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Digital Inclusion Initiative

# NATIONAL REPORT **FOR SERBIA**



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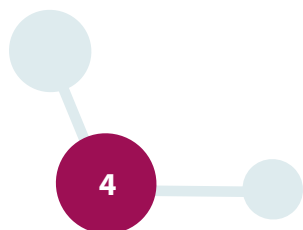
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## LIST OF ABBREVIATIONS

CAPTCHA	Completely Automated Public Turing test to tell Computers and Humans Apart	MoPALS	Ministry of Public Administration and Local Self-Government
		PWDs	Persons With Disabilities
CSOs	Civil Society Organisations	RCC	Regional Cooperation Council
DII	Digital Inclusion Initiative		
EU	European Union	SIPRU	Social Inclusion and Poverty Reduction Unit of the Government of the Republic of Serbia
GDP	Gross Domestic Product	SEDS	Strategy for Education Development in Serbia
GIZ	German Organisation for International Cooperation	SMEs	Small and Medium-sized Enterprises
GoRS	Government of the Republic of Serbia	SORS	Statistical Office of the Republic of Serbia
ICT	Information and Communication Technology	UNDP	United Nations Development Programme
ITU	International Telecommunications Union	WB	Western Balkans
NES	National Employment Service	WCAG	Web Content Accessibility Guidelines
MoE	Ministry of Education		
MoLEVSA	Ministry of Labour, Employment, Veteran and Social Affairs		
MoIT	Ministry of Information and Telecommunications		





## INTRODUCTION

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The national report has been developed as part of the Digital Inclusion Initiative (DII)<sup>1</sup>, a regional project implemented in Albania, Bosnia and Herzegovina, Kosovo\*, North Macedonia and Serbia, funded by the European Commission. This project aims to enhance the role of civil society organisations (CSOs) from the Western Balkans in advocating for participatory democracy and the European Union (EU) accession process by strengthening their capacities for policy development and digital inclusion advocacy.

The data and information presented in this report were collected through a policy questionnaire conducted following an analysis of national digitalisation and digital inclusion policy documents. Consultations with relevant institutions, experts, digital service users, members of vulnerable groups, and civil society organisations, as well as focus groups, were used to complement desk research, to gather stakeholders' perspectives on equity-related issues within the digitalisation process, and to inform policy recommendations. The list of stakeholders consulted is available in Annex 2.

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1 [www.diiproject.net](http://www.diiproject.net)

\* This designation is without prejudice to positions on status and is in line with UNSCR 1244 and the ICJ opinion on Kosovo Declaration of Independence



# 1. CONCEPTUALISING DIGITAL INCLUSION

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Digital inclusion is a critical foundation for economic and social progress; as such, it should be a priority topic in any country's development agenda. Access to and affordability of hardware and connectivity, as well as learning and skill acquisition, are foundational aspects of digital inclusion. However, comprehensive digital inclusion should entail participation in the digital economy, engagement in civic and political life, as well as confidence and trust in the digital environment (UNDP, 2024).

In Serbia, there is no unified definition of digital inclusion, but recent assessments, such as the 2018–2021 Report on Digital Inclusion in Serbia (Social Inclusion and Poverty Reduction Unit of the Government of the Republic of Serbia [SIPRU], 2021), suggest that digital inclusion should be understood as a triad comprising access, skills, and motivation. This is because the barriers affecting vulnerable populations are often not merely technological but systemic, and are linked to **poverty, educational disadvantage, geographic isolation, and discrimination.**

In this context, the most vulnerable groups in Serbia include older people, individuals with lower incomes, residents of rural areas, and persons with disabilities. The high cost of internet access and devices can make it impossible for some population groups to use digital services (SIPRU, 2021), while those living in rural and

remote areas often face limited access to infrastructure and digital skills education. Research also shows that younger and more educated individuals are more likely to use digital tools, while older people are often reluctant to adopt new technologies (Todorović et al., 2019).

At the same time, several strategic documents adopted by the Government of the Republic of Serbia (GoRS) address the key dimensions of digital inclusion. For example, the **Strategy for the Development of the Information Society and Information Security (2021–2026)** (GoRS, 2021a), which stands out as the key strategic framework in this area, emphasises the importance of equal access to information and communication technology (ICT), particularly for vulnerable groups, as a prerequisite for full digital participation. In addition, the now-expired **Strategy for the Development of Digital Skills (2020–2024)** (GoRS, 2020) outlined digital inclusion as a means of empowering all citizens, especially marginalised groups, to participate actively in society and contribute to the development of a knowledge-based economy within the framework of lifelong learning.



## 2. NATIONAL CONTEXT FOR DIGITAL INCLUSION

### 2.1. General contextual data and indicators on digital skills and technology use<sup>2</sup>

The data related to the contextual indicators presented in Table 1 and Figures 1 and 2 highlight key structural

challenges facing Serbia in advancing digital inclusion within broader socio-economic development and provide more detailed insights into the vulnerability factors affecting certain population groups in the context of digital inclusion.

*Table 1. Contextual data relating to the country's economic development, socio-economic status, and demographics*

No.	Indicator	Value	Year of data
1.	Gross Domestic Product (GDP) (mil. EUR)	75.204	2023
2.	Average salary or household income (EUR)	917.4	2025
3.	% of employed earning below the national average	68	2024
4.	Unemployment rate (%)	8.6	2024
5.	% of the population with completed primary or lower secondary education <sup>3</sup>	17.8	2022
6.	% of the population with completed upper-secondary education	53.1	2022
7.	% of the population with completed higher education	22.4	2022
8.	% of the illiterate population	0.63	2022
9.	% of the computer illiterate population	24.2	2022
10.	% of the population at risk of poverty and social exclusion	27.2	2023
11.	% of the population aged 65 and over	22.3	2023
12.	% of the population in rural areas	38	2022

Despite consistent GDP growth between 2021 and 2023, reaching €75.2 billion (SORS, 2024a), structural inequalities remain pronounced. Notably, 68% of employed individuals earn below the national average sal-

ary (€917.4 as of early 2025) (SORS, 2025a), while the unemployment rate of 8.6% (SORS, 2025b), raises concerns about the affordability of digital services and devices. Educational attainment is uneven: 17.8% of the

2 The so-called DESI indicators used by the European Commission, which is in charge of monitoring the digital progress of EU member states, have been selected for these purposes.

3 The data refers to the share of the population aged 15 and over.

population has completed primary or lower secondary education, 53.1% has completed upper-secondary education, 22.4% holds higher education degrees, while 0.63% is illiterate (SORS, 2023). Since education level is closely connected with digital inclusion, it is clear that the presented educational structure of the population influences their ability to engage with and benefit from digital technologies.

According to the results of the 2022 Census (SORS, 2023), about 46% of the population aged 15 and over can be considered computer literate (they know how to perform three basic activities on a computer - computer, tablet, mobile phone), about 30% of the population only partially knows how to work on a computer (they most often know how to find information on the Internet or know how to use some of the applications for electronic communication or use a computer to enter text, etc.), while 24% of the population is considered computer illiterate because they do not know how to perform any of the listed activities. Observed by municipality, the highest share of computer-literate persons was recorded in the central city municipalities of the City of Belgrade.

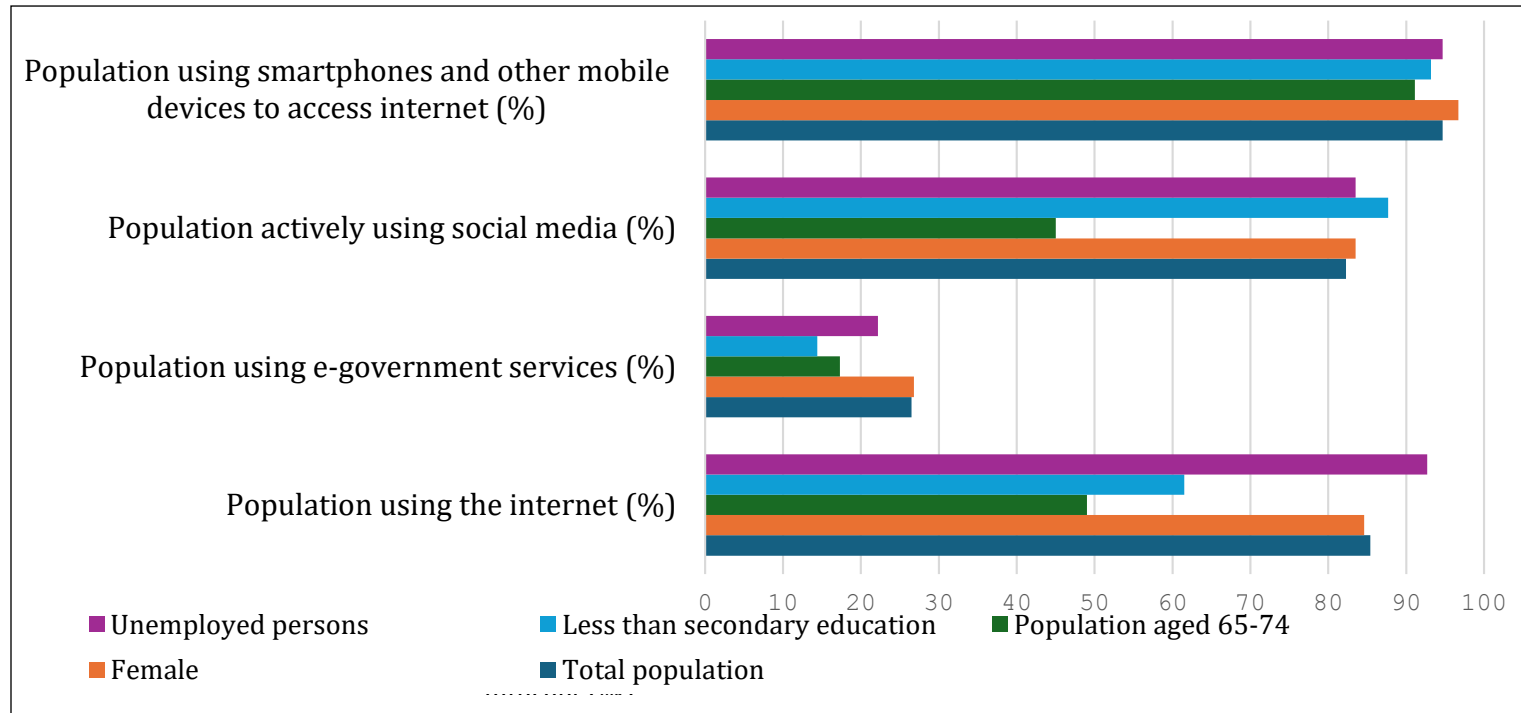
Also, the fact that 22,3% of the population is above 65 years of age is another important aspect for consideration in the context of digital inclusion, bearing in mind that, according to the national study on 'Ageing and Digital Inclusion', this group encounters significant hurdles, including a lack of digital literacy and challenges with device accessibility. The same study underlined that 43% of people over the age of 65 have never used the internet, and 90% of those who do use it do not use e-services such as e-banking and e-government (Todorović et al., 2019).

