

Albania

Digital Development Country Profile



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As digital transformation is a complex and dynamic process, this document is treated as a living document that can be amended at any point in time depending on the availability of additional information. Comments and additional inputs should be sent to the ITU Office for Europe (EURregion@itu.int).

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1. Introduction

1.1 Background and context

Development through digital transformation is a complex issue and touches on many enablers, from broadband availability to policies and sectoral e-strategies, as well as specific programmes fostering digital inclusion or the development of innovation communities.

Various independent research projects have been carried out by the ITU, UN agencies, and stakeholders in understanding these enablers, their impact on countries, the gaps, and opportunities. However, these studies may not reflect the inherent interdependencies among them. There is a need to provide a simple view and narrative about country's capacity to digitally transform, and various components contributing to this process.

Digital development through digital transformation has become ever more important since the outbreak of the COVID-19 pandemic, and various UN agencies and other stakeholders have assisted countries in their respective capacities relying substantially on the digital component.

Extending the availability of products and services, and empowering citizens, workers, and students in their daily engagements and needs during times of lockdown has become clear priorities of all countries. The ability to leverage the progress made in the digital sphere has become an important factor in determining resilience during the COVID-19 crisis.

As the situation is developing into a new normal where “digital” is not only a solution to an emergency but a long-term investment against risk, it is necessary to unravel the various dimensions of digital development in different countries as ICTs become increasingly important for the achievement of the Sustainable Development Goals by 2030.

1.2 Objective of the Report

The aim of the Digital Development Country Profiles series is to provide a comparative analysis for priority countries of the European region, namely Albania, Bosnia and Herzegovina, Georgia, Moldova, Montenegro, North Macedonia, Serbia, and Ukraine.

The Report addresses digital transformation based on the various experiences of the ITU, the UN specialised agency for ICTs, and other UN system organizations, offering a broad overview of the activities and projects being implemented at the national level and in the wider region.

This report seeks to build a reference for discussions on digital development at country level in Albania. It will serve as a guide for future dialogue with country stakeholders and pave the way for increasing fit-for-purpose engagements of the UN system in the country. It will equip decision-makers at the national level and international stakeholders with an overview of the various components of digital development at the country level.

1.3 Methodology

The research has identified a *five-building-blocks framework* that analyses digital transformation from a variety of perspectives, enabling an understanding of how the various dimensions of digital development interact at country level. Below is a summary of each building block and an elaboration of how the particular dimension fits in the overall digital development scenario of the country.

1) Meaningful connectivity as a foundation for digital development and transformation: Robust ICT infrastructure represents a critical precondition for the transformation of a country. It provides the foundation for innovative services and economic activity to take place. With the Covid-19 pandemic, countries and communities lacking connectivity faced a greater disruption than those who did not, therefore raising the overall importance of reliable infrastructure and services that are available to all. ICT infrastructure needs to be evaluated based on several aspects critical to meaningful connectivity.

2) People-centric digital transformation: Developing digital skills and building human capacities to empower citizens, strengthen employability, and create new job opportunities is essential to match the needs of the gigabit society. The pandemic has exacerbated pre-existing inequalities, especially amongst refugees, migrants, persons with disabilities, women, and girls. While connectivity is the backbone of digital transformation, adopting a people-centric digital transformation is vital to ensure that all members of society are not only connected but meaningfully connected and, thus, fully enjoy the fruit of an ever-growing digital world. To this end, special emphasis should be given to bridging the digital divide and equipping all groups of society, including groups of people with specific needs, to take advantage of ICTs by enabling digital skills development.

3) Government-centric digital transformation: Access to government services by citizens enables productivity, transparency, and equality in digital development. Ensuring that public services are delivered digitally is an important component of digital transformation, triggering a reduction in costs and bureaucracy, and increasing efficiency. Governments also have an important role not only in promoting the right strategies collaboratively across various entities but also in ensuring that public sector transformation becomes a catalyst for digital transformation in the wider economy.

4) Sector-centric digital transformation: Although the ICT sector is important in digital transformation, most economic benefits accumulate when ICTs are also used to transform other sectors. Agriculture and health are of high importance for South-eastern European countries in the scope of this study and play a key role in job creation and economic inclusion.

5) Digital-centric innovation ecosystem: Creating an enabling environment supporting digital innovation is essential to accelerate digital transformation in a country. The ability to digitally innovate domestically is also considered a sign of maturity which leverages all four dimensions addressed previously. Without entrepreneurship-driven innovation, economic opportunities remain unexplored and the global competitiveness of countries in an increasingly digital landscape is put at risk. Through strong digital innovation ecosystems, countries can benefit from increased productivity, economic growth, and employment opportunities that catalyse digital transformation and ensure that long-term digital development has a positive impact on the country's broader economic development.

The country profiles benefited from secondary research information, including various ITU publications, activities, and statistics, as well as additional research. In addition, content from other stakeholders' publications and deliverables were taken into account. Each piece of content is presented using the context of the relevant building block under which the information has been inserted, and therefore adopts one of the 5 perspectives of digital transformation.

2. Country Profile – Albania

2.1 Building Block 1 – Meaningful connectivity as foundation for digital transformation

As stressed in the introduction, broadband development is of primary importance and remains a prerequisite to ensure digital development. It is the backbone for every aspect of the economy acting as a fundamental enabler for businesses, consumers, and citizens. Access to the next generation of infrastructure (fixed, mobile, wireless, satellite) at an affordable price is a key prerequisite for advancing sustainable development.

This section will provide a general overview of i) connectivity indicators for Albania, to position the country in a European and global context, and will then dive into ii) the market environment; iii) current trends in access, affordability, and use; iv) latest developments in connectivity policy and regulation; v) 5G development and; vi) infrastructure cybersecurity.

2.1.1 General overview on connectivity indicators

According to the latest ITU data, 72.2% of people in Albania used the Internet in 2020. This result is far below the European region average of 84.9%. However, the increase in the number of Internet users is steady and slightly accelerating on a year-by-year basis. Over the last three years, the number of users increased by an average of 3.3 percentage points.¹²

In 2020, Albania had 99% of the population covered with 3G and 98% with 4G/LTE. The number of active mobile-broadband subscriptions per 100 inhabitants was 69, while the number of fixed broadband subscriptions per 100 inhabitants was 18. The greatest increase registered is the number of fixed broadband subscriptions. Indeed, since 2018, the number of fixed broadband subscriptions per 100 inhabitants experienced an annual growth with a CAGR of 18.6%. As for the number of active mobile-broadband subscriptions per 100 inhabitants, Albania has registered an annual growth with a CAGR of 5.2%.³

¹ ITU, World Telecommunication/ICT Indicators Database, August 2021, retrieved from <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx><https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx>

² ITU global and regional ICT data, retrieved from https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ITU_regional_global_Key_ICT_indicator_aggregates_Oct_2021.xlsx

³ ITU, World Telecommunication/ICT Indicators Database, August 2021, retrieved from <https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx>

Despite the number of fixed-broadband subscriptions still being low, 83.3% of individuals had Internet access at home in 2020.⁴ Besides, about 96% of the broadband traffic was consumed via fixed broadband subscriptions, with a monthly average of 97.4 GB. Meanwhile, the average monthly mobile broadband Internet traffic per mobile broadband subscription is 3.6 GB.⁵

According to the Cross-cutting Strategy “Digital Agenda of Albania” 2015-2020 (further referred to as Digital Agenda of Albania 2015-2020), Albania’s physical extension of fibre optic infrastructure reached 5000 km in 2015, and the network has been growing ever since. Broadband is currently supplied through myriad fixed and mobile technologies like DSL, FTTH/FTTB, FTTx in combination with NGA. Increased investments in fibre optics (FTTH and FTTB) are undergoing by fixed-network operators. Yet, according to the Electronic and Postal Communications Authority’s reports and Feasibility Study results, broadband speeds are low. The existing bandwidth in fixed and mobile networks is less than 30 Mbps. In terms of mobile technologies, broadband is supplied via 3G/HSPA/HSPA+ and 4G/LTE networks, as well as satellite technologies.⁶

Table 1 below summarizes a set of ITU indicators that embed Albania in a European (encompassing 46 countries of Europe region⁷) and Global context with regard to telecommunications and Internet indicators. While on many fronts, Albania finds itself well above World averages, there remains a non-negligible gap on some key indicators between the country and Europe region averages.

Table 1. Key Telecommunications & Internet Indicators in Albania in comparison to the European and World average⁸⁹

Key Indicator (2020)	Albania	Europe	World
Fixed telephone subs per 100 inhabitants	7.8	32.5	11.6
Mobile cellular subs per 100 inhabitants	91	118.3	107
Active mobile broadband per 100 inhabitants	69.5	101.5	77.3
3G coverage (% of population)	99.2	98.4	93.6
LTE/WiMAX coverage (% of population)	98.4	98.5	85
Individuals using Internet (%)	72.2	84.9	59.1
Households with Internet access (%)	83.3	87.6	65.7
Fixed broadband subs per 100 inhabitants	17.7	33.8	15.8

⁴ ITU ICT Indicators Database, retrieved from <https://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2021/July/CoreHouseholdIndicators.xls>

⁵ ITU, World Telecommunication/ICT Indicators Database, August 2021, retrieved from <https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx>

⁶ ITU, Broadband Mapping Systems in Europe and Regional Harmonization Initiatives, p. 39, retrieved from https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2020/RRF/21-01-15%20Background%20Paper_Broadband%20Mapping%20Systems%20in%20Europe%20and%20Regional%20Harmonization%20initiatives_final_clean.pdf

⁷ <https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/MemberCountriesinEurope.aspx>

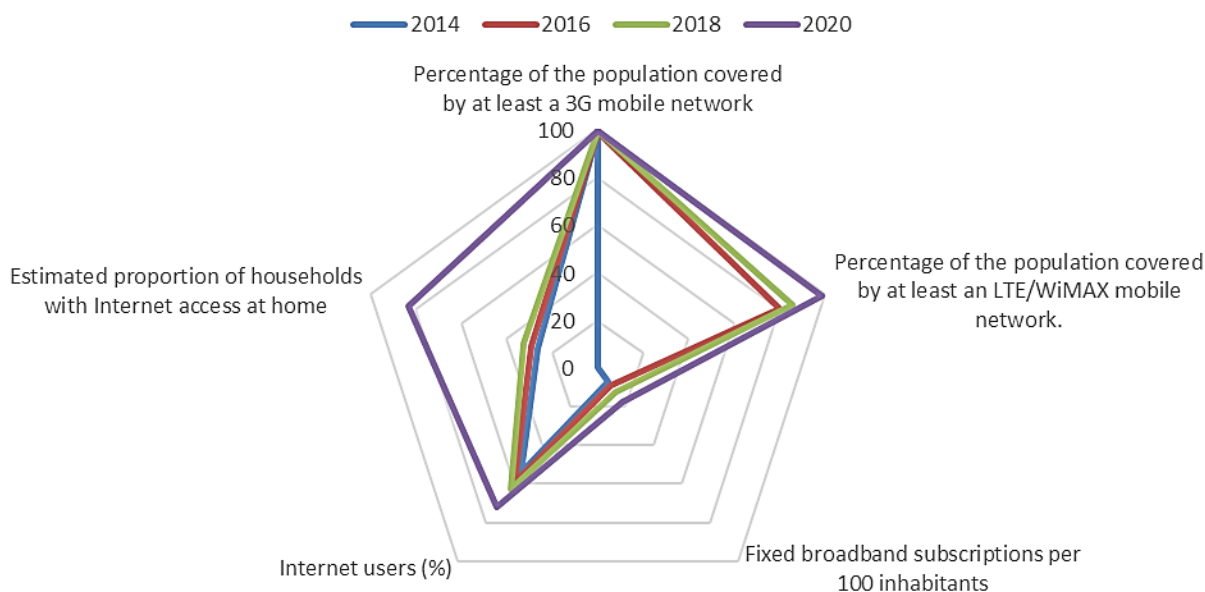
⁸ ITU, World Telecommunication/ICT Indicators Database, August 2021, retrieved from <https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx>

⁹ ITU global and regional ICT data, retrieved from https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ITU_regional_global_Key_ICT_indicator_aggregates_Oct_2021.xlsx

Fixed broadband subs by speed, % distribution:			
256 kbit/s to 2 Mbit/s	0.3	0.3	1.8
2 to 10 Mbit/s	32.3	6.4	6.7
10 Mbit/s	67.4	92.3	89.9

Figure 1 below shows a comparison of basic indicators of ICT-access in Albania, during the year 2014, 2016, 2018, and 2020.

Figure 1. The basic indicators of ICT-access and usage in Albania¹⁰¹¹



2.1.2 Market environment

According to the ITU “Measuring Information Society Report 2018”¹², Albania’s ICT ecosystem has seen a positive development over the past decade. Innovation strategies brought forward by the Government and the European Union enlargement process have fostered policy reform, particularly in the ICT sector. Access to and use of ICTs have grown due to the Government’s strategic vision and liberalization of the ICT market. While ICT infrastructure is well-developed in urban centres, rural connectivity remains a challenge. In some regions, especially rural ones, costs can be high and penetration low. The lack of rural connectivity is “one of the major gaps” and hampers growth in the country.

