementation	Build a whole-of-government approach by increasing the involvement of all relevant governmental stakeholders, e.g., the Ministry of Labour and Social Protection and National Employment Agency
		Strengthen the links with stakeholders outside the government
Improve digital skills assessment and develop anticipation exercises	Complement existing assessments with dimensions on digital skills	Improve data collection on levels of digital skills
		Implement a digital skills framework to serve as a common reference
		Create a self-assessment tool for digital skills
	Strengthen skills needs anticipation practices	Further develop the labour market forecasting system to allow for more insights on digital skills, consistency, reliability, and longer-term projections
		Conduct skills-need studies of selected sectors
		Encourage skills assessment and needs anticipation at company-level
Strengthen support for SMEs' digital skills development	Step up training activities	Expand the range of topics covered by digital skills trainings
		Offer certification of the competences acquired on the basis of a digital competence framework
		Ensure quality of digital skills training by strengthening monitoring and evaluation practices
	Help SMEs overcome barriers to digital skills development	Raise awareness of the range of trainings available
		Strengthen incentives for on-the-job training

1 Setting the scene

The Republic of Moldova (Moldova) has made digitalisation a priority, making significant efforts over the past years to accelerate the digital transformation. However, SMEs have not yet fully reaped the benefits offered by digitalisation due to numerous factors, and notably skills shortages. This chapter outlines the latest economic developments in Moldova and in its SME sector, assesses the main achievements and remaining gaps in Moldova's digitalisation journey, and introduces the topic of digital business skills and their importance.

Moldova's economy has been significantly affected by successive crises

Economic growth is hampered by persisting vulnerabilities

Moldova recorded steady if unspectacular growth in 2016-19, with annual GDP growth averaging 4% (International Monetary Fund, 2022^[1]). However, it has been hit hard by the COVID-19 pandemic and Russia's large-scale aggression against Ukraine, which have exacerbated pre-existing vulnerabilities. The pandemic and a severe drought in 2020 further highlighted the fragility of Moldova's growth paradigm. It was one of the European countries hit most severely by COVID-19, which had a substantial impact on people and firms across the country. Aggregate mortality jumped 13.8% in 2020-21, while real GDP contracted 8.3% in 2020; it rebounded strongly, rising by 13.9% in 2021, but this was followed by the shock of Russia's invasion of Ukraine. Growth slowed sharply in the first quarter and appears to have turned negative in the second.

In 2021, wages, remittances, and social payments all increased significantly, contributing to a solid growth in private spending. Nonetheless, strong domestic demand and restocking following the shutdown weighed heavily on net export growth, although all sectors of the economy showed promising gains following the steep drop in 2020. After infections reached an all-time high in January 2022, Moldova began lifting restrictions in February 2022, and the number of cases has remained low since, despite the vaccination rate stalling at only 38.9% of the population (Center for Systems Science and Engineering, 2022^[2]). Since then, the economic shock of the war in Ukraine has taken its toll.

Moldova's growth paradigm is still based on remittance-induced spending, which, despite having fostered growth and poverty reduction, has become less sustainable. The drop in remittances, along with a diminishing and ageing population, has resulted in sluggish productivity growth, and a sizable portion of the lower-income population has grown reliant on pensions and social assistance (World Bank, 2022^[3]). The country is also heavily reliant on exports of basic agricultural products, which makes it vulnerable to weather conditions as well as food-price fluctuations in key export markets, chiefly the European Union (EU) and the Commonwealth of Independent States (CIS), which account for roughly 65 and 15% of Moldovan exports, respectively (International Trade Administration, 2021^[4]). These vulnerabilities were further enhanced this year as Moldova was adversely affected by more frequent and severe droughts, subsequent water shortages, rising prices for fertilisers, and trade disruptions due to Russia's full-scale invasion of Ukraine (Economist Intelligence Unit, 2022^[5]).

Additionally, shocks from Russia's invasion are reverberating across the region, posing a serious threat to Moldova's stability. While the economy is not expected to experience severe recession, growth stalled in 2022 (see 'Key economic indicators' above); the downward revision between pre- and post-war growth forecasts has been substantial, on the order of about 4.4% of GDP. As a result of the war, the country has received the greatest number of refugees per capita (over 479,500 Ukrainians crossed into Moldova by July 2022, i.e. 19% of Moldova's population), and a the equivalent of 3.3% of Moldova's population has settled permanently in Moldova (UNHCR, 2022^[6]) (OECD, 2023^[7]). This puts a significant strain on the economy and creates a significant need for humanitarian aid, including for housing facilities, food and medical products in the short-term. All of this will put extra strain on Moldova's state finances and intensify the country's need for external assistance. At the same time, Ukrainian refugees are often highly qualified, young professionals with high incomes and various professional backgrounds (OECD, 2022^[8]; Bank, Council of Europe Development, 2022^[9]). Thus, when successfully integrated, they have great potential to generate long-term return, contribute to growth in shared economic and social prosperity as well as to consumer demand (OECD, 2022^[8]).

Not surprisingly, the war has put pressure on prices and the exchange rate. The inflation rate reached 31.8% year/year in June 2022, and the lei fell against the dollar, though by around 6.6% to mid-June (National Bank of Moldova, 2022^[10]). The general government deficit is expected to widen significantly to 6.2% of GDP, as the government raises public spending to offset the public cost of the conflict in Ukraine.

The National Bank of Moldova intervened to limit the impact of the conflict on the lei by selling foreign currency, and it is expected to continue intervening in the currency market, as geopolitical tensions stay high.

Moldova imports around 67% of its energy needs (net). For gas for instance, which provides more than 90% of Moldova's power and heating, the country had only one supplier before the war, making it 100% reliant on Russia, and it faced significant hurdles because of the sharp increase in gas import prices from October 2021. Moldova's sole substantial domestic energy source is biomass, whose output has increased over the previous decade and provides for roughly 20% of primary energy. Moldova now suffers from disruptions to its traditional import networks for gas, via Ukraine and the Black Sea. Alternative methods and suppliers are more expensive, exacerbating growing expenses caused by an energy supply crisis that began in the winter of 2021/22.

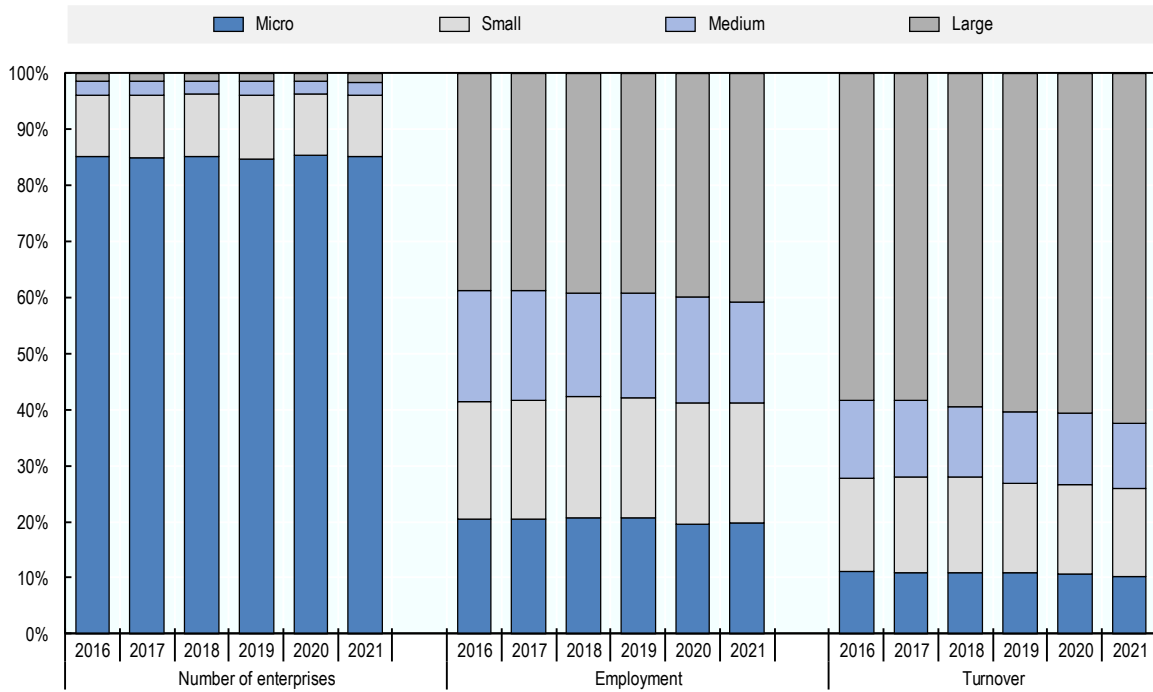
The ongoing conflict is also taking a toll on trade: Moldovan exports are expected to fall by USD 190 million (1.6% of GDP). This is largely due to disruptions in exports to Russia, which amounted to USD 276 million in 2021 (8.8% of total exports and 2.3% of GDP). Apples and pharmaceuticals, two of the main commodities exported to Russia (35% and 12% of exports, respectively), will be difficult to redirect to other markets: Russia took 98% of Moldovan apple exports, and there is little short-term opportunity for reorientation. As for pharmaceuticals, Russia accounted for half of all exports; other destinations are mostly CIS and Baltic countries, but trade routes might suffer from war-related disruptions (Movchan, Giucci and Busch, 2022^[11]). Particularly the closure of the Odesa port, a linchpin of Moldova's trade with both Ukraine and Russia, complicated Moldova's trade relations. It caused a shift of transport routes from the Moldova-Ukrainian to the Moldova-Romanian corridor, and Moldova's new reliance on the port of Constanța in Romania led to congestions at the border between the two countries, which might increase transportation cost (International Finance Corporation, 2023^[12]).

Since August 2021, a new government, led by the pro-EU Action and Solidarity Party (PAS), has embarked in an ambitious reform agenda, aimed at tackling corruption and improving transparency in governance (Economist Intelligence Unit, 2022^[13]). The country also benefits from a new USD 558 million IMF programme and should receive an additional EUR 150 million in EU macro-financial support (IMF, 2022^[14]) (European Parliament, 2022^[15]). However, as public spending increases to tackle the effects of the war, lack of fiscal space may hinder the government's capacity to pursue its reform agenda.

Despite considerable policy efforts, the potential of Moldovan SMEs remains untapped

In 2021, small and medium-sized enterprises (SMEs)¹ accounted for 99% of all businesses in Moldova – a share similar to that of EaP and EU peers –, with micro enterprises representing 85% of all firms, and 60% of total employment. However, while SMEs create over half of the value added in the EU and neighbouring countries like Armenia, Georgia, and Ukraine, in Moldova they only generate 39% of turnover (Figure 1.1). While the number of SMEs and their turnover have increased in absolute values over the past years, their shares in total enterprises, employment and turnover have declined slightly due to large firms' stronger growth – SMEs' turnover grew by 26% in 2015-2020, whereas large firms' registered a 42% increase. A persistent productivity gap between SMEs and large businesses can also be observed (with SMEs' average output per worker stalling at 42-45% of the large-firm average between 2015 and 2021), although micro, small and medium-sized firms have all increased their productivity since 2015. This productivity gap appears to be similar to Ukrainian values (45% in 2020), but wider than that of South Caucasian peers, with Armenian and Georgian SMEs' output reaching 75% and 69% in 2021, respectively. Moldovan SMEs are concentrated in the Municipality of Chișinău, which accounts for 61% of all SMEs, 62% of their turnover, and 55% of SME employment (Figure 1.2).

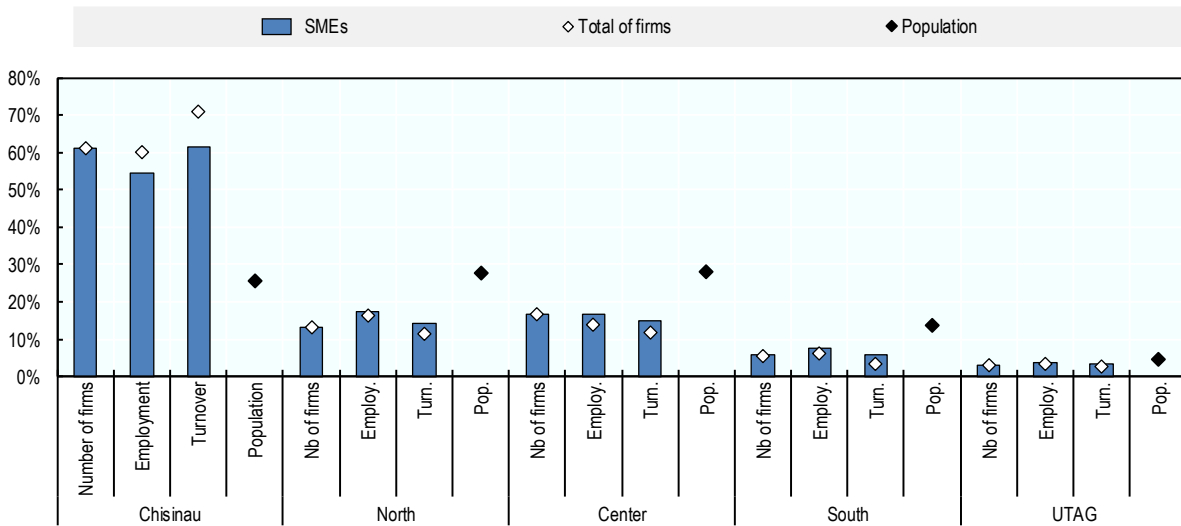
Figure 1.1. Overview of enterprise population in Moldova, 2016-2021



Note: Employment refers to the number of employees, as data on persons employed is not available.
Source: National Bureau of Statistics of the Republic of Moldova.

Figure 1.2. Regional breakdown of firms

Percentage of total, 2021

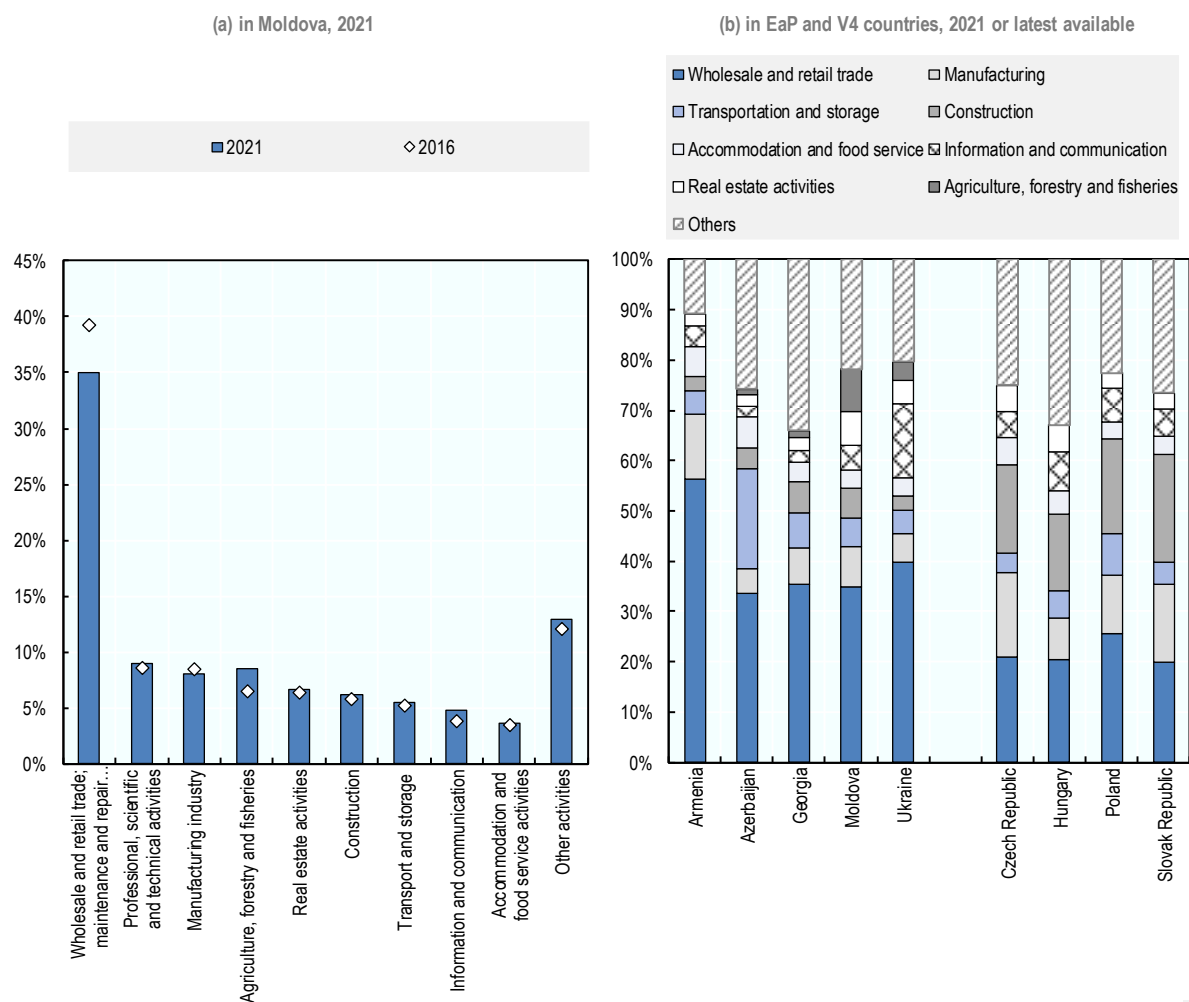


Note: Employment refers to the number of employees, as data on persons employed is not available. UTAG = Autonomous Territorial Unit of Gagauzia.

Source: OECD calculation based on data from the National Bureau of Statistics of the Republic of Moldova.

Despite encouraging growth, the potential of Moldovan SMEs remains untapped. They are still concentrated in low-value-added sectors such as retail and wholesale trade (including repair of vehicles) – which accounted for 35% of Moldovan SMEs in 2021, a number similar to the EaP median value, but higher than EU levels. However, their share in this sector has declined slightly since 2016 (-4 p.p.) in favour of higher value-added sectors such as ICT (+1 p.p.) (Figure 1.3).

Figure 1.3. Sectoral Distribution of SMEs



Note: **Left chart:** maintenance and repair correspond to that of motor vehicles and motorcycles. Other activities include administrative and support service activities, human health and social work, financial activities, education, arts, entertainment and recreation, water supply, sanitation, waste management, remediation, electricity, gas, steam, hot water and air conditioning supply, mining and quarrying, and public administration and defence. **Right chart:** 2021 data for EaP countries, 2020 data for Visegrád countries. Other activities include other activities cited in the left chart, and professional, scientific and technical activities. They also include agriculture, forestry and fisheries for Armenia and V4 countries, as the breakdown for that category is not available. Wholesale and retail trade also include maintenance and repair of motor vehicles and motorcycles.

Source: OECD calculation based on data from National Bureau of Statistics of Eastern Partner countries; Eurostat for V4 countries.