Furthermore, with 38% of the population residing in rural areas (SORS, 2023), it is clear that digital strategies must focus on interventions that address infrastructural barriers, as rural areas in Serbia often lack adequate internet infrastructure, resulting in poor connectivity and utilisation of digital platforms.

The at-risk-of-poverty rate remains persistently high (27.2% in 2023) (SORS, 2024b), underscoring the need for affordability schemes and socially responsive digital policies. Collectively, these data reveal a complex interplay between socio-economic vulnerability and digital marginalisation.



**Figure 1. Indicators for monitoring the digital inclusion of the population (individuals)**



As visible from the figure above, digital inclusion indicators present a mixed picture of access, usage, and capability across the population in Serbia. While internet use among the general population is relatively high (85.4%), severe disparities persist — only 49% of older persons (aged 65–74) and 61.5% of individuals with less than secondary education are internet users, compared to over 92% of the unemployed and 86.2% of the male population (SORS, 2024c).

Field research supports these findings, repeatedly drawing attention to the digital exclusion of elderly citizens, not only due to affordability or a lack of devices, but also because of fear, unavailability of tailored training, and interface complexity.

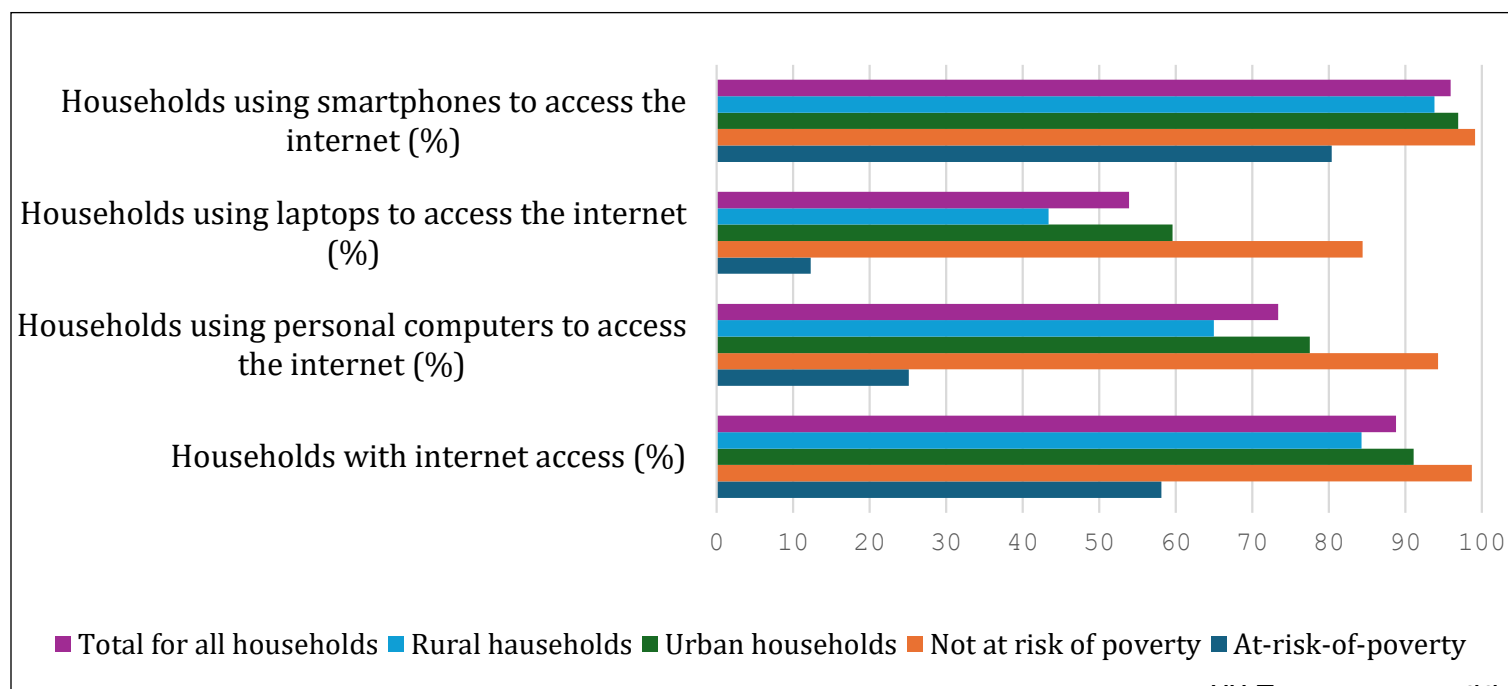
Despite the widespread use of smartphones to access the internet (94.7% overall), SORS (2024c) data show that the use of e-government services remains limited, with only 26.5% of the population engaging with them. Rates are particularly low among older persons (17.3%) and those with lower educational levels (14.4%).

This finding aligns with the conclusions of the interview with Digitas 24, which revealed that even when e-services are legally required to be accessible, they often remain functionally unusable for blind and visually impaired users due to inaccessible CAPTCHAs (Completely Automated Public Turing test to tell Computers and Humans Apart), poorly structured forms, and incompatibility with screen readers.

Teachers and civil society actors repeatedly stressed that this skills gap translates into fear of digital engagement, especially among vulnerable populations. Moreover, even digitally competent individuals are often unable to apply their skills when navigating public services, due to poor user experience and a lack of guidance.

Social media usage is also high (82.3%), though significantly lower among older persons (45%) (SORS, 2024c). The fact that social media use far exceeds that of e-government services highlights the disparity between online entertainment and civic engagement. Focus group participants attributed this to the intuitive app design and peer influence on social media, in contrast to formal, inaccessible, and bureaucratic e-service portals.

**Figure 2. Indicators for monitoring the digital inclusion of the population (households)**



Household-level data presented in the ‘Use of Information and Communication Technologies in the Republic of Serbia, 2024 – Households/Individuals’ publication (SORS, 2024c) reveal that 88.8% of households have internet access; however, this percentage drops signif-

icantly among households at risk of poverty<sup>4</sup> (58.1%) and those in rural areas (84.3%).

While smartphone-based access is almost universal (95.9%), access via laptops (53.9%) and personal computers (73.4%) is considerably lower, especially in ru-

<sup>4</sup> Monthly average - 60% of median equivalent disposable income.

ral areas. Teachers confirmed that many students from poor or rural households rely solely on smartphones, which limits their ability to participate in online learning or complete assignments that require more advanced tools. Schools rarely provide equipment, and national Bring Your Own Device policies are either unknown or unimplemented at the local level.

All these data emphasise that while infrastructure is improving, meaningful inclusion hinges on addressing deep structural inequalities, particularly in digital skills, accessible design, and targeted support for marginalised groups.

As for the stakeholders' views, CSOs representatives and researchers pointed out that low-income households often have to prioritise basic utilities over digital access and, in multi-generational homes, children's digital needs are frequently overlooked. In such settings, shared devices, lack of privacy, and slow connections disproportionately impact children, first affecting their education, and later, their employment opportunities.

## 2.2. Overview of relevant strategic and legislative framework

**Key documents and general provisions.** Serbia has established a multi-layered strategic and legislative framework to support the development of digital competencies, digital access, and inclusion, combining long-term national strategies with legal provisions aligned with the EU acquis.

Key documents include:

1. Strategy for the Development of the Electronic Communications System (2024–2027), which focuses on equitable broadband infrastructure expansion, with particular emphasis on rural areas and those with limited connectivity.
2. Strategy for the Development of the Information Society and Information Security (2021–2026), which promotes e-government, digital skills, and cybersecurity, especially for marginalised groups.
3. Strategy for the Development of Digital Skills (2020–2024), although no longer in effect, was important because it promoted digital literacy for all citizens, integrating ICT into education and lifelong learning; and the Strategy for Improving the Position of Persons with Disabilities (2025–2030) (GoRS, 2024), which included measures for accessible digital services and infrastructure.
4. Law on Electronic Communications (2023), which defines universal service obligations, consumer protection, and affordable access.
5. Law on Electronic Government (2018), which regulates accessible digital public services, including for persons with disabilities, by ensuring compliance with accessibility standards and enabling the use of assistive technologies in interaction with public authorities.
6. Law on Electronic Documents and Trust Services (2017, amended 2021), which establishes trust in digital transactions and facilitates secure e-services.
7. Law on the Fundamentals of the Education System (2017, amended 2025), which foresees the integration of digital skills and inclusive practices into teaching and learning.
8. Law on Public Media Services (2014, with subsequent amendments), which obliges public bro-

adcasters to ensure the accessibility of content for all citizens, particularly persons with disabilities, through measures such as sign language interpretation, subtitling, and audio description.