When the COVID-19 pandemic hit the country, it triggered an increase in demand for high-quality Internet services. To meet this demand, fixed and mobile broadband operators had to increase the network

¹⁰ ITU, World Telecommunication/ICT Indicators (WTI) Database (December 2020 Edition)

¹¹ ITU, World Telecommunication/ICT Indicators Database, August 2021, retrieved from <https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx>

¹² ITU, Measuring the Information Society Report 2018 – Volume 2, p. 4, retrieved from <https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2018/MISR-2018-Vol-2-E.pdf>

capacity. In 2020, the investment of mobile operators reached ALL 6.9 billion (approx. EUR 56.8 million), increasing by 63% compared to ALL 4.2 billion (approx. EUR 34.6 million) in 2019. The fixed broadband operators made ALL 2.76 billion (approx. EUR 22.7 million) investments in 2020.¹³

Meanwhile, the revenue of mobile operators in 2020 decreased by 9% compared to 2019 and reached ALL 23.9 billion (approx. EUR 196.6 million).¹⁴ These changes in the mobile services market are characterized by the reduction of national/international calls due to massive use of over-the-top (OTT) applications (WhatsApp, Viber, etc.), the decline in revenue generated from the sale of bundles of retail packages, and the decrease in the number of prepaid subscribers (77% from 83% in 2019) which migrate to post-paid services.

In 2020, seven operators that generated 82% of the revenues in this market were ALBtelecom, ABCom (Vodafone), ASC, ATU, Abissnet, Nisatel, and Digicom. Vodafone Albania continued to hold the largest share of the mobile electronic communications services market. Yet, it slightly decreased compared to 2019.

The fixed broadband services were provided by 174 operators which revenue increased by 6% compared to 2019, reaching ALL 9.55 billion (approx. EUR 78.5 million)¹⁵. Among the reasons is the significant increase in terms of the number of new subscribers, demand for high-speed connection for remote work, as well as the need to cover the uncovered rural areas.

In terms of penetration rates, the highest rates of urban penetration are in Tirana with 40.18% and Korça with 25.55%. The highest rate of rural penetration is in the Durrës region with about 21%, followed by Tirana and Shkodra regions with 10% and 8%.¹⁶

2.1.3 Meaningful connectivity in the regional context

Meaningful connectivity depends on a variety of factors. The most important are availability and affordability as these are also the strongest determinants of another factor of connectivity, uptake. Looking more in-depth at these three dimensions, the ITU report on “The status of connectivity in 9 non-EU countries of Europe region”¹⁷, prepared in the context of the ITU Regional Forum for Europe on Meaningful Connectivity held on 8 and 9 March 2021,¹⁸ gives a retrospective view at how these factors evolved and shows Albania’s positioning compared to regional peers.

¹³ The Bank of Albania, exchange rate on 19.11.2021 of EUR 121.53, retrieved from https://www.bankofalbania.org/Markets/Official_exchange_rate/

¹⁴ The Bank of Albania, exchange rate on 19.11.2021 of EUR 121.53, retrieved from https://www.bankofalbania.org/Markets/Official_exchange_rate/

¹⁵ The Bank of Albania, exchange rate on 19.11.2021 of EUR 121.53, retrieved from https://www.bankofalbania.org/Markets/Official_exchange_rate/

¹⁶ AKEP - RAPORTI VJETOR 2020, pp.36-40

¹⁷ ITU, The Status of Connectivity in 9 non-EU countries of Europe region, retrieved from https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2021/Meaningful%20Connectivity/Report%20-%20The%20Status%20of%20Connectivity%20in%209%20non-EU%20countries%20of%20Europe%20region_final_clean.pdf

¹⁸ <https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2021/MC/Default.aspx>

In terms of *availability of connectivity*, Albania witnessed an extension of services, both demographically and geographically, and have scored significant improvements over the past years in two indicators considered for this domain:

- Percentage of the population covered by at least an LTE/WiMAX mobile network: with 95% of the population covered by 4G/LTE services, Albania was the 7th out of 9 countries in 2019. Starting from 2016, this indicator had steady annual growth with a CAGR of 5.8%.
- The estimated proportion of households with Internet access at home: the availability of Internet in the home continues to prove an area of challenge in Albania. More than 76.0% of households remained without Internet as of 2018, placing the country in the last place among the regional peers in that year. However, in 2019, extraordinary development regarding Internet availability in households was registered. With an increase of 149.8%, its coverage reached 82.2%, getting closer to the EU-27 average of 86.6%.
- Number of fibre connections per 100 inhabitants: Albania, together with the other 8 countries, registered a spike in the growth rate of fibre subscriptions as a percent of total fixed broadband subscriptions between 2018 and 2019. Despite significant growth, the country shows moderate results in comparison to its regional peers. In 2019, it reached 4.8 FTTH/B subscriptions per 100 inhabitants, which is significantly lower than the EU-27 average of 8.7 subscriptions per 100 inhabitants.

With regard to the *affordability* dimension, Albania provides relatively affordable Internet access. According to most recent data, the data only mobile broadband basket cost was 1.03% of GNI per capita for a monthly allowance of 1.5 Gb, while the fixed-broadband basket cost was 1.44% of GNI per capita for a 5Gb Internet data cap.¹⁹

The country achieved the Broadband Commission's 2% target for fixed and mobile data baskets cost. Yet, it is still far from reaching the European countries average of 0.6% of GNI per capita on mobile broadband basket cost. On the other side, the fixed-broadband basket cost almost reached the European countries average of 1.2% of GNI per capita.²⁰

Among 9 non-EU countries of the Europe region, Albania experienced a most dramatic price drop from 2018 to 2019 for the mobile-broadband basket cost, with 0.57 percentage points decrease. Despite the insignificant change of the fixed-broadband basket cost in this period, in 2019, Albania offered the best price as a percentage of GNI per capita among 9 non-EU countries of the European region.

Finally, when it comes to *connectivity uptake*, Albania has a weaker position in comparison to regional peers, even though it demonstrated good performance on the *affordability* and *availability* dimensions outlined above:

¹⁹ ITU, Measuring digital development ICT price trends, pp. 68,73, retrieved from https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2020/ITU_ICTPriceTrends_2020.pdf

²⁰ ITU, Measuring digital development ICT price trends, pp. 14,24, retrieved from https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2020/ITU_ICTPriceTrends_2020.pdf

- Fixed broadband subscriptions per 100 inhabitants: Albania oversaw an almost 80.2% increase in fixed broadband subscriptions from 2015 to 2019. This result is 21.4 percentage points higher than in Montenegro, which was the second most dynamically growing country in the region on this indicator. However, in 2019, Albania had only 15.1 subscriptions per 100 inhabitants, and it is the last result among the 9 non-EU countries, leaving room for further improvement.
- Active mobile-broadband subscriptions per 100 inhabitants: the country has 62.1 subscriptions per 100 inhabitants compared to an EU-27 average of 108.8. However, Albania achieved its peak of subscriptions in 2017 when the country registered 70.4 active mobile broadband subscriptions per 100 inhabitants, and later on experienced a decrease of 11.8% in the period from 2017 to 2019.
- Internet users (as % of the population): Europe is the global leader in the proportion of Internet users, and none of the 9 non-EU countries of the Europe region managed to reach, in 2019, the EU-27 average of 84.6%. Nevertheless, the difference in Internet users as % of the population between the 9 countries considered and the peer states of the European region is diminishing at an accelerated rate. Albania registered an increase of 26.9 percentage points from 2015 to 2019. In 2019, the share of Internet users reached 68.6%, which is still the lowest result among the 9 non-EU countries of the European region.

2.1.4 Connectivity policies and regulations

Stepping on the European Union integration path defined the strategic vector for fostering the economic growth of the country and triggered the active development of the ICT sector. In this sense, several policies and programs have been in place ever since the start of processes to access the EU, and notable improvements have been achieved in terms of access, infrastructure, and affordability.

The first National Broadband Plan (2013-2020) of Albania provided a set of directions and goals to be undertaken by the government, public agencies, and other regulatory agencies to improve and further develop broadband infrastructure throughout the country, increase Internet penetration, provide the Internet with high speed and reliability across the country, increase competition and lower the prices, expand the number of e-services and digitalize all public services, as well as raise the awareness of the society regarding the benefits arising from the use of broadband services.²¹

Among the main developments resulting from the Plan is the adoption of law no. 120/2016 “On the development of high-speed electronic communications networks and the provision of the right of way”. It triggered the development of broadband infrastructure by creating spaces for the shared use of the existing utility infrastructure for broadband networks. However, there is still room for improvement in the implementation of this law. To advance on it, the Electronic and Postal Communications Authority (AKEP) allocated spectrum frequencies for mobile broadband, removed technological restrictions on the use of the spectrum, created an atlas for telecommunications infrastructure, took measures for shared

²¹ ITU, 5G Implementation in non-EU countries of the Europe Region, p.14, retrieved from <https://www.itu.int/en/myitu/Publications/2021/10/12/12/56/5G-implementation-in-non-European-Union-countries-of-the-Europe-region>

infrastructure use, measures to advance broadband security in rural and remote areas, and the ones in the field of international roaming.²²

To overcome the remaining drawbacks related to the connectivity, in June 2020, the Albanian government approved and adopted the National Plan for Sustainable Development of Digital Infrastructure, Broadband 2020-2025.²³ The new National Broadband Targets aim to provide by 2023 free access to Wi-Fi in 50% of the biggest public spaces like parks, libraries, and squares in all cities and villages. By the end of 2025 is planned to achieve:

- broadband penetration of 100%, with 50% having high-speed access of at least 1 Gbps (urban areas – Tirana) and 50% having access at the speed of at least 100 Mbps;
- 100% of households in rural and remote areas connected to broadband with a speed of at least 100 Mbps;
- 100% of schools connected with high-speed broadband of 1 Gbps and access in every classroom;
- 100% of universities connected with high-speed broadband of 1 Gbps;
- 100% of health centres and hospitals connected with a high-speed 1 Gbps broadband;
- one major city, the major transport corridors, and strategic locations covered with 5G connectivity.

Other broadband-related relevant policies include the Economic Reform Program 2019-2021, Albania's 5G Strategy, Regional Strategies—Including SEE-2020 and MAP-REA WB6 and the Balkans Digital Highway, and Albania's National Cyber Security Strategy.²⁴

Finally, from a wider regulatory standpoint, Albania currently scores 88 in the ITU ICT Regulatory Tracker²⁵, placing the country at 46th place among the countries considered for the 2020 ranking. The country is sharing this place with the other 4 countries from the Europe region. The ITU Tracker pinpoints the changes taking place in the ICT regulatory environment. It facilitates benchmarking and the identification of trends and gaps in ICT legal and regulatory frameworks, and allows decision-makers to make the case for further regulatory reform towards achieving a vibrant and inclusive ICT sector.

The ICT Regulatory Tracker is composed of 50 indicators grouped into four clusters:

1. Regulatory authority (focusing on the functioning of the separate regulator): Albania scores 18 out of 20;
2. Regulatory mandates (who regulates what): Albania scores 20 out of 22;
3. Regulatory regime (what regulation exists in major areas): Albania scores 26 out of 30;

²² National Plan for Sustainable Development of Digital Infrastructure, Broadband 2020-2025, p.18, retrieved from <https://www.infrastruktura.gov.al/wp-content/uploads/2020/07/National-Plan-BBAnd-EN.pdf>

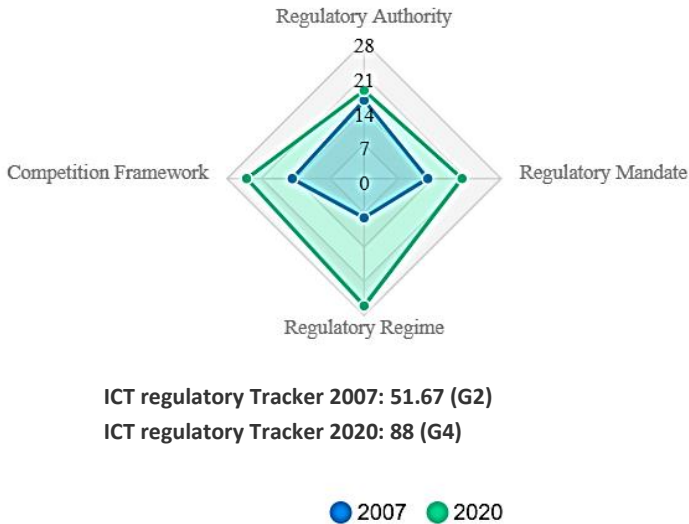
²³ National Plan for Sustainable Development of Digital Infrastructure, Broadband 2020-2025, retrieved from <http://www.infrastruktura.gov.al/wp-content/uploads/2020/07/National-Plan-BBAnd-EN.pdf>

²⁴ https://eeas.europa.eu/delegations/albania/83464/regional-broadband-infrastructure-development-albania-closing-workshop_en

²⁵ ITU ICT Regulatory Tracker, accessed on 15.11.21, retrieved from <https://app.gen5.digital/tracker/metrics>

- Competition framework for the ICT sector (level of competition in the main market segments): Albania scores 24 out of 28.

Figure 2 - ICT Regulatory Tracker - Albania



This benchmark allows positioning Albania among the group of countries with a *Fourth-Generation regulatory regime (G4)*, that is integrated and led by economic and social policy goals. Albania reached G4 only in 2020 and is among the 84.4% of European region countries that graduated to G4. The country’s overall result is slightly higher than the Europe region average score of 86.9, but is well above the world one of 71,9.