These transformations in the SME population have resulted in part from considerable policy effort over the past decade. Moldova has worked to create a strong institutional and policy framework for SMEs, drawing on its SME Development Strategy 2012-2020 and its highly active SME agency ODA². The successful implementation of the Strategy (82% of the last Action Plan in 2020) led to progress in the business

environment, with a reduction in burdensome regulation, and a facilitated access to financing through the 2018 law on non-bank credit institutions (Ministry of Economy and Infrastructure of the Republic of Moldova, 2021^[16]). Moreover, SMEs now benefit from a wider range of services: several initiatives have been implemented to support women's entrepreneurship such as the dedicated "Women in Business Programme" implemented by ODA, while a national agency for research and development has been established to foster innovation. More generally, ODA is implementing a wide range of programmes such as PARE 1+1 for returning migrants, a greening initiative, Start for Youth, Re-technologisation programme, and Growth and Internationalisation. These achievements are reflected in Moldova's progress in the latest SME Policy Index (SMEPI) (see Box 1.1).

Furthermore, the EU4Business initiative, assisting SMEs in Eastern Partner (EaP) countries³, has had a significant impact in Moldova. In 2019 alone, the EU supported 19 531 SMEs in Moldova, helping them to generate over EUR 1.99 billion in total turnover (EU4Business, 2020^[17]). The EU provides support under three main pillars: access to finance (A2F), business development services (BDS), and business enabling environment (BEE). A2F consists of services such as small grants or concessionary loans from national banks to SMEs. BDS include the establishment of business incubators for start-ups, as well as provision of direct advice and training to SMEs. BEE encompasses regulatory reforms and practices and encourages dialogue between public-private institutions, among others (EU4Business, 2020^[17]).

Box 1.1. SME Policy Index: Eastern Partner Countries 2020

The Small Business Act for Europe and the SME Policy Index

The SME Policy Index is a tool for analysing and tracking progress in the design and implementation of SME policies in comparison to EU and international best practices. It was developed by the OECD, the EU, the EBRD, and the ETF to assess the business environment for SMEs and provide relevant recommendations to address remaining challenges.

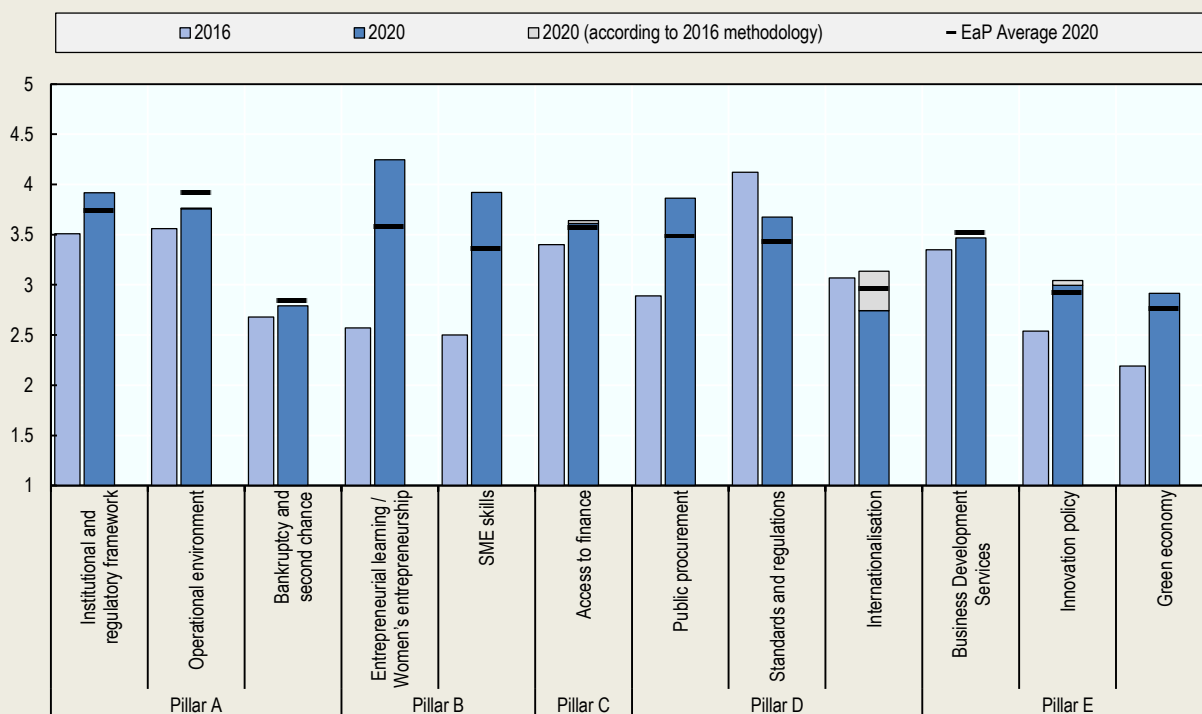
The Index is organised around five thematic pillars, which are subdivided into 12 aspects based on the 10 principles of the EU's *Small Business Act for Europe*. The Index's 3rd edition (released in 2020, following evaluations in 2012 and 2016) included a crosscutting level playing field pillar. A 4th edition is under preparation and will be based on a revised methodology, with a number of new questions on digitalisation.

2020 findings on Moldova

Moldova has made significant progress since the previous assessment in 2016. For instance, in 2016 the country scored only on 2 out of 12 dimensions a value above the EaP average, while in 2020 it performed better than the EaP average in 7 out of 12 dimensions. Its attempts to follow prior OECD recommendations particularly stand out in terms of entrepreneurial learning and women's entrepreneurship (+65.4% score increase), and SME skills (+56.8% score increase). Moldova's performance remains poor in standards and regulations as well as internationalisation, where more efforts should be made moving forward.

Figure 1.4. SME Policy Index scores for Moldova

Country scores by dimension, 2020 vs. 2016

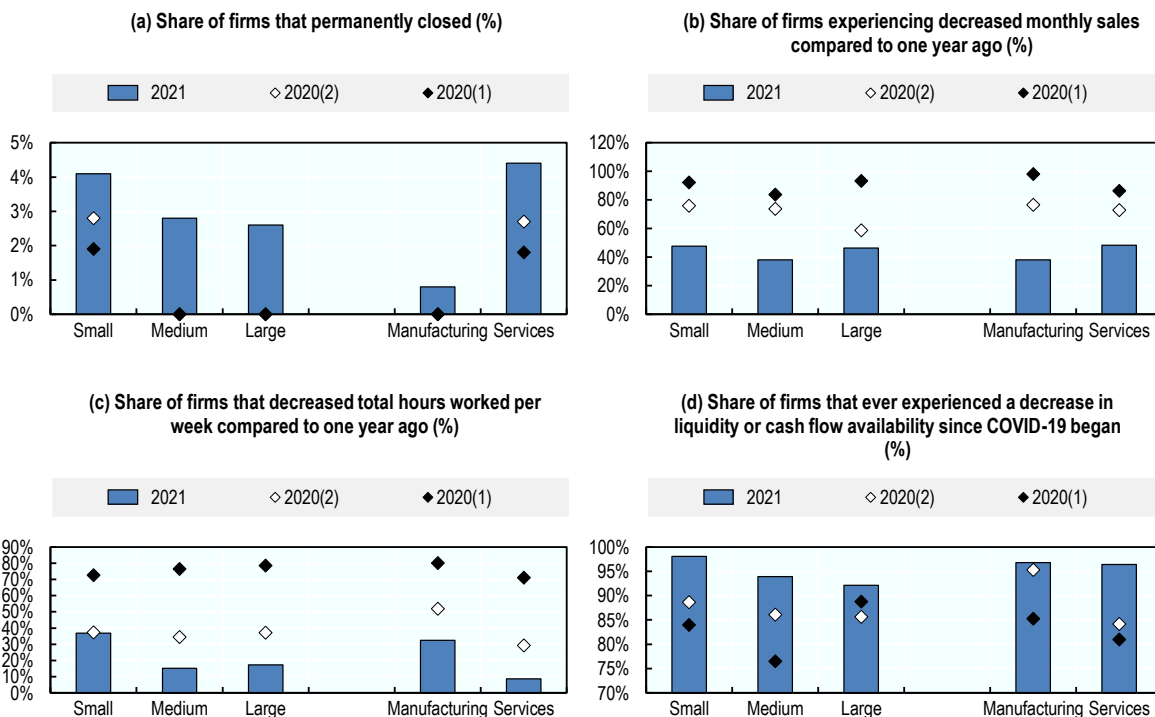


Source: (OECD et al., 2020^[18]).

However, Moldovan SMEs face additional challenges due to recent crises. In 2020-21, the COVID-19 pandemic took a significant toll. In a survey by the country's Labour Market Observatory in 2020, 70% of small and medium-sized enterprises reported being affected by the COVID-19 pandemic, and survey data from the World Bank on the impact on business operations by size class show the disproportionate impact borne by SMEs (Figure 1.5). This is partially explained by the over-representation of SMEs in the sectors hit hardest (wholesale and retail commerce and agriculture).

Figure 1.5. Impact of COVID-19 crisis on Moldovan SMEs

2020-2021



Note: 2020(1) corresponds to data from surveys conducted in June 2020; 2020(2) to surveys conducted October/November 2020; and 2021 to surveys conducted in May/June 2021.

Source: (World Bank, 2021_[19]).

Furthermore, the economic shocks generated by Russia's invasion of Ukraine are posing additional threats to Moldovan SMEs. Shipments to Russia, Ukraine, and Belarus have become significantly more difficult, owing to both reduced demand and logistical obstacles. The difficulties in securing payment particularly affect SMEs, as they may not have the same degree of financial reserves and credit as larger enterprises. Export-oriented SMEs in industry and agriculture, which account for a sizable share of Moldova's SME population (16%), are among the most vulnerable to trade disruptions. Moldovan fruit and nut producers seem to be amongst those most severely hit, as they mostly sell to Russia and Ukraine. However, the challenges for exporting SMEs go beyond commerce with Russia, Ukraine, and Belarus: more generally, firms also encounter issues in delivering goods, notably due to increasing prices of all major forms of transport, as well as soaring commodity and energy prices.

The structure of financing for SMEs triggers additional difficulties. External finance is a vital step for most businesses in order to invest, expand, and flourish. In emerging economies, a substantial proportion of loans are provided in foreign currency, especially US dollars and euros. This implies that the principal and

repayments for these loans are denominated in foreign currencies and must be paid in them. Lenders, particularly international lenders, prefer to lend in foreign currencies rather than local ones, as the latter are seen as less stable than the dollar and the euro, and local-currency lending rates are therefore higher (OECD, 2023^[7]). However, in times of exchange-rate volatility, dollarisation can make loan repayment problematic for borrowers. A sizable share of loans in the EaP area are in foreign currency – the OECD estimates that around 42% of Moldovan loans are in foreign currencies (National Bank of Moldova, 2022^[20]) (OECD, 2023^[7]).

Moldova has made digitalisation a policy priority

Digitalisation acts as a driver for structural transformation, economic diversification and recovery

The advent of digital technologies since the 1990s has triggered profound changes in economies and societies around the globe. “Digitalisation” refers to the process of using “digital technologies, data and interconnections, resulting in new activities or changes to existing ones”, while the term “digital transformation” encompasses the ensuing economic and social effects (OECD, 2019^[21]). Business adoption of digital tools varies widely, ranging from basic, established ones (e.g. broadband access, having a website) to more advanced and still emerging technologies such as artificial intelligence (AI), 5G networks and big data analytics.

Digitalisation offers numerous opportunities and benefits to businesses and individuals alike. In the case of Moldova, the emergence of the ICT (information, communication and technologies) sector has led to the creation of an estimated 22 000 jobs (World Bank, 2018^[22]). The sector now appears as the country’s most dynamic, representing 7.6% of GDP, with steadily increasing exports of IT and IT-enabled products and services reaching USD 397 million in 2021 according to the National Bureau of Statistics. This rapid growth of the IT industry in Moldova was facilitated by the development of Moldova’s IT Park, which offers a special fiscal regime to its residents. Beyond the ICT industry, digitalisation can foster structural transformation for firms in non-IT sectors, notably by creating new market opportunities and by fostering productivity growth and innovation. For instance, one recent study of firms in EU countries estimated that a 10-percentage point increase in the share of businesses using cloud computing was associated with a 2.3% increase in productivity after 3 years (Gal et al., 2019^[23]). Digitalised firms also tend to export and invest more and offer higher wages than non-digitalised ones (European Investment Bank, 2022^[24]).

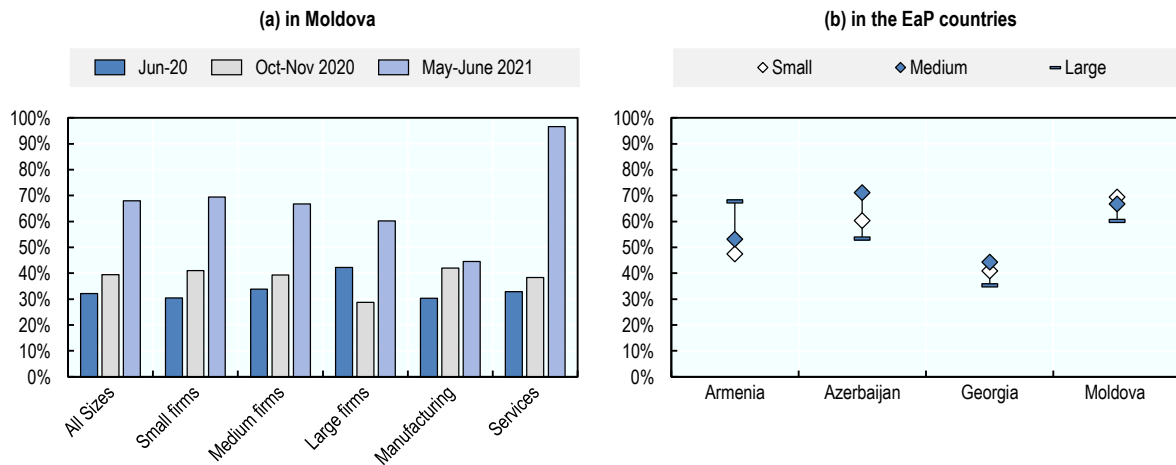
The ways firms can benefit from digitalisation are manifold: digital tools can help firms improve processes and lower costs by adopting Enterprise Resource Planning (ERP) and/or Customer Relationship Management (CRM) systems, for instance, while the use of social media or websites, combined with big data analytics, enables businesses to reach new markets and gain better insights into customer needs. The advantages firms derive from new technologies can vary considerably depending on the sector of activity – 3-D printing and robotics can be particularly relevant for manufacturing and construction, while the services sector will be more likely to benefit from platforms, big data and AI.

Recent crises have further highlighted the importance of the digital transformation. The COVID-19 pandemic has shown that digitalised firms have coped better with disruptions: they proved to be less likely to experience lower sales and more capable of organising work remotely and maintaining communications with staff, customers and suppliers (European Investment Bank, 2022^[24]). On the other hand, sanitary restrictions have provided additional incentives to accelerate the digital transformation, as governments, firms and individuals were forced to move operations online: by spring 2021, 68% of Moldovan firms had started or increased online business activity, with this share rising to 97% in the services sector – the highest shares reported in the surveyed EaP countries (Figure 1.6). This trend appeared stronger among smaller firms. Many firms switched to remote work and, even if figures decreased as containment

measures were lifted, about 13% of small firms in Moldova still operated remotely in Q2 2021 (World Bank, 2021_[19]).

Figure 1.6. COVID-19 impact on firms' online activity

Percentage of firms that started or increased online business activity in response to COVID-19 outbreak



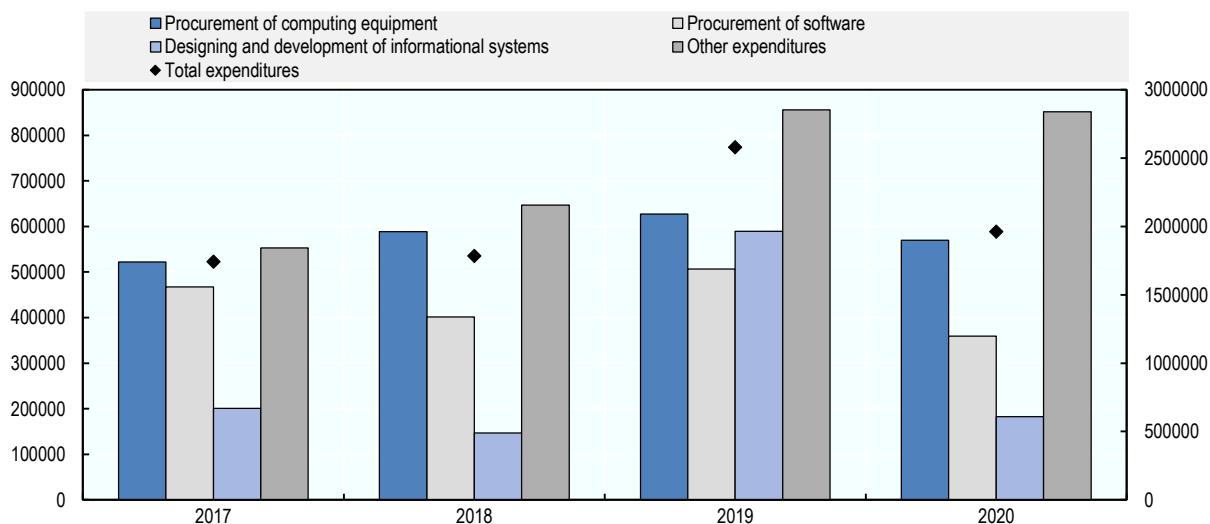
Note: **Right chart:** data from May-June 2021.

Source: (World Bank, 2021_[19]).

However, while COVID-19 emphasised the relevance of digitalisation for non-IT sectors and encouraged firms to engage in online operations, most companies are still at the very beginning of their digitalisation journey. This is reflected in the level of adoption of advanced digital technologies: surveys of EU countries reveal that, although firms made greater use of advanced digital technologies in 2020, figures have stalled since. The share of businesses implementing new advanced technologies even decreased in 2020 due to businesses delaying complex investment projects to focus on immediate needs (European Investment Bank, 2022_[24]). Similar data on businesses' adoption of advanced digital tools is not available for Moldova, but the country still reported a drop in IT expenditures in 2020 (Figure 1.7).

Figure 1.7. IT expenditures of legal entities in Moldova, by category

Thousand lei, 2015-2020



Note: Data include enterprises with 10 employees or more and public administrations.

Source: National Bureau of Statistics of Moldova.