9. Law on the Use of Sign Language (2015) guarantees the right of deaf persons to use Serbian Sign Language in communication with public authorities, in education, employment, and political participation. It also obliges service providers and media to enable sign language interpretation or equivalent forms of accessible communication.

The aforementioned documents outline key measures aimed at advancing digital access and inclusion. Core actions include:

- Expanding broadband infrastructure through projects such as the [Joint Development of Broadband Communication Infrastructure in Rural Areas of the Republic of Serbia](#) (2024–2026), which aims to provide internet connection to approximately 880 schools, public institutions, local institutions, and around 152,000 households. The goal is to enable rural areas to access modern electronic services and boost the economy, especially through micro and small businesses.
- Mainstreaming digital competencies through the education system, including formal schooling, teacher training, and lifelong learning programmes.
- Promoting the accessibility of public services by ensuring that digital services are inclusive for persons with disabilities.

- Building trust in digital services through legislative and strategic measures aimed at fostering privacy, data protection, and cybersecurity.
- Conducting public outreach and awareness-raising campaigns, coordinated by the Office for IT and eGovernment, to increase digital participation among traditionally excluded groups.

In **education**, the development of digital competencies is recognised as one of the priorities. The Law on the Foundations of the Education System identifies eleven cross-curricular competencies, based on key competencies, one of which is digital competence. Also, since the 2017/2018 school year, primary schools have introduced the subjects Informatics, Computer Science, and Engineering and Technology in the second cycle of primary education. From the 2020/2021 school year, the subject 'Digital World' was introduced in the first cycle of primary education, alongside the elective subject 'From Toy to Computer', which is taught from the first to the fourth grade. In gymnasiums, compulsory computer science and informatics classes are delivered from the first to the fourth grade. The elective subject of Modern Technologies is offered in the third and fourth year of schooling. In vocational secondary schools that do not provide IT-related profiles, students typically take compulsory Computer Science and Informatics classes in the first year of schooling.

**Vulnerable groups in policy documents.** Digital inclusion in Serbian policy documents is framed as an effort to ensure equitable access to digital technologies, services, and information for all citizens, with a particular **focus on marginalised/vulnerable groups**. While there

is no single, unified definition across all policies, a consistent conceptual understanding can be observed throughout various strategies and studies.

In more concrete terms, most legislation and strategic documents, including those in education, identify **persons with disabilities** as a key priority group. The legal framework underscores the importance of removing physical, economic, and technical barriers for this population by adhering to internationally recognised standards and promoting universal design, in line with the **UN Convention on the Rights of Persons with Disabilities**. Measures target both technical accessibility (accessible interfaces and devices) and socio-educational support (training seminars implementation, awareness initiatives, and inclusion in policy design).

**Older citizens** are another group explicitly recognised in policy documents as vulnerable within the context of digital inclusion, as well as **rural and remote populations**, due to infrastructural limitations, such as poor broadband access or insufficient availability of ICT equipment. The Strategy for the Development of the Electronic Communications System addresses targeted investments in the network in environments with limited internet access.

**The Strategy for Active and Healthy Ageing in the Republic of Serbia (2024-2030) (GoRS, 2023a)** promotes the integration of older persons into all spheres of social and digital life, underscoring the necessity of age-friendly environments and cross-sectoral action.

**The Strategy for the Development of Digital Skills** introduced a broader interpretation of vulnerable

groups, encompassing **low-income households, un-employed individuals, Roma communities, and other ethnic minorities**, recognising them as those facing a heightened risk of digital exclusion due to compounded socio-economic disadvantages. The strategy points out that digital inclusion for these groups means access to infrastructure, the acquisition of skills, and the motivation to utilise digital tools for personal and professional development and active participation in a knowledge-based society.

However, stakeholders and researchers interviewed noticed that the lack of a unified, clear, and operationalised definition hampers coherent policy implementation across sectors.

**Strategic digital equity measures.** In addition to general measures, Serbia has created and implemented specific interventions for digital inclusion targeting vulnerable groups of the population:

- **Accessibility for Persons with Disabilities:** The Strategy for Improving the Position of Persons with Disabilities (2025–2030) mandates the integration of screen-reader compatibility, sign language interpretation, and assistive technologies into public digital services. The Ministry of Labour, Employment, Veteran and Social Affairs (MoLEVSA) (specifically its Sector for the Protection of Persons with Disabilities) implements programmes to enhance digital accessibility and provide assistive technologies. Several initiatives have been implemented to

enhance digital accessibility for persons with disabilities in Serbia. The Ministry supports programmes such as IT retraining for persons with disabilities and digital skills development through the **DI-MARC project**. Additional measures include the development of a Support Map for persons with disabilities and an e-platform for assessing urban accessibility, thereby promoting inclusive urban development.

- **Regional Equity:** Subsidised and publicly funded broadband projects prioritise lagging regions, particularly in the south and south-west of the country.

- **Linking Digital Inclusion with Employment Activation:** Several initiatives combine digital skills development with social protection and employment programmes, especially targeting low-income and marginalised groups. For example, the **German Organisation for International Cooperation (GIZ) Social Inclusion Project** promotes gender-responsive social inclusion of disadvantaged groups in Serbia through social services and economic participation, including digital anti-discrimination measures. Additionally, the **European Investment Bank's Social Impact Financing** initiative has launched a €30 million financing scheme for small and medium-sized enterprises in Serbia, aiming to support and foster the employment, entrepreneurship, and leadership of women, young people, and vulnerable groups.

- **Gender and Minority Inclusion:** Specific support measures for Roma communities and women's digital empowerment programmes have been initiated, such as the World Bank's **Empowering Women in the Workforce** project, which includes personal initiative training programmes for Roma women in Serbia, aiming to improve their employability and economic empowerment through digital skills development.

Furthermore, since 2023, Serbia has been a full member of the EU's **Digital Europe Programme**, which grants access to EU funds supporting artificial intelligence, cybersecurity, and high-performance computing.

Various **digital literacy training seminars for seniors** have also been introduced, along with assistive e-government tools (e.g. screen readers), and internet subsidies for low-income households (ITU, 2021).

Specialised programmes targeting those at risk of digital exclusion are implemented in Serbia through cross-sectoral co-operation and are primarily funded by international partners (see Section 5).

## 2.3. Governance

While there is no single national body exclusively dedicated to digital inclusion, the Ministry of Information and Telecommunications (MoIT) and the Office for IT and e-Government are the leading institutions tasked

with developing, monitoring, and coordinating the implementation of digitalisation-related strategies and laws. Their responsibilities include promoting broadband access in underserved areas, ensuring the accessibility of e-services, and advancing digital literacy, particularly among vulnerable groups. Specifically:

- **The Ministry of Information and Telecommunications (MoIT)** is primarily responsible for digitalisation, digital technologies, and telecommunications. It oversees sectoral policies related to electronic communications, broadband internet development, digital skills, and information security.
- **The Office for IT and eGovernment** acts as the central coordinating body for implementing digital government services and digital inclusion policies across sectors. It plays a key role in coordination among ministries responsible for education, labour, and public administration. Additionally, the Office designs, develops, and maintains e-government infrastructure and manages the Government Data Centre in Kragujevac. It also residences the Centre for Security of the ICT System in the Republic's Bodies.

Collaboration between the institutions directly responsible for digitalisation and other sectors, such as education, healthcare, or economic development, ensures that inclusion efforts are aligned with development

goals. Sector-specific institutions contribute to digital inclusion by implementing targeted strategies and legislation. For example, **MoE** integrates digital competencies into the formal education system. **MoLEVSA** implements the Strategy for Improving the Position of Persons with Disabilities and coordinates programmes aimed at enhancing accessibility and digital empowerment of this population. **The Ministry of Public Administration and Local Self-Government (MoPALS)** supports digital inclusion through initiatives related to e-government accessibility and the development of public administration capacities.

## 2.4. Financing of digital inclusion policies

Numerous strategic documents, as outlined in Section 2.2 of this report, include action plans with estimated financial allocations for implementing various activities. However, these activities are not always explicitly focused on digital inclusion: instead, they often incorporate elements of equity and contribute indirectly to its advancement. Consequently, it is challenging to present a clear and comprehensive picture of the funding specifically dedicated to digital inclusion by the ministries and institutions responsible for implementing these strategies. Moreover, there is no publicly available data on the exact share of GDP allocated to digitalisation or digital inclusion, although the ICT sector is an important contributor to Serbia's GDP (10%).<sup>5</sup>

5 <https://www.ai.gov.rs/vest/sr/563/ikt-sektor-jedan-od-najperspektivnijih-u-srbiji.php>

This underscores the need for greater transparency in the budgetary tracking of policies related to digitalisation and digital inclusion.

Stakeholders interviewed for this report stated that, even when funding is available, its utilisation is frequently undermined by systemic fragmentation, unclear spending responsibilities, and insufficient coordination between ministries and implementing bodies. NES representatives pointed out that projects, such as digital skills training for hard-to-employ individuals, often rely on donor support and are not integrated into long-term national financing frameworks. Similarly, CSOs like 'Vitezovi osmeha' and Digitas 24 noted that their most impactful digital inclusion initiatives are externally funded and remain unsustainable due to a lack of institutional backing or inclusion in regular budget lines.

Additionally, teachers and school-level staff reported that while some funds have been allocated for infrastructure and digital equipment, little to no funding is earmarked for pedagogical training or the provision of assistive technologies. This misalignment between capital investment and professional development was cited as a major barrier to realising the goals of national strategies.

A recurring concern raised in interviews and focus groups was the lack of transparency in public funding processes. Civil society representatives stressed that disaggregated data on digital inclusion spending is either unavailable or difficult to interpret, making it impossible to hold institutions accountable or assess the

cost-effectiveness of interventions. This aligns with the findings of the EU Progress report, which states that Serbia tends to circumvent its legislation in this area through intergovernmental agreements and special laws (European Commission, 2024).