Recently, the ITU launched a reviewed Fifth Generation of regulation benchmark, focused on collaboration among different stakeholders in the ICT sector and with other sectors of the economy.

The G5 Benchmark covers four pillars, with 66 indicators taken into account: National Collaborative Governance, Policy Design Principles, Digital Development Toolbox, and Digital Economic Policy Agenda.

According to the latest data, Albania scores 72.33 in the G5 benchmark, which is a good result if compared to Europe region average of 73.9. This positions the country on the 52nd place among 193 countries and suggests that there is still margin of improvement.²⁶

Figure 3 - G5 Benchmark 2021- Albania



2.1.5 Next generation infrastructure: 5G Development

Stakeholders and telecom investors expect 5G to play a crucial role in Albania’s national infrastructure. While the expansion of broadband has seen steady growth over the past few years, 5G development in the country is in its initial phase.²⁷

²⁶ ITU G5 Accelerator, accessed on 15.11.21, retrieved from <https://gen5.digital>

²⁷ ITU, 5G Implementation in non-EU countries of the Europe Region, p.17, retrieved from <https://www.itu.int/en/myitu/Publications/2021/10/12/12/56/5G-implementation-in-non-European-Union-countries-of-the-Europe-region>

According to the National Plan for Sustainable Development of Digital Infrastructure, Broadband 2020-2025, the country plans to implement a 5G network until 2025.²⁸ To support this process, a spectrum policy paper was approved by the Council of Ministers Decision no. 636 dated 29.07.2020 “For the approval of the multiannual spectral policy program and action plan.”

Furthermore, Albania’s Ministry of Infrastructure and Energy and external experts held a 5G ecosystem Workshop in July 2019 and developed an Expert Report “5G Strategy for Albania”, which generated a roadmap and 5 key recommendations for 5G development.²⁹ The key recommendations are as follows:

- Facilitate the timely availability of spectrum: incl. clearing 700MHz spectrum, adopting national spectrum policy measures to encourage long-term heavy investments, addressing synchronization issues with other networks, implementing effective spectrum pricing policies, and making test frequencies available.
- Simplify processes to reduce the administrative complexity for build permits: incl. reducing the application complexity, considering Small Cells as works that do not require build permits and are subject to a preliminary declaration, reviewing of procedure for construction tax payment
- Facilitate network rollout: incl. implementing new building regulations which require all new buildings to have an infrastructure for delivering superfast broadband, support and challenging the local government in their plans to enable the delivery of digital infrastructure, promoting guidelines on infrastructure sharing spanning both passive and active infrastructure components.
- Address any environmental consideration: incl. promoting network densification with small cells to ensure low radiation levels, pursuing efforts regarding transparency by making the authorizations and measurement results publicly available.
- Promote awareness on the opportunities and benefits of 5G through events, dialogues, and structured skills’ development programs.

Moreover, as part of the National Broadband Plan (2020-2025), the 3.5 GHz band should be auctioned as soon as possible.³⁰

AKEP claims that the main barrier for 5G development in Albania is the “clash of frequencies” in the country. The 700 MHz band (694-790 MHz) is being used by TV broadcasters, making it challenging for the development of the 5G network,³¹ in line with the requirements for Region 1 agreed at the World Radiocommunication Conference in 2019 (WRC-19). In this context, plan to intensify the work toward migrating Albanian digital television frequencies to the 470MHz- 694MHz band in order to release the 700MHz band (694-790 MHz) for use by mobile telecom networks.

²⁸ National Plan for Sustainable Development of Digital Infrastructure, Broadband 2020-2025, retrieved from <http://www.infrastruktura.gov.al/wp-content/uploads/2020/07/National-Plan-BBAnd-EN.pdf>

²⁹ ITU, 2020. Policy Paper Update: National Broadband Plan 2020-2025 for Albania: A review of the 2013 vision, objectives and targets, 2020. Annex: “5G Strategy for Albania – Roadmap for the 5th generation of mobile communication in Albania.”

³⁰ National Plan for Sustainable Development of Digital Infrastructure, Broadband 2020-2025, retrieved from <http://www.infrastruktura.gov.al/wp-content/uploads/2020/07/National-Plan-BBAnd-EN.pdf>

³¹ <https://cms.law/en/int/expert-guides/cms-expert-guide-to-5g/albania>

In this context, in November 2021, AKEP and Audiovisual Media Authority have signed a memorandum of cooperation, agreeing to work together to release the 700MHz band. Other areas of cooperation will include establishing a joint group to monitor interference and creation of a unified inventory of frequencies.³²

In face of the social concerns surrounding 5G implementation, AKEP is continuing to support the competent bodies, including the Commission for Radiation Protection and the Office for Radiation Protection. Thus, they will continue to perform measurements of the power of antenna transmission, to monitor changes derived from the implementation of 5G technology.

In October 2019, AKEP granted Vodafone Albania permission to kick off 5G technology testing in the country using the frequencies 3600-3700 MHz of the 3600-3800 MHz band for measurement, research, and testing.³³ After the testing period in December 2019, however, Vodafone Albania did not continue the testing trials.

In 2020, One Telecommunications and Ericsson signed agreements to modernize the country's transmission network, which may have consequences for the 5G development, as well as for how it will be regulated or how stakeholders will compete or collaborate. Based on the agreement, Ericsson upgraded One Telecommunications network capabilities to Gigabit LTE while also making the network 5G ready using the latest Eric Radio System equipment.³⁴

In October 2020, during the Western Balkan Digital Summit, Western Balkans signed a Memorandum of Understanding on regional interoperability and trust services in the Western Balkans region and a Memorandum of Understanding on a roadmap for the 5G digital transformation of the six economies of the Western Balkans. The document expresses the intention of all economies in the region to provide a legislative and regulatory framework that will simplify administrative procedures, stimulate investment through competitive market competition and ensure the application of the latest technologies to continue the accelerated digital transformation. The whole process will be implemented in a way that is fully harmonized with European regulations, standards, and best practices.³⁵

Also, in June 2021, Prime Minister Edi Rama signed a memorandum with the US Secretary of State Antony Blinken to strengthen the coordination with the US on the development of 5G technology networks in Albania.³⁶

2.1.6 Increasing infrastructure reliability through cybersecurity

According to the 2020 ITU Global Cybersecurity Index, Albania ranks 40th in the Europe region and 80th globally. This index is a trusted reference that measures the commitment of countries to cybersecurity at

³² https://www.commsupdate.com/articles/2021/11/09/akep-and-ama-to-cooperate-on-release-of-700mhz-spectrum/?fbclid=IwAR3j8b8bmLB_galGEenqXdeZVFosVdr8q0eaz3z19DwXXieucUdZ0B9U5Yw

³³ <https://akep.al/wp-content/uploads/2019/10/VKD-nr.-34-date-14.10.2019-Vodafone-Albania-Autorizim-Individual-3600-3700-MHz-per-prove.pdf>

³⁴ <https://www.ericsson.com/en/news/3/2020/ericsson-to-modernize-telekom-albania-core-and-radio-networks>

³⁵ <https://www.rcc.int/events/1400/rcc-supports-one-of-the-regions-most-prominent-events-western-balkans-digital-summit>

³⁶ <https://balkaninsight.com/2021/06/14/us-albania-welcome-agreement-on-trustworthy-5g/>

a global level – to raise awareness of the importance and different dimensions of the issue and assess countries' ICT sector resilience and reliability. It highlighted the legal measures as the country strength area and the cooperative measures as an area of potential growth.³⁷

Yet, in 2018, the country ranked 36th in the Europe region in this same index, and 62nd globally, which emphasized a clear need for greater efforts and commitment to strengthening the country's cybersecurity.³⁸

The cybersecurity landscape in the country is shaped by multiple elements, including the institutional and legislative frameworks. The country has signed and ratified the Budapest Convention on cybercrime³⁹ and has reflected its provisions in the penal code and penal procedure code. Besides, cybercrime legal provisions are fully implemented in the law on criminal procedure.⁴⁰

In January 2017, Albania approved the law No.2/2017 on Cyber Security which aims to achieve a high level of cybersecurity by defining security measures, rights, obligations, and cooperation between entities of critical and important infrastructures and by defining the National Authority for Electronic Certification and Cyber Security (NAECCS) as a national CIRT.⁴¹

In January 2021, the National Cybersecurity Strategy (2020-2025) was adopted. It covers four specific policy goals including:

- Ensuring cybersecurity at the national level through the protection of information infrastructure and strengthening technological and legal tools;
- Developing safe cyberspace educating and raising awareness in the society regarding professional capacity building in the information security field;
- Developing mechanisms required for child safety in cyberspace, while preparing the younger generation to benefit from the advantages of technology and overcome development challenges;
- Improving national and international cooperation with strategic partners in the cybersecurity field.⁴²

This strategic document was preceded by the Digital Agenda of Albania 2015-2020 and National Policy Paper on Cyber Security 2015-2017. The Digital Agenda of Albania 2015-2020 reinforced the country's commitment towards cybersecurity and cyber-resilience, while the Policy Paper assessed the state of play

³⁷ ITU Global Cybersecurity Index (GCI) 2020, pp. 26, 31, 106, retrieved from https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2021-PDF-E.pdf

³⁸ ITU Global Cybersecurity Index (GCI) 2018, p.61, retrieved from https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2018-PDF-E.pdf

³⁹ <https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/185?module=signatures-by-treaty&treatynum=185>

⁴⁰ Report on Cybersecurity Maturity Level in Albania, pp.11-12, retrieved from https://cesk.gov.al/Publikime/2019/AlbaniaCMMReport.pdf?fbclid=IwAR0lj--FDN_dqcvHzehrlDurerueiTP1JgWzOrPPVzdz_m26JAC_xowOol8

⁴¹ ITU Global Cybersecurity Index (GCI) 2018, pp.41-42, retrieved from https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2018-PDF-E.pdf

⁴² National Cybersecurity Strategy and its Action Plan 2020-2025, retrieved from https://cesk.gov.al/publicAnglisht_html/legjislacioni/National%20Cybersecurity%20Strategy%20and%20its%20Action%20Plan%202020-2025.pdf

and trends concerning cybersecurity in the country and articulated the cybersecurity vision, principles, and strategic objectives. The Policy Paper also supported the goal of the National Security Strategy 2014-2020 of establishing the highest standards in protecting information in all its forms with a particular focus on protection against cyber-attacks.

The incident response in Albania is being handled by three main authorities. The Ministry of Defence (MoD) is responsible for managing the MoD and Air Force related cyber incidents. The cybercrime incidents are handled by Albanian State Police and the Prosecutor's Office Cybercrime Investigation Unit. However, NAECCS is the official national coordinating body for cybersecurity incidents management and reporting. It also has legislative power, is in charge of fostering cooperation with all the national stakeholders and relevant international organizations, and is organizing awareness campaigns and trainings.⁴³

Similarly to the other countries, Albania lacks professionals with cybersecurity skills. Within public institutions, training on cybersecurity issues both for IT staff and general staff is also limited. For example, a central forensics laboratory exists within the cybercrime unit of state police. However, more training for the Cybercrime Unit employees' is necessary to be provided.⁴⁴

In 2017, a Training program on Common Security and Defence Policy has been held in Albania under the aegis of the European Security and Defence College. The training engaged representatives from Western Balkan countries and EU member states.

Besides, those interested in obtaining specialized training in the field can access the internationally accredited IT Security and Governance training and certification courses. Courses in cybersecurity-related fields, such as information security, network security, and cryptography, are offered by public and private education institutions. However, cybersecurity-specific courses are not yet offered.⁴⁵

The need for enhancing cybersecurity education and awareness was stressed out by various stakeholders including the Government authorities, industry representatives, and academia. As one of the good practices meant to support the stakeholders in their efforts is the Cyber Drill Exercises. In 2021, a Cyber Drill Exercise powered by CYBER RANGES was organized by NAECCS. It was an all-day CSIRT/SOC-type simulation scenario for individual players, part of the Albanian Cyber Academy (ACA5). ACA5 is a week-long conference which was organized for the fifth consecutive year. It is dedicated to both talented students and professionals in the field of cybersecurity, and members of sectoral CSIRTs.⁴⁶

To raise the awareness of the remaining part of the community, in the last few years, periodic awareness activities for a safer Internet were carried out. These include the international day of Safer Internet, the

⁴³ Report on Cybersecurity Maturity Level in Albania, pp.23-25, retrieved from <https://cesk.gov.al/Publikime/2019/AlbaniaCMMReport.pdf>

⁴⁴ Report on Cybersecurity Maturity Level in ALBANIA, pp.11-12, retrieved from <https://cesk.gov.al/Publikime/2019/AlbaniaCMMReport.pdf>

⁴⁵ Report on Cybersecurity Maturity Level in ALBANIA, p.42, retrieved from <https://cesk.gov.al/Publikime/2019/AlbaniaCMMReport.pdf>

⁴⁶ <https://www.cyberranges.com/cyber-ranges-by-silensec-powers-the-akcesk-2021-cyber-drill-exercise/>

cybersecurity awareness month (celebrated in October), and the child security week (celebrated in March).⁴⁷

Stakeholders from civil society are holding regular meetings with the European Commission and the Internet Governance Forum (IGF) on cybersecurity awareness. Also, the private sector is starting to consider cybersecurity awareness, but this process is still at the early stages.