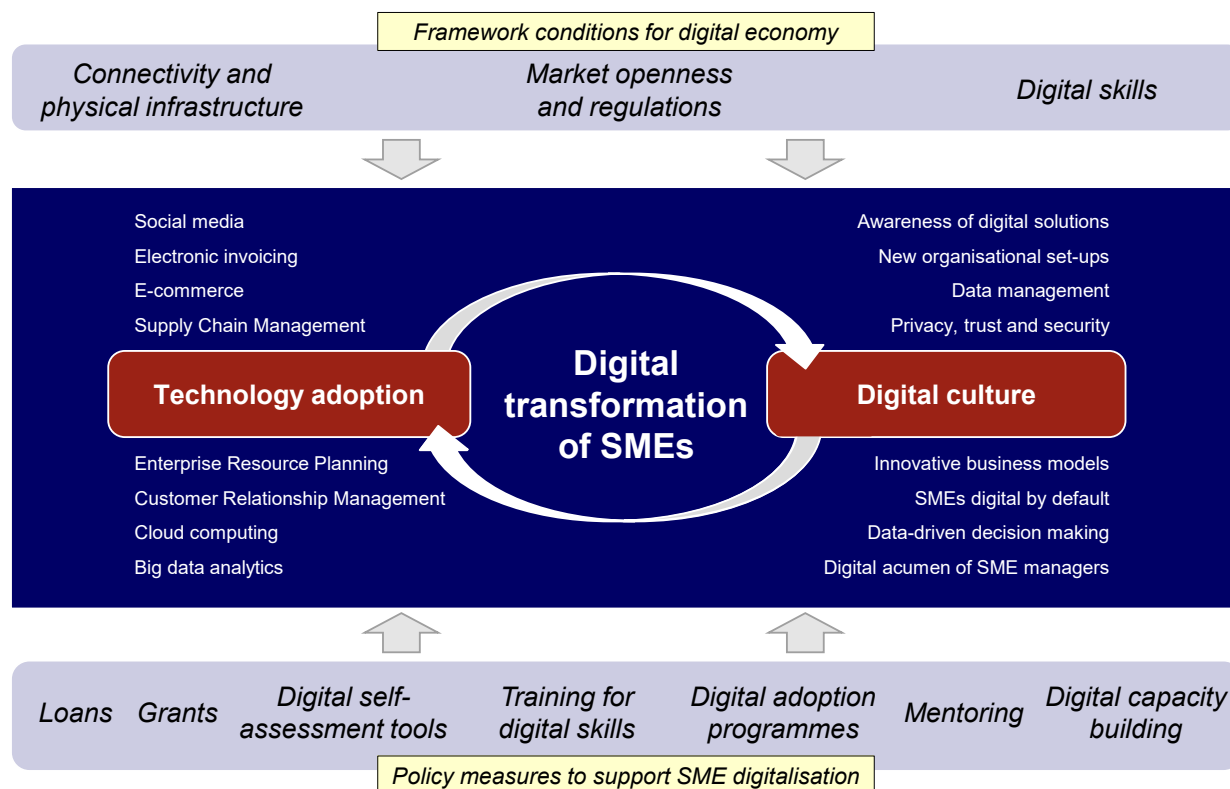
The COVID-19 pandemic has stimulated digitalisation but also widened digital divides: businesses that were already using advanced digital technologies were more likely to accelerate their digitalisation in response to the crisis, while non-digitalised firms appeared less able to transform and/or adapt (Rückert et al., 2021^[25]). This might have exacerbated the pre-existing gaps between SMEs and large firms: indeed, even prior to the pandemic, SMEs lagged behind in the digital transformation, being less likely to adopt digital tools than larger firms. These gaps between enterprise size classes become more evident as technologies are more advanced: larger businesses are about four times more likely than smaller ones to use big data analytics or AI for instance, but just twice as likely to resort to online bookings or orders (OECD, 2021^[26]). Such digital divides impede economic growth and risk increasing inequalities, as SMEs' lower levels of technology adoption prevent them from taking advantage of digitalisation's gains in productivity, competitiveness, wages, investment and innovation.

The impact of the COVID-19 pandemic will be long-lasting, and, as countries progressively move out of the sanitary crisis, digital tools should move from being an emergency solution to becoming a long-term investment to help businesses recover and increase both their productivity and resilience.

Moldova has worked to build sound framework conditions for the digital transformation

Policy makers have a major role to play to create a level playing field and foster an inclusive digital transformation. Well-designed policies can help individuals and firms tap into the potential of digitalisation and counter widening of inequalities. The OECD developed a framework for governments to support the digital transformation of SMEs, considering it as the combined process of technology adoption and development of a digital mind-set (OECD, 2021^[26]). This means that policy efforts should be directed both at improving framework conditions for a digital economy, as well as at developing dedicated support measures for SMEs (Figure 1.8). Skills are a crosscutting element: digital literacy among the population is a pre-requisite for a successful transformation, while measures to support training and retraining on digital skills should be a major component of SME digitalisation programmes.

Figure 1.8. Framework for supporting the digital transformation of SMEs in the EaP



Source: (OECD, 2021^[26]).

Well aware of the importance of digitalisation, the Government of Moldova has been working to create favourable framework conditions over the past decade through various strategies and regulations involving a range of stakeholders, including the Ministry of Economy and the Ministry of Education and Research. The appointment of a Deputy Prime Minister for Digitalisation since 2021 was a welcome step to develop an overarching approach to digitalisation and ensure co-ordination. This role has been merged in February 2023 with the Ministry of Economy, renamed Ministry of Economic Development and Digitalisation, thereby emphasizing the importance of digitalisation for Moldova's economy. In 2013, the country adopted a dedicated National Digital Strategy (NDS), *Digital Moldova 2020*, organised around three pillars – 1) expanding broadband connectivity; 2) fostering the development of digital content and e-services; and 3) strengthening ICT usage capabilities. The measures implemented enabled considerable improvements with regard to access to broadband, e-government services, and digital skills development in education systems. These efforts have been further supported by additional policy documents on specific aspects such as broadband, with the successful implementation of the *Broadband Development Programme 2018-2020*, and digital security, with the current *Information Security Strategy 2019-2024* that followed the *National Cybersecurity Program 2016-2020*. Table 1.1 below summarises progress and remaining challenges for each of the framework conditions – except digital literacy, for which the situation is detailed in the following chapters of this report.

Table 1.1. Overview of framework conditions for the digital transformation in Moldova

Policy aspect	Key policy achievements	Remaining issues
Broadband connectivity	<p>Improvements in broadband uptake:</p> <ul style="list-style-type: none"> - 17.8 fixed-broadband subscriptions and 58.8 mobile-broadband subscriptions per 100 inhabitants (+4.7 and +14.9 since 2015, respectively) - 64.6% of households having Internet at home (+17.7pp since 2015) <p>Moldova has the highest number of high-speed fixed broadband connections of the EaP region</p> <ul style="list-style-type: none"> - > 97% of subscriptions are above 10 Mbit/s, vs. 70% in the EaP on average) - 99% of the territory is covered by 4G <p>Broadband has become more affordable</p> <ul style="list-style-type: none"> - Fixed broadband prices per capita almost halved (from 4.78% GNI per capita in 2018 to 2.25% in 2020) - Mobile broadband prices per capita were divided by 4 (2.15% GNI per capita in 2018 to 0.48% in 2020) <p>Dynamic and competitive telecommunication market</p> <ul style="list-style-type: none"> - The sector is open to foreign direct investment: Moldova scores below the OECD in the OECD FDI Restrictiveness Index <p>Increased regional/international co-operation to reduce roaming tariffs</p> <ul style="list-style-type: none"> - e.g. MoU with Romania and Regional Roaming Agreement with EaP countries under the EU4Digital initiative 	<p>Levels of Internet penetration remain well below EaP and OECD values</p> <p>Persistent urban-rural gap despite improvements over the past years</p> <ul style="list-style-type: none"> - Only 56% of households in rural areas have access to the Internet (vs. 77% in urban areas) - This gap is among the widest of the EaP countries <p>Fixed broadband affordability is still an issue</p> <ul style="list-style-type: none"> - Despite being among the cheapest in Europe in absolute values, prices remain above the ITU's affordability target of 2% GNI per capita
Regulatory environment	<p>Independent National Regulatory Authority in place (ANRCETI – National Regulatory Agency for Electronic Communications and Information Technology), in line with EU standards</p> <ul style="list-style-type: none"> - Good performance in the ITU ICT Regulatory Tracker, ranked among top EaP performers <p>Legal framework for e-signatures; updated to harmonise standards to be compatible with EU eIDAS regulation recommendations</p> <p>Development of e-payment services</p> <p>Set of legislative amendments adopted in 2021 under the “Digitalisation Packages” to strengthen online interactions and services between government, businesses and consumers</p>	<p>Low level of e-signature usage</p> <p>Low level of uptake of online payments, partially explained by the lack of trust</p> <ul style="list-style-type: none"> - Less than one Moldovan out of 5 used the Internet to buy something online (2017) <p>Potential of the EU digital markets remains untapped</p>
Digital Security	<p>Efforts to build a legal framework for digital security</p> <ul style="list-style-type: none"> - Ratified the Budapest Convention on Cybercrime - Further efforts foreseen in the Information Security Strategy 2019-2024, notably to transpose the EU directive on security of network and information systems (NIS directive) <p>Increased co-operation between authorities and the civil society, as well as bilateral and regional co-operation initiatives</p> <ul style="list-style-type: none"> - E.g. dedicated working group within the GUAM (Organisation for Democracy and Economy Development) <p>Good performance in the ITU's Global Cybersecurity Index</p> <ul style="list-style-type: none"> - Moldova scores above the EaP average in all pillars - However, the breakdown by pillar shows disparities: good 	<p>Lack of a public authority responsible for digital security incidents and empowered with sufficient prerogatives, human and financial means</p> <ul style="list-style-type: none"> - A CERT exists (CERT-GOVMD) but has no special obligations towards individuals and businesses and only addresses threats directed at government services and structures <p>Legislation on digital security issues still at a very nascent stage</p> <ul style="list-style-type: none"> - 2009 <i>Law on Preventing and Combating cybercrime</i> should be updated - No legal obligation to report digital security incidents <p>More could be done in terms of awareness-raising</p>

Policy aspect	Key policy achievements	Remaining issues
	performance in terms of legal and co-operative measures, but weaknesses regarding the co-ordination institutions, policies and strategies; and capacity development (i.e. research and development, education and training programmes)	- Essential aspect to build citizens' trust in the digital age

Note: Data/indicators refer to 2020 unless specified otherwise.

Source: (ITU, 2022^[27]), (OECD, 2021^[26]), (ITU, 2020^[28]), (EU4Digital, 2020^[29]), (ITU, 2021^[30]), (World Bank, 2017^[31]), (United Nations Institute for Disarmament Research, 2021^[32]), fact-finding exercises conducted in Q2 2022.

In parallel, Moldova has been building an enabling environment for IT sector growth through both policy actions (embedded in the *Strategy for the development of the information technology industry and the ecosystem for digital innovation for the years 2018-2023*) and a very active private sector. The country now benefits from advanced infrastructure such as the IT Park launched in 2018, which offers a preferential fiscal and administrative regime for residents, but also FabLabs, incubators and accelerators (e.g. Dreamups, XY Partners) that foster innovation, including digital innovation. Although these mostly remain concentrated in Chişinău for now, regional incubators and innovation centres are being developed in the regions. These noteworthy developments largely rest on a growing public-private co-operation: the Association of Information and Communications Technology Companies (ATIC) has been actively involved in policymaking and contributes significantly to the sector's expansion, one of the most successful examples thereof being Tekwill, a public-private partnership providing – among other things – education and training facilities, business development assistance, and training programs⁴. More generally, these actions to foster digital business creation and support IT graduates fall within overall efforts provided to tackle Moldova's out-migration and loss of skilled human capital.

However, Moldova's digitalisation potential is still largely untapped. In 2020, less than 17% of SMEs reported having successfully integrated digital tools in their activity (ITU, 2021^[33]), but SME digitalisation – and the digital transformation of non-IT sectors in general – remains overlooked in policy documents. The above mentioned NDS, while acknowledging the lack of digital business skills⁵, did not include specific measures to support SME digitalisation, and the topic was not covered in the SME Strategy 2016-2020 either. Sector-specific measures have been taken to foster the digitalisation of agriculture, a field that has been growing sharply over the past years (see Figure 1.3), within the e-Agriculture Programme approved in 2013 and the Digital Map of Agriculture launched in 2015. ODA (formerly ODIMM) has also started implementing support programmes for SME digitalisation since 2020 (see Chapter 4). While these steps are very much welcome, a more comprehensive policy approach to overall business digitalisation is needed. A *Digital Transformation Strategy 2023-2030* is currently under preparation, along with the National Development Strategy Moldova 2030, which is to include ICT as a cross-cutting issue and is expected to set new objectives, e.g. on broadband connectivity. This new *Digital Transformation Strategy* will emphasise the topic of digital literacy but also digital business skills, with a view to improving firms' competitiveness.

Digital skills are a pre-requisite for a successful digital transformation

Digital skills offer numerous opportunities to individuals

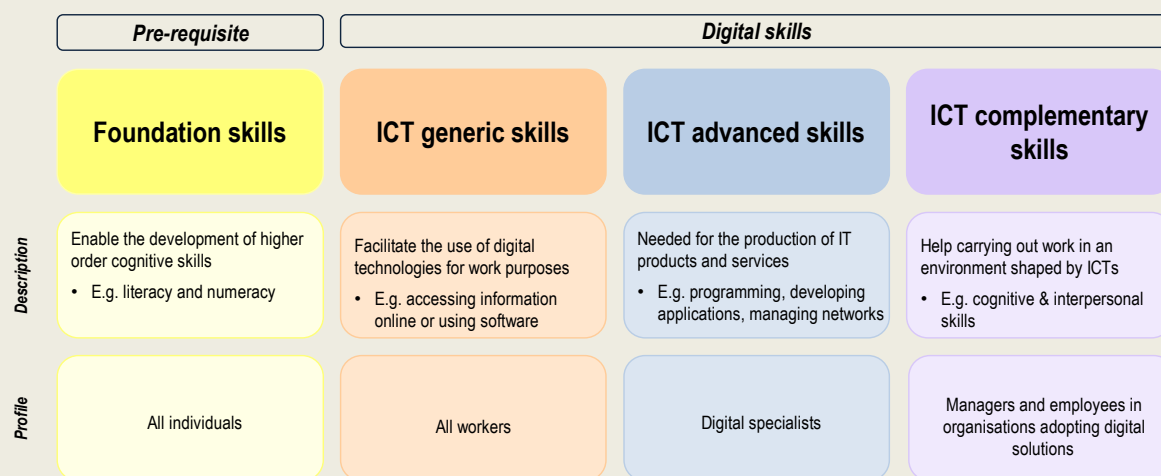
Digital skills are a cornerstone of the digital transformation. They are a precondition for the effective adoption of digital technologies, as they not only enable the use of the new features present in many digital tools but also enable individuals to understand where and why a particular technology or data could be most relevant. They can be broken down in four main categories, as explained in Box 1.2.

Box 1.2. Taxonomy of digital skills

The notion of digital skills encompasses a broad range of competences, and understanding them is the first step to designing adequate policies. *Foundation skills*, such as literacy and numeracy, are the prerequisite to acquiring knowledge about digital tools. Digital skills, in essence, can be broken down in three main categories, as outlined in Figure 1.9.

Generic skills designate the ability to make use of digital technologies and can be useful for the entire working-age population, enabling them to make the most of new technologies, in both work and daily life. The use of advanced technologies and the production and development of IT products and services require *advanced skills*, i.e. the competences developed by IT specialists. In order to ensure a successful technology adoption and fully reap the benefits thereof, these hard skills need to be combined with softer ones – so-called *complementary skills*, such as information processing, the ability to adapt and solve problems, and interpersonal skills.

Figure 1.9. Taxonomy of digital skills



Source: Adapted from (OECD, 2016^[34]) and (Grundke et al., 2018^[35]).

The EU also developed a more granular framework for digital competences, called DigComp, structured around five areas – information and data literacy, communication and collaboration, digital content creation, safety, and problem solving.

Fostering the development of this skillset requires a comprehensive approach, encompassing the formal education system, on-the-job training for generic and advanced skills, and life-long learning opportunities to help reskilling and up-skilling of workers.

The gradual introduction of digital tools throughout economies and societies has been affecting the labour market, providing strong incentives for individuals to equip themselves with digital skills and stay abreast of the changing nature of work. Automation is gradually making some jobs redundant: in Moldova, for instance, an estimated 22% of workers are at high risk of losing their jobs because of automation (ETF, 2021^[36]). This is partially due to the high concentration of the labour force in sectors most at risk, such as agriculture, fisheries and mining – a field where the number of SMEs grew by almost 50% between 2016 and 2021 – and manufacturing (19% of total employment in 2021).

In parallel, the demand for digital skills is increasing sharply, as the digital era creates new job opportunities: the number of employees in computer programming in Moldova has almost doubled in six years⁶, and 39% of new jobs created in EU countries between 2011 and 2017 were for ICT-specialists or ICT task-intensive occupations (Gierten et al., 2021^[37]). Digital literacy is also increasingly sought in non-IT firms, including skills complementary to technology adoption, such as creative thinking and problem solving. Digitally literate individuals will therefore adapt more easily to job market requirements. Moreover, the ability to use ICT grants access to higher wages: not only do employees in the IT sector benefit from attractive salaries (EUR 1600 for a software developer vs. the average monthly earnings of EUR 400 in 2020 in Moldova), but in the labour force at large, wage returns to ICT skills are twice as high as those to numeracy, management and communication skills (Grundke et al., 2018^[38]).

Skills shortages remain a major barrier to SME digitalisation

From the firm's point of view, digital skills development brings significant benefits to businesses as well. Several studies have shown that the availability of a digitally literate workforce and investment in skills training are associated with higher levels of digital technology adoption. The presence of employees with above-average skills in a firm increases its likelihood of adopting digital tools and making investments in that direction. For instance, good management practices, ICT skills, life-long learning and on-the-job training are positively correlated with the adoption of CRM and cloud computing (Andrews, Nicoletti and Timiliotis, 2018^[39]). Conversely, skills shortages may hinder technology adoption and prevent firms from tapping into the benefits of digitalisation (Gal et al., 2019^[23]).

Moreover, skills shortages in firms that lack the means and attractiveness to recruit high-skilled workers often result in lower profitability (Sorbe et al., 2019^[40]). This issue particularly affects SMEs, which encounter more difficulties in attracting and retaining skilled workers, as well as up-skilling or reskilling their workforces. In Moldova, almost one firm in five cites the lack of adequately educated workforce as the main obstacle to doing business, against 11% in Europe and Central Asia on average (World Bank, 2019^[41]). Businesses also report the lack of qualified and experienced applicants as the main cause of labour shortages (Labour Market Observatory, 2022^[42]). This skills shortage is further aggravated by SMEs' limited capacity to provide training to their staff. Indeed, smaller firms face a certain number of barriers to training compared to larger firms: they often lack financial and human resources as well as time and awareness of the skills needed and/or of the support programmes and tools available. They might also suffer from higher opportunity costs of training, notably because of their smaller number of employees (OECD, 2021^[43]). Finally, the increased relevance of digital technologies in the wake of the pandemic might exacerbate the skills shortage. The lack of appropriate skills and training undermines SME competitiveness, which in turn risks further widening the productivity gap between SMEs and larger, more digitally advanced companies.

Although Moldova has little data on the level of digital skills among its population and businesses, reports and policy documents have underlined the increasing ICT skills gap and low level of digital literacy in the country. This partly explains the limited uptake of digital tools mentioned above (Government of Moldova, 2013^[44]) (World Economic Forum, 2019^[45]) (World Economic Forum, 2020^[46]). As part of policy effort to accelerate the digital transformation, the Government seeks to address this issue in future policy plans and initiatives.