In light of these issues, stakeholders called for dedicated budget lines for digital inclusion across all relevant ministries and clearer reporting mechanisms to track actual expenditures and outcomes.

## 2.5. Alignment between EU and national legislation

As mentioned, Serbia has progressively aligned its strategic and legislative frameworks with the European Union's digital *acquis*, particularly in the areas of connectivity, accessibility, digital skills, and e-governance. This alignment is most evident in the adoption of the **Law on Electronic Communications**, which is substantially harmonised with the **European Electronic Communications Code**. The law defines universal service obligations, ensures consumer protection, and lays the foundation for the development of 5G and affordable broadband access across the country. However, full implementation remains contingent upon the adoption of secondary legislation and the establishment of consistent enforcement mechanisms.

In terms of accessibility, Serbia's legislative provisions partially reflect the standards set by the **European Accessibility Act** (EU Directive 2019/882), particularly

through the **Law on Electronic Government** and the **Decree on Website Accessibility**. These laws define accessibility standards for government websites, including screen reader compatibility, keyboard navigation, high-contrast modes, and alternative formats for documents and media. They ensure that persons with disabilities can access online public services and information on an equal basis. These documents also call for the establishment of mandatory WCAG 2.1<sup>6</sup> compliance for public-sector websites, thus supporting inclusive access for persons with disabilities.

Nevertheless, Serbia lacks comprehensive national legislation extending accessibility requirements to private digital services, such as online banking, e-commerce, or e-books, resulting in notable gaps in legal coverage concerning the EU directive. Under Directive (EU) 2019/882, member states are obligated to ensure the accessibility of products and services, including ATMs, ticketing systems, and e-commerce platforms. This gap was further highlighted in interviews with representatives of Digitas 24, who noted that platforms such as eGovernment (eUprava) and banking apps remain largely inaccessible to blind users due to the absence of alternative CAPTCHA solutions, screen reader incompatibility, and systemic design flaws that fail to accommodate assistive technologies. This exclusion is not only technical but also institutional, as digital certificates legally recognised in Serbia are often not accepted in practice—particularly by financial and tele-

communications institutions. The EU progress report also states that Serbia needs to align with the **Digital Services Act** and the **Digital Markets Act** (European Commission, 2024).

Serbia's strategic objectives also align with the **EU's Digital Decade 2030 targets**, particularly those related to developing digital skills, introducing inclusive digital public services, and promoting the widespread adoption of broadband infrastructure. Nevertheless, there is no dedicated institutional mechanism for monitoring Serbia's compliance with the EU digital rights framework or for tracking progress towards the Digital Decade benchmarks.

Through its **Strategy for the Development of the Electronic Communications System**, Serbia has also endorsed the **European Declaration on Digital Rights and Principles**, particularly Chapter II on solidarity and inclusion, thereby signalling its political commitment to upholding fundamental digital rights.

## 2.6. Monitoring and evaluation mechanisms for relevant policies

Serbia's strategic and legislative frameworks for digital access and inclusion incorporate mechanisms for monitoring and evaluation, with the implementing ministries also in charge of these processes. For example, **MoPALS and local self-governments monitor the**

6 Web Content Accessibility Guidelines (WCAG) 2.1 are the internationally recognised standard for digital accessibility, referenced in the European Accessibility Act.

achievement of e-Government goals, while the Office for IT and e-Government contributes to tracking progress across digital policies.

The Strategy for Education Development in Serbia 2030 (SEDS 2030) (GoRS, 2021b) also envisages monitoring mechanisms for the strategy's implementation, including indicators related to digital transformation in education and inclusive practices. It calls for regular assessment of the integration of digital content, teach-

er competencies in ICT, and the accessibility of digital learning tools. MoE regularly publishes reports on the implementation of SEDS 2030 action plans on its website.<sup>7</sup>

However, a unified monitoring mechanism to track and evaluate digital equity and inclusion across sectors is still lacking.

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7 [https://prosveta.gov.rs/kategorija\\_dokumenata/strategije/](https://prosveta.gov.rs/kategorija_dokumenata/strategije/)



### 3. KEY SECTORS - ROLE AND CONTRIBUTION TO DIGITAL INCLUSION

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#### 3.1 Intersectoral co-operation

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Serbia's strategic and legislative framework recognises the necessity of cross-sectoral co-operation to foster digital inclusion. The **Strategy for the Development of Digital Skills in the Republic of Serbia** established a foundation for such co-operation by highlighting the need for coordination among the education, labour, social protection, and information technology sectors to improve the digital literacy of all citizens, especially vulnerable groups. This strategy also envisages the establishment of local coalitions for the development of digital skills and implementation of training programmes.

Furthermore, it foresees the creation of a professional body/ coalition for digital skills—comprising representatives from the business sector, academia, public sector, trade unions and relevant decision makers—aimed at identifying the needs for digital skills, exchanging information and good practices, developing models to engage employers in the creation and development of study programmes, etc.

#### 3.2. Sectors' contribution

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Governments play a key role in ensuring that basic ICT and other digital systems are in place, including public digital infrastructure, such as national digital identity and digital payment mechanisms. An overview of the main services is provided in Table 2, together with some additional forms of contribution that go beyond e-services and infrastructure.



**Table 2. Sectoral contribution to digital inclusion in Serbia**

Sector	Are there digital services? If yes, which ones?	Is the quality and user satisfaction with these services monitored? (Y/N)	Are there special services for vulnerable groups? If yes, which ones?	Are there identified barriers for vulnerable groups related to digital services? If yes, which ones?
Education	Yes, e-Enrolment in kindergarten (eVrtić), e-Enrolment in primary school (eUpis), My High School (Moja srednja škola) and e-Class Register (esDnevnik).	No systematic monitoring.	Digital assistive technologies are available in Serbian primary and secondary schools to support the educational development of students with disabilities.	Families from rural and marginalised communities often lack reliable internet access or digital devices. For digitally illiterate parents, navigating online platforms can be challenging. Families frequently lack guidance or assistance in using administrative procedures. A lack of mobile-friendly interfaces also presents a barrier, as many low-income families rely on smartphones.
Telecommunications	Yes, there are multiple telecommunication providers, including private (e.g., A1, Yettel) and public (Telekom Srbija).	Surveys are occasionally conducted by the Regulatory Agency for Electronic Communications and Postal Services.	All providers and the responsible ministry participate in or support digital literacy initiatives, often in partnership with schools, UNICEF, NGOs, and state institutions.	Services are generally affordable, though this varies by region and income level; access is more limited in remote or rural areas; blind persons cannot use digital signatures with providers (e.g., A1), requiring them to rely on manual, witness-supported processes.
Health	Yes, there is an e-Health portal for scheduling medical examinations, accessing medical results, and facilitating electronic prescriptions of medication.	Surveys are occasionally conducted by national institutions, international organisations, and independent research, but systematic reports are often lacking or not publicly available.	Only basic accessibility features, such as adjustable text size, screen reader support, and high-contrast modes, are available.	Overall accessibility for persons with disabilities still needs improvement.

Sector	Are there digital services? If yes, which ones?	Is the quality and user satisfaction with these services monitored? (Y/N)	Are there special services for vulnerable groups? If yes, which ones?	Are there identified barriers for vulnerable groups related to digital services? If yes, which ones?
Financial services	Yes, there are e-banking services, e-payments platforms such as PayPal, Stripe, and Web Pay, as well as the eFiscalisation system, which enables businesses to issue and store invoices electronically.	Some surveys have been conducted. The National Bank of Serbia occasionally surveys the usage and satisfaction with digital financial services. However, no reports are publicly available.	Only basic accessibility features, such as adjustable text size, screen reader support, and high-contrast modes, are available.	Banking apps are often visually complex and updated without accessibility testing. As a result, blind users must contact banks directly to request access to basic features, such as logging in or transferring funds. Some institutions only allow facsimile signatures after an in-person handwritten signature, while others do not accept digital certificates at all (e.g., UniCredit).  The same issue affects online shopping websites, which often lack an accessible structure. Across the board, they frequently break screen reader compatibility due to poorly coded menus, unlabelled buttons, or dynamic content.
Social welfare	Yes, the eUprava portal provides access to various government services, including social welfare programmes such as unemployment benefits, financial aid, and social assistance for persons with disabilities.	No systematic monitoring.	Only basic accessibility features are available, such as adjustable text size, screen reader support, and high-contrast display modes.	Inaccessible service portals hinder independent use, such as booking appointments or viewing pension records, due to non-alternative CAPTCHA and poorly structured forms.

Sector	Are there digital services? If yes, which ones?	Is the quality and user satisfaction with these services monitored? (Y/N)	Are there special services for vulnerable groups? If yes, which ones?	Are there identified barriers for vulnerable groups related to digital services? If yes, which ones?
Administration	Yes, the eUprava portal offers the issuance of personal documents (e.g., ID cards, passports, driving licenses), certificates (e.g., birth, marriage, citizenship certificates), vehicle registration, etc. It also provides environment-related services (e.g., reporting environmental violations) and public procurement information (e.g., accessing public tender information and submitting bids).	These services are periodically monitored.	Only basic accessibility features are available, such as adjustable text size, screen reader support, and high-contrast modes.	The eUprava portal is functionally inaccessible to blind users. CAPTCHA images lack audio alternatives, ID appointment tables are incompatible with screen readers, and even logging in requires assistance. Technical barriers identified in financial services are evident here as well.
Economy	Yes, NES implements programmes to improve the digital skills of the unemployed as part of active labour market measures.	No data available.	Recognising that the unemployed are a vulnerable group, this service is designed specifically for them.	Most free NES digital skills training seminars are provided online, requiring more than just basic digital skills, and potentially excluding already vulnerable users.