2.2 Building Block 2 – People - centric digital transformation

Addressing more in-depth the usage of ICTs by people and various groups of society allows a more comprehensive framing of the digital divide and identification of gaps that may require policy intervention to ensure that access to digital services is truly for all. This requires examining various dimensions of digital inclusion, including (i) digital skills development, (ii) gender issues, (iii) ICT accessibility for persons with disabilities, and (iv) child online protection.

2.2.1 Digital skills development

The transformation of the Albanian economy and the digitalization of social interactions increased the demand for digital skills. Yet, the level of digital literacy across the population leaves space for improvement, and there are disparities in access to opportunities to acquire these skills.

According to Eurostat statistics, in 2019, only 21% of Albanians aged 16 to 74 had basic digital skills. This was one of the lowest percentages among all European countries.⁴⁸ The majority of society owns basic digital skills and technological competence, such as using electronic products, software programs, social media, surfing on the Internet, and sending and receiving emails. Due to the knowledge accumulated through the education system, citizens between 15-25 years old own intermediate digital skills. However, only people who have completed university studies, and people who work in the digital sector possess more advanced skills.⁴⁹

According to the recent digital skills assessment conducted by the ITU in partnership with the Ministry of Infrastructure and Energy, the labour market is currently struggling from the lack of digital skills, weak university education curricula, and the lack of opportunities for employees' digital skills development.⁵⁰

The local ICT sector has a severe shortage of talent. It is characterized by a large gap between IT graduates' knowledge and skills and the industry needs, even for lower-level positions. As a result, many firms provide intensive and costly in-house training for graduates, sometimes lasting up to six months.⁵¹

⁴⁷ Report on Cybersecurity Maturity Level in ALBANIA, p.45, retrieved from <https://cesk.gov.al/Publikime/2019/AlbaniaCMMReport.pdf>

⁴⁸ <https://albaniandailynews.com/news/digital-literacy-indicator-in-albania-lowest-in-europe>

⁴⁹ Presentation on Digital Skills in Albania, retrieved from https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2021/Digital%20skills/1_Florensa_Haxhi_Albania.pdf

⁵⁰ ITU assessment on the digital skills in Albania - to be published

⁵¹ ITU-UN Women, Digitally empowered Generation Equality: Women, girls and ICT in the context of COVID-19 in selected Western Balkan and Eastern Partnership countries, pp.30-31, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

The government of Albania has already embarked on a journey to finetune the education system, with the measures implemented at the legislative and operational levels.

There is an extensive number of government bodies responsible for digital skills' development in Albania. The list includes the Prime Minister's Office, the Ministry of Education, Sports and Youth, the Ministry of Finance and Economy, the Ministry of Energy and Infrastructure, the National Agency of Information Society, the Agency for Quality Assurance of Pre-University Education, and the National Agency of Vocational Education Training and Qualifications.

The national strategic documents contributing to the digital skills' development include the National Education Strategy 2021 – 2026, Digital Agenda of Albania 2015-2020, the National Employment and Skills Strategy 2019 – 2022, the National Strategy for Scientific Research, Technology and Innovation 2017 – 2022, the National Strategy for Development and Integration 2015-2020. Besides, the Digital Agenda of Albania 2021 – 2025, which is currently under development, envisages one of the core pillars to be dedicated to enabling and developing basic and advanced digital skills to broadly involve the population in ICT services and increase the number of ICT professionals.⁵²

To facilitate and accelerate the digital skills' development in Albania, numerous projects were implemented by the development partners and the private sector. Among them are:

- The Skills for Jobs (SJ4) pilot project was launched in April 2018 to offer remote internships to ICT students. The project involves ICT businesses, including 11 leading companies based in Tirana, giving the students practical assignments to be done in the classroom or at home. The project uses the PAPION online platform.
- Pavarësia School launched a pilot course in design software for 3D printers involving 22 VET teachers and students. Equipment and software were provided by a Swiss company operating in Albania and is used to develop the digital skills and competences of students to enable them to meet the demands of modern industry and to create tools.⁵³
- Cisco academies: IT teachers from the VET center of Kamza, Kolin Gjoka school in Lezha, industrial Pavarësia school in Vlora, and Gjergji Canco electro-technic school received a Cisco three-month blended training. These schools have become Cisco academies, offering IT training opportunities.
- Technology for innovative pedagogy: in 2017, a project led by Irisoft Education delivered several IT training modules and involved 135 teachers from five vocational schools. The training included the development and use of a dedicated portal on vocational subjects.
- IT career opportunities for young women: Albania's Massive Open Online Courses offered ICT courses to 8,500 trainees. More than 42% of them were female.
- Swisscontact Skills for Jobs project supported by teachers and experts aimed at developing digital learning content for IT, hotel and tourism, and business education programs. An open-source

⁵² Presentation on Digital Skills in Albania, retrieved from https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2021/Digital%20skills/1_Florensa_Haxhi_Albania.pdf

⁵³ ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, p.56, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

learning platform offers digital resources that can be used for classroom practice or self-learning at the learner's own pace and place.

- Vodafone Albania Foundation manages several social projects, including establishing 120 “i-Clubs” (innovation clubs) involving schools across the country in extracurricular youth education.

Besides, ICT resource centre Protik, a not-for-profit organization, was established in 2012 by the Government of Albania, USAID, Albanian-American Development Foundation, Microsoft, Cisco, and Albtelecom. Since then, it was aiming to catalyse the development of start-ups and the ICT sector in the country by providing online workshops, courses, and ICT resources.⁵⁴

The COVID-19 pandemic reinforced the need for digital skills development in both the education and employment sectors. The crucial role in adjusting to new realities in the education sector can be attributed to teachers, as many of them were not previously trained or prepared to transition from offline to online didactic activity.

Private sector also needed to quickly adapt to new market conditions and adopt new ways of working. The need to work from home showed how critical digital skills are. In this sense, the companies from ICT related industries were the most prepared comparing to the companies from other sectors.

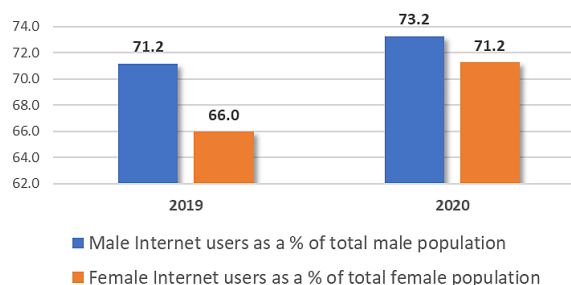
Among the projects that help disadvantaged categories of population adjust to new realities is the “Supported Continuous Unemployed Learning” project. It started in August 2020 and aims to train around 6000 vulnerable low qualified jobseekers and help them acquire basic professional and personal skills including literacy, numeracy, and basic digital skills. The ultimate goal is to support and facilitate the access and transition of the target group in the labour market and additional vocational education. This project is financed by the European Union Program for Employment and Social Innovation and implemented jointly by the National Agency for Employment and Skills and UNDP Albania.⁵⁵

2.2.2 Bridging the gendered digital divide – Women and girls in the ICT and STEM sectors

Women's access to ICT

In terms of Internet use in the general population, the gender gap in Albania is relatively small. In 2020, 71.2% of the female population was using the Internet, which is 2 percentage points lower than the share of men using the Internet. This gap diminished dramatically compared to 2019 when the data showed a difference of 5.2 percentage points between the shares of male and female Internet users.⁵⁶

Figure 4 – Number of male and female Internet users in 2020 vs 2019



⁵⁴ ETF Factsheet, Digital skills and online learning in Albania, retrieved from https://www.etf.europa.eu/sites/default/files/2019-02/digital-factsheet_albania.pdf

⁵⁵ <https://www.al.undp.org/content/albania/en/home/projects/supported-continuous-unemployed-learning.html>

⁵⁶ ITU ICT Indicators Database, retrieved from <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

Despite these positive developments, in Albania, women's and girls' mobile phone usage is commonly controlled by male family members. Furthermore, Albanian parents may be stricter with girls than boys regarding many Internet-related activities, such as using a webcam, entering a chat room, and watching online video clips.⁵⁷

Women's participation and leadership in ICT

While technological innovations in sectors such as health and banking can have far-reaching benefits for equality, many low-skill and routine jobs in manufacturing are at risk of automatization or rather will require a new skill set. This bears the risk of job polarization, with enhanced wage inequality as a result.

If nothing changes, women are especially likely to fall behind. They are disproportionately represented in the middle- to low-skill jobs and are expected to benefit less from the new jobs of a post-4IR world. The World Economic Forum estimates that at the current level of gender equality, men will gain one new job for every three jobs lost due to 4IR, while women will only gain one new job for five jobs lost. In the areas that provide the highest on-average wages, namely science, technology, engineering and mathematics (STEM), the disparity is even higher, with one new STEM job created for four jobs lost for men, compared to 20 jobs lost for women. This not only worsens economic inequality between genders but may also affect the productivity of the sector, as many studies show that companies with a diverse workforce and management perform better.⁵⁸

According to UNIDO's recent article, nowadays, there is some uncertainty about the gender-differentiated effects of the Fourth Industrial Revolution on women's and men's wages and on labour force participation rates. However, research suggests that it will reinforce existing inequalities and that women will benefit less than men both in advanced and in emerging economies.⁵⁹

In Albania, women are less likely to participate in the labour market, which is why they are underrepresented in both the public and private sectors. Bank loans – an alternative source of capital for start-ups in this region – are harder for women to obtain. Only 8% of women succeed in obtaining bank loans, and many applications are denied. This may be related to norms around land ownership and inheritance. Property is commonly registered under the “head” of the household, a role reserved for Albanian men.⁶⁰ Meanwhile, women working in ICT include those with and without technical education. Thus, many core roles within technology companies, such as human resources, accounting, and marketing are often female-dominated. Besides, in Albania, ICT includes call centre employees in low-paid, low-skilled positions which are occupied primarily by women.

⁵⁷ ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, p.9, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

⁵⁸ World Economic Forum Global Gender Gap Report 2021, retrieved from https://www3.weforum.org/docs/WEF_GGGR_2021.pdf

⁵⁹ <https://www.unido.org/stories/intelligent-industry-and-narrowing-gender-gap>

⁶⁰ ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, p.39, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

To trigger a change of the vector, Albania allocated funds for 40 women to expand employment and entrepreneurial opportunities. In Parliament, gender quotas have been implemented and contributed to the increase in the number of female Members of Parliament. Currently, 43 of the 140 Members of Parliament are women, and 13 of the 31 deputy ministers are female.⁶¹

Women in ICT education

Women are under-represented in ICT education, vocational education and training (VET), and tertiary education. More women than men graduate in the subject areas of business, administration, law, health and well-being, arts and humanities, whereas more men (56.3%) than women graduate in the fields of services, engineering, manufacturing, construction, and IT.⁶²

Albania also adopted an education and lifelong learning strategy to improve curricula, create high-content digital materials in Albanian language and raise awareness among students about how to protect themselves from the dangers of the Internet. However, only 21% of participants in vocational programs are female. Out of this number, less than 16% study ICT.⁶³

While almost half of all female university students are enrolled in faculties related to ICT (figures range from 49% to 54%), no data are available on the number of women working in ICT, reflecting both the small size of the industry overall and the lack of attention to gendered ICT-related employment outcomes.⁶⁴

Dark side of ICT and cyberviolence

Albania's latest survey on violence against women and girls revealed that 52.9% of women had experienced at least one type of violence. Also, the European Institute for Gender Equality estimated that one in ten women have already experienced a form of cyber violence since the age of 15.⁶⁵

This issue is affecting women from an early age. A study of children in Albania shows that girls are more affected psychologically than boys when exposed to unwanted, harmful content. For example, 76% of girls and 55% of boys reported being upset when exposed to depictions of real violence online, and 4% more girls than boys were fairly or slightly upset when exposed to unwanted sexual content.⁶⁶

⁶¹ ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, p.55, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

⁶² ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, p.56, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

⁶³ ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, p.24, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

⁶⁴ ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, p.31, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

⁶⁵ DCAF, Cyber Violence against Women and Girls in the Western Balkans: Selected Case Studies and a Cybersecurity Governance Approach, pp.16-17, retrieved from https://dcaf.ch/sites/default/files/publications/documents/CyberVAWG_in_WB.pdf

⁶⁶ ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, p 48, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

In this context, steps were taken to prevent and address violence against women and provide strong support for survivors of domestic violence through national shelters, free legal aid, referral mechanisms at the municipal level, and a national counselling line for victims of domestic violence.

The country has set up a legal and operational framework that allows online reporting of cybercrime. However, there is limited information and reporting mechanisms on specific issues that individuals face online, such as child online protection and cyberbullying.

When three adolescent girls discovered about these issues, they decided to use their newly developed coding skills to develop the GjejZâ application (or “Find Your Voice”).

Good practices to increase women participation in STEM careers

As a former IT manager in Albania noted, “women need to work twice as hard to be taken seriously and respected.”⁶⁷ This hard work is supported by IT career opportunities for young women, which are growing in line with the global trend aimed at attracting more women to the ICT sector. Among these opportunities are initiatives, projects, courses, and networks established for women and by women.