This report aims at supporting this endeavour by reviewing existing policy approaches to digital business skills in Moldova, with a particular focus on SMEs, looking at 1) the current institutional and policy framework; 2) the tools to measure and anticipate digital skills needs; and 3) the provision of specific support for SMEs, it then provides country-tailored recommendations in each of these directions.

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Notes

¹ SMEs refer to micro-, small-, and medium-sized enterprises. The basis for size classification is the total number of persons employed, which includes the self-employed. Micro-enterprises are defined as firms with 1-9 persons employed; small enterprises: 10-49; medium enterprises: 50-249; and large enterprises: 250 and more.

² Formerly ODIMM, Organisation for the Development of Small and Medium Enterprises Sector – the latter has been reorganised and renamed ODA, Organisation for Entrepreneurship Development, in July 2022. The reform mostly aims at improving corporate governance, in line with OECD principles.

³ Eastern Partner countries refer to the six countries of the EU Eastern Partnership: Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova, and Ukraine. Belarus has however suspended its participation on 28 June 2021, and OECD co-operation with the country is suspended since 8 March 2022.

⁴ This initiative is further detailed in Chapter 2 below – see Box 2.1.

⁵ Digital business skills refer to the skills firms need to successfully undergo a digital transformation. These are further detailed in Box 1.2.

⁶ The annual average number of employees in computer programming reached 9,903 in 2020, up from 5,065 in 2014, according to the National Bureau of Statistics.

2 Creating the institutional and policy framework for digital skills

This chapter analyses the institutional and policy framework implemented by the Republic of Moldova (Moldova) to develop digital skills, looking at 1) the measures foreseen in previous policy documents and their implementation, and 2) the actors involved in digital business skills promotion, from government bodies to stakeholders outside the government, including the private sector.

Developing a policy agenda for digital skills

Digital skills are a cross-cutting topic, involving education, labour market and research and innovation policies, and therefore require comprehensive approaches and concerted efforts for effective cross-government co-ordination (OECD, 2019^[1]). Such policy efforts should ensure the development of foundation, generic and complementary skills at all education levels, and the opportunity to develop advanced ones, as well as learning systems that are both life-long (i.e., accessible by any citizen regardless of their age), and life-wide (i.e., enabling the recognition/certification of competences developed outside formal education systems) (OECD, 2020^[2]). Policies should therefore be comprehensive, with clear objectives, budgets, allocation of responsibilities among stakeholders and monitoring systems to ensure effective implementation and conclusive results.

The Government of Moldova has included the development of digital skills in several strategies. The NDS Digital Moldova 2020, adopted in 2013, acknowledges the increasing ICT skills gap and the low level of digital skills among the population, teachers, public sector employees and businesses, and sets improving digital literacy as one of its three key objectives (Government of Moldova, 2013^[3]). The topic is also embedded in the *Strategy of Development for the IT Industry and Digital Innovation Ecosystem 2018-2023*, and the Ministry of Education complemented this approach with additional documents such as the *Education Development Strategy 2014-2020*.

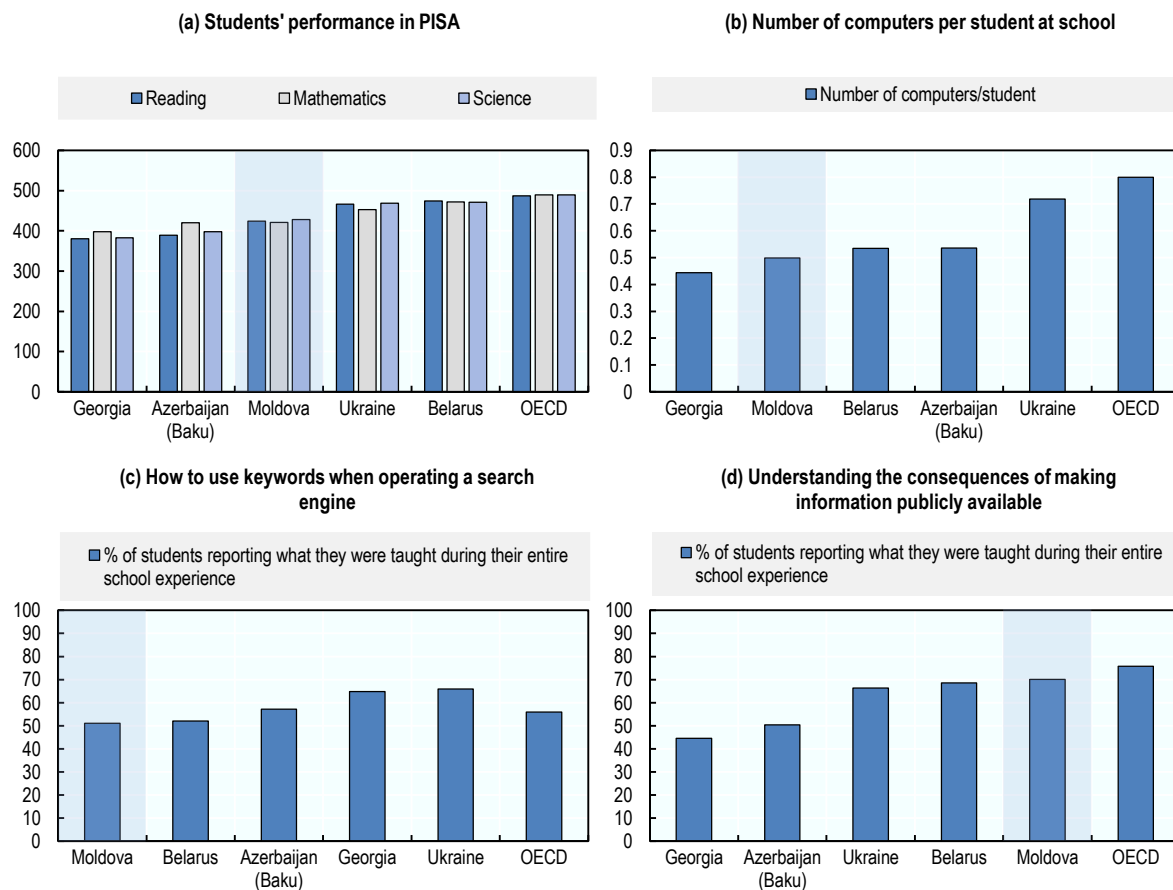
These efforts have borne fruit, especially with regard to innovations in the education system. A range of changes has been introduced to emphasise the digital component in the school curriculum at all levels. A digital education module is now mandatory in primary school, for instance, and standards on digital competences have been introduced to recognise learning outcomes for primary, secondary and high school students. The measures, implemented at national level, might help address digital gaps among children of different genders, socio-economic status and locations. Moreover, they have been accompanied by the establishment of online platforms and efforts to address the shortage of IT equipment in schools, as well as significant developments in teacher training – a major yet often overlooked aspect of digital skills policies (OECD, 2019^[1]), e.g., through courses, the development of digital competence standards, and of a methodology to ensure continuous professional training.

Complementary skills are also taken into account, with initiatives such as “Tekwill in every school”, that develop interactive digital content and introduce new pedagogical methodologies to develop critical thinking, creativity and interpersonal skills. Finally, the optional IT courses now available in middle and high schools on various topics (e.g., web design, C/C++, AI, entrepreneurship) and career guidance events organised with ATIC are a welcome development to help generate interest for IT topics and raise awareness of digital tools. Moldova has also worked towards building a talent pool of IT specialists through scholarships, updates to university curricula and the involvement of industry professionals as faculty teachers. However, structured initiatives to foster lifelong learning opportunities and the development of digital business skills beyond the ICT sector remain at a nascent stage.

Despite these achievements, the provisions on digital literacy, e-skills and digital inclusion planned in the previous NDS reportedly suffered from implementation gaps. These areas lacked sufficient institutional support and project implementation capacities, which impeded their realisation. Economic and political instability, with successive changes of government and rising inflation, led to delays. Insufficient budget allocations were also an obstacle to implementation. Moreover, the concrete impact of the strategy is yet to be assessed: with regard to education systems, for instance, the OECD PISA 2018 results show Moldova lagging OECD peers in terms of number of computers per student at school, STEM performance and basic digital skills such as using keywords when operating a search engine (Figure 2.1).

Figure 2.1. Moldova's performance in PISA

2018



Note: No data for Armenia. **Figure (a)**: score out of 600 points.

Source: (OECD, 2018^[4]).

Promoting a whole-of-government approach and stakeholder co-ordination

Moldova's governance of digital skills policies is characterised by strong private-sector involvement. A recent example of co-operation mechanisms is the creation of an *ad hoc* consultative body, the Digitalisation Committee "iConsiliu", formed within the Economic Council under the Prime Minister in October 2021. This platform enables public and private actors to gather and discuss draft projects and legislation, such as the amendments adopted in 2021 under the "digitalisation packages", thereby involving them in the design of policies and programmes. ODA also benefits from having private sector representatives sitting on its governing body, which enables them to propose and promote policy initiatives (OECD et al., 2020^[5]).

More generally, the private sector has been a driving force for digital skills initiatives: ATIC acts as a key player, providing a wide range of services, such as training courses and awareness-raising campaigns. The Association also implements one of the flagship public-private partnerships, the ICT Centre of Excellence Tekwill, launched in 2017, which carries out various initiatives to support digital skills development among Moldovans of all ages, social and professional backgrounds (see Box 2.1). Future policy plans include the replication of this model outside the capital city, notably in Cahul, Comrat and Balti.

This close public-private co-operation allows not only tapping into the expertise of the private sector when delivering support, but also nurturing policymaking with views from businesses, which helps ensure a close match between needs and service delivery. Moreover, the Tekwill project contributes to the development of the digitalisation ecosystem by encouraging sectoral collaboration between representatives of IT and traditional industries, e.g. agriculture (ITU, 2021^[6]).

The digital skills ecosystem has been further strengthened on the back of the COVID-19 outbreak. New resources were developed (e.g. online platforms Education Online and Invat.Online), and the government sought to mobilise private actors to provide *ad hoc* solutions (e.g., mobile operators offered free internet connection to teachers). In addition, public-private co-operation was formally enhanced through several memoranda of understanding, e.g., between the Ministry of Economy, the Ministry of Education, ATIC and Tekwill on the *Development of Digital skills, IT and STEM throughout life* in 2020, but also with private firms such as Google and Microsoft, to support the use of digital technologies in schools. Moldova is also increasingly co-operating with international partners such as the EU, USAID and UNDP, and has a good record of leveraging donor support for digital skills projects.

Box 2.1. Tekwill

Project Overview

Tekwill was created as a national public-private collaboration between the Government of Moldova, USAID, Microsoft, and IBM to overcome the human capital gap and assist the growth of the entrepreneurial ecosystem by fostering digital skills development and uptake of industry-disrupting technologies. This is reflected in the project's name: "Tek" stands for technology and "will" for our future.

Implemented by ATIC, the Tekwill Centre of Excellence of the ICT sector is a 4 000m² hub in the centre of the Technical University of Moldova (UTM) and provides tools for continued growth, including co-working spaces, tech laboratories (IoT, 3D printing), training, information, networking and community events to improve IT excellence in Moldova.

The Tekwill project pursues three main objectives:

- Develop the capacity of the ICT related workforce;
- Encourage entrepreneurship and provide support for the private sector;
- Ensure regional expansion of Tekwill's initiatives.

Overall, Tekwill intends to increase the availability of skills required in the IT sector, therefore producing high quality, well-paying employment and preventing talented young people from emigrating.

Selected initiatives

Tekwill has contributed to advancing digital literacy in Moldova in several ways, including:

- Introducing digital education in all primary schools in Moldova;
- "Tekwill in Every School Program": aimed at providing Moldovan pupils with equitable educational possibilities to develop job-relevant digital skills, it is primarily a comprehensive schedule of extracurricular courses geared for students aged 13 to 19. The initiative provides free access to innovative digital resources for students and teachers, as well as teacher training. Attended by over 25,000 students so far, these courses are expected to be followed by 50,000 students by September 2022.
- Tekwill Academy, to foster reskilling and upskilling of adults by offering technical courses on specific topics, taught by ICT professionals from Moldova and abroad; a version targeting children exists under the name Tekwill Academy Kids, which has already been attended by 9,000 children;
- Women in Online Work, for women inclusion: in co-operation with Helvetas Swiss Interco-operation and the Chamber of Commerce and Industry of Moldova, it provides trainings on digital skills specifically tailored for women. It was already completed by over 400 women, including in rural areas.

Furthermore, Tekwill has substantially helped the development of Chişinău's status as an IT-focused city. Chişinău was chosen the Southeast Europe City of the Year for its support of the IT sector in 2020 and won an award at the "CEE Business Services Summit and Awards" held in 2020 in Warsaw, Poland.

Overall, Tekwill reports having provided about 3 million hours of training and education programs on digital literacy and digital innovation, followed by about 185,000 participants, and helped recipient start-ups raise over USD 14 million.

Source: (Tekwill, n.d.^[7]), fact-finding exercises conducted in Q2 2022.

While Moldova benefits from these successful examples of public-private partnerships and consultations, stakeholder involvement could be further strengthened. As digital skills policies are linked to several policy areas, a whole-of-government approach is needed to ensure complementarity between policy documents and co-ordination between the stakeholders involved (OECD, 2019^[1]) (OECD, 2020^[2]). In Moldova, the main stakeholders on digital skills policies are the Deputy Prime Minister for Digitalisation, appointed in 2021 to act as a co-ordinator and merged with the Ministry of Economy¹ in February 2023; the Ministry of Economy; the SME agency, ODA; and the Ministry of Education for aspects linked to formal education. The Ministry of Labour and Social Protection and the National Employment Agency (*Agenția Națională pentru Ocuparea Forței de Muncă*, ANOFM), however, have played a limited role so far. Yet digital skills are a pressing topic for labour market policies given the changing nature of jobs and increasing skills mismatches outlined in Chapter 1 above and in the OECD Skills Outlook 2019 (OECD, 2019^[1]). More generally, the country could still work on building a whole-of-government approach and improving employers' and teachers' involvement in policy design.

In order to facilitate collaboration among all relevant stakeholders, the majority of EU Member States have implemented national coalitions for digital skills and jobs as part of the New Skills Agenda for Europe (European Commission, 2022^[8]). These bring together public and private actors, as well as business and education providers, who can then develop concrete measures together. Table 2.1 compares the actors involved in such coalitions, the dimensions they cover, and the level at which Moldova is currently addressing them.

Table 2.1. Stakeholders involved and topics covered in Moldova's approach to digital skills

	Element from the EU guidelines on national digital skills coalition	Status	Details
Stakeholders	National, regional and local authorities	◐	Strong involvement and leadership from the Ministries of Economy and Education, and ODA Involvement of local authorities to be enhanced in the upcoming NDS Limited participation from the Ministry of Labour
	Education and training providers	◐	Successful partnerships between universities and private companies, pilot project Startup Academy in Universities Higher Education Institutions could be further mobilised, esp. in regions, notably for life-long learning and knowledge exchange and collaboration
	ICT and ICT-using associations	●	Close co-operation with ATIC Involvement of ICT-using associations such as APIUS (light industry employers association) and ArtCor (centre for creative industries)
	Civil society representatives	◐	Some NGOs involved, e.g. to provide training programs for teachers
	Public and private employment services	○	ANOFM is not involved in digital skills policies
Dimensions	Digital skills for ICT professionals	◐	Efforts to create a talent pool of IT specialists, but studies report persisting labour shortages in the field
	Digital skills in education	●	Range of policy measures implemented to develop generic and complementary skills at all education levels
	Digital skills for the labour force	◐	Actions implemented to improve career advice and guidance (e.g. Tekwill "Choose a career in IT" campaigns), but upskilling and reskilling opportunities remain scarce
	Digital skills for all citizens	◐	Some initiatives exist for life-long learning (e.g. Tekwill Academy), but they remain scattered

○ Not involved/covered ◐ Partially involved/covered ● Involved/covered

Source: OECD analysis based on OECD fact-finding exercises in Q2 2022 and EU guidelines (EU4Digital, 2020^[9]).

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Notes

¹ The Ministry became the Ministry of Economic Development and Digitalisation following this merger.

3 Measuring digital skills and anticipating future needs

The rapidly changing nature of jobs strongly impacts skills demand, with some competencies becoming redundant while others are gaining traction. These shifts call for forward-looking measures. This chapter therefore looks at the uptake of tools by the Republic of Moldova (Moldova) to assess the current and future supply of and demand for skills, and of systems to identify and anticipate skills shortages. Such instruments are crucial to help countries best tailor skills policies to evolving needs and tackle skills mismatches, and firms better identify workforce and training needs.

The advent of new technologies and their rapid spread across economies and societies have been accompanied by an increasing demand for digital skills. As the nature of jobs is swiftly changing and skills needs are evolving: recent LinkedIn data estimated the skillset for jobs to change by approximately 50% by 2027, with some competences becoming redundant in the age of automation and others, particularly digital ones, gaining traction (Roslansky, 2022^[1]). These trends have resulted in skills shortages in many countries and point to the need for policies to adapt: the World Economic Forum, for instance, estimated that over 1 billion people would need to be reskilled by 2030, especially in the areas of ICT and interpersonal skills (Zahidi, 2020^[2]). In that regard, systems to assess the current and future supply of and demand for skills, and to identify and anticipate skills shortages, are a crucial tool to help countries best tailor skills policies to evolving needs and tackle skills mismatches. They can also help firms better identify workforce and training needs (OECD, 2021^[3]). The following section will therefore look at 1) digital skills measurement and 2) digital skills needs anticipation.

Measuring digital skills through internationally comparable data

Data and data governance are critical for evidence-based policymaking. In the case of digitalisation, measuring digital skills, i.e. producing and collecting information on the level of digital skills among citizens and firms, is essential in identifying new demand for skills, designing adequate policies, monitoring the implementation of measures and programmes, and adjusting them as needed (OECD, 2019^[4]). It can benefit several policy domains, from employment to education and migration policies. Many countries have implemented a wide range of tools to this end, although these vary in scope, definitions used, frequency, and methods (OECD, 2016^[5]).

Moldova collects data on digitalisation, but intelligence on digital skills remains limited

Moldova has reported an increasing ICT skills gap and low levels of digital literacy in previous policy documents, such as the NDS, but data on digital skills among population and firms, as well as data on uptake and use of technology, remain quite scarce. The National Bureau of Statistics (NBS), the body responsible for data collection, issues information on legal entities that have personal computers or web pages. However, this information does not give a precise understanding of businesses' usage, as the datasets include public institutions but exclude micro firms, and there is no breakdown by type of entity. The NBS also started collecting data on the number of entities using ERP and CRM software, as well as social media, but these lack breakdown by type of entity (legal form, size). Some additional insights on the use of the Internet in the general population are provided by international databases such as that of the ITU, but, unlike Azerbaijan, Belarus and Georgia, Moldova is not included in the dataset on ICT skills by skills level (ITU, 2022^[6]). There is no information available on the use of advanced digital tools by firms (e.g. AI and big data), or on the level of digital skills across the private sector's workforce. However, a study was recently conducted for the EBRD.