In the area of research and innovation, this sector does not provide digital services directly, but investments in research and development in the field of new technologies are available through the **Innovation Fund of the Republic of Serbia**. There is also collaboration between academia and industry in the development of digital technologies—for example, the University of Belgrade works with tech companies to develop software that improves accessibility for people with disabilities, such

as voice control applications. Despite these efforts, digital inclusion remains a marginal topic in academic research and is seldom addressed systematically in higher education programmes. However, several faculties of social sciences, humanities, and arts in Belgrade and Novi Sad offer courses that cover aspects of digital inclusion and technological literacy, typically embedded within broader curricula aimed at developing students' digital competencies (Matović, 2021).

Serbia has no notable examples of **private sector initiatives** that promote the development of innovative services and products to enhance digital inclusion, as most existing efforts are commercially driven or support entrepreneurial initiatives. However, stakeholders identified missed opportunities for greater private sector engagement. One example cited is Microsoft, which has a long-standing commercial presence and market penetration in Serbia but has not developed a Serbian-language screen reader for Windows systems. This is in stark contrast to neighbouring countries like Croatia, where screen reader support is integrated into mainstream platforms. As a result, blind users in Serbia are forced to rely on third-party solutions, many of which are expensive, only partially functional, or limited to Android and web-based platforms; these workarounds fragment the user experience, limiting productivity and undermining educational and professional inclusion.

Given Microsoft's global commitments to accessibility and corporate social responsibility, its inaction in this context represents a significant missed opportunity—not only in terms of service provision but also in affirming the digital rights of linguistic and disability minorities.

### 3.3. Role of the civil society sector and CSO-led initiatives

CSOs in Serbia are actively engaged in enhancing digital literacy and improving access to technology for older people, women, persons with disabilities, youth, and rural populations through a range of projects, pro-

grammes, and initiatives. For example, Belgrade Open School (BOŠ) focuses on young people through the development of digital tools for career guidance and the implementation of virtual internships. The organisation 'Na pola puta' prioritises digital literacy workshops for persons with intellectual disabilities, elderly citizens, and marginalised youth.

These organisations often collaborate with public institutions, international organisations, and the private sector to implement training programmes, awareness campaigns, and community outreach initiatives. Their work complements national efforts by addressing local needs and ensuring no one is left behind in the digital transformation. While the public sector generally views CSOs as partners in systemic action, focus group narratives portray them more as substitutes for missing or delayed institutional interventions.

Interviewed representatives of CSOs highlighted several project-based and CSO-led initiatives which they see as embodying the true spirit of digital inclusion.

The '**Seize the Film**' festival brings together artists with disabilities across the region and diverse audience through films that incorporate audio description and sign language interpretation. Every year, *Seize the Film* showcases more than 30 short films about disability from around the world.

The **Museum of African Art** (MAA) undertook several projects featuring exhibitions that ran for limited periods (e.g., two months), including the 2023 '**Blue Exhibition**'. However, MAA took a step further by establishing

a **permanent accessible installation**—Milica Josimov's exhibition *'See, Touch, Feel'*. This exhibition enables blind and visually impaired visitors to access descriptions via Braille and audio guides, navigate the space using tactile floor paths from the entrance, and explore content using **QR codes**, allowing for both visual and auditory engagement.

These practices were described as exemplary, but their project-based and time-limited nature was also underlined as a limitation, reinforcing the need for systemic, institutionally embedded accessibility policies in cultural spaces.

Other project-based initiatives, albeit longer in duration and broader in scope, include the following:

- **Bridging the Digital Divide for the Most Vulnerable Children** (2020-2023). Implemented in partnership with UNICEF, the Ministry of Education, and the Centre for Education Policy, with the support of the European Union, this project establishes 30 Learning Clubs and Digital Technology Libraries in 30 schools. At the same time, 30 teachers from each school participated in an intensive and extensive 12-week capacity-building programme, which included, among other topics, the implementation of online and digital teaching and learning.
- **Digital Literacy Workshops** by EU4ALL Association (ongoing). Organisation EU4ALL focuses on empowering young people, especially those facing social and economic challenges, includ-

ing young people with disabilities. Its workshops cover digital literacy, online safety, and responsible digital engagement, fostering a balanced and informed approach to digital technology among participants. Activities include:

- **Digital Awareness Campaigns:** These interactive campaigns raise awareness of the potential consequences of excessive digital engagement and encourage young individuals to adopt a mindful approach to their online activities.
- **Digital Well-being Training Programmes:** These programmes equip young people with effective strategies to manage digital addiction and promote a healthy balance between online and offline life.
- **Online Safety Seminars:** Sessions focusing on cybersecurity, online privacy, and safe practices to ensure young people's well-being in the digital sphere.
- **Skill Development Initiatives:** A variety of learning opportunities, including workshops on media literacy, critical thinking, and responsible social media use, enabling young people to make informed decisions in the digital age.
- **Interdisciplinary Dialogues:** Dialogues involving experts, young people, and stakeholders to explore the causes and effects of digital addiction and develop collaborative solutions.
- **Digital Creativity Projects:** The association fosters creativity and innovation by encouraging young people to engage in digital art, multimedia, and other forms of artistic expression.

- Youth Advocacy and Engagement: These activities involve young people in decision-making processes, leadership roles, and project implementation, fostering their empowerment and active citizenship.

Such initiatives demonstrate that the civil sector in Serbia is actively working to foster a more inclusive digital society. However, there remains a need for initiatives with a broader scope and outreach.



## 4. RELEVANT RESEARCH AND THE REPORTS ON DIGITAL INCLUSION

Reports, such as the European Union's progress reports, the Regional Cooperation Council (RCC) reports, the DESI report, and research studies on various topics related to digitalisation, digital competencies and digital inclusion in the Republic of Serbia, provide valuable insights into the country's digital inclusion landscape. The most relevant and recent reports are briefly outlined below.

### 4.1. Overview of the policy reports

The **Report on Digital Inclusion in the Republic of Serbia for the period 2018–2021 (SIPRU, 2021)** noted progress in Serbia's digital infrastructure, mentioning the significant expansion of broadband internet access, including in rural areas, the introduction of 5G pilot projects, and the development of next-generation networks. It also highlighted the increased use of digital tools in education, the expansion of e-government portals (with over 300 digital services available to citizens), and the implementation of targeted programmes for vulnerable groups. However, the report pointed out several areas requiring further improvement – data literacy programmes should be continued and targeted programmes for marginalised communities expanded; digital skills should be firmly integrated into for-

mal education curricula; all public digital services must comply with accessibility standards; inclusive design for persons with disabilities should be promoted; legal frameworks for privacy and data security must be strengthened; activities related to raising public awareness about digital rights should be initiated, along with promotion of interoperability and user-friendly platforms; women's participation in ICT and entrepreneurship should also be encouraged.

'**The Study on the Assessment of Digital Accessibility Policies in the Republic of Serbia**' (ITU, 2021) was produced in support of the Government of the Republic of Serbia under the Regional Initiative for Europe by the International Telecommunications Union (ITU). The study provided a comprehensive overview of digital inclusion efforts in Serbia and identified gaps in accessibility standards, highlighted barriers for vulnerable groups, including Roma communities, rural populations, and people with disabilities. It also emphasised the importance of affordability, skills development, and accessible ICT design and stressed the need for cross-sectoral co-operation, community-based digital literacy programmes and improvement of the legal framework to promote inclusive design and ensure public services are accessible to all.

According to the report '**Digital Skills Needs and Gaps in the Western Balkans – Scope and Objectives for a Fully-fledged Assessment**' (RCC, 2021), Serbia has a comprehensive digital skills strategy aligned with EU frameworks, with a growing start-up ecosystem, especially in AI, gaming, and blockchain. It concludes

that sector prioritisation is well-developed through the Smart Specialisation Strategy, and that there is increasing awareness of digitalisation's potential among Serbia's residents. Additionally, although the number of individuals pursuing training in ICT remains relatively modest, it is showing a consistent upward trend. The report identifies vulnerable groups in Serbia (PWDs, women, youth, public administration employees and start-up founders) as the key target groups for digital skills assessment and inclusion.

**Western Balkans (WB) Digital Economy Society Index – 'WB DESI 2022 Report'** (RCC, 2022) states that Serbia is one of the top digital performers in the Western Balkans, scoring above the regional average across all four DESI dimensions, with a total WB DESI score of 34.9 (WB average: 29.3). Serbia is the top performer in Digital Public Services, Connectivity, and Human Capital. Basic digital skills are possessed by 41% of individuals (WB average: 35; above basic digital skills by 12% (WB average: 9%); digital content creation skills by 64% (WB average: 54%); ICT specialists account for 3.3% of workforce (WB average: 2.6%); female ICT specialists make up 24% (WB average: 19%); and ICT graduates represent 7.1% of all graduates (EU average: 3.9%). Serbia is recognised as a regional leader in mobile broadband usage, digital government services and open data availability, and has a strong infrastructure for high-speed internet. However, the report points out that, despite strong digital adoption in small and medium-sized enterprises (SMEs), Serbia lags in advanced technologies such as AI and big data. The report also highlights, in the Human Capital section for Serbia, that the Strategy

for Development of Digital Skills for the period 2020–2024 recognises digital exclusion risks and aims to address inequalities in digital skills access and development, particularly among vulnerable populations.

**The Economic Reform Programmes of Albania, Bosnia and Herzegovina, Georgia, Kosovo\*, Moldova, Montenegro, North Macedonia, Serbia and Türkiye: The Commission's overview & country assessments** (European Commission, 2025) pointed out that Serbia has made notable progress in implementing digital inclusion policies, particularly in expanding access to digital education and training, promoting digital literacy across age groups and supporting digital entrepreneurship. However, the conclusion is that some structural challenges remain, such as the digital divide between urban and rural areas, limited access to high-speed internet in remote regions, underrepresentation of vulnerable groups in digital sectors, skills mismatch in the labour market, especially in ICT. It is also noted that Serbia's Reform Agenda 2024–2027, supported by the EU's Reform and Growth Facility, includes investments in digital infrastructure, the implementation of measures to improve digital literacy and inclusion and support for digital transformation in public services. The expected results include a stronger digital infrastructure, the inclusion of vulnerable groups in the digital transformation process, and the establishment of monitoring and evaluation mechanisms for digital inclusion policies.