One of the initiatives aiming to increase participation and open doors for girls and young women to study and work in well-paid digital jobs is the Digital Girls of the Year. Its objective is to create an environment that empowers and encourages girls and young women to consider careers in the growing field of ICT, enabling both girls and technology companies to reap the benefits of greater female participation in the ICT sector in Kosovo, Albania, and Macedonia.

The Hypatia project is a consortium of European science centres and museums that strive to communicate STEM concepts in a gender-inclusive way. A core component of this vision is an accessible, practical, and ready-to-use digital toolkit with innovative activities for adolescents. Every activity contains gender and facilitation guidelines for teachers, informal learning organizations, researchers, and industry stakeholders. It is available in English, Albanian, Serbian, and a variety of other European languages. Learning modules include identifying gender stereotypes in STEM, promoting gender inclusiveness in science teaching and learning about famous women in STEM.⁶⁸

Digital Jobs Albania initiative of the World Bank aims to provide young Albanian women from 16 to 35 years old with access to online training, mentorship and work opportunities, as well as connect them to the Global Economy.⁶⁹

Almooc, a website that runs massive open online courses, offers ICT courses on subjects in high demand in the country. More than 42% of 8 500 trainees who have completed such courses are female.

⁶⁷ ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, p.32, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

⁶⁸ ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, p.26, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

⁶⁹ <https://www.digitaljobsalbania.com/about/>

Besides, the Women Founders Network established the first all-female accelerator in the Western Balkans.⁷⁰

2.2.3 Digital inclusion and ICT accessibility for persons with disabilities

Albania ratified the Convention on the Rights of Persons with Disabilities (UN CRPD)⁷¹ in February 2013 but has not yet ratified or acceded to the Optional Protocol to the UNCRPD.⁷² The UNCRPD stipulates (Article 9 - Accessibility) that countries should ensure equal access of persons with disabilities to the physical environment, transportation, information and communications (ICTs), including information and communications technologies and systems.

In October 2019, the Committee on the Rights of Persons with Disabilities provided its concluding observations of the situation in Albania, based on the Initial State Report⁷³ submitted by the Government of Albania. While the Committee commended the country's adoption of legislation on inclusion and accessibility for persons with disabilities, the Committee is concerned by the overall lack of national policies and strategies in advancing the equal rights of persons with disabilities in various domains. Concerning Article 9 of the Convention on Accessibility, the Committee included the following recommendations:

- Adopt a comprehensive action plan for the implementation of Law No. 93/2014, ensuring a sufficient budget, efficient monitoring mechanism, and benchmarks for the removal of barriers, with enforceable and effective sanctions for non-compliance;
- Put in place a mechanism to monitor compliance with accessibility standards in all areas covered by the Convention and impose sanctions in the event of non-compliance;
- Provide comprehensive information on the accessibility of electronic media, with special attention to social media.

Albania showcased several key milestones in building a legislative framework for digital inclusion and ICT accessibility for persons with disabilities. Law no. 93/2014 on Inclusion and Accessibility of Persons with Disabilities⁷⁴ defines the main principles of inclusion and accessibility of persons with disabilities. It specifies that the States should ensure that persons with disabilities have access to all areas, including communication and information (Article 5).

⁷⁰ ITU-UN Women, Digitally Empowered Generation Equality: Women, Girls and ICT in the context of COVID 19 in selected Western Balkan and Eastern Europe Partnership countries, pp.40-41, retrieved from <http://handle.itu.int/11.1002/pub/818d024e-en>

⁷¹ <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html>

⁷² ITU, ICT accessibility assessment for the Europe region, pp.70, 72, retrieved from <http://handle.itu.int/11.1002/pub/8182b00a-en>

⁷³ CRPD, Concluding observations on the initial report of Albania, retrieved from https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=CRPD%2fC%2fALB%2fCO%2f1&Lang=en

⁷⁴ Law no. 93/2014 “on the inclusion and accessibility of persons with disabilities”, retrieved from <http://qbz.gov.al/eli/ligj/2014/07/24/93>

The country has also launched a National Disability Action Plan 2016-2020⁷⁵, which includes accessibility (physical accessibility and access to information) as one of the eight priority areas. The goals of the Action Plan include ensuring accessibility to services and access to information for persons with disabilities, and foresees that by 2020, all facilities that provide public services should ensure accessibility. In addition, the amendment of Law no. 9918/2008 on Electronic Communications marks several advancements in ICT accessibility for persons with disabilities.⁷⁶

While various progress has been made on the regulatory provision of accessible information and communication, the implementation framework could benefit from further improvement in Albania on the following aspects:

- Providing accessible communication and media services in sign language, audio format, Braille, large print, or other simplified formats in all public institutions offering essential services for persons with disabilities⁷⁷;
- Adopting, with the involvement of the relevant organizations of persons with disabilities, effective legislative and strategic documents to ensure the full recognition of sign language and the provision of Braille;
- Developing capacity-building programs, including training, on accessible modes, means and formats, Easy Read and sign language;
- Providing sign language interpretation for services open to the public;
- Improving access to mobility aids, devices, and other assistive technologies.⁷⁸

ITU is committed to advancing digital accessibility. Accessibility is not only embedded in the Union's strategic goals and targets but also, in 2018, ITU Member States affirmed that enabling environments ensuring accessible ICTs for persons with disabilities should be established in all countries by 2023.⁷⁹ The ITU Office for Europe actively collaborates with partner organizations to foster enabling environments, ensuring accessible ICTs for persons with disabilities and inclusive digital society in the region. The efforts to promote ICTs accessibility consist of the following tracks:

- [Annual ITU-EC Forum on Accessible Europe: ICT for All](#);

⁷⁵ National Action Plan: Persons with Disabilities 2016-2020, retrieved from <https://www.al.undp.org/content/albania/en/home/library/poverty/national-action-plan-persons-with-disabilities-2016-2020.html>

⁷⁶ Based on the country's input to the ITU "ICT Accessibility Survey for Europe Region", data collected in Q4 2020. The amendment includes the undertakings to ensure accessibility requirements of suitable equipment for users with disabilities in the consumer protection clause, ensuring information intended for public is provided in accessible format, and choice and access to emergency services for persons with disabilities.

⁷⁷ Approximately 68% of the persons with disabilities report that in the municipalities, at the KMCA (Medical Commission on disability assessment), daycare and health care centers there is no accessible communication to meet their needs. Source: Monitoring the National Disability Action Plan 2016-2020 – Summary (2019), retrieved from <https://www.wvi.org/sites/default/files/Monitoring%20Report%20on%20NDAP%20Summary.pdf>.

⁷⁸ Concluding observations on the initial report of Albania of Committee on the Rights of Persons with Disabilities (2019), retrieved from https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolNo=CRPD%2fC%2fALB%2fCO%2f1&Lang=en

⁷⁹ [ITU Strategic Goal 2 – Inclusiveness, Target 2.9](#).

- [Regional Competition: Innovative Digital Solutions for Accessible Europe](#);
- [ICT Accessibility Assessment for Europe Region](#);
- [Technical Assessment in Enhancing ICTs Accessibility at a country level - Example of Serbia](#);
- [Capacity building in ICT Accessibility](#).

2.2.4 Building trust and confidence in the use of ICTs for children and youth

Albania ratified the Council of Europe Convention on Protection of Children against Sexual Exploitation and Sexual Abuse (“the Lanzarote Convention”) in April 2009 and is a member of the WePROTECT Global Alliance.

On the legislative side, the adoption in 2017 of the new Law 18/2017 “On the Rights and Protection of Child” and the “Criminal Justice for Children Code” significantly improved the legal framework supporting the goal of ensuring child online safety. Besides, the National Agenda for the Right of the Children 2017-2020 aimed to create favourable conditions for the healthy physical and psychosocial development of children, social inclusion, and participation in all processes, based on the best interest of the child.

To implement the Cooperation Agreement on “Online Children's Safety in Albania” that has been signed in February 2016, an Action Plan 2018-2020 “For the safer internet for children in Albania” was signed by core government authorities in the field, setting the common responsibilities for children’s rights protection by public institutions, civil society organization, teachers, parents, media, and industry of communication.

Later on, providing safer internet for children and youth in Albania became one of the strategic objectives of the “National Strategy for Cyber Security 2020-2025”. The development and introduction for the first time in this type of strategic document of the dedicated chapter on children’s online protection solidified the stakeholder’s commitment to keeping children safe.⁸⁰

The institutional framework dealing with this issue include government and non-government institutions like NAECCS, the Ministry of Health and Social Protection, the Ministry of Education Sports and Youth, the Ministry of Interior, the National Centre for Safe Internet, the Centre for the Rights of the Child, State Agency on Child Rights and Protection, etc.

Albania has an active helpline for children to contact in case of online safety concerns, which is the Albanian National Child Helpline “ALO 116 111”. A central information hub is also active under the <https://www.isigurt.al/> portal. It organizes awareness campaigns aiming at educating about possible harmful activities online, such as bullying and harassment, identity theft, and online abuse.

Despite stakeholders’ efforts, there is a variety of factors and challenges that still need to be addressed for creating a safe online environment for kids. According to the quantitative interviews held as part of the ITU assessment of the “Status of national child online protection ecosystems in South-Eastern

⁸⁰Information provided by Albania on Children's rights in relation to the digital environment, retrieved from <https://www.ohchr.org/Documents/HRBodies/CRC/GCChildrensDigitalEnvironment/States/Albania.docx>

Europe”⁸¹, 55% of respondents were unsure if it was illegal to possess, distribute, or create child sexual abuse materials. At the same time, 33% of respondents knew of the existence of the Safer Internet Centre in Albania, and 77% knew about the hotline for reporting child sexual abuse material. When asked, “In your opinion, how big is the focus on child online protection issues in your country?” respondents averaged a score of 2.36 (rating between 1: not important, and 5: very important). Besides, respondents highlighted the lack of awareness around the online safety issues, education, and parental controls as the most common challenges in Albania.

Furthermore, the interviews conducted by UNICEF Albania in 2020 that are part of their study “One Click Away: Children’s Experience of Internet Use in Albania” concluded that about 14% of interviewed children experienced uncomfortable online situations, about 25% had been in contact at least once with someone they had never met face-to-face before, about 20% met in person someone they had previously only had contact with online, and 9% had at least one unwanted sexual experience via the internet during the previous year.⁸²

To raise awareness about this issue, public authorities, civil society, and the Internet industry joined their forces in organizing Safer Internet Day. These activities are usually extended over a week and are dedicated to raising awareness of children and parents about Internet risks, and to the identification of further steps to be taken for the protection of children from online abuse and exploitation. Albania has been part of the Safer Internet Day initiative since 2006.⁸³

International organizations are also working to support the country in alleviating these challenges. UNICEF Albania supports the Government in building a comprehensive and effective child protection system for all children. Their activities are directed to enhancing legislative framework, strengthening mechanisms and capacities of the child protection workforce, as well as raising awareness to change social norms and achieve an increased reporting of child abuse cases.⁸⁴

Through its COP Guidelines, ITU is supporting countries in Europe and beyond to adopt a strategic and holistic approach to child online protection that brings all components together at the country level, as well as to provide expert guidance on the various dimensions of COP, including for children, parents and educators, industry and policymakers.⁸⁵

Within this context, NAECCS together with the ITU is rolling out the COP Guidelines implementation at the national level. This activity is following the objective of fostering a culture of child online protection with all relevant stakeholders through knowledge sharing and digital skills’ development. In this regard, ITU is supporting NAECCS to implement the ITU global project “Creating a safe and prosperous Cyberspace for children”, which is planned to run until March 2023 in Albania.

⁸¹ ITU, Status of national Child Online Protection ecosystems in South Eastern Europe, retrieved from <http://handle.itu.int/11.1002/pub/815a8b6c-en>

⁸² UNICEF, One Click Away, p.11, retrieved from <https://www.unicef.org/albania/media/2486/file/one%20click.pdf>

⁸³ <https://www.crca.al/en/news/albania-join-forces-child-online-safety>

⁸⁴ <https://www.unicef.org/albania/child-protection-system>

⁸⁵ ITU COP Guidelines, retrieved from <https://www.itu-cop-guidelines.com/>

2.3 Building block 3 – Government - centric digital transformation

One of the most important triggers of the digital transformation at the national level is the government's approach to ICTs for governance, administrative purposes and the delivery of public services online.

This section will look at (i) the general approach to e-government in Albania and (ii) an example of the specific approach used with regards to the use of ICTs in the education system from an administrative and service delivery perspective.

2.3.1 E-government policy

According to the 2020 UN E-Government Survey results, Albania is among the 13 countries (Albania, Argentina, Brazil, Colombia, Croatia, Ecuador, Kazakhstan, Mexico, Oman, Peru, Serbia, Thailand and Turkey) that have highly developed human capital, but the state of their infrastructure may be impeding further progress in e-government development. Even though the Telecommunications Infrastructure Index is diminishing the overall country score, E-Government Development Index ranked Albania 59th out of 193 countries with a score of 0.74. Compared to 2018 results, the country has improved its positioning in the ranking by 15 positions, increasing its score by 0.09 points by 2020.