The Digital Moldova 2020 Strategy had envisaged additional efforts in the area of skills assessment, setting it as a policy objective (Government of Moldova, 2013^[7]). To this end, the Ministry of Education developed digital competence standards for students and teachers inspired by international standards such as that of the EU, as well as a methodology to evaluate teachers' digital skills. Assessments of teachers' digital skills can be conducted upon request; however, they have not been carried out so far. According to information provided by the Ministry of Education, students' digital skills were not yet assessed either¹.

Moreover, the EU4Digital initiative² has worked on a *Methodology for Measuring and Forecasting Digital Skills Gaps in the EaP Countries* and published a dedicated study in June 2020 (EU4Digital, 2020^[8]). The latter includes stocktaking of digital skills indicators available in each EaP country across several dimensions, covering the use of Internet services and the purpose thereof, the adoption of digital technologies and ICT in education, and ICT use and skills in the workforce. The results show that Moldova

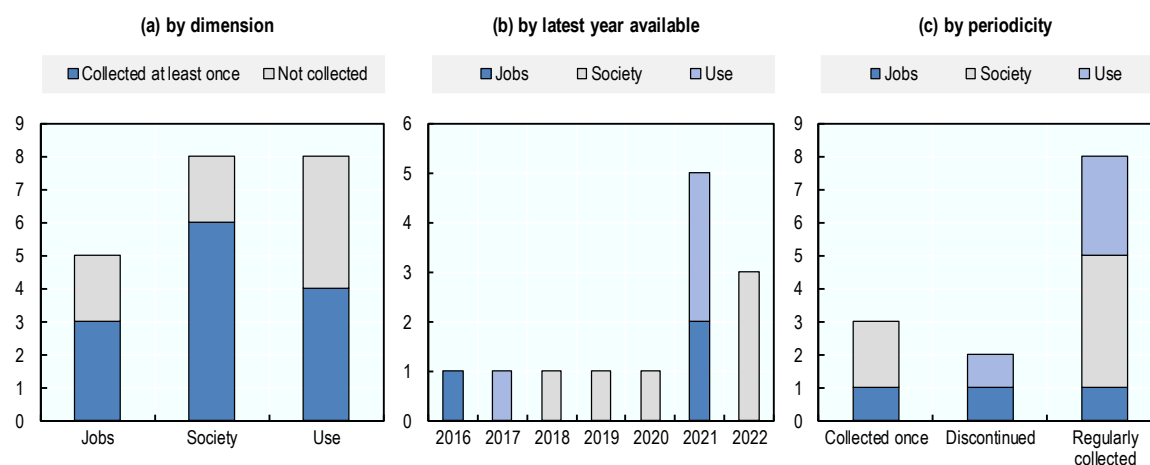
is already gathering most indicators in ICT in education (4 out of the 6 benchmarked), but that the country is, overall, lagging its regional peers, collecting only 8 indicators out of the 56 included in the study.

Gap analysis

In order to refine the analysis of Moldova's approach to digital skills measurement and better understand where the country stands in comparison to EU and OECD peers, the OECD has carried out a gap analysis against the indicators included in the OECD's Going Digital Framework. The framework was launched in 2017 to help governments and stakeholders develop a comprehensive approach to navigate the digital age (see Box 3.1). It assesses the digital transformation through seven interrelated policy dimensions, each of them associated with a set of indicators.

Moldova's available data were benchmarked against the three dimensions of the Framework covering digital skills indicators, i.e. Jobs, Use, and Society. The exercise revealed that Moldova is already collecting equivalent or similar data for more than half of the indicators included in these three dimensions. Slightly more than half of the indicators available are recent, i.e. available for the last two years, and regularly collected (Figure 3.1).

Figure 3.1. Number of indicators available



Note: An indicator is counted as "collected" if data is available for at least one identical or similar indicator. Figure (c): an indicator is "regularly collected" if data is collected at least once every two years.

Source: OECD analysis.

Regarding the Jobs dimension, Moldova offers insights on ICT specialists by tracking the number of STEM graduates, but data on the labour market remain scarcer and rather limited to the ICT sector (Table 3.1). While Moldova gathers data on legal entities' expenditures on staff IT training, there is no information on the number of firms providing training or on the beneficiaries. Moreover, Moldova is close to OECD standards in the Society dimension, as it already collects more than half its indicators, thereby providing intelligence on the use of Internet by age, sex and income. The country's lower score on the Use dimension reveals the lack of information on digital tools' usage beyond the Internet, especially with regard to firms. However, ODA's self-assessment questionnaire for firms provides some additional insights on businesses' use of digital technologies (see below).

Table 3.1. Data available for Moldova vs. OECD Going Digital indicators

✓ Same indicator available O Similar indicator available ✗ Unavailable

Dimension	Indicator	Status	Source	Latest year available	Latest value available
Jobs	New tertiary graduates in science technology engineering and mathematics as a percentage of new graduates	✓	UNESCO	2021	25%
	ICT task-intensive jobs as a percentage of total employment	O	World Economic Forum	2016	ICT knowledge-intensive jobs: 28.7%
	Digital-intensive sectors' share in total employment	O	NBS	2021	ICT sector's share of total employment: 5.4%
	Workers receiving employment-based training as a percentage of total employment	✗	n/a	n/a	n/a
	Public spending on active labour market policies as a percentage of total employment	✗	n/a	n/a	n/a
Use	Individuals using the Internet (% of population)	✓	ITU	2017	76%
	Share of individuals using the Internet to interact with public authorities	✗	n/a	n/a	n/a
	Share of Internet users who have purchased online in the last 12 months	O	World Bank	2021	People who used a mobile phone or the Internet to buy something online (% age 15+): 25.1%
	Share of small businesses making e-commerce sales in the last 12 months	✗	n/a	n/a	n/a
	Share of businesses with a web presence	✓	World Bank*, NBS	2020	44.6%
	Share of businesses purchasing cloud services	✗	n/a	n/a	n/a
	Average monthly mobile data usage per mobile broadband subscription, GB	✓	ANRCETI	2021	4.8 GB
Society	Share of adults proficient at problem-solving in technology-rich environments	✗	n/a	n/a	n/a
	Disparity in Internet use between men and women	✓	ITU*, BATI	2022	-6 pp.
	Percentage of individuals aged 55-74 using the Internet	✓	UNFPA Moldova MHLSP	2020	47.2%
	Top-performing 15-16 year old students in science mathematics and reading	✓	OECD	2018	1% in reading and science, 2% in mathematics (vs. 9%, 7% and 11% for OECD average)
	Women as a share of all 16-14 year-olds who can program	✗	n/a	n/a	n/a
	OECD Digital Government Index	O	UN	2022	UN E-government Index: 0.73
	Percentage of individuals who live in households with income in the lowest quartile who use the Internet	✓	BATI	2021	49%
	Percentage of individuals who use digital equipment at work that telework from home once a week or more	✗	n/a	n/a	n/a
E-waste generated, kilograms per inhabitant	✓	Global e-waste monitor	2019	14	

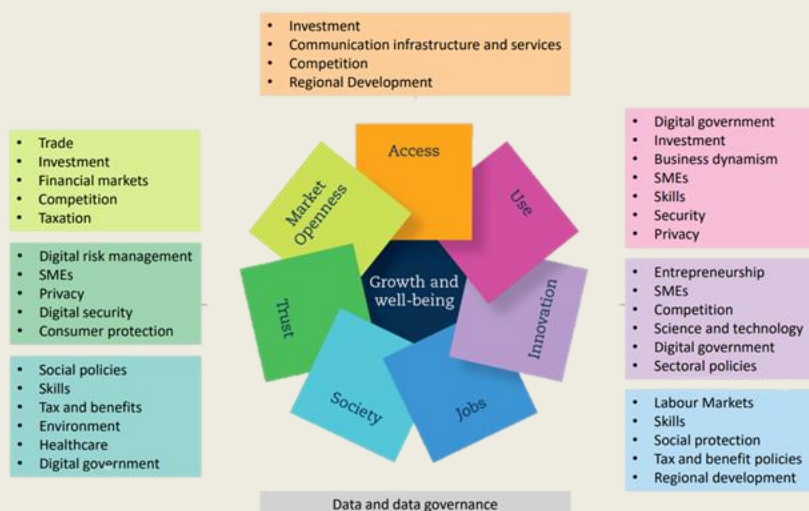
Note: ANRCETI = National Regulatory Agency for Electronic Communications and Information Technology of the Republic of Moldova; NBS = National Bureau of Statistics of the Republic of Moldova; BATI = Bureau of Audit and Circulation of Internet; UNFPA = United Nations Population Fund; MHLSP = Ministry of Health, Labour and Social protection of Moldova. The Global E-Waste Statistics Partnership is based on data from UN University, ITU, and International Solid Waste Association. *Included in the Network Readiness Index. For the share of internet users purchasing online, BATI regularly provides data on the number of online shoppers in the country.

Source: OECD analysis.

Box 3.1. The OECD Going Digital framework

The Going Digital Framework assists governments in assessing their digital progress and developing relevant strategies. Its seven policy dimensions and related indicators bring together interconnected factors to create a comprehensive policy approach that balances the benefits and hazards of digital transformation. The OECD currently collects and visualises data for all 38 OECD Member countries.

Figure 3.2. OECD Going Digital Integrated Policy Framework



Source: (OECD, n.d.^[9]).

Access to communications infrastructures, services, and data across territories underpins the digital transformation. This dimension also assesses investment and competition, which can boost access.

Use: The benefits reaped from digital technology and data by individuals, businesses, and governments is dependent on their successful use, on investment and business dynamism, as well as skills.

Innovation: Innovation can foster job creation, productivity, and long-term growth. It can be supported by, among others, research on science and technology and competition policies.

Jobs: As labour markets change, policy makers must guarantee that digital transformation results in more and better employment through relevant policies, including on social protection and tax systems.

Society: This dimension looks at the complicated and interconnected impact digital technologies have on society, and at how stakeholders can act to tap into opportunities while tackling risks.

Trust: Use of digital tools is contingent on trust, which can be fostered by increasing digital security through digital risk management, privacy and consumer protection.

Market openness: Digital technologies alter the way businesses compete, trade, and invest; market openness is therefore essential to support the digital transformation.

Source: (OECD, n.d.^[9]), (OECD, 2020^[10]).

The lack of common understanding on digital skills impedes comparability with peers

The gap analysis above shows that the benchmarked indicators collected by Moldova mostly come from international sources, which allows for comparability between countries. Yet beyond these selected examples, data collected by the National Bureau of Statistics on digitalisation lack a common methodology, not only with the OECD and EU, but also with EaP peers. For instance, Moldova does not have a definition of “digital-intensive sectors” like the OECD but publishes information on employment in the ICT sector. As for comparability with EaP neighbours, EU4Digital highlighted the differences in data collection methodologies used for digital skills related statistics (EU4Digital, 2020^[8]). Common definitions and methodologies would help provide better insights into the state of play in Moldova and hence greater evidence for policy-making, in light of other countries’ situation.

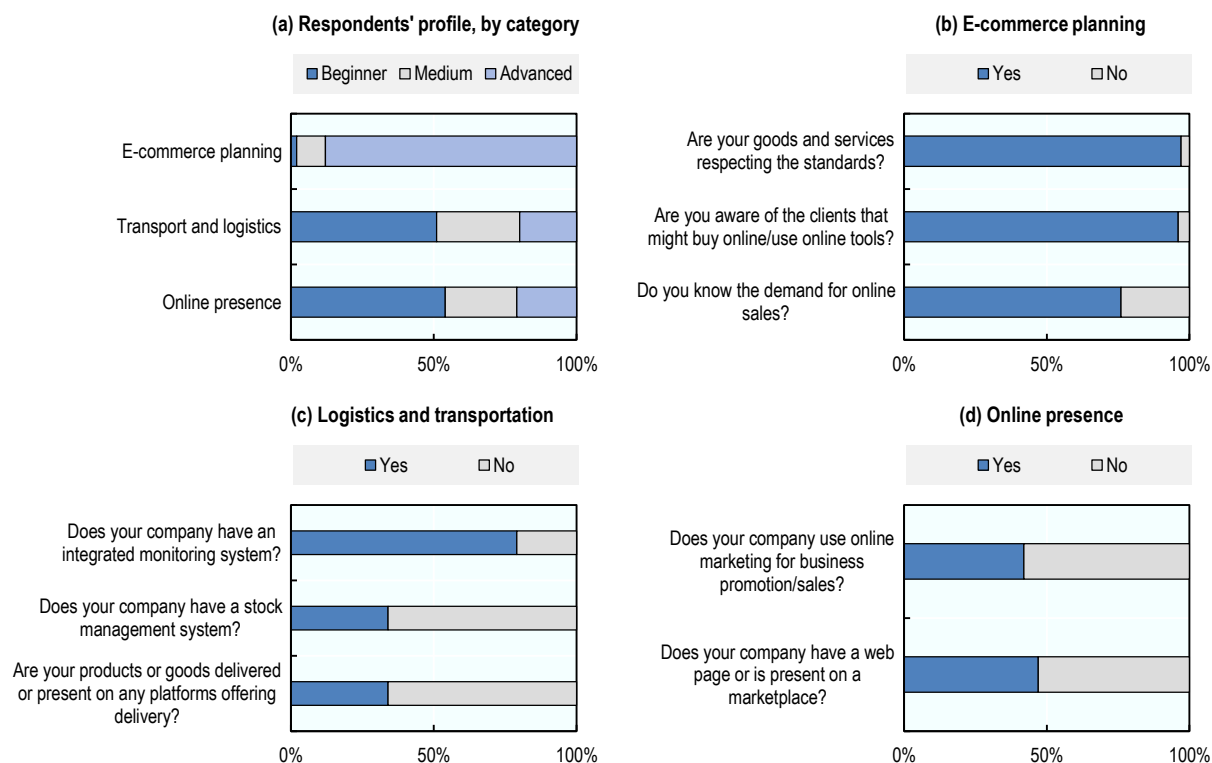
More generally, one of the main challenges to skills measurement is the lack of clear, agreed-upon definition of the different job-relevant competencies. This renders the assessment more difficult and costly, and it also creates a potential gap between the skills provided by the formal education system and actual labour market requirements. This issue is widespread and also has an adverse impact on the assessment of skills needs: over three quarters of OECD countries use qualification levels or fields of study to measure skill needs, while only about a third look at specific skills (OECD, 2016^[5]). Qualification levels and fields of study can be helpful in estimating skills needs, but they are most relevant where a qualifications framework and/or well-defined and regularly updated occupational standards are in place, offering a clear link between formal qualifications and occupational needs. The ANOFM publishes statistics on job vacancies on a regular basis, which helps with monitoring the demand for IT specialists, for instance. However, no description of the job positions is mentioned; the insights this monitoring exercise provides into the labour market, including the need for generic digital skills, could be refined by defining and analysing the specific qualifications and competencies required for a given position, including digital ones.

Self-assessment tools can provide additional insights

Additional data sources exist to provide insight into digital skills needs, such as self-assessment tools. The latter are designed to help individuals evaluate their competences, thereby informing their choices e.g., to undertake additional training and/or relevant steps for career advancement. They can be useful for graduates and the unemployed to help them transition to new jobs, as well as for SME managers and employees to understand the skills they need to go digital. These questionnaires, often offered by employment or SME support agencies, also enable providers to gather data from the respondents’ answers. In the case of Moldova, ODA (ODIMM at that time) has implemented in 2020 a self-assessment tool for SMEs to help them understand their level of digital maturity via questions on different aspects (online presence, e-commerce, client services, digitalisation of processes, and transports and logistics) and identify their needs for training and advisory services. The monitoring of the participants’ results offers valuable insights into Moldovan firms’ uptake of digital tools (e.g. CRM, website) as well as their Internet usage (e.g. use of online marketing in business promotion, customer strategy). However, there is no such tool to help citizens, including SME managers and employees, evaluate their digital skills.

Figure 3.3. Results of ODA's self-assessment tool

Percentage of respondents, 2021



Note: Data as of September 2021.

Source: ODA.

Forecasting digital skills needs via anticipation tools

Skills assessment and anticipation exercises can be defined as activities to estimate future skills needs in the labour market “in a strategic way, using consistent and systematic methods” (ILO, 2015^[11]). They are a useful practice for policy makers to understand the evolution of skills demand and supply and to implement adequate measures to prevent and/or tackle skills shortages and mismatches, both in terms of formal education, life-long learning and support services to firms (OECD, 2016^[5]). These exercises are particularly relevant with regard to the digital transformation, given the rapid pace of technology developments and their impact on economies and societies.

In practice, these tools to anticipate skills needs are manifold, ranging from simple surveys (among employers and/or school/training graduates) to quantitative projections based on macroeconomic modelling. Table 3.2 below provides an overview of the methods that can be used and their respective advantages and disadvantages. A combination of different approaches, sometimes both quantitative and qualitative, is recommended to get a thorough understanding of current and upcoming trends (ILO, 2015^[11]). Most OECD countries have more than one type of exercise in place (OECD, 2016^[5]). Forecasting exercises, i.e. using the information available to estimate future trends, including skills needs, mismatches or shortages (CEDEFOP, 2008^[12]), are particularly widespread, being used in about 90% of OECD countries surveyed in 2016. Foresight exercises, which take a qualitative approach gathering relevant stakeholders to come up with future scenarios, identify priorities and imagine policy actions in response

(ILO, OECD, 2018^[13]) (ETF, 2014^[14]), are less common, with only about half of OECD respondent countries reporting their use (OECD, 2016^[5]).

Table 3.2. Selected skills anticipation tools

Tool	Description	Advantages	Challenges	Uptake in OECD countries
Skills surveys	Surveys conducted on employers and employees of enterprises.	Relatively easy to develop and implement; If the survey is well-designed, provides facts rather than perceptions; Fosters direct user/customer involvement.	Need a substantial sample to get valuable insights, yet risks of low response rates; Can be subjective / inconsistent; Might emphasise isolated cases.	68% of surveyed OECD countries
Quantitative forecasting models / projections	Usually implemented at national level, they consist of macroeconomic modelling based on time series on labour market by sector/occupation/qualification and population.	Comprehensive system; Consistency allowing for better comparability over time; Transparency and preciseness.	Costly and lengthy implementation; Does require expertise in modelling and large, consistent and reliable datasets; Limited number of quantifiable aspects.	57% of surveyed OECD countries
Qualitative methods involving experts	Based on inputs from and exchanges between experts, they can take different forms: focus groups, roundtables, expert workshops and opinion surveys, “Delphi” style methods.	Holistic approach (i.e. encompasses a wide range of factors); Does not require data collection; Fosters direct involvement and endorsement of stakeholders.	Does require technical expertise in qualitative methods; Entails risks of being non-systematic and/or inconsistent; Entails risks of subjective and/or partial results.	64% of surveyed OECD countries
Sectoral studies	These can vary in methodology, using sector-specific data from different sources as well as expert inputs.	Offers a holistic view of the sector; Provides detailed information on sector specificities.	Partial; Entails risk of inconsistencies across sectors.	71% of surveyed OECD countries
Foresights and scenario development	Such exercises enable stakeholders to imagine future scenarios, making use one or several of the above mentioned tools such as quantitative forecasts, labour market information, sector-specific data.	Holistic approach; Fosters direct involvement and endorsement of stakeholders; Allows for greater depth and consideration of uncertainties.	Does require technical expertise in moderating foresight sessions and engaging stakeholders; Entails risks of being non-systematic and/or inconsistent; Entails risks of subjective and/or partial results.	n/a for OECD countries
Graduate tracer studies	Data collection on career pathways of recent school and/or training graduates.	Relatively easy to develop and implement; Relatively low cost; Provides feedback to improve the quality of training programmes.	Limited insights into specific skills needs; Limited to early market experience; Entails risks of low response rates.	n/a for OECD countries

Note: Values for uptake in OECD countries correspond to author’s calculations based on the OECD 2016 survey conducted on 28 countries.
Source: Adapted from (ILO, OECD, 2018^[13]) and (OECD, 2016^[5]).