**The EU Progress Report - Serbia 2024** (European Commission, 2024) stated that Serbia continued to de-

ploy ultra-fast broadband infrastructure, especially in rural areas, and to support digitalisation in education through infrastructure development, teacher training in digital competencies, and the integration of computer science into pre-university curricula. Parallel to this, upgrades to e-government services and the government service portal are ongoing. Nevertheless, Serbia is moderately prepared for digital transformation and media, while only limited progress has been made in aligning with the EU Digital Single Market objectives. Therefore, Serbia needs to align its electronic communications and cybersecurity legislation with the EU framework (e.g. the Gigabit Infrastructure Act, NIS2 Directive), ensure the full independence of regulatory bodies like REM (media) and RATEL, and further consolidate the education management information system. Serbia must also align with the EU Digital Education Action Plan 2021–2027.

## 4.2. Overview of research

In co-operation with the Commissioner for Information of Public Importance and Personal Data Protection, the OSCE Mission supported the research **Exploring Citizens' Perceptions of Personal Data Protection**. The research was conducted in 2020 and included 1,217 respondents from Serbia. It revealed that 55% of Serbian internet users were concerned about how social media companies handled their personal information, and 62% were uncertain about the level of protection for their data when using online platforms. This mistrust affects engagement with digital services, limiting the use of social media and

online shopping platforms, where privacy and security concerns are particularly prevalent.

The publication **Digital Competence Programmes in Education** (Matović, 2021) provides a comprehensive analysis of digital competence programmes in Serbia across formal and non-formal education, stating that there is a clear trend towards strengthening IT specialisation in both sectors, including specialised schools, technical faculties, and private IT academies. Additionally, a wide range of programmes targeting basic digital skills, particularly for teachers and school staff, is available. In contrast, those dedicated to developing advanced digital skills are scarce, and when they do exist, they are often expensive. The availability of digital competence courses in humanities and arts faculties varies significantly by region - Universities in Novi Sad, Belgrade, and Kragujevac lead in course offerings. As for training programmes related to Artificial Intelligence, there are none available for any target group. The study also concluded that older adults, persons with disabilities, and those without access to digital devices are underserved.

The study **'Digital Skills of Serbian Citizens'** (Bradić-Martinović, 2022), developed in co-operation with the Institute of Economic Sciences, Belgrade, and the MoE, synthesises findings from global and Serbian research and highlights the digital divide and socio-demographic disparities. The study underlined the significant progress in developing digital skills among the Serbian population over time, although information, communication, problem-solving and software skills

remained significantly below EU average (information skills: 59.1% of citizens had advanced skills by 2019 (EU: 69%); communication skills: 59.8% advanced (EU: 65%); problem-solving skills: 37.9% advanced (EU: 57%); software skills: 27% advanced (EU: 45%)). The study concluded that younger people possess higher levels of digital skills, that higher income is correlated with better digital skills, and that gender-based differences exist but are less pronounced than those related to age and education. The main conclusions are that software skills are identified as the weakest area, with older adults and low-income groups most at risk of digital exclusion, and that online learning tools are underutilised (only 7% of students use them). The study recommended expanding digital education and training, especially for vulnerable groups, promoting lifelong learning and digital upskilling, improving access to devices and the internet, particularly in rural areas, and encouraging the use of digital public services and e-banking.

**The International Computer and Information Literacy Study (ICILS)** (IEQE, 2024), conducted in Serbia in 2023, indicates an average score of 443 points on the computer and information literacy scale, which is 33 points below the international average. Compared to the highest result in the ICILS 2023, achieved by the Republic of Korea (540), Serbia lags by more than 100 points. The gap compared to the Czech Republic (525), which has the best results among European education systems, is 82 points (IEQE, 2024). Therefore, compared to the overall international participation, Serbia is in the group of education systems with weaker results

on the computer and information literacy scale. The results of students from Serbia are comparable to those from Uruguay and Bosnia and Herzegovina; they outperformed their peers in five education systems but lagged behind those in the remaining 25 countries participating in the survey.

**The Situational Analysis of the Rights of Persons with Disabilities** – Serbia (UNPRPD, 2024) highlights several challenges and gaps related to digital inclusion for persons with disabilities in Serbia, with a focus on accessibility of digital platforms:

- While UN agencies ensure accessibility standards are met, improvements are ongoing, particularly in digital platforms;
- Information and Communication Accessibility: Laws exist to cover electronic services and media, but cognitive accessibility regulations are lacking. The development of easy-to-read materials is limited.
- Sign Language Accessibility: The Law on the Use of Sign Language promotes access to learning sign language and interpreter services, but does not explicitly recognise Serbian Sign Language or the needs of deafblind individuals;
- Capacity Building: There is a lack of trained professionals and awareness programmes aimed at reducing prejudices and stereotypes, which impact digital accessibility;

- **Data Collection:** There is a lack of capacity and expertise in data collection methods and tools, which could complement government data for advocacy purposes.

The most recent study, '**Digital Competences and Disability: A Contribution to a More Inclusive Digital Society**' (Lazić et al, 2025), surveyed 250 persons with disabilities (PWDs) in Serbia, using a methodology designed to ensure international comparability. The research explored the perceived level of digital competences among persons with disabilities (PWDs), as well as the demographic and socio-economic factors influencing their self-assessment across different competence levels. The results reveal that while a significant proportion of PWDs consider themselves sufficiently compe-

tent to perform digital tasks, notable disparities remain, particularly in access to key information and e-services. In addition, key variables such as gender, age, education, employment status, income regularity and health status were identified as influential factors shaping the perception of digital competences among PWDs. Finally, younger men with disabilities were found to be several times more likely to consider themselves sufficiently competent to complete tasks independently compared to the other categories of PWDs. The findings underscore the urgency of addressing digital inequalities holistically and make the case for targeted digital training and inclusive initiatives that take into account gender differences, age and market dynamics.

A summary of findings is provided in Annex 1.



## 5. EXAMPLES OF NATIONAL PRACTICES

### 5.1. Identification and description of the three most effective initiatives/projects led by the government or civil sector

In addition to programmes implemented through foreign funding focusing on the expansion of broadband infrastructure and ensuring the availability of ICT, this section presents initiatives aimed at skills development and projects or programmes targeting specific vulnerable groups.

The most significant investments made at the government level are mentioned in Section 2.

The following are programmes to improve digital skills as part of innovative labour market measures for active employment:

- **Free training for the development of digital skills.** Semos Education Serbia, in co-operation with the organisation Help, provides free training seminars for the four most in-demand IT professions: Software Developer, Data Analyst, IT Administrator and AI Practitioner. These seminars are part of Microsoft's Global Digital Skills Initiative and are designed for students, the unemployed, and individuals who lost their jobs during the pandemic.

- **Innovative employment measures through the IPA 2020 project.** The National Employment Service is implementing public calls for on-the-job training, employment subsidies, and self-employment, primarily targeting individuals who are long-term unemployed, young people, women, persons with disabilities, and other groups that face employment challenges. This project contributes to digital inclusion and the economic empowerment of marginalised groups through support for employment and self-employment, including on-the-job training programmes that often involve the development of basic digital skills required in the modern labour market. Special focus is placed on hard-to-employ categories – the long-term unemployed, persons with disabilities with no work experience, youth, and women.

- **Project 'Caravan of Digital Skills, Literacy and Safety-Digital Expedition Link for All'** was implemented from 2021 to 2023 in partnership with MoIT, MoLEVSA, the Office for Information Technologies and eGovernment, UNDP, USAID, and the organisation Propulsion. The goal of this project was to provide all interested citizens—from the youngest to Generation Z and their parents, and to the oldest citizens who may not be familiar with electronic services—with the opportunity to become acquainted with key digital skills of the 21<sup>st</sup> century. As part of the project, a Digital Corner was also es-

tablished for the oldest citizens, a space where they can attend specially designed courses and learn about the use of new technologies, enabling them to perform everyday life activities with greater independence. The project is also notable for including cities and municipalities with lower levels of development.

Digital skills for the general population and vulnerable groups:

- The three-year initiative 'Centre for the Development of Digital Services – Let's Click with Citizens' started in 2024 and is funded by the Joint Sustainable Development Goals Fund, with the support of the European Union and the governments of 16 individual countries. In Serbia, this initiative is led by the Office of the UN Permanent Coordinator and implemented by UNDP, the Food and Agriculture Organisation, and UNICEF. At the same time, ITU will also provide expert support for implementation. The Office for IT and eGovernment is the leading national partner in implementing this initiative. MoLEVSA, the Ministry of Family Welfare and Demography, the Ministry of Agriculture, Forestry and Water Management, the Agrarian Payments Administration, as well as MoPALS, the National Institute of Public Administration and the Republic Secretariat for Public Policies will also participate in implementation. The goal of the initiative is to develop e-services in co-operation with citizens, through joint testing

and feedback collection, to make the services as accessible and understandable as possible. This includes making them accessible on all devices and adapting them for people with disabilities and other groups at risk of digital exclusion.

- DIMAK programmes - Professional training for professional development and better employability. This initiative is implemented within the global programme 'Migration for Development', funded by the German Federal Ministry for Economic Cooperation and Development and implemented by GIZ. The goal of the programme is to support the social and economic integration of returnees (based on the Readmission Agreement), potential migrants, and other vulnerable population groups in Serbia. The programme is implemented in co-operation with MoLEVSA, NES and the Commissariat for Refugees and Migration. Services and support measures are provided in co-operation with local institutions, relevant partners, and civil society organisations across cities and municipalities in Serbia. The main implementing partner is the Adult Education Centre 'Adžija', which delivers training and education in a variety of fields, ranging from language learning to specialised professional training. Among many free training opportunities provided in co-operation with DIMAK, 'Adžija' offers an ICT skills seminar.
- RECONOMY - Strong ICT-BPO sector for better economic opportunities. Semos Education Ser-

bia, in partnership with Help, is participating in the RECONOMY Programme, which aims to improve employment opportunities for young people, women and other unemployed people, by aligning labour market supply and demand in an inclusive and sustainable way. Within this framework, Semos has expanded its offer to include training for individual learning and upskilling in the emerging IT and BPO occupations.