2020 E-Participation Index ranks the country 36th out of 193 countries with a score of 0.84. The country improved its performance by 0.09 points and its position in the ranking by 23 places compared to 2018. Though the country's scores on two dimensions measured by the survey have improved, other countries show higher development rates and Albania is showing average scores in comparison to the other European countries.^{86 87}

However, Albania made substantial work by implementing a broad range of reforms aimed at increasing the efficiency of the public sector and improving institutional frameworks. The achieved results are particularly impressive considering that the first medium-term strategic document designed to cope with the challenges and demands of the new reality was approved in 2013. The Digital Agenda of Albania 2015-2020 aimed to achieve three main objectives:

- increase and promote electronic public services for the citizens and the public administration;
- increase of the information and communication technologies used in education;
- improve the national broadband infrastructure.

Nevertheless, the work in this area started much earlier. In 2007, the National Agency for Information Society was created. It is the e-governance structure responsible for the management and coordination of the platform "[e-Albania](#)".

Between 2008 and 2014, several laws were developed in order to regulate the environment of business communication, create and maintain infrastructure for electronic communication for the public

⁸⁶ UN E-GOVERNMENT SURVEY 2020, retrieved from <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2020>

⁸⁷ UN E-GOVERNMENT SURVEY 2018, retrieved from <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018>

administration and e-governance, build broadband infrastructure, and offer e-services for the enterprises and citizens. The EU Directives guided this work.

In the following years, a comprehensive legal framework supporting e-government transformation was extended by several more strategic and normative acts. These included the Strategy on Public Administration Reform 2015-2020, the National Strategy for Development and Integration 2015-2020, and the Council of Ministers Decisions no. 495 from 13.09.2017 “On the approval of the regulation of access on electronic public services”.⁸⁸

The government portal “e-Albania” acts as a single access point of public service delivery. It provides over 1207 electronic services to around 2 million users (citizens and businesses) registered on the platform. From January 2021, 95% of all public services are offered online, and 63% of the data in the application forms are filled in automatically as a result of interoperability between 55 electronic registers.⁸⁹

The second most used portal providing electronic services to Albanian businesses is e-filing. The online platform is meant for tax declaration, operating within the framework of the National Centre of Business. This platform facilitates the process of Value Added Tax declaration, monthly contributions of the employees, tax deducted at source, sales and purchase books, as well as submission of annual financial reports.

As for data protection regulation, the law no. 9887 from 10.03.2008 “On Personal Data Protection” falls under the responsibilities of the Office of the Commissioner on the Right of Information and Data Protection. This law aims to ensure that human rights are respected and rightful personal data processing through automatic tools is guaranteed. However, Albanian citizens are less tech-savvy and not concerned enough about the use of their personal data and the website’s privacy policy.

This issue is amplified by citizens’ sceptical attitude towards e-governance fuelled by the basic stumbling blocks of lack of Internet access across the country, lack of computer skills, and lack of trust between citizens and public administration.

In terms of transparency and access to public sector information, one of the best practices to be noted is the Open Data Tirana, launched in 2017. It aims to serve as a database of public affairs and services provided by the Municipality of Tirana, an instrument to increase transparency, as well as provide efficient management of time and taxpayers’ money.

Furthermore, as an active member of the “[Open Government Partnership](#)” since September 2011, the country aims to implement its national commitments. So, in line with its fourth action plan 2018-2020, the country was working on issues covering fiscal transparency, public services, access to

⁸⁸ Albania Digital Agenda Observatory, pp.13, 22-24, retrieved from <https://www.mjft.org/sites/default/files/Digital%20Agenda%20Observatory%20Albania%20June%20%2720.pdf>

⁸⁹ Presentation “Albanian Innovation Ecosystem”, p.3, retrieved from <https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2021/Towards%20Regional%20Innovation%20Forum/4%29%20Igeta%20Dhona%20presentation.pdf>

information, public administration, and anti-corruption. Yet, the implementation was uneven, and it lacked the constant dialogue between stakeholders.⁹⁰

In such a way, the fifth action plan 2020–2022 derives from previous results and is based on the enabling frameworks and initiatives to promote civic participation and public trust. The nine reform commitments of this action plan seek to increase access to public services and accountability through coordinated approaches meant to improve the quality and quantity of publicly available information.⁹¹

2.3.2 ICTs and the education system

In the context of e-government, e-administration and e-delivery of government services are fundamental enablers of digital transformation. Looking at the education sector from a perspective of the governance of the education system and the delivery of education, and beyond the actual content delivered (i.e., curricula including digital skills), proves that ICTs are playing an even more essential role.

The new ITU-UNICEF report on “Connectivity in Education: Status and recent developments in 9 non-EU countries of Europe region” published in October 2021⁹² looks at the two dimensions of ICTs for e-government of education and ICTs as a medium for delivering remote education.

In Albania, there are about 3,818 education institutions in both urban and rural areas that enrol nearly 520,759 students from pre-primary to upper-secondary education in the country. According to UNICEF, the literacy rate for the 15-24 years age group in Albania corresponded to 99.3%, while the completion rate of upper secondary education for the youth of school age is 77.9%.

Significant reforms towards the school decentralization, introduction of competency-based curriculum, and significant changes in key education indicators, together with other socio-economic reforms, triggered improvements in instruction quality, textbooks, school buildings, and education infrastructure throughout the country.⁹³

In 2009, the “e-school program” supported by UNDP, equipped hundreds of primary and secondary schools with modern computer labs, high-speed, reliable Internet access, and training in information technology skills.

In 2012, as part of the “Digital Age of Communications Agenda” and “One-Laptop Per Child” initiative, the Albanian government set a number of partnerships with the satellite Internet providers aiming to offer internet access to institutions from remote rural areas including schools.

⁹⁰ Albania Digital Agenda Observatory, pp.23-36, retrieved from <https://www.mjaft.org/sites/default/files/Digital%20Agenda%20Observatory%20Albania%20June%20%2720.pdf>

⁹¹ OGP, National Action Plan for Albania 2020 – 2022, retrieved from https://www.opengovpartnership.org/wp-content/uploads/2021/01/Albania_Action-Plan_2020-2022_EN.pdf

⁹² ITU, Connectivity in education: Status and recent developments in nine non-European Union countries, retrieved from <http://handle.itu.int/11.1002/pub/81a5eef1-en>

⁹³ ITU, Connectivity in education: Status and recent developments in nine non-European Union countries, p.21, retrieved from <http://handle.itu.int/11.1002/pub/81a5eef1-en>

By 2014, the Albania Education Excellence and Equity Project worth a 75-million-dollar supported the construction or rehabilitation of 607 classrooms and laboratories and the provision of over 24,000 computers and Internet connectivity to schools. It allowed minimizing the student-computer ratio from 46 to 14 in urban areas and 133 to 13 in rural areas.

Later on, the Digital Agenda of Albania 2015-2020 included priorities meant to enhance the education system by its digitalization, providing high-speed Internet to education institutions, integrating ICTs in the teaching and learning process, providing schools with the necessary equipment, and creating opportunities for the use of high-speed Internet in other environments within schools, not only in laboratories.⁹⁴

According to the National Plan for Sustainable Development of Digital Infrastructure, Broadband 2020-2025, the government's goal is to have 100% of schools connected with high-speed broadband connectivity of 1 Gbps and access in every classroom by the end of 2025.

In terms of school governance, Albania has started to establish some components integral to system evaluation. In this sense, the Educational Services Center is developing a modern Education Management Information System called "Socrates", which is set to store information related to students, teachers, curricula, and schools in pre-tertiary education. As a data tool, Socrates emerges as an excellent opportunity for Albania to modernize the collection, management, and use of education data across its education system.

Nevertheless, some barriers persist and slow down the process of establishing an equitable educational system. Barriers like poor infrastructure around schools and the difficulty of recruiting quality teachers to rural areas largely contribute to the regional differences in student access to education and job opportunities, as well as the overall learning experiences among students.

The impact of these issues became even more dramatic when the COVID-19 pandemic hit the country. During lockdowns in the spring of 2020, COVID-19 related closures affected approximately 653 000 students.

Education institutions started to deliver lessons through online platforms, and the recorded lessons for all classes became available on all national TV channels. Besides, some Internet providers cut their fees in half to improve digital access.⁹⁵

To support student learning across different levels, a free online platform "Akademi.al" was launched by the Ministry of Education, Sport and Youth. The platform hosts an estimated number of 5000 video explanations by selected teachers from all over the country covering a wide variety of school subjects. UNICEF has contributed to the project with 1,100 new video lessons to support students with their

⁹⁴ Republic of Albania, 2015, ICT in Education in Albania, retrieved from http://archive.iite.unesco.org/files/news/639224/ENG_Albania_MoE_Bajame_Allmeta.pdf

⁹⁵ Education International, 2020, "Albania: Education union uses technology to reduce impact of COVID-19", retrieved from <https://www.ei-ie.org/en/detail/16687/albania-education-union-uses-technology-to-reduce-impact-of-covid-19>

national university entrance exams. Although the platform already complies with accessibility digital standards, the development of a mobile application is part of Akademi.al and UNICEF near future objectives.

Despite these initial efforts, the closure directly impacted the quality of learning, for at least 11,000 students who were unable to access online learning materials. Many of them live in remote and rural areas with no Internet or devices at home, especially Roma children and children with learning difficulties and disabilities.

To tackle problems with connectivity and access to computers, the #RedForKids initiative was launched in April 2020, by the Vodafone Albania Foundation. Partnering with the Albanian Ministry of Education, Vodafone Albania donated 5,000 smart devices and SIM cards with unlimited online learning data access to those children most in need.

Another initiative called the “Education Technology Hubs” was implemented by UNICEF Albania in partnership with the Ministry of Education, Sport and Youth. It is designed to offer qualitative learning for all and will best serve teachers and students as tech mobile libraries. In line with the same objectives, UNICEF has distributed 840 tablets with keyboards and 48 smart boards, equipment for charging and saving the tablets as well free internet in 24 compulsory schools.⁹⁶

2.3.3 E-waste management

Albania signed and ratified multiple conventions related to e-waste. The Basel Convention⁹⁷ entered into force in September 1999, the Stockholm Convention⁹⁸ in January 2005, and the Rotterdam Convention⁹⁹ in November 2020. Besides, the Minamata Convention¹⁰⁰ on Mercury was ratified in the country in May 2020.

In the country, e-waste is regulated by the Law No. 10463/2011 on Integrated Waste Management.¹⁰¹ This law aims to transpose the EU waste legislation, including targets for recycling and diversion of waste from landfill. However, the transposition pre-dates the revisions to EU waste directives adopted in 2018.

The targets of the EU waste legislation were also transposed into the National Waste Management Plan for 2011-2019, but were never implemented and as a result the ambitious targets were not met.

The new National Waste Management Plan for 2020-2035 on integrated solid waste management aims to increase recycling and reducing landfilling and requires the development of key infrastructure for the treatment of residual municipal solid waste. It intends to ensure the transition from a linear to a circular economy in which resources are used in a more sustainable way.

⁹⁶ <https://www.unicef.org/albania/press-releases/education-technology-hub>

⁹⁷ <http://www.basel.int/?tabid=4499>

⁹⁸ <http://www.pops.int/Countries/StatusofRatifications/PartiesandSignatoires/tabid/4500/Default.aspx>

⁹⁹ <http://www.pic.int/Countries/Statusofratification/PartiesandSignatories/tabid/1072/language/en-US/Default.aspx>

¹⁰⁰ <https://www.mercuryconvention.org/en/parties>

¹⁰¹ <https://globalewaste.org/statistics/country/albania/2015/>

Its key objectives cover waste prevention, separate collection of waste and large-scale recycling, while its specific goals are to:

- improve waste management by meeting key principles and legal planning requirements;
- improve and approximate the waste management legal framework to the *acquis communautaire*;
- ensure sustainable funding for waste management;
- raise the awareness and public participation in waste management.

Based on these strategic goals, the Plan defines nine specific objectives and 31 measures distributed over a period of 15 years. The key targets set for 2035 include among others:

- Collection coverage: 95 % of the population.
- Packaging: 70 % recovery of packaging generated at households and similar sources and 60 % recovery of total packaging with material-specific targets for paper and cardboard (60 %), metals (50 %), plastics (22.5 %), glass (60 %) and wood (15 %).
- Batteries: recycle between 50 % and 70 % for different materials.
- Waste electrical and electronic equipment (WEEE): separate collection > 4kg per capita of WEEE from private or individual homes each year; recovery between 70% and 80%; recycle between 50% and 75%.

Meanwhile, about 70% of country's population is served by waste collection services. Currently, mainly urban areas are covered by waste collection services, while rural areas mostly do not have such services. Yet, the recycling rate is quite low and the separate collection for recycling is not common nor supported by clear enforcement mechanisms. In 2019, only 60 % of the waste generated was collected for treatment.