Moldova has successfully implemented some of these anticipation initiatives, although they remain rather scattered, lack consistency, and rarely focus on digital skills.

Moldova benefits from a labour market forecasting system

Although Moldova, like other EaP countries, does not have a specific digital skills forecasting system, it benefits from a labour market forecasting system, appearing as the main anticipation tool implemented so

far. The latter is conducted by the Labour Market Observatory (LMO), which is part of the ANOFM and was created in 2018 in an effort to improve analyses and forecasts (ETF, 2021^[15]). The LMO prepares yearly short-term labour market forecasts to anticipate the requirements of the labour market and to reduce the gap between the training offered by education institutions and other service providers and the actual needs of economic agents. These analyses are based on a survey of 3000 economic agents, including SMEs and large firms, consisting of 20-30 questions on the evolution of workforce needs, economic activity and investment priorities. They provide valuable information on labour market trends, broken down by region, highlighting obstacles to doing business and upcoming priorities. The LMO also produces a Barometer for Employment Opportunities, which offers forecasts on upcoming surplus and shortage occupations at national and regional level.

However, the forecasting system focuses on professions/occupations and does not provide insights into future needs for specific skills. The data collected lack the detail and reliability needed to allow for well-grounded projections (ETF, 2021^[16]). With regard to digital skills, the system in place warned of the lack of IT specialists (software engineers, programmers), reflecting the increasing shortage of advanced digital skills: programmers were among the three fastest-growing occupations in 2021, and their profession is expected to experience the second largest labour shortage in the short-term (Labour Market Observatory, 2022^[17]). Yet, the study does not give insights on firms' need for generic and complementary digital skills. The introduction of a few questions on which skills employers deemed most important in the last edition is a welcome improvement in that sense. Moving forward, this new section should be further developed and forward-looking, to allow for reliable projections.

More generally, while the production of these forecasts is a considerable achievement, the analysis could be improved in several ways. In terms of methodology, the forecasts are confined to the short-term (i.e. the next 12 months), and the sample of enterprises surveyed only includes a limited number of small and medium enterprises; it excludes micro firms – although these account for the majority of Moldovan businesses (see Figure 1.1). The methodology varies from year to year in terms of number of questions and areas covered: the 2021 edition entailed a section on the impact of COVID-19 on economic activity, while the 2022 publication introduced the above-mentioned section on specific skills needed by enterprises (Labour Market Observatory, 2021^[18]) (Labour Market Observatory, 2022^[17]). With regard to content, the forecasting system could benefit from more detail – e.g., on in-house trainings provided and planned, or on foreseen investments (those in technologies are considered together with equipment and space).

Ad hoc surveys have helped understand digital skills needs

Moldova has also implemented several surveys, run by its National Bureau of Statistics. The latter conducts annual labour force, job vacancy and enterprise surveys, but these lack indicators on digital skills. These surveys occasionally included a graduate tracer study called “School-to-Work Transition Survey”, supported by the ILO *Youth Employment* project (National Bureau of Statistics, 2015^[19]). It was, however, discontinued in 2015. *Ad hoc* surveys focusing specifically on skills have been occasionally conducted by international organisations such as the World Bank in 2017, which offered a detailed overview of skills gaps (Rutkowski, Levin and Bargu, 2017^[20]). ATIC has also implemented surveys on digital skills needs a couple of times over the past ten years, in an effort to anticipate and map skills demand. One of the studies, conducted in 2021 and focusing on ICT students and graduates, highlighted the critical shortage of ICT specialists and the mismatch between the skills taught in the university curriculum and employers' needs (both ICT companies and firms in “traditional” sectors). Over 80% of ICT graduates applying for junior positions or internships cannot pass the qualification tests, and complementary skills such as problem-solving are widely overlooked (FIDD, ATIC, 2021^[21]). The report also underlines the lack of monitoring of graduates' employment and career development, as well as of assessment of the quality of ICT studies.

Although no standardised and regular assessment is yet in place, these achievements and the stakeholders' willingness, including from the private sector, to move forward on these topics provide a good basis to build on.

Firms still lack awareness of their skills levels and needs

Finally, skills assessment and anticipation tools can be used not only to inform policy making and help design support programmes, such as trainings; they can also be highly relevant for firms themselves. Indeed, one of the main obstacles to businesses' digitalisation is their lack of awareness of their needs, both in terms of digital equipment and skills for managers and employees (OECD, 2017^[22]). Simple tools, such as online self-assessment questionnaires, can help them carry out a diagnosis of their immediate needs, but additional options exist to further support executives in managing their workforces effectively and anticipating upcoming skills shortages. These remain rarer than other above-mentioned tools, especially for SMEs (OECD, 2016^[5]); but some initiatives are increasingly being developed, e.g., by the European Digital Innovation Hubs (EDIHs) at the EU level. However, such exercises have not been implemented in Moldova, and ODA's 2020 self-assessment tool has been discontinued.

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Notes

¹ Information collected through OECD fact-finding exercise carried out in Q2 2022.

² The EU4Digital initiative aims at helping EaP countries tap into the potential of the EU Digital Single Market and accelerate their digital transformation. Launched by the European Commission in 2016, this umbrella initiative carries out a number of projects on different policy aspects such as telecom, trust and security, e-trade, digital security, and eSkills. For more information, see <https://eufordigital.eu/>.

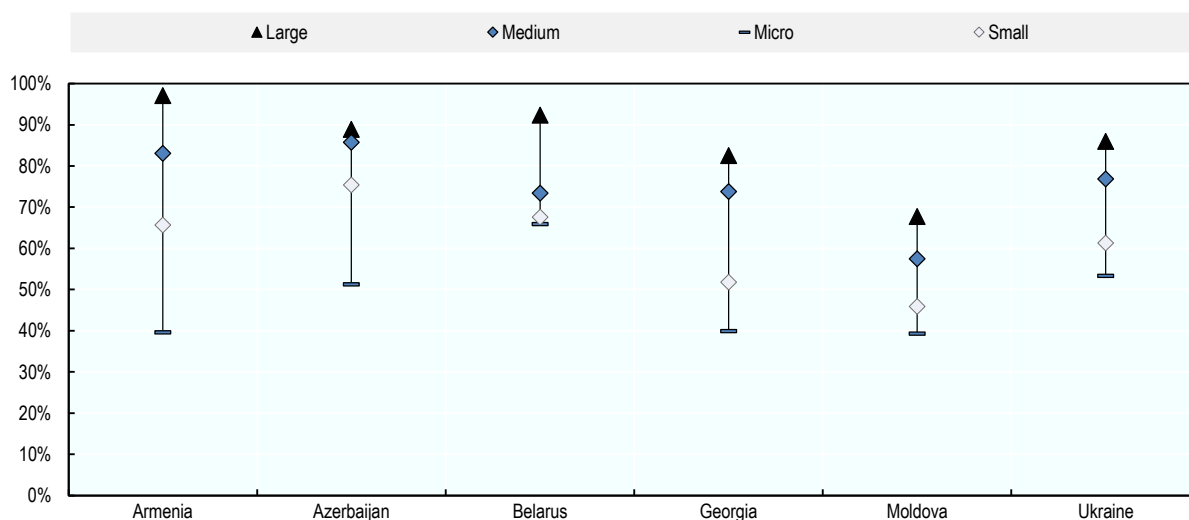
4 Fostering digital skills development among SMEs

SMEs lag behind large firms when it comes to digital transformation compared. These divides are largely due to their lack of skills to use and embed digital tools in business processes. This chapter provides an assessment of the Republic of Moldova (Moldova)'s SME-specific support to digital skills development, both in terms of training opportunities and targeted measures to tackle obstacles to SMEs' digital skills development.

SMEs lag in the digital transformation. They usually have lower levels of uptake of digital tools compared to larger firms, preventing them from tapping into the benefits offered by digitalisation in terms of productivity, competitiveness and innovation, and thus risking to widen existing gaps between them and large companies. Such differences in digital adoption can be observed among Moldovan businesses: BEEPS data, for example, reveal that less than half of Moldovan SMEs report having a website, against close to 70% of large firms. In terms of regional comparison, the uptake for all firm sizes in Moldova is below that of Azerbaijan and Georgia (Figure 4.1).

Figure 4.1. Businesses having their own website in EaP countries by enterprise size class

Percentage of enterprises, 2019



Note: 2020 data for Armenia.

Source: OECD calculations based on (World Bank, 2021^[1]).

These digital divides are largely due to SMEs' lack of skills to use and embed digital tools in business processes (OECD, 2022^[2]). Adopting CRM software, for instance, necessitates upskilling and process improvements (Wynn et al., 2016^[3]). Skilled workers are a key element for competing in a knowledge-based economy; yet SMEs face numerous barriers in attracting, training and retaining highly skilled employees (OECD, 2019^[4]). They have less time and fewer resources to invest in skills development, lack awareness of their needs and information on the support initiatives available. They also bear higher opportunity costs of training: their limited number of employees increases the impact of having a staff member away on training and might prevent them from benefitting from economies of scale in terms of direct costs of trainings and/or searching suitable opportunities. Fresh data from OECD countries highlight the wide gap between large and smaller firms in providing ICT training to employees (OECD, 2022^[2]), and country-level information shows how few Moldovan firms invest in staff training because of a lack of means and/or interest (World Bank, 2018^[5]).

Developing digital skills for SMEs therefore requires offering 1) relevant training opportunities; and 2) targeted support to help them build capacity to overcome the specific barriers they face.

Creating tailored digital skills training opportunities for SMEs

Policy makers can support SME digitalisation through a wide range of both financial and non-financial tools. The OECD has developed a blueprint to help EaP policy makers accelerate SMEs' digital transformation, including measures to promote digital skills (OECD, 2021^[6]). It highlights, in particular, how comprehensive support programmes should include measures to help SMEs understand their specific needs to go digital, both in terms of technology adoption as well as competences for the digital transformation.

ODA's experience with programmes to support SME digitalisation is a good starting point

Moldova has made significant efforts to support SME digitalisation in recent years. Since its creation in 2007, ODA has developed and successfully implemented a series of targeted support programmes for SMEs. In response to the COVID-19 crisis, the organisation (still ODIMM at that time) launched in 2020 an initiative to help SMEs in non-IT sectors digitalise, improve their access to markets and transition to more modern and sustainable business models. Moldova was the only EaP country to implement such a comprehensive programme (OECD, 2021^[6]).

Financed by public funds and with additional resources from the EU and GIZ, ODA's support for SME digitalisation encompasses a number of financial and non-financial tools summarised in Table 4.1. In terms of digital skills, ODA offers training and mentoring on 19 topics built around the five areas covered by the self-assessment questionnaire on digital maturity presented in Chapter 3 above – online presence, e-commerce planning, customer service, digitalisation of processes, and transport and logistics. By February 2022, over 500 entrepreneurs had benefitted from this programme.

Building on this achievement, the government adopted a follow-up Digital Transformation Programme for SMEs in March 2022. It has three main components: i) raising awareness by providing information support to business incubators and other support institutions, ii) stepping up non-refundable financial support, and iii) monitoring and evaluating the effective implementation of beneficiaries' investment projects. It scales up financial support by providing grants of up to 500 000 lei (approx. EUR 25 500) for small and medium firms, which aim at facilitating e-commerce activities and the purchase of equipment and software, but which should also serve to train staff who will use the purchased digital tools (Government of Moldova, 2022^[7]). While this initiative continues to target SMEs in non-IT sectors, another programme will support digitally advanced firms in developing innovations.

Table 4.1. Overview of ODA's support programmes for SME digitalisation

Programme	Launch year	Objectives	Tool	Beneficiaries
SME digitisation support tool	2020	Supporting SMEs in the transition to a digital economy	Self-assessment questionnaire to evaluate digital maturity	n/a
		Improving entrepreneurs' knowledge and skills on e-commerce	Training and building capacity	About 566 participants
			Business vouchers (up to 20,000 lei and 100% of costs) to develop e-commerce (website, social media)	168 companies supported (of which 31% for webpages) for a total of 3.44 mln lei
			Grants (up to 200,000 lei and 90% of costs) to purchase equipment and software	118 companies supported for a total of 19.61 mln lei
		Facilitating SMEs' access to support services to digitalize, plan, understand, and adopt digital tools		Mostly to purchase hardware components and equipment (55%), only 3% for CRM/ERP
Digital Transformation	2022	Supporting SMEs in the transition to a digital economy	Self-assessment questionnaire to evaluate digital maturity	n/a

Programme	Launch year	Objectives	Tool	Beneficiaries
Programme for SMEs		Supporting SMEs by providing non-reimbursable financial support for their digitalisation, and facilitating their access to internal and external markets	Grants (up to 250,000 lei for micro firms and 500,000 for small and medium ones)	n/a
Programme to support digital innovations and technological start-ups	2022	Developing scalable IT and green innovations Supporting SMEs by providing non-reimbursable financial support for their digitalisation, and facilitating their access to internal and external markets	Self-assessment questionnaire to evaluate digital maturity	n/a
			Grants (up to 500,000 lei)	n/a
			Development of a network of experts in various fields of innovation	n/a

Note: Information on beneficiaries of the SME digitalisation support tool as of February 2022.

Source: (Ministry of Economy and Infrastructure, 2020^[8]), (Government of Moldova, 2022^[7]), (Government of Moldova, 2022^[9]), fact-finding exercises conducted in Q2 2022.

ODA also plans to incorporate digitalisation as a crosscutting component in all the existing trainings offered to SMEs. For instance, the Efficient Business Management Programme (GEA) has been updated with five modules on business digitalisation (online marketing, online partner identification, cyber security, process digitalisation, personal data protection).

Despite these welcome developments, the range of support to improve SMEs' digital skills would need to be scaled up. The new Digital Transformation Programme for SMEs puts a strong emphasis on the adoption of digital technologies, while only encompassing a basic support to improve digital skills; and the previous initiative only covered a few topics and reached a limited number of beneficiaries. The latter provides a very good basis on which to build upon by scaling up and broadening training modules. Several topics currently overlooked, and yet very important, could be considered: complementary skills, for instance, are not addressed, despite their relevance for SME managers and entrepreneurs.

The current programmes would also benefit from improvements in terms of monitoring and evaluation: there has not been any assessment of the quality of trainings offered so far. Some key performance indicators had been defined to help monitor and evaluate ODA's programmes, but these focus on the number of beneficiaries of the different support tools rather than on the concrete impact of measures and skills effectively acquired.

Public-private co-operation enhances digital skills training opportunities

Moldovan SMEs benefit from initiatives carried out by, or in co-operation with, different stakeholders in the country's digitalisation ecosystem. ODA (formerly ODIMM) has implemented its programmes with the support of associations. ATIC co-ordinates private sector efforts and created StartUp Moldova, a project contributing to ODA's digital skills trainings and offering additional services. The recently launched Digital Impact Programme offers mentoring from experts in various fields such as marketing, communication, IT and logistics. Additional trainings and seminars, including for women entrepreneurs, are to be developed in the near future. ATIC itself provided e-commerce education to 850 SMEs in 2021, and plans, via Tekwill, to enhance investments in human capital development to improve digital literacy among professionals and foster adoption of digital innovation in several sectors of the economy.

This successful public-private co-operation is a considerable asset for Moldova, as it strengthens implementation capacity and taps into the expertise of the private sector. Co-operating with business associations also helps designing tools tailored to SMEs' needs. Although the number of beneficiaries of

digital skills trainings is limited, upcoming plans should allow for expansion and for reaching a wider audience.

Tackling obstacles to SMEs' digital skills development

SMEs face a number of challenges impeding the development of their digital skills and resulting in the skills gap with large firms. As mentioned in Chapter 3, firms, especially smaller ones, often struggle to understand the steps they should take to tap into the potential of digitalisation, and to identify their skills needs (OECD, 2022^[2]). More generally, their lack of digital skills is largely due to resource constraints: they often lack awareness of the existing training opportunities (OECD, 2021^[10]) and HR capacity to establish a strategy to develop human capital, organise and co-ordinate training, and attract talents (OECD, n.d.^[11]). They are also constrained by limited financial means, hampering investments in up-skilling and re-skilling, and lack the time needed for such practices (OECD, 2021^[10]).

In addition to offering training opportunities, digital skills policies should therefore take into account these various barriers and target them to help SMEs overcome these challenges.

SMEs often struggle to identify training and mentoring opportunities

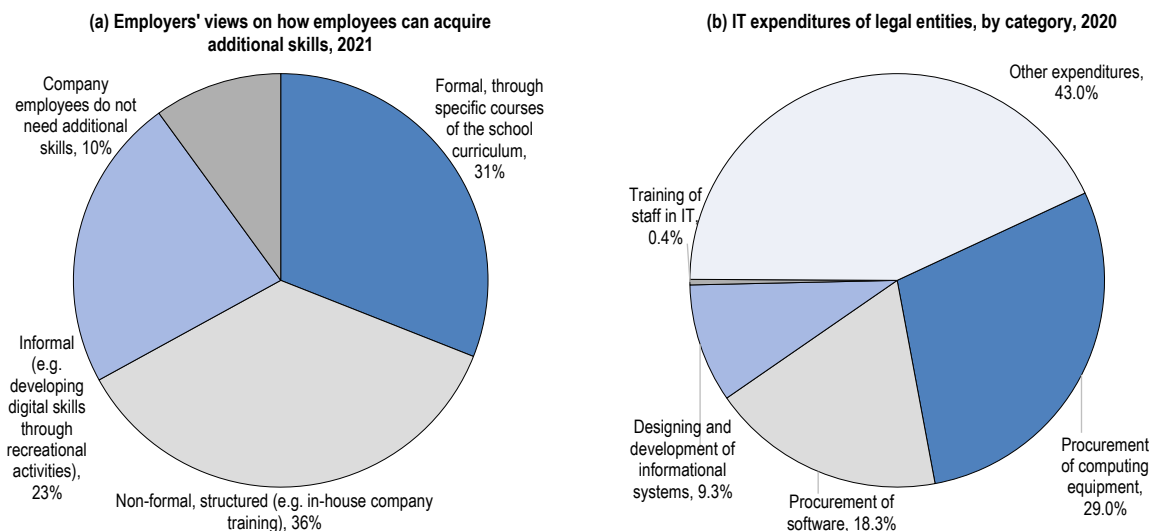
While identifying skills and training needs is a pre-requisite for digital skills development SMEs often find it challenging to navigate the available training opportunities, for they lack the time, awareness and human resources to look into them. They can struggle to navigate between the different digital skills training options, and often need help to understand them and identify the most suitable option(s) (OECD, 2022^[2]). As a tool to tackle this challenge, support programmes to SME digitalisation can offer advisory services to complement skills needs assessment tools and direct firms to the solutions most relevant for them (OECD, 2021^[6]). ODA's 2020 digitalisation programme included such instruments, although it is no longer foreseen in the upcoming policy initiatives outlined in Table 4.1.