- The project **Digital inclusion** began in 2022, with the association 'Halfway There' and the Pančevo Gerontological Centre serving as main partners. They collaborated on enhancing the digital competencies of older adults and individuals with intellectual disabilities. The Association developed a programme entitled *Internet Skills for the Developed World*, along with a handbook containing simple instructions to help people with intellectual disabilities, older individuals with various health conditions, and those who struggle to use the internet acquire basic digital knowledge and skills, thereby enabling them to participate equally in the digital world. The handbook was distributed to other gerontological centres and professionals. They also developed a manual for workshop facilitators entitled Digital Inclusion, designed to support professionals in delivering workshops and preparing for their work. A total of 24 workshops were conducted, involving over 30 elderly individuals from the Gerontology Centre and

approximately 20 persons with intellectual disabilities who are members of the Association.

- **Support for girl programmers.** Implemented by IRIDA and supported by Helvetas Swiss Intercooperation, Civic Initiatives, and Children's Innovation Centre, the project was conducted in 2023 and 2024 (in two rounds). The programme aimed to motivate, encourage and empower girls to explore different areas of IT, to learn, conduct research, develop their talents and skills, and dare to follow their dreams and do what they love, even though they are often told by those around them that 'it's not for girls'. To achieve this, the partners organised programming and robotics workshops for girls in various locations throughout Serbia, demonstrating that programming is not complicated and can be enjoyable.

As these projects illustrate, they vary in scope, implementation modality and duration. Some initiatives are community-based digital skills training programmes delivered through libraries, schools, and adult education centres. These programmes target disadvantaged groups and are often linked to social protection and employment activation measures, enabling broader outreach and impact. Others, where CSOs serve as training providers, typically have a smaller scope and a more individualised approach. Given that impact assessments and evaluations of the implemented projects are either limited or accessible only to project partners, it is not possible to draw definitive conclusions about what works.

## 6. KEY CHALLENGES AND AREAS FOR IMPROVEMENT

### 6.1. Challenges in ensuring digital inclusion and areas for improvement

Despite advancements in digital inclusion, systemic challenges remain.

**Policy framework.** As highlighted in the expert focus group, the legal framework still fails to adequately capture intersectional vulnerabilities—such as those arising at the intersection of ethnicity, disability, and geographic remoteness—which are currently unaddressed in mainstream policies.

The policy framework lacks a cross-government commitment. There is no clear collaboration architecture, and lifelong development of digital skills and capabilities remains outside the main policy focus.

According to the Regional Youth Dialogue for Europe (RYDE) project analysis, digital skill development among disadvantaged youth is insufficiently addressed, and structured interventions to combat harmful online content or build media literacy remain fragmented.

The perspective of state actors consulted is that the national agenda for digital inclusion, even aligned with EU frameworks, often remains operationally focused on infrastructure and access. Interviewees from the National Employment Service (NES) and the Ministry of

Education (MoE) stressed the importance of integrating employability, pedagogical adaptation, and intersectional vulnerabilities into the understanding of what digital inclusion means, moving beyond a narrow technological lens.

**Monitoring and evaluation.** Overall, Serbia has institutional mechanisms in place, but publicly available and consistent evaluations across strategies remain limited, indicating a need for enhanced transparency and feedback systems. Despite references to monitoring in strategic documents, interviewees highlighted that feedback loops between implementing institutions and monitoring results are rarely formalised.

Digital technologies can enhance the reach and effectiveness of public services, but a responsive ‘feedback loop’ is also necessary, where individual engagement and feedback can strengthen service design, development, and delivery. This mechanism is currently underdeveloped in all sectors.

**Accessibility of digital infrastructure, technologies and platforms.** Persons with disabilities still face barriers in accessing private-sector digital platforms, and residents in rural or economically disadvantaged regions encounter persistent difficulties with connectivity and affordability. As noted by Digitas 24, assistive technologies are still acquired through a medicalised referral system, which delays access and places unnecessary bureaucratic burdens on users. One of the most serious and degrading issues raised by interviewees concerns the inability of blind users to sign documents independently. Currently, digital certificates (even

when legally valid) are not accepted by many institutions. In the absence of handwritten signatures, blind users are forced to use fingerprint stamps or have legal documents read aloud in the presence of two witnesses, which participants described as deeply humiliating. This excludes blind individuals from basic civic and economic transactions, undermining their legal and personal autonomy.

**Intersectoral co-operation.** The prevailing opinion among interviewed beneficiaries and CSOs is that collaboration and coordination between sectors is either weak, fragmented, or absent. Institutional mandates often overlap or contradict each other, and actors frequently lack the capacity or understanding to engage meaningfully in joint policy implementation. Moreover, as documented in interviews with representatives of NES and MoE, the implementation of measures dedicated to digital inclusion is hindered by inconsistent application of existing frameworks at the local level and the absence of interoperable data systems among key institutions.

**Building digital competences.** Most available training programmes and courses are dedicated to developing basic digital skills, but these are often insufficient for citizens who already possess these skills and require advanced training. At the same time, advanced courses are often expensive, creating a digital divide based on income.

Information channels should also be diverse and adequate for different target groups, but are often limited to NES or training seminar providers' webpages. Also,

awareness-building initiatives on the necessity of digital skills in local communities are sporadic and usually only initiated by CSOs.

**Digital inclusion at the school level.** Civil society actors and teachers report that real uptake at the school level is minimal. Devices remain unavailable in many rural areas, digital learning platforms are underutilised, and teacher training is fragmented and non-contextualised. Focus groups with educators revealed that up to 30% of students lack adequate digital access at home, yet school-level action plans rarely address this gap in a meaningful way. Consultations with UNICEF representatives also reveal that teachers lack enthusiasm for attending intensive training programmes related to digital competencies. In addition, a lack of pedagogical training and outdated curriculum design hinder the meaningful integration of ICT tools in instruction, particularly for students from vulnerable groups.



## 7. RECOMMENDATIONS FOR POLICY IMPROVEMENT

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Building on the analysis of systemic challenges and identified areas for improvement, the following targeted policy recommendations are proposed. These recommendations are directly informed by both extensive desk research and the rich insights collected during field data collection, including interviews and focus groups with relevant stakeholders. Recommendations are divided into two categories: general recommendations addressing digital inclusion needs of the overall population, and specific recommendations designed to support vulnerable groups at risk of digital exclusion.

### 7.1. Recommendations concerning the general population

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- **Promote the expansion of open platforms** where people can access, use, and contribute data, fostering transparency and innovation to ensure public accountability and open participation space for nongovernmental actors (CSOs, researchers, etc.)
- **Build trust in digital technologies:** Addressing risks related to digital rights, online safety, privacy, cybersecurity threats, data breaches, information integrity, and online scams is necessary to encourage and equip individuals to engage with digital platforms effectively.

- **Digital skills training** should be integrated into all levels of formal education and adult learning.
- **Development of a national platform for digital training and promotion** of affordable courses should be considered. This platform should also include training programmes and courses dedicated to the development of advanced digital skills, as well as those addressing digital ethics and safety (e.g. data protection, well-being, cybersecurity). **Lifelong learning programmes** focused on practical digital competencies should be expanded, and learning opportunities diversified.
- **WCAG 2.1 compliance** must be established for all public and private digital services.
- **Mechanisms for fostering public-private partnerships** to co-develop inclusive technologies and services should be established. Businesses should be supported in developing inclusive products and services, and responsible business practices should be promoted.
- Achieving meaningful digital inclusion requires more than just short-term projects or pilot programmes. It requires **investment in digital infrastructure in deprived and rural areas**, as well as a long-term commitment to capacity-building within these communities.
- Intersectoral coordination should be more structured and sustainable, especially in align-

ing long-term goals and sharing data, expertise, and resources across sectors. Therefore, the establishment of an **inter-ministerial coordination body** is recommended as a designated authority for monitoring, oversight, and evaluation of digital inclusion.

## 7.2. Recommendations relating to vulnerable groups at risk of digital exclusion

- A unified **national definition of digital inclusion should be developed together with an operational framework** for digital inclusion that integrates access, skills, motivation, and trust.
- Ensuring that **vulnerable groups are heard and their perspectives are integrated into decision-making processes** is essential for creating initiatives that are both effective and respectful of their unique experiences. This participatory approach contributes to building trust while fostering greater engagement with digital tools.
- Topics related to **digital inclusion should be integrated into broader social policies** to support disadvantaged groups, including people with disabilities and older people.
- Marginalised groups face systemic barriers in education and employment that are com-

pounded by systemic exclusion from online platforms. The resulting skills gap translates into a fear of digital engagement. Such identity inequalities should be addressed robustly and **sustainably through role models from appropriate intersectional groups**, who are featured prominently, as well as by raising awareness of the benefits of inclusive digitalisation.

- Monitoring and evaluation mechanisms should become fully functional to allow data-driven revisions of current action plans. Therefore, a **centralised monitoring system** for digital inclusion indicators across sectors, with data disaggregated for vulnerable groups, should be established.
- **Support CSOs in driving effective and targeted interventions** by leveraging their insights into local conditions and community-specific needs.

### Older people

- **Community-based digital literacy workshops** tailored to seniors should be expanded.
- **Simplified user interfaces** should be developed, and technical support hotlines should be provided.