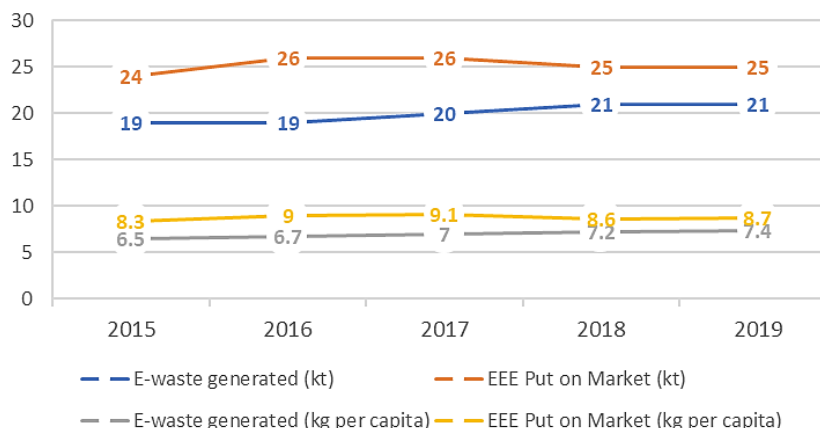
The country has no dedicated collection scheme for packaging, end-of-life vehicles, WEEE or batteries, which are usually covered by EPR schemes in most EU Member States. In Albania, these waste streams are either collected as municipal waste or handled through the private or informal waste sectors. However, the drafting of the law for creating the basis for an EPR system has started in 2020.

There is also a problem with data availability and quality. This hinders the planning of waste management, as there is no systematic monitoring of the waste streams sent to dumpsites.¹⁰²

¹⁰² Municipal waste management - Country fact sheet retrieved from:
<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwirjvD6q5b2AhWBk4sKHxKqA8gQFnoECA0QAQ&url=https%3A%2F%2Fwww.eea.europa.eu%2Fthemes%2Fwaste%2Fwaste-management%2Fmunicipal-waste-management-country%2Falbania-municipal-waste-factsheet-2021%2F&usg=AOvVaw1gFhS3DIIJ2HKBRpW0sFWI>

According to the internationally available data, in 2019, Albania generated 21 kt of e-waste, which represented 7.4 kg per capita. Despite the decrease in the country's population, the amount of e-waste in kt and the kg per capita the country generated between 2015 and 2019 has steadily increased. Figure 5 reflects the fluctuation of key indicators related to e-waste in the mentioned timeframe.¹⁰³

Figure 5 – Evolution of the amount of E-waste generated and EEE Put on the Market in Albania between 2015 -2019



2.4 Building block 4 – Sector - centric digital transformation

Having addressed the digital transformation dimensions of infrastructure, people-centric and government-centric approaches, this section will utilize the critical lens of sector-centric digital transformation, analysing the specific sectors which are affected by, and which dually enable, increasing levels of digital transformation in Albania.

This section will address (i) digital agriculture as a key productive sector in Albania, (ii) Digital health and e-health services and (iii) the role of SMEs in fostering digital transformation.

2.4.1 Digital agriculture

According to 2018 data, 42.8% of the country territory represent agricultural land, but the share of arable land is almost twice smaller, reaching about 22.3% of the country territory.¹⁰⁴

Employment in agriculture is continuously diminishing. In 2019, 36% of total employment was in the agriculture sector. It is dominated by women, as the percentage of female employment is 42% while the male employment is only 33%.¹⁰⁵ It is worth mentioning that 51% of women who are self-employed work in agriculture.¹⁰⁶

Still, according to ITU-FAO “Status of Digital Agriculture in 18 Countries of Europe and Central Asia”¹⁰⁷ this sector remains one of the most important sectors of the Albanian economy, contributing to 18% of GDP. However, production is mainly characterized by very small family farms oriented towards subsistence.

¹⁰³ <https://globalewaste.org/statistics/country/albania/2019/>

¹⁰⁴ World Bank Open Data, retrieved from <https://data.worldbank.org/topic/agriculture-and-rural-development?locations=AL>

¹⁰⁵ World Bank Open Data, retrieved from <https://data.worldbank.org/topic/agriculture-and-rural-development?locations=AL>

¹⁰⁶ ECONOMIC REFORM PROGRAMME 2021-2023, p. 207, retrieved from <https://www.financa.gov.al/wp-content/uploads/2021/02/Economic-Reform-Programme-2021-2023.pdf>

¹⁰⁷ ITU and FAO. 2020. Status of Digital Agriculture in 18 countries of Europe and Central Asia, retrieved from [https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Publications/Status of Agriculture in Europe and Central Asia %287%29.pdf](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Publications/Status%20of%20Agriculture%20in%20Europe%20and%20Central%20Asia%20287%29.pdf)

The sector's problems are mainly linked to rural exodus, the limited size of farms and ownership of agricultural land, marketing of agricultural products, irrigation and drainage, low levels of use of modern technologies, and weak organization of farmers.

Even though in recent years considerable numbers of tractors and other agricultural machines have been imported, the level of technology used is basic, and farmers remain in sore need of modern machines/equipment for specialized processes.

The agriculture sector is among the key sectors targeted by the Digital Agenda of Albania 2015-2020. It aims to increase its efficiency through ICT. The goal is to be achieved by modernizing production, facilitating compliance, as well as bringing the quality of products and services in line with EU directives. All these changes shall also lead to an increase in exports of agricultural, food, and mineral products. Besides, under Strategic Priority 1 of the objective "Minimization of digital differences between regions and cities", the Digital Agenda of Albania 2015-2020 also aims to establish concentrated or regional digital platforms serving agriculture and tourism.

Under the Economic Reform Program (ERP) 2019–2021, Albania aims to strengthen the process of cadastral, land, and property registration, including clarification of land ownership, with a special emphasis on defragmentation and consolidation of agricultural land.¹⁰⁸

According to the ERP 2021-2023, it is expected that the agriculture sector will grow in real terms by 2.5% on average per year over 2021-2023. The program priorities for this sector are oriented to:

- adoption of relevant EU standards to ensure food safety, animal health and welfare, and plant health;
- consolidation of ownership over agricultural land, sustainable management, protection from damage, erosion, misuse, and other factors;
- promotion of the land market and consolidation of the agricultural farms;
- establishing a new exemption scheme, turnover tax, and fuel carbon tax for agricultural production to support the farmers;
- reaching sustainable development of the fisheries and aquaculture sector, responsible use of fishery resources and capacities of the fishing fleet, as well as establishing a control and inspection system for fishing at sea, on land, and throughout the market chain.

However, the reform measure on consolidation and defragmentation of agricultural land has been retired from the ERP. Yet, its importance is recognized alongside the other reforms needed in the agricultural sector like extension service, technology transfer, human resources for better planning/ implementing the rural development program and its financial instruments, etc.¹⁰⁹

¹⁰⁸ ITU and FAO. 2020. Status of Digital Agriculture in 18 countries of Europe and Central Asia, pp.8-10, retrieved from [https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Publications/Status of Agriculture in Europe and Central Asia %287%29.pdf](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Publications/Status%20of%20Agriculture%20in%20Europe%20and%20Central%20Asia%287%29.pdf)

¹⁰⁹ ECONOMIC REFORM PROGRAMME 2021-2023, pp.27, 66, 89, 192, retrieved from <https://www.financa.gov.al/wp-content/uploads/2021/02/Economic-Reform-Programme-2021-2023.pdf>

Meanwhile, to facilitate information flow among the core stakeholders in the industry, the Government e-Gateway connects various government systems and enables them to share data. Among the systems integrated with the e-Gateway is the Immoveable Property Registration II system (called ALBSREP), which is currently in production nationwide. In such a way, 51 services of the Immoveable Property Registration Office are available online.

In 2010, an administrative livestock register was established. It consists of two registers: an individual register of animals and an animal holding register. It is managed by the veterinary service and covers all types of livestock. The Annual Agriculture Survey covers land use, crop production, livestock number and animal production, supply balance sheets, agricultural labour input, and expenditure statistics. Prices on inputs are collected in quarterly surveys.

Moreover, Orthophoto maps (2015–2016) have also been produced for the entire territory of Albania and made available free of charge to government and municipal authorities.

The register of vineyards and olive trees has been completed with the support of the EU-funded regional Community Assistance for Reconstruction Development and Stabilization (CARDS) project.

Recently, the Agriculture and Rural Development Agency opened the network of "Agro Points" or "Farmer's Windows" (AGROPIKA). This is a direct service delivery unit under the Ministry of Agriculture and Rural Development that provides farmers with information for applications, access to finance, extension support, and other services. In total, 20 Agro Points have been opened, reaching each territorial branch throughout the country. In 2019, the Agency issued a call for National Schemes applications, which are filed online at 20 Agro Points and 16 Regional Agricultural Extension Agencies through the e-Albania platform, providing farmers with quality, timely and cost-effective services.

The Integrated Administration and Control System have yet to be fully implemented, but certain elements such as a farmer register and an animal register have been developed. Also, there is no Farm Accountancy Data Network in place, but preparatory work on setting one up has started, and most of the data sources needed for its implementation are available.

The Ministry of Agriculture and Rural Development is still working on models of the Integrated Administration and Control System and the Land Parcel Identification System. It is going to register all farms and work with the Institute of Statistics to prepare a questionnaire and a methodology. It plans to update the list of farms applying for subsidies regularly, but the relevant system is still in the preparatory stages.¹¹⁰

To add value to local agricultural production, FAO supports smallholders through agricultural grants. The project, financed by the United Nations Joint Fund and the Albanian government, facilitates good

¹¹⁰ ITU and FAO. 2020. Status of Digital Agriculture in 18 countries of Europe and Central Asia, p.10, retrieved from [https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Publications/Status of Agriculture in Europe and Central Asia %287%29.pdf](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Publications/Status%20of%20Agriculture%20in%20Europe%20and%20Central%20Asia%202020.pdf)

practices on rural income diversification, innovative short food value chains, and farmers' cooperation, as well as promotes authentic products and a "from farm to tourist" approach.¹¹¹

To enhance diversification and competitiveness, FAO promoted agrotourism and digitalization for Albanian smallholder farms. The recently ended project targeted Belsh, Melesi Madhe, and Korca areas in the country. Through this project, local and national partners gained knowledge on on-farm and off-farm diversification of their agricultural production and activities.¹¹²

Besides, FAO's Regional Office for Europe and Central Asia has been preparing the grounds for the development of a national digital agriculture strategy by supporting the country to establish a vision for harnessing the power of ICTs to address the challenges of the agricultural sector. FAO is dedicated to further assist the national stakeholders in the preparation of the strategy leveraging the experiences of previous activities in the country (e.g. the virtual extension communication network, the farmer single window, farm accountancy data network and the national digital agriculture review).¹¹³

2.4.2 Digital health

Since 2008, the government of Albania undertook major steps to modernize the ICT infrastructure aiming to improve the healthcare service response and increase patient satisfaction, as well as to reduce bureaucracy and increase the efficiency of core services.

To reach the goal, the ICT projects were implemented in institutions responsible for the public healthcare sector like the Ministry of Health, Compulsory Health Insurance Fund, Primary Care, Regional Hospitals, and Tertiary Hospitals. The targeted outcomes included strengthening people-centric health systems, improving governance and cross-sector cooperation, developing an integrated digital health system, electronic medical records, and electronic prescriptions systems.¹¹⁴

Currently, the main strategic document envisioning the digital transformation of the health sector is the Digital Agenda of Albania 2015-2020. It aims to consolidate the national health information system, manage and monitor patients' health records, fight corruption in the health sector through the implementation of the ICT system in hospitals and digitalization of medicine distribution system, and improve the use of telehealth and telemedicine.¹¹⁵

By now, with the support of different development partners, Albania managed to improve access to the health system via the implementation of the electronic health card, nationwide electronic health records, e-prescription system, hospital management information system, e-signature, administration of medical drugs registration system, as well as management of human resource and medical assets' system.

¹¹¹ <https://www.fao.org/europe/news/detail-news/en/c/1391270/>

¹¹² <https://www.fao.org/family-farming/detail/en/c/1375617/>

¹¹³ ITU and FAO. 2020. Status of Digital Agriculture in 18 countries of Europe and Central Asia, p.10, retrieved from [https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Publications/Status of Agriculture in Europe and Central Asia %287%29.pdf](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Publications/Status%20of%20Agriculture%20in%20Europe%20and%20Central%20Asia%202020.pdf)

¹¹⁴ <https://www.infosoftware.com/al/e-health/?fbclid=IwAR2rydsAQZFbT91JbkFNQwRjQ0pwE2IL3wAhe6xcLnf9wtsPbcNUQ5tj4LA>

¹¹⁵ Albanian Digital Agenda 2015-2020, retrieved from https://issuu.com/miap4/docs/booklet_m-inovacionit_preview

Moreover, these information systems were integrated online with other IT systems such as civil register, e-Pension, social assistance, tax register, etc.¹¹⁶

The emerging of the new technologies and the urgent need to accelerate their absorption caused by the COVID-19 pandemic generated a new wave of projects and initiatives.

In 2021, a PHASE project focused on shifting the traditional paradigm of the healthcare system was launched. It is a cross-border project between Italy, Montenegro, and Albania. The project intends to change the legal and operational framework in the field, but most importantly boost eHealth private sector competitiveness.¹¹⁷

An internet-based psychotherapy platform was implemented in three Community Mental Health Centres in Albania. This e-intervention platform called “I Fight Depression Tool” was developed for Community Mental Health Centres in Tirana, Shkodra, and Korça. For Shkodra Community Mental Health Centre, an application was also put in place.¹¹⁸

2.4.3 The role of SMEs

In 2020, Albania was the fourth largest economy in the Western Balkan region with a population of 2.83 million, and a GDP per capita of 5,215.28 USD. The services and industry are the most important sectors of the Albanian economy in terms value added and employment.¹¹⁹

The shift of the country’s economy from agriculture toward industry and service that happen over the last decade fostered the SME growth in a variety of economic sectors. Even though the trade still dominates and drives the SME sector, other sectors have a strong potential to grow, and ICT sector is among the top ones.¹²⁰

In Albania, 99% of registered enterprises are SMEs. They deliver more than 80% of net job growth and engage more than 2/3 of the private sector workforce. However, their performance is affected by a set of problems related to investment climate, law enforcement, corporate governance, business-enabling infrastructure and the lack of entrepreneurial and business management skills. All of them hamper the ability of Albanian SMEs to compete with European SMEs, and consequently survive the EU market competition.¹²¹

According to World Bank’s Doing Business Report, Albania ranks 82rd out of 190 countries, and is characterized by a high tax burden. The large informal economy, estimated between 25-50% of GDP, is caused by the heavy administrative burden with complex procedures and frequently changing tax rules.