Moreover, several government-sponsored digitalisation programmes across OECD countries, such as Sweden's *Kickstart initiative*, report that reaching companies and incentivising them to participate is one of the major challenges they encounter (OECD, 2021^[10]). Improving communication and emphasising the benefits of SME digitalisation programmes and trainings can contribute to mitigating these widespread issues. In the case of Moldova, more could be done to advertise the diversity of trainings offered by different stakeholders, such as Tekwill, raise awareness of the existing opportunities, and thereby increase uptake. Simple tools such as online platforms providing an overview of the support available could help in that regard.

Limited human and financial resources further impede SMEs' access to digital skills trainings

Limited financial capacity is among the main resource constraints SMEs face. Their lack of financial means is often an obstacle to investment in trainings, either to benefit from external services of experts / consultants, or to build in-house ones. In the case of Moldova, the latest labour market forecast revealed that most employers deem in-house trainings as the best option for employees to acquire additional skills (Figure 4.2). This view is even more prevalent among managers in small firms (Labour Market Observatory, 2022^[12]). Yet expenditures on training of staff in IT remain modest, consuming just 0.4% of total IT expenditures.

Figure 4.2. Moldovan firms' attitude towards in-house training



Note: **Figure (a)**: data stems from the results of the LMO's 2022 labour market forecasting system. **Figure (b)**: Data on legal entities' expenditures in training of staff in IT only available for 2020. Data include enterprises with 10 employees or more and public administrations. Source: (Labour Market Observatory, 2022^[12]), National Bureau of Statistics of Moldova.

Most programmes to support SME digitalisation include financial tools to help SMEs overcome this barrier. Subsidising the cost of training is a useful tool to foster skills development: studies have shown that the availability of subsidies for training for small firms is associated with an increase in participation (Stone, 2010^[13]). Such an instrument is particularly relevant for SMEs, as it allows flexibility thanks to its ability to target specific needs and circumstances. Extending the scope of ODA's grants with the new 2022 programme to cover costs of staff training on digital tools is therefore a welcome development.

Finally, policies should take into consideration that the development of digital skills is a life-long process, as the rapid evolution of digital tools requires frequent skills updates and therefore continuous learning. Complementary skills are particularly important in that regard, as they increase the adaptability of managers and employees to new technologies and enhance their ability to learn quickly. More generally, the attitude of managers and entrepreneurs is crucial to fostering long-term investments in skills, building a working environment where employees can learn on the job, and ultimately supporting firm growth.

As a supplement to the instruments already mentioned to develop digital skills, which apply to both managers and employees, additional tools exist to enhance SME managers' capacity specifically. Coaching, mentoring, peer learning among managers and entrepreneurs, for instance, have proven to be a useful complement to individual support services such as financial help and trainings. Such activities enable knowledge sharing and transfer, as well as economies of scale through the pooling of resources (OECD, 2021^[10]). Many European countries have implemented similar measures to develop leadership and management skills, sometimes with a thematic focus, e.g. on digitalisation. However, this area remains rather uncovered by Moldovan policies so far. Upcoming initiatives on digital skills development include the establishment of an international list of experts to link SMEs with mentors, and of a "Virtual Academy", i.e. an online platform to facilitate interaction with beneficiaries, but there is no plan to foster co-operation between companies themselves. Yet the latter could help lower the costs of up-skilling and re-skilling, promote sharing of good practices, and build learning networks.

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5 Way forward

Building on previous chapters' findings, this section outlines some policy options that the Republic of Moldova (Moldova) could consider to accelerate digital business skills development, illustrated by good practice examples from OECD and EU countries. It is structured around three main objectives identified: 1) enhancing policy effectiveness through a well-defined NDS and a multi-stakeholder approach; 2) improving digital skills assessment and developing anticipation exercises; and 3) strengthening support for SMEs' digital skills development.

Objective 1: Enhance policy effectiveness through a well-defined NDS and an enhanced multi-stakeholder approach

Set clear objectives and measurable targets, and estimate costs for the new NDS

Moldova is currently preparing its new National Digital Strategy (NDS), the *Digital Transformation Strategy 2023-2030*, which sets the development of digital literacy as a key objective. Several actions are already foreseen, such as further improving digital skills in education systems, reducing digital divides and involving the diaspora in digital projects.

Drawing on the results of the previous NDS, Moldova could:

- **Broaden the scope of its approach to digital skills** and include life-long learning opportunities for individuals to upskill/reskill to meet changing labour market demand. The OECD recently published a method for designing and assessing NDS (Gierten and Leshner, 2022^[1]). The report lists the policy domains that such strategies should cover in order to be comprehensive, based on the OECD Going Digital Framework (see Box 3.1); these include, *inter alia*, SMEs, skills, labour markets, and entrepreneurship.
 - Moldova could also consider emphasising digital security (i.e. digital risk management and consumer protection): given the country's shortcomings in this area, training and awareness raising could be useful for both citizens and businesses that need to develop their knowledge of these risks and their ability to manage them; ultimately, this can help build trust in digital technologies to encourage their uptake.
 - Finally, policy makers should keep in mind the fast-evolving environment and changes in new technologies, and therefore allow for enough flexibility for policies to be adaptable in that regard: in terms of education systems, for instance, curricula might need updates every couple of years, and schools might require new tools and equipment.
- **Set clear policy objectives associated with measurable targets and budgets** in order to ensure effective implementation and avoid the caveats reported from the previous Strategy:
 - **With regard to implementation, the strategy should define, for each measure, clear roles for stakeholders, as well as estimated costs**, to help mobilise funding and prevent subsequent implementation failures. Box 5.1 provides guidelines for costing action plans and could help Moldova estimate the budget needed to implement the actions foreseen;
 - **With regard to monitoring, outcome indicators should be included**: for training, for instance, indicators should not only monitor the number of trainings or participants, or the volume of spending, but the extent to which the training fostered skills development. This could be done immediately after the training, e.g. through participants' feedback or pre- and post-training assessments, and/or in the longer term, six or twelve months after completion of the training, which enables to better track if the programme helped participants get a new job, increased professional responsibilities, and/or a salary raise. This monitoring approach enables policy makers to assess not only the level of implementation, but also the concrete policy impact.

Box 5.1. Guidelines for costing of Action Plans

Definition

Costing consists of both estimating the costs involved with an Action plan's activity and determining the financial sources needed to carry it out. It results in a costing table that compares the expenses of who and what has to be employed, commissioned, or purchased to the information on available financing. It entails the estimation of implementation costs and the planning of funding sources for each activity.

Table 5.1. Example of costing table with cost and funding categories

Activity				Output target	
Number and name of activity from the Action Plan				Target indicator from the AP	
Costs	Salaries	Goods and services	Subsidies and transfers	Capital expenditures	TOTAL
2021					
Funding	Budget	Donor grants	Specific loans	Private sector	TOTAL
2021					
Funding gap:					Funding – costs

Most common costing methodologies

- **Bottom-up costing** calculates the cost of an action by dissecting it into distinct sub-components, estimating costs of resources based on previous experience or preliminary calculations and summing them all up. This approach appears as the most sophisticated, but requires detailed knowledge of the intended activity and the unit cost for each item.
- **Top-down costing** calculates the cost by analysing historical data and the most important technical aspects of previous identical actions. It is particularly relevant when individual cost components are unknown and cannot be estimated, but estimates are less accurate.
- **Analogy costing** estimates the cost of an activity by taking the actual expenses of a similar activity and changing them to account for the special aspects of the intended action. Unlike top-down costing, it is based on one single, highly comparable activity.

The OECD's guide on costing Action Plans in EaP countries suggests the bottom-up technique for estimating the cost of an activity when the necessary information is easily available. As a starting point, the cost assessment process may be divided into four parts:

- 1) As a first step, the activities and their respective output should be specified;
- 2) This allows to thereafter identify the inputs required to achieve each output;
- 3) Estimate the cost of each input;
- 4) Sum up the costs by cost categories.

Source: (OECD, 2020^[2])

Broaden and strengthen participation of all relevant stakeholders in digital skills policy design and implementation

Moldova has already had successful experiences of co-operation between governmental and external stakeholders, such as ATIC, in designing and implementing digital skills policies. However, additional actors could be involved in the process – both public ones to enhance policy coherence and foster regional

development, and non-governmental ones to tap into their expertise and ensure that policies meet the needs of the ultimate beneficiaries. To this end, Moldova could:

- **Build a whole-of-government approach.** The crosscutting nature of digital skills policies demands such an all-encompassing policy approach. Considering the impact of new technologies on jobs, labour markets and social protection, digital skills policies should be designed in co-ordination and complementarity with labour market policies (OECD, 2019^[3]). Moving forward, the Ministry of Labour and Social Protection should therefore be more involved, to ensure synergies with the national employment strategy, for instance, and foster the reskilling/upskilling of incoming or returning migrants. The National Employment Agency could also play a role, e.g. by helping implement digital skills assessment and anticipation exercises (see below). Latvia for instance established in 2016 an Employment Council encompassing the Ministries of Economy, Education and Science, and Welfare (the latter being responsible for labour market policies and the National Employment Agency) to facilitate discussions and coordination between Ministries. This collegial and informal platform aims at promoting changes in the labour market and harmonising cross-institutional cooperation in the planning, development, implementation and monitoring of labour market reforms and skills labour market needs, and thereby reduce inconsistencies in the Latvian labour market. Moreover, bridging digital divides between urban and rural areas and spreading the benefits of digitalisation in regions is a goal linked to regional and local development policies, and thus requires the participation of regional and local authorities.
- **Strengthen the links with non-governmental stakeholders,** who are crucial to shaping and supporting implementation of the NDS (Gierten and Leshner, 2022^[1]). Policy makers need to plan consultations with actors directly affected by skills policies, i.e. employers for the private sector (OECD, 2020^[4]) and teachers for education (OECD, 2019^[3]). The latter can help shape policies by informing on what type of technology and related skills would be most useful, in which area(s) they would need additional training, and subsequently contribute to effective policy implementation. Indeed, the latest LMO's survey revealed that 34% of employers deem closer co-operation with them as the priority for policy makers to gain a better understanding of the skills and competences needed to address skills gaps in the labour market (Labour Market Observatory, 2022^[5]). The involvement of private sector employers can also be fostered by strengthening the co-operation with industry associations, including in non-IT sectors. The latter can share their experience to provide policy makers with a better understanding of the skills needed in the labour market and the ones young graduates tend to lack. Their involvement can be enhanced e.g. by developing Industry Expert Councils, which gather state representatives, industry associations and trade unions. Industry associations can also help implementing digital skills programmes, thereby maximising the programmes' outreach, reducing human resources needed by the public administration, and fostering a learning culture within industries. Higher Education Institutions could also be more involved, as they can provide courses, including programmes to up-skill and re-skill workers (i.e. life-long learning); foster knowledge exchange and collaboration, e.g. via incubators and accelerators; and develop online training solutions, such as webinars and MOOCs (OECD, 2022^[6]). Private training institutions can also contribute to the development of life-long learning opportunities.
- **Consider setting up a national digital skills coalition,** in order to step up and formalise the involvement of these different stakeholders, and ensure co-ordination across the ecosystem for digital skills. The EU4Digital initiative has developed guidelines for EaP countries to establish such coalitions (see Box 5.2) and organised events around it. Moldova could build on this work and co-operation with the EU and on the willingness expressed by ATIC to launch such partnership, which would also bring the country closer to EU practices.

Box 5.2. National Digital Skills and Jobs Coalitions

Background

National digital skills and jobs coalitions were proposed by the European Commission in 2016, as part of the New Skills Agenda for Europe. These multi-stakeholder partnerships aim at helping address the increasing demand for digital skills in Europe by building a large digital talent pool and equipping individuals and businesses with relevant digital skills. To this end, they enable the facilitation of co-operation between public authorities, businesses, education, training and labour market stakeholders to shape and implement policies. Almost all EU countries have created one, usually led by an ICT business association or the Ministry in charge of innovation and digitalisation issues.

EU4Digital guidelines

The EU4Digital initiative developed actionable recommendations on how to implement such coalitions, to be established and managed in five steps:

1. Identify members;
2. Define objectives, which should be broad in scope and include digital skills policies for ICT professionals, the labour force, citizens in general, and in education systems;
3. Design an action plan, including the main objectives, key actions, related KPIs and communication plan;
4. Manage the national coalition, e.g. by remaining open to new stakeholders, sharing best practices, allocating resources to activities, and monitoring the coalition; and
5. Promote the national coalition through events, awareness raising activities at national, regional and local level, and experience sharing with other coalitions.

Members should include national, regional and local authorities, civil society representatives, education and training providers, ICT and ICT-using associations, public and private employment services, and local European office representatives. One stakeholder should be tasked with the co-ordinating role for policy planning – which could be, in the case of Moldova, the Deputy Prime Minister for Digitalisation and Ministry of Economic Development and Digitalisation, given its current leadership on digital skills policies. Alternatively, ATIC could also play this co-ordination role.

Armenia and Ukraine have already successfully implemented such coalitions, with goals in line with those of EU Members.

Source: (EU4Digital, 2020^[77]) (European Commission, 2016^[83]) (European Commission, 2022^[91]) (Horizon 2020, 2016^[101]).

Objective 2: Improve digital skills assessment and develop anticipation exercises

Complement existing assessments with dimensions on digital skills

- **Improve data collection on levels of digital skills:** in order to get better insights into the current level of digital skills and the remaining gaps among individuals and firms, Moldova could widen the range of statistics collected as well as their granularity. Data on generic and complementary digital skills, especially among businesses, remain very scarce. Gathering such information, broken down by skills type, sex and firm size, would help inform policymaking and adjust both school curricula and training programmes to better meet the population's needs. OECD and EU databases, such as the Programme for the International Assessment of Adult Competencies (PIAAC) and Eurostat,

offer useful examples of indicators that could be considered (Table 5.2). Adopting OECD methodology would also help bring the country closer to OECD and EU standards.

Table 5.2. List of selected digital skills indicators

Type of skills	Indicator	Unit of measure	Source
<i>Pre-requisite to digital skills development</i>			
Foundational	Literacy	Percentage of adults scoring high in literacy in the Survey of Adult Skills	OECD PIAAC
Foundational	Numeracy	Percentage of adults scoring high in numeracy in the Survey of Adult Skills	OECD PIAAC
<i>Digital skills</i>			
Generic	Adults with no computer experience	Percentage of surveyed adults with no computer experience, by age group	OECD PIAAC
Generic	Cloud Software Usage Skills	Percentage of Individuals who have copied or moved files between folders, devices or on the cloud	Eurostat
Generic	Installation	Percentage of Individuals who downloaded or installed software or apps	Eurostat
Generic	Software Manipulation	Percentage of Individuals who changed the settings of software, app or device	Eurostat
Generic	Video/Photo Editing	Individuals who edited photos, video or audio files	Eurostat
Generic	Individuals' level of digital skills	Percentage of Individuals with a certain Level of digital skills (Scale: no overall digital skills to basic or overall above basic overall digital skills)	Eurostat
Generic	Usage of search engines	Percentage of Individuals who have used a search engine to find information	Eurostat
Generic	Creation of digital files	Percentage of Individuals who have created files integrating elements such as text, pictures, tables, charts, animations or sound	Eurostat
Generic	Text processing software skills	Percentage of Individuals who used word processing software	Eurostat
Generic	Spreadsheet processing software skills	Percentage of Individuals who used spreadsheet software	Eurostat
Advanced	Programming	Percentage of Individuals who have written code in a programming language	Eurostat
Complementary	Problem solving in technology rich environments	Percentage of adults scoring at a given level in problem solving technology-rich environments in the Survey of Adult Skills (PIAAC) – Level 1 to 3	OECD PIAAC
Complementary	Fact-checking online-sources	Percentage of Individuals who have checked the truthfulness of the information or content they found on the internet news sites or social media by checking the sources or finding other information on the internet	Eurostat

Source: (OECD, 2022^[11]), (eurostat, 2021^[12]).

- Implement a digital skills framework to serve as a common reference:** as highlighted above, one of the main challenges when assessing skills is the gap between formal credentials and labour market requirements (OECD, 2016^[13]). Moldova has already designed a digital competence standard for students and teachers; developing such framework for digital skills tailored to labour market needs could help employers in recruiting staff and incentivise individuals to continue learning by offering them the opportunity to certify their skills (OECD, 2019^[3]). This would also facilitate skills assessment by providing standards against which to evaluate competencies. The EU4Digital initiative has developed a Competence framework for SMEs in 2020, based on the European e-Competence Framework (e-CF) and Digital Competence Framework for Citizens (DigComp¹) (Box 5.3). Providing a dedicated methodology, guidelines on how SMEs can use the framework, and examples of job role profiles, this Framework offers a ready-to-use solution and would foster harmonisation with EU standards and across EaP countries.

Box 5.3. EU4Digital Competence Framework

Overview

This Framework has been developed in 2020 by the EU4Digital initiative to establish a common language for digital competences for SMEs. Based on EU standards, i.e. the European e-Competence Framework (e-CF) and Digital Competence Framework for Citizens (DigComp), this framework entails three components:

1. a methodology to establish the Competence framework;
2. guidelines on how SMEs can use the Framework (e.g. how to develop job role profiles, recruiting advertisements, internal HR documents describing job role responsibilities and performance expectations, criteria to assess competences, and to set up competence-based learning programmes); and
3. four job role profiles (data expert, digital educator, digital transformation, and information security expert) to set an example and serve as guidelines in re-skilling and up-skilling individuals.

Objectives

- Build a common understanding of competence and skills requirements, bridging the gap between education standards and labour market requirements;
- Support the profiling of competence combinations and roles;
- Help the assessment of competence requirements and competence gaps.

The Framework ultimately aims at supporting digital skills development among SMEs' employees, from basic to advanced ones, and thereby to help SMEs improve their export potential, competitiveness, innovation and participation in the development of the digital market.

Source: (EU4Digital, 2020^[14]), fact-finding exercises conducted in Q2 2022, including working group meetings.

- **Create a self-assessment tool for digital skills:** self-assessment questionnaires appear as a very useful and affordable tool, not only to help respondents better understand where they stand and what they could improve, but also to provide data and insights on digital literacy levels for further analysis. Moldova has already implemented a comprehensive online self-assessment tool for SMEs to assess their level of digital maturity, including questions on their uptake and use of different digital technologies. A similar instrument could be developed for individuals, including SME managers and employees, to evaluate their digital skills and identify their needs for additional training. Several countries have implemented such tools. The Digital Skills Accelerator Online Assessment offers a good example in that regard: created by the European e-learning institute, the questionnaire covers basic and intermediate digital skills and benchmarks them against the DigComp standards. Its comprehensive and practical approach, entailing skills that are directly relevant in a professional environment, makes it relevant for both the labour force and in education systems. Box 5.4 below provides an overview of its main features and assets. Implementing such framework should be accompanied by awareness-raising activities to foster uptake. Such questionnaire is most useful when combined with tailored advice: the Digital Skills Accelerator Online Self-Assessment Tool for instance generates a list of suggested trainings depending on the respondent's results. For firms more specifically, the assessment could be accompanied by tailored

support on how to meet skills needs, to help non-digitalised businesses build a relevant strategy and navigate the training opportunities available.