¹¹⁶ <https://www.infosoftware.al/e-health/?fbclid=IwAR2rydsAQZFbT91JbkFNQwRjQ0pwE2lL3wAhe6xcLnf9wtsPbcNUQ5tj4LA>

¹¹⁷ <https://www.italy-albania-montenegro.eu/phase-promoting-e-health-in-cross-border-areas-by-stimulating-local-economies>

¹¹⁸ Integration of Public Health services into Primary Health Care, pp. 78, 94, retrieved from http://www.hap.org.al/wp-content/uploads/2021/04/web_International-Public-Health-Conference.pdf

¹¹⁹ OECD/ETF/EU/EBRD (2019), SME Policy Index: Western Balkans and Turkey 2019, p.36, retrieved from <https://doi.org/10.1787/g2g9fa9a-en>

¹²⁰ EIB, Albania Assessment of financing needs of SMEs in the Western Balkans countries, p.7, retrieved from https://www.eib.org/attachments/efs/assessment_of_financing_needs_of_smes_albania_en.pdf

¹²¹ <https://www.sme.al>

Moreover, Albania's financial sector is dominated by banks that are reluctant to lend to SMEs and have high interest rates.¹²²

During the last years, Albania set up a comprehensive regulatory framework that impacts the activity of SME's. The main strategic document in this field is the Business Investment Development Strategy 2014-2020 which targets the main challenges faced by potential entrepreneurs starting a business. This strategic document is cross-linked with the National Strategy for Development and Integration 2015-2020 and the National Employment and Skills Strategy. For example, the National Strategy for Development and Integration 2015-2020 and the Albania Economic Reform Program (2018-2020) both express the need for an entrepreneurial culture and support for entrepreneurial learning. Meanwhile, the National Employment and Skills Strategy (2014-2020) and Business Investment Development Strategy (2014-2020) both contain a strong commitment to entrepreneurial learning.

Implementation of these strategies lead to improving delivery of public services and simplifying regulations, diminishing the administrative burden on SMEs, and improving the overall business environment. Their main achievements cover:

- Setting up procedures for regulatory impact analyses;
- Strengthening the legal framework on insolvency proceedings;
- Streamlining the business registration and applying for licenses and permits;
- Eliminating the fees for all electronic service offered by the National Business Centre;
- Reducing the administrative burden on SMEs through digitalization of government services;
- Improving SME trade competitiveness through strengthened infrastructure.¹²³

Despite all the reforms that made it easier to do business in Albania, traditional bottlenecks remain unsolved. Besides, Albanian firms have a weak technological capacity to upgrade by absorbing existing advanced technologies.¹²⁴

The country lacks an official government program to support SMEs' integration into global value chains. Besides, no substantial support for the industrial cluster development has been made by the Agency for Investment and Development in Albania, though they actively encourage SMEs participation in cluster matchmaking events.

To boost links among SMEs, an online business-to-business platform was created. It helps SMEs identify and connect with potential partners. Besides, a variety of export-oriented activities have been carried out by different entities. These include the Speed Up to Europe event, EU-funded advisory project to help

¹²² EC, 2021 SME COUNTRY FACT SHEET, retrieved from https://ec.europa.eu/neighbourhood-enlargement/system/files/2021-09/albania_-_sme_fact_sheet_2021.pdf

¹²³ OECD Library, Chapter 13. Albania: Small Business Act profile, retrieved from <https://www.oecd-ilibrary.org/sites/1a375be0-en/index.html?itemId=/content/component/1a375be0-en>

¹²⁴EIB, Albania Assessment of financing needs of SMEs in the Western Balkans countries, p.7, retrieved from https://www.eib.org/attachments/efs/assessment_of_financing_needs_of_smes_albania_en.pdf

Albanian SMEs access capacity building and know-how by establishing links to local and international consultancy firms, as well as the Italian-Albanian Program for Private Sector Development in Albania.

Even though the Digital Agenda of Albania 2015-2020 contain an ambitious target of increasing the share of businesses using e-commerce to 50%, there are not yet any concrete programs in place to meet it and Albania lags behind most of Western Balkan countries in promotion of e-commerce and it has no mechanisms to inform SMEs about e-commerce or support them in implementing it.

Albania has offered financial support programs for e-commerce and e-business in the past but they failed due to the relatively low amount of money offered per applicant.¹²⁵ In this sense, National Agency for scientific research and innovation allocates research grants on a competitive basis and it seeks to foster bilateral projects between science and industry. Innovation Fund assists SMEs and start-ups seeking scientific collaboration by providing matching funds up to EUR 10 thousand. Even the private sector has been trying to support development of SMEs and start-ups based on small sized grants covering the initial launching of ideas, products and services.¹²⁶

2.5 Building block 5 – Digital - centric innovation ecosystem

Digital innovation is both an enabler of digital transformation in all dimensions addressed above and also a measure of the robustness of digital development at the country level. A good level of digital innovation in a given country also underpins endogenous digital development, rather than development that depends on foreign markets.

The innovation divide stems in part from inefficiencies in the use or allocation of resources in the innovation ecosystem, from inefficiency or lack of key supports, policies, and other elements of a nurturing environment, as well as a need for stronger collaboration between stakeholders to develop a complete ecosystem through coordinated support activities.

This section addresses the importance of innovation ecosystems as local catalysers of creativity in the use of digital technologies for business. It also covers aspects related to the major challenges countries and key ecosystem stakeholders face in developing an enabling environment conducive to digital innovation and entrepreneurship across sectors.

2.5.1 Digital innovation ecosystem

Albania ranks below average on key international rankings on entrepreneurship, innovation, and technology. The Global Innovation Index (2020) ranks the country 83rd out of 131 countries, and the Global Entrepreneurship Index (2018) 83rd out of 137 countries. These performances are translated into similar

¹²⁵ OECD Library, Chapter 13. Albania: Small Business Act profile, retrieved from <https://www.oecd-ilibrary.org/sites/1a375be0-en/index.html?itemId=/content/component/1a375be0-en>

¹²⁶ ICT Sector Study - Albania, Kosovo and North Macedonia, p.61, retrieved from <https://www.netherlandsworldwide.nl/documents/publications/2020/06/26/ict-sector-study---albania-kosovo-and-north-macedonia>

competitiveness for the country, as Albania only ranks 81st out of 141 countries in the Global Competitiveness Index (2019).¹²⁷

The development of the innovation ecosystem in the country accelerated in 2013 when the Ministry for Innovation was established. It developed various initiatives for fostering innovative start-ups. However, four years later, after several reorganizations, the ministry was dissolved, and authorities established a new department within the Albanian government for communicating with the business community.¹²⁸

Between 2013 and 2017, entrepreneurs who were willing to start a business received a lot of support and expert guidance. Also, from 2013, Albanian Investment Development Agency started to provide financing for innovative companies through the Innovation Fund. However, until 2018, only 29 companies received the grants called innovation vouchers. During that time, the vouchers were covering up to 85% of project costs and offered up to 350 000 ALL (approx. 2900 EUR). Although starting from 2018 enterprises could benefit from up to 400 000 ALL (approx. 3300 EUR) for a project, and 600 000 ALL (approx. 4900 EUR) for the purchase of technological equipment, there was still low interest in accessing those grants.¹²⁹¹³⁰

With the closure of the Ministry of Innovation and Public Administration and the creation of super-ministries such as the Ministry of Finance and Economy and the Ministry for Education, Sports and Youth, topics such as private sector development, start-up promotion, research, innovation, science, and technology, seemed to almost disappear from the political agenda.¹³¹

Currently, Albania's innovation-related policy framework is spread across three documents: the National Strategy on Science, Technology and Innovation (2017-2022); the Business and Investment Development Strategy (2014-2020); and the Innovation Action Plan of the Policy Framework for Innovation (2017-2022).

Several agencies share roles in the implementation of the innovation policies, including the National Agency for Information Society, Albanian Investment Development Agency, and the Agency for Research, Technology and Innovation. Yet, they face coordination issues and have limited resources for implementing programs in the field.¹³² These difficulties are expected to be resolved through the implementation of the priority measure no.11 of the Economic Reform Program 2019-2021, which aims to improve the institutional capacity of the research and innovation system.¹³³

¹²⁷ ITU, 2021 Regional Good Practices Accelerating innovation, entrepreneurship and digital transformation — Europe, p.5, retrieved from https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Publications/GOOD_PRACT.03-2021-PDF-E.pdf

¹²⁸ <https://therecursive.com/albania-s-young-startup-ecosystem-shows-potential-but-needs-to-overcome-pressing-challenges/>

¹²⁹ OECD Library, Chapter 13. Albania: Small Business Act profile, retrieved from <https://www.oecd-ilibrary.org/sites/1a375be0-en/index.html?itemId=/content/component/1a375be0-en>

¹³⁰ The Bank of Albania, exchange rate on 19.11.2021 of EUR 121.53, retrieved from https://www.bankofalbania.org/Markets/Official_exchange_rate/

¹³¹ EU for Innovation, Entrepreneurial & Innovation Ecosystem in Albania, p.47, retrieved from <https://euforinnovation.al/wp-content/uploads/2020/03/e-publication-of-the-regional-gap-analysis.pdf>

¹³² OECD Library, Chapter 13. Albania: Small Business Act profile, retrieved from <https://www.oecd-ilibrary.org/sites/1a375be0-en/index.html?itemId=/content/component/1a375be0-en>

¹³³ Country Programme for Inclusive and Sustainable Industrial Development Albania 2020-2024, p.14, retrieved from <https://open.unido.org/api/documents/17042954/download/UNIDO%20CP%20Albania%202020-2024.pdf>

While waiting to be resolved, these issues are reflected in the innovation system of Albania which is highly fragmented. There are few linkages between academia and the private sector, as well as weak innovation support infrastructure. Many universities have formal and non-functional partnership agreements in place, as the partnership of the University of Durrës with the Albanian Innovation Accelerator, the University of Vlora with Protik, and Marin Barleti University with Oficina. Universities based outside the capital city are even more disconnected from the growing start-up ecosystem in Tirana.¹³⁴

The insufficient capacity for technological absorption and research, development, and innovation is reflected in low levels of public and private sector expenditure on R&D (about 0.1% of GDP in 2017). Moreover, there is a lack or insufficiency of funding available for entrepreneurship in a form of seed funding, angel investment, and venture capital.

Nevertheless, national stakeholders are open to joining their forces in tackling challenges brought by the Fourth industrial revolution. The Interreg - Adrion project Future 4.0 can serve as an example in this sense. It lasted for 3 years, starting in 2018, and targeted the shipyard & nautical logistic supply chain. It intended to design an Industry 4.0 model to enhance shipyard competitiveness in Italy, Croatia, Greece, and Albania. As a result, 132 enterprises were involved in a knowledge and technology transfer tailored process and the production of tools and methods to facilitate smart industrial change in related areas.¹³⁵

Even though the soft infrastructure is still underdeveloped, in recent years, several support organizations emerged. These include incubators, accelerators, innovation centres, and co-working spaces that offer business support services to start-ups including training, mentoring, networking, coworking spaces, and other facilities. Among the successful examples of soft infrastructure is the Oficina, Innovation Hub Tirana, Garazh, TechSpace, Protik ICT Resource Centre, Innovation Hub of Gjirokastra, MyOffice.al, Creative Hub, Tirana Business Park, and Tirana Talent Garden. Yet, all existing coworking spaces are not only limited in number and capacity but are also located only in Tirana.

Despite the existence of this soft infrastructure, there is still a shortage of more advanced services for entrepreneurs and start-ups that include certification, prototyping, technology transfer, intellectual property rights protection, etc.¹³⁶

3. Conclusions

This document has provided a framework to unravel digital development that includes five identified dimensions of digital transformation. It has provided information about Albania for each domain, based

¹³⁴ EU for Innovation, Entrepreneurial & Innovation Ecosystem in Albania, p.53, retrieved from <https://euforinnovation.al/wp-content/uploads/2020/03/e-publication-of-the-regional-gap-analysis.pdf>

¹³⁵ <https://future4.adrioninterreg.eu/news/final-publication-interreg-adrion-project-future-4-0>

¹³⁶ <http://euforinnovation.al/about-us/>

on the experiences and activities of the ITU and other stakeholders operating in the country and wider region.

This report will serve as a reference for discussions on digital development at the country level as well as stocktaking of relevant activities, initiatives and projects and experiences developed by UN agencies involved in digital transformation work in Albania. It will serve as a guide for future dialogue with country stakeholders and pave the way for increasingly fit-for-purpose engagements of the UN system in the country.