Box 5.4. Digital Skills Accelerator Online Self-Assessment Tool

Overview

This online self-assessment enables users to evaluate their digital competences against the European DigComp framework, free of charge. Co-funded by the EU, it was launched in 2017 by European e-learning institute. It has since then partnered with several universities in EU Member States to foster dissemination.

Features

The questions are broken down around the five DigComp competences areas, namely:

1. Information and data literacy: to articulate information needs, to locate, retrieve, store, manage and organise digital data and information;
2. Communication and collaboration: to exchange and collaborate via digital technologies, to manage one's digital presence, identity and reputation;
3. Digital content and creation: to develop digital content and programming;
4. Safety: to understand digital security and privacy risks and threats, and act upon them;
5. Solving technical problems: to assess needs and identify, evaluate, select and use digital tools and possible technological responses to solve them.

Once all questions have been answered, the tool generates a radar chart highlighting the respondent's strengths and weaknesses in each area. It also compares the performance with other students' averages.

The user can then access the Learning Pathway Generator (LPG) to be provided with a list of modules/online resources most relevant to match their needs.

Source: (Digital Skills Accelerator, 2021^[15]).

Strengthen skills needs anticipation practices

- **Further develop the labour market forecasting system to allow for more insights into digital skills, consistency, reliability, and longer-term projections:** in order to strengthen its approach to skills assessment and needs anticipation, Moldova could build on its existing labour market forecasting system and on the section on skills most needed by employers introduced in the 2022 edition to gain insights into digital skills needs. In terms of methodology, the projections could go beyond the short term and entail a longer-term perspective (e.g. for the next 3, 5 and 10 years) to support multi-year policy planning. The pool of respondents could also be broadened and include a larger representation of small, medium, as well as micro firms. Moreover, replicating the methodology every year by asking the similar questions would help improve consistency and allow for comparability between years, which could ultimately feed into a quantitative forecasting model. With regard to content, the methodology could include additional layers of detail, i.e. asking questions about employers' needs for generic and complementary digital skills, about the type of trainings firms are providing or intend to provide, and/or about foreseen investments in digital technologies. Finally, awareness of the results should be raised to ensure they are taken into

account in policymaking. Latvia offers an interesting example of such a comprehensive labour market forecasting system (Box 5.5).

Box 5.5. Latvia's labour market forecasting system

Content

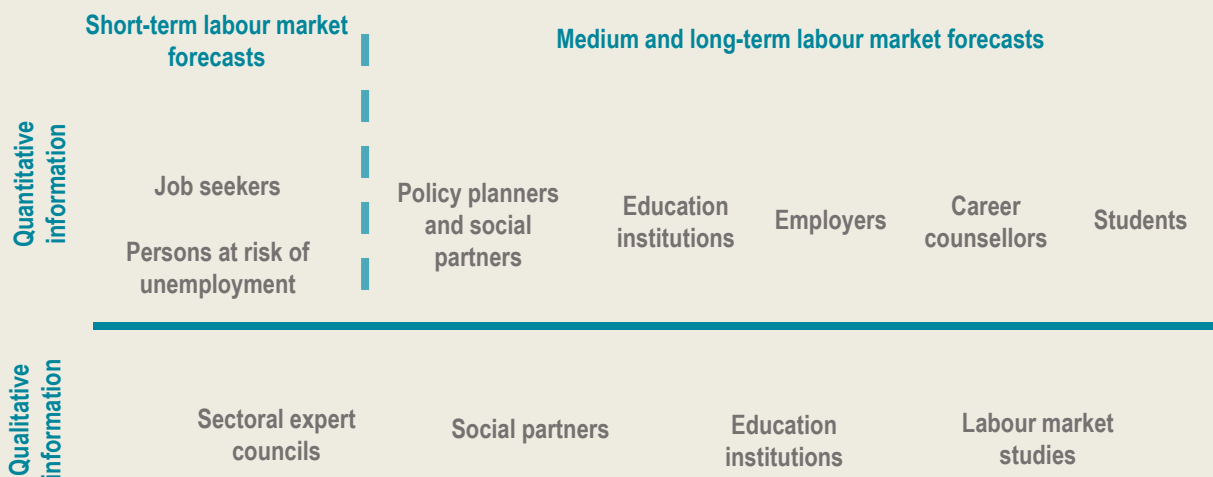
Latvia's system provides information on:

- In the short-term: professions, industries, regions, and skills;
- In the medium- and long-term: employment, demography, number of students, industries, education, and professions.

Structure

It relies on both quantitative and qualitative information: on the one hand, firms and other key stakeholders (see Figure 5.1) share their views via a dedicated form; on the other hand, the State Employment Agency of Latvia and the Ministry of Economics prepared short- and long-term quantitative labour forecasts, respectively.

Figure 5.1. Structure of Latvia's labour market forecasting system



Source: Ministry of Economics of Latvia.

Impact

The forecasts serve as a basis for discussion between stakeholders, e.g. to adapt upskilling or reskilling initiatives. The detailed analyses produced are also disseminated on an online portal accessible by any individual: the short-term forecasts can for instance help unemployed people identify what skills they might need to develop to improve their chance of finding a job.

Source: Ministry of Economics of Latvia.

- **Conduct skills-need studies of selected sectors:** in addition to the development of the labour market forecasting system and in view of developing skills-specific tools, Moldova could implement sectoral studies to gain insights into each sector's specific needs for skills, including digital ones, with a common methodology applied to all sectors to avoid inconsistencies. These could take the form of skills surveys: compared to other options (see Table 3.2), surveys have the advantage of being relatively easy to develop and implement, and foster direct user/customer involvement. The approach could take inspiration from Estonia's experience: OSKA, the Estonian anticipation and monitoring system for labour and skills demand, analyses the needs for labour and skills for the next ten years (Box 5.6). It has been conducting sectoral studies every year since 2016, for up to five sectors a year. It applies the similar methodology to all sectors, allowing for comparability, and relies on a combination of qualitative and quantitative methods. One of its strengths lies in its public-private sectoral expert panels, which oversee and validate the survey results, and the follow-up on results and recommendations; this ensures that relevant measures are taken.

Box 5.6. OSKA Estonia sectoral studies of labour and skills needs

Overview

OSKA, the Estonian labour and skills forecasting system, develops projections of labour force and skills needs in all sectors of the country's economy, and compares them to the education and training provisions available. To this end, OSKA has been conducting sectoral studies every year since 2016, for up to five sectors a year. They produce forecasts on the needs for labour and skills necessary for Estonia's economic development for the next seven to ten years. The timeline can slightly vary from one sector to another, depending on the specificities (e.g. healthcare forecasts were produced for ten years, as the training process is longer than for other fields of study).

Process

The methodology, replicated to all sectors, is based on a combination of quantitative and qualitative approaches – statistical data from various surveys (on labour force, education, the Population and Housing Census, sectoral surveys, etc.), and qualitative personal interviews and group discussions, respectively.

Sector-specific expert panels, composed on employers, educational institutions and policy makers and established at the Estonian Qualifications Authority, play a major role throughout the process: they oversee it, validate the results, and help ensure dissemination and follow-up.

Outcome

The results of the studies feed into policymaking: they help plan and adjust VET and university curricula, and design re-training and up-skilling projects best tailored to the working age population's needs. For digital skills, OSKA results led, among others, to the development of financial support for digital skills development by the Ministry of Social Affairs; in-service training (over 400 different courses) on professional digital skills by the Ministry of Education; digital literacy training for employees in the industrial and healthcare sector; and software developer training courses.

Source: (OSKA, 2022^[16]), fact-finding exercises conducted in Q2 2022.

- **Encourage skills assessment and needs anticipation at company-level:** SMEs often lack awareness of the skills they need, including digital ones, and especially beyond the short-term (OECD, 2017^[17]). While digitalisation programmes entailing training activities often offer preliminary assistance in identifying training needs, additional measures can help SME managers in developing internal capacity to perform such assessments. These can focus on building HR services, assessing the company's needs, and/or improving management practices (OECD, 2021^[18]). Self-assessment tools can help in that regard, but other instruments can directly incentivise SMEs to conduct regular skills needs evaluation: France, for instance, has implemented a programme for strategic workforce planning called GPEC (Forecast management agreement for jobs and skills) (Box 5.7). In place for over a decade, this instrument encourages SMEs to carry out diagnoses of their employees' needs and to adapt their corporate strategies accordingly.

Box 5.7. France's forward-looking management of jobs and skills (GPEC)

Embedded in the French Labour Code, this scheme called *Gestion Prévisionnelle des Emplois et des Compétences* was designed as a method to adapt, in the short and medium term, jobs, workforce and competences to firms' strategies and needs.

At the company-level, it obliges firms to conduct a diagnosis of their employees' skills every three-four years, e.g. through individual performance reviews, to encourage them to think in terms of skills rather than merely in terms of employment. The assessment is mandatory for businesses with more than 300 employees, while SMEs can benefit from state support to carry out the diagnosis.

As a result, the instrument helps managers understand the jobs required, the skills available, the gaps between jobs and skills, thereby feeding into the firm's strategic choices, improving HR processes, and encouraging the qualification of employees. Indeed, it fosters changes within the company by helping it recruit individuals with the relevant skills; develop individual and/or collective skills (e.g. through the validation of professional experience acquired on the job (VAE) and/or training); adapt the organisation of work and production; manage the consequences of technological and economic changes; and improve career management.

Source: (Ministry of Labour, Employment and Economic Inclusion, 2021^[19]), (OECD, 2021^[18]).

Objective 3: Strengthen support for SMEs' digital skills development

Step up training activities

Building on the considerable efforts provided by ODA and its partners over the past years, the following could increase the effectiveness of digital skills trainings:

- **Expand the range of topics covered by digital skills trainings:** ODIMM's (now ODA's) previous digitalisation programme included five modules, mostly focused on helping SMEs adopt and improve e-commerce practices. The latter aims at building a basic understanding of e-commerce opportunities, but several aspects remain uncovered – such as how to connect with global value chains, how to ensure digital security, and how to be in line with the recently adopted e-commerce legislation. Training courses should not focus merely on technical skills, but should also teach participants how to implement these skills in daily routines and processes. More generally, training providers should gain a deeper understanding of SMEs' needs (e.g. via the results of the digital

maturity questionnaire, exchanges with business representatives of different sectors, as well as insights from the skills assessment and anticipation policy options outlined above) and subsequently identify priority areas for additional trainings. A sectoral approach could be considered, as SMEs show significant heterogeneity, with different tools and skills needs across sectors (OECD, 2021^[20]). Training providers should also take into account the differences in skills needs between SME managers and employees when designing training offers: SME managers and entrepreneurs often lack knowledge of digital opportunities and therefore need help in designing a digitalisation strategy and identifying the most relevant digital tools, while employees lack skills to successfully implement new technologies. Complementary skills should not be overlooked, since soft skills, such as problem solving, teamwork, digital mind-set and resilience, are essential for a firm to undergo a digital transformation. Finally, access to trainings in the regions of Moldova could be further developed, as beneficiaries of current digitalisation support have been concentrated in Chişinău so far. This could be done e.g. via online trainings, or building on regional infrastructure, such as Tekwill's upcoming regional centres.

- **Offer certification of competences acquired on the basis of a digital competence framework:** upon completion of digital skills trainings, training providers could offer the opportunity for participants to certify the skills acquired. The digital competence framework suggested above, or the EU's DigComp example, could serve as a basis for that. Such acknowledgment would help ensure the quality of the education received, while helping employers in recruiting qualified staff.
- **Ensure quality of training by strengthening monitoring and evaluation practices:** in order to refine the assessment of the tools' impact, additional outcome indicators could be considered to collect participants' feedback on the trainings provided. This could be done via simple surveys after each training, asking the extent of skills improvements (none, partial, substantial). Alternatively, pre- and post-training assessments could be conducted to collect insights that are more objective. Following up with participants six or twelve months after completion of the training would help to capture the impact of trainings, if they helped them get a new job, additional tasks, a salary raise, and/or to perform better.

Help SMEs overcome barriers to digital skills development

- **Raise awareness of the range of trainings available:** open and proactive communication between training providers and companies is essential to maximise the outreach and uptake, especially for SMEs, which often lack access to information. In addition to the trainings implemented by the different stakeholders, more could be done to improve the visibility of the support offered for digital skills development and to help firms and individuals navigate and select the programmes most appropriate for their needs. Various tools can be used to this end – e.g. a single information portal online, which can also help maximise the outreach in regions. Spain for instance has developed such a platform, the *Acelera Pyme* platform. A similar instrument could be implemented and managed by ODA, in co-operation with private sector stakeholders. Beyond trainings, the portal could gather information about digitalisation processes, sharing best practices and case studies, as well as the self-assessment tool suggested above. It could also offer the possibility to book a remote consultation with experts from ODA, which would help reach regions. Communication campaigns and/or dedicated awareness-raising events are additional options that could be envisaged to circulate information more efficiently.
- **Develop incentives to encourage on-the-job training:** in order to help SMEs overcome their lack of internal capacity and financial means, and to foster continuous skills development, Moldova could develop support for on-the-job training. These take different forms and often rely on both financial and non-financial tools. Germany, for instance, has implemented the “Securing the skilled labour base: vocational training and education (CVET)” programme (*Fachkräfte sichern: Weiterbilden und Gleichstellung fördern*), which includes provisions to foster staff development and

training capacity within small businesses (Box 5.8). Work-based learning is another common practice, which enable students to develop practical skills outside of school. Although these instruments do not target digital skills specifically, some of them could still be considered for future programmes to help SMEs improve their training capacity and gain a long-term strategy for human resources management and life-long skills development.

Box 5.8. Supporting on-the-job skills development: the example of Germany

Overview

The initiative “Securing the skilled labour base: vocational training and education (CVET)” programme (*Fachkräfte sichern: Weiterbilden und Gleichstellung fördern*) was launched in 2018 as part of the Federal government’s Strategy for security skilled workers, aiming at increasing labour force participation and better integrating women, older people and refugees in that regard. It is jointly implemented by the Federal Ministry of Labour and Social Affairs (BMAS), the Confederation of German Employers’ Associations, and the Confederation of German Trade Unions.

The project supports social partners and businesses in securing the supply of skilled labour by developing training structures and participation therein, staff development strategies, firms’ learning culture, as well as career advancement and opportunities.

Achievements

Benefitting from a EUR 130 mln budget, the initiative has already funded 93 projects, including ones focusing of digital skills development. Examples of conducted actions include:

- Creating staff development structures: guidelines on staff development (e.g. qualification plans) and to promote learning in work processes, upgrading of managers’ skills;
- Developing training advisory structures for SMEs and implementing in-house and inter-company training measures;
- Fostering social dialogue on sectoral training needs and industry standards for future training and equality;
- Strengthening the competences of operational actors to promote equal opportunities;
- Establishing work time models and career pathway plans.

Source: (Fachkräfte Sichern, 2022^[21]), (OECD, 2021^[18]).

- **Build SMEs’ capacity and learning culture by fostering peer learning:** in addition to above-mentioned training courses and advisory services, peer learning is another, non-financial means to help SME managers develop a learning culture and relevant skills beyond external trainings. Measures that combine peer learning and individual support services appear as most efficient to support investment in digital skills (OECD, 2021^[18]). Moldova could therefore complement its current policy approach with initiatives to foster exchanges among managers and entrepreneurs, which could be implemented by ODA or business associations for instance. Box 5.9 provides examples from OECD countries that have delivered conclusive results. These foster direct communication between companies, but other digital tools can also be useful – an online platform to exchange virtually on learnings and ideas, such as Germany’s www.experimentierraume.de,

or an online manual of good practices promoting successful examples from selected companies, such as the cross-country project InnovaSouth.

Box 5.9. Examples of peer learning initiatives for skills development

Mentoring for International Growth programme (Italy – Turin Chamber of Commerce)

This programme, initially implemented by Turin Chamber of Commerce, fosters exchanges between entrepreneurs and managers by linking a mentor with +10 years management experience, originally from the region but living abroad and running a successful company, with a local entrepreneur (mentee), based in the country. The mentoring lasts eight months, follows ethical guidelines, and aims at improving the mentee's firm internationalisation by sharing good practice experiences. Participation operates on a voluntary, non-paid basis, and starts with an in-person kick off meeting to ensure the right matching between participants.

The programme has encountered growing success, with the number of applicants almost doubling between the 1st and 3rd edition, and a 90% satisfaction rate. Participants reported improvements in business, marketing and communication strategies, organisational changes as well as extended networks. Such initiative could be replicated in Moldova, for the country benefits from a highly skilled diaspora.

Be the Business (United Kingdom)

Be the Business gathers large and small firms to exchange on how to improve business performance, share advice, tools and resources to increase productivity. It notably provides free business mentors and organises peer learning groups, and also offers online support and resources (stories, action plans, practical guides,...).

Another initiative, UK's Peer Network programme, was successfully implemented in 2020-22. It organised peer learning and high impact group sessions where SME managers could exchange on their experience and identify practical solutions to tackle common challenges. Sessions were free and took place online, with experts facilitating the discussions.

Kickstart Digitalising and coaching (Sweden)

This initiative focuses on digitalisation and bring together Swedish SMEs around a six-week series of workshops on how to go digital. It usually consists of three free-of-charge meetings during which about ten companies share experiences and ideas. It benefited 627 firms so far, of which three quarters of small firms and 70% operating in the manufacturing sector, and delivered conclusive results, with most companies starting a digitalisation project or increasing their investment in new technologies after the programme. This example has already been exported to several countries such as Estonia, Latvia and Lithuania.

Source: (Turin Chamber of Commerce, 2015^[22]), (Peer Networks, 2022^[23]), (OECD, 2021^[18]), (Be the Business, 2023^[24]).

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Notes

¹ The Digital Competence Framework for Citizens offers since 2013 a reference for digital competence initiatives, as well as a basis for framing digital skills policy. For more information, see https://joint-research-centre.ec.europa.eu/digcomp/digital-competence-framework_en.

Promoting Digital Business Skills in the Republic of Moldova

The Republic of Moldova (Moldova hereafter) has made digitalisation a policy priority. The country is currently preparing its Digital Transformation Strategy 2023-30, which will emphasise digital literacy, as well as digital business skills, with a view to improving private sector competitiveness. Digitalisation has already brought significant benefits to Moldova, where ICT has been one of the most dynamic sectors over the past years; yet Moldovan firms in non IT sectors remain at the beginning of their digitalisation journey. Skills shortages are a major barrier in that regard, particularly affecting SMEs who encounter more difficulties in attracting and retaining skilled workers, as well as up skilling or reskilling their workforces.

Building on previous OECD work on digitalisation policies, the OECD provided guidance to Moldova throughout 2022 on how to build a conducive ecosystem and set the right policies to further advance the development and uptake of digital business skills among SMEs. This report presents an overview of those issues, looking at 1) the institutional and policy framework; 2) skills assessment and anticipation tools; and 3) SME specific support for digital skills development.



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