## Persons with disabilities

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- **Accessibility standards** across all digital platforms, including private sector services, should be enforced.
- **Legal recognition and practical acceptance** of digital certificates for blind users should be secured.
- Funds for **assistive technologies** outside of medical referral systems should be available. In addition, an incentive scheme should support the development of **Serbian-language assistive technologies** (e.g. screen readers).

## Rural populations

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- **Broadband expansion** in rural and under-served areas should continue to be a priority.
- Establishment of **local digital hubs** (e.g. libraries, schools) with trained facilitators and equipment should be supported.

## Low-income and unemployed individuals

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- **Device subsidy schemes** for low-income households should be considered, particularly for families with students.
- **Digital skills training** with employment activation programmes should be strongly linked and promoted.

- **Free or subsidised training** in high-demand digital professions (e.g. AI, data analysis) is recommended as a regular part of the NES's offer.

## Roma and ethnic minorities

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- A fund for the **development of culturally sensitive digital education materials** should be established.
- Training programmes must focus not only on building basic skills but also on developing more advanced competencies that prepare Roma individuals for employment and education in the digital economy.
- The state should establish **partnership arrangements with community organisations** to deliver training and support.
- Tackling digital exclusion in isolation will not address the root causes of the problem. A deep structural transformation is required to dismantle the antigypsyism that has historically marginalised Roma communities.

## ANNEX 1

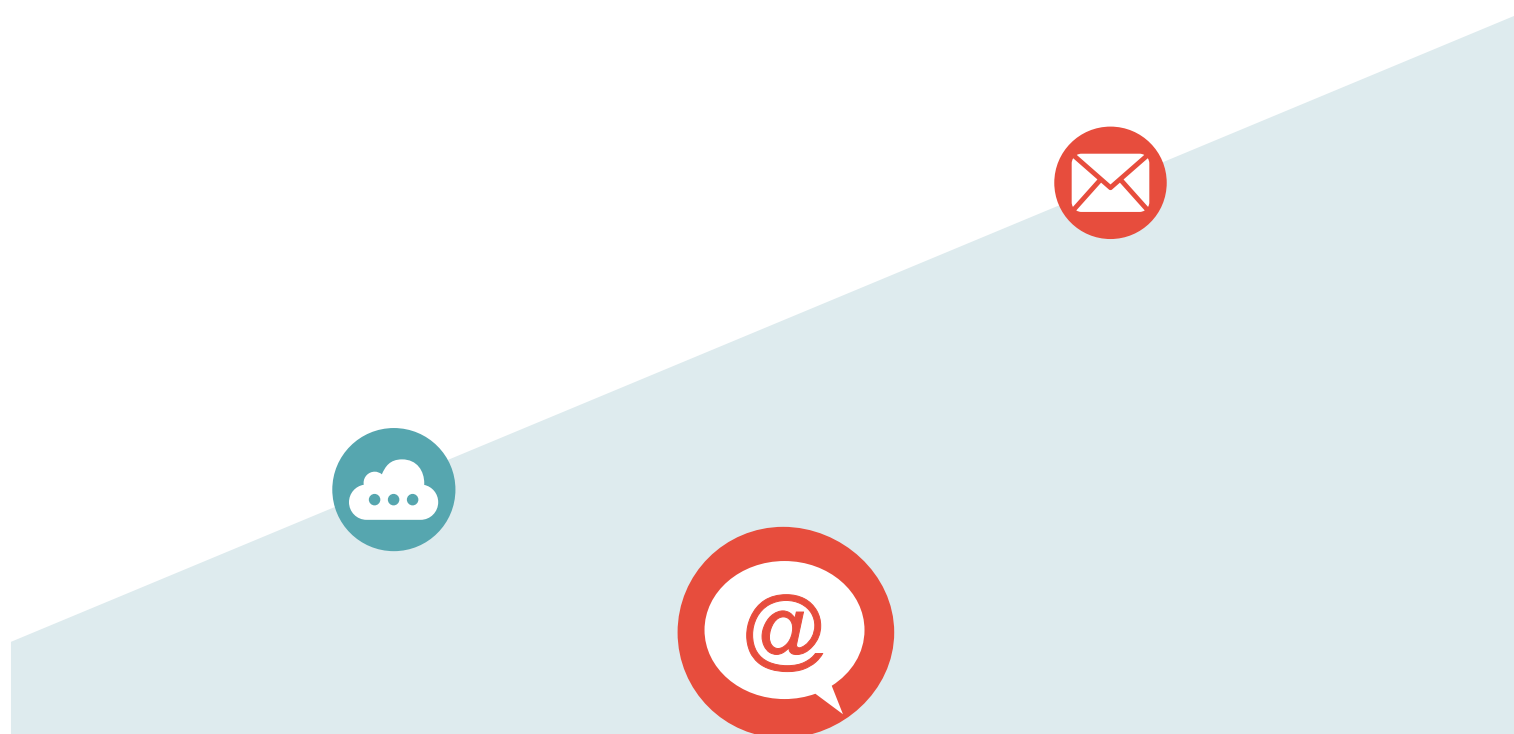
# SUMMARY OF FINDINGS IN POLICY AND RESEARCH REPORTS

TOPIC	CLAIMS	AVAILABLE ANSWERS				
		This finding is inconsistent with the research findings in the country	This finding is partially consistent with the research findings in the country	This finding is very consistent with the research findings in the country	This finding is entirely consistent with the research findings in the country	Assessment is not possible due to a lack of research or other reasons
EQUALITY OF ACCESS TO THE INTERNET AND DIGITAL TECHNOLOGIES	Research shows a significant difference in access to the internet and digital technologies between urban and rural areas. People from rural areas often have limited access to the internet and technology.	1	2	3	4	5
<p>Despite national progress in digital infrastructure, significant disparities persist between urban and rural areas. Approximately 38% of Serbia's population lives in rural regions, where access to broadband infrastructure and digital services remains uneven. Internet access in rural households (84.3%) lags behind the national average (88.8%), while access to devices such as laptops and personal computers is substantially lower than in urban areas. Rural schools often lack equipment and connectivity, forcing students to rely on smartphones for online learning, which limits participation in more demanding digital tasks. These challenges compound existing educational and economic disadvantages, reinforcing the urban–rural digital gap.</p>						
EQUALITY OF ACCESS TO THE INTERNET AND DIGITAL TECHNOLOGIES	Research shows a significant disparity in access to the internet and digital technologies among different socioeconomic groups, including older people, persons with disabilities, and those with lower levels of education, who often have limited access to the internet and technology.	1	2	3	4	5
<p>Access to digital technologies in Serbia is closely linked to age, education, income, and disability. Only 49% of older adults (aged 65–74) use the internet, compared to 85.4% in the general population. Similarly, individuals with less than secondary education show lower internet usage rates (61.5%) and limited interaction with e-services. Nearly a quarter of the population is computer illiterate, with illiteracy rates highest among those with lower educational attainment and in poorer areas. People with disabilities face additional challenges, such as inaccessibility of public platforms, poor interface design, and a lack of assistive technologies. Internet access among households at risk of poverty stands at just 58.1%, and reliance on shared mobile devices remains high. These structural barriers limit digital participation among the most vulnerable, further entrenching existing patterns of exclusion.</p>						

TOPIC	CLAIMS	AVAILABLE ANSWERS				
		This finding is inconsistent with the research findings in the country	This finding is partially consistent with the research findings in the country	This finding is very consistent with the research findings in the country	This finding is entirely consistent with the research findings in the country	Assessment is not possible due to a lack of research or other reasons
<b>DIGITAL SKILLS</b>	Many studies indicate that a significant part of the population (especially older people and people with low levels of education) lacks basic digital skills, which hinders their use of digital tools and access to important information.	1	2	3	4	5
<p>Statistical and field data indicate that a significant portion of the Serbian population lacks basic digital skills, particularly older adults and individuals with lower levels of education. According to the 2022 Census, 24.2% of the population is computer illiterate, while around 30% possess only rudimentary abilities, such as browsing the internet or using messaging applications, without the capacity to engage in more complex digital tasks. Internet use is notably lower among individuals with less than secondary education (61.5%) and among older persons aged 65–74 (49%), compared to much higher rates in younger and more educated groups. The limited digital competence of these populations is further reflected in low engagement with digital public services: only 14.4% of individuals with lower education levels use e-government platforms. These disparities underline how deficits in foundational digital skills continue to impede access to information, public services, and broader digital participation, despite widespread smartphone ownership and expanding infrastructure. Closing this gap requires targeted interventions that go beyond access—emphasising tailored training, user-friendly service design, and inclusive support mechanisms.</p>						
<b>IMPACT OF THE COVID-19 PANDEMIC</b>	The pandemic accelerated the transition to digital services in education, work, and everyday life. Research indicates that many individuals became more aware of the importance of digital skills and tools during this period; however, significant disparities remain in their ability to adapt.	1	2	3	4	5
<p>According to a survey by the Serbian Ministry of Education, over 90% of Serbia’s primary and secondary school students participated in online education during the pandemic. However, challenges like inadequate internet access and a lack of digital devices were evident. UNICEF reports indicated that more than 10% of students lacked the necessary digital tools, and many teachers were not fully prepared to deliver online classes effectively. This highlights both the rapid shift to digital services and the disparities in adaptation.</p> <p>During the COVID-19 pandemic, micro-, small-, and medium-sized enterprises (MSMEs), which represent 99% of active businesses in Serbia, faced severe disruptions due to lockdown measures. While many businesses attempted to transition to remote work, challenges such as limited liquidity, insufficient digital readiness, and lack of access to adequate equipment hindered their ability to adapt. The service sector, particularly tourism and hospitality, was the slowest to recover. Although digital training opportunities were introduced through donor-funded programmes, including free online sessions on digitalisation and crisis management, digital transformation among MSMEs remained uneven and often dependent on external support rather than systematic policy-driven investment (Business &amp; Finance Consulting, n.d).</p> <p>In response to the pandemic, the Serbian government launched several programmes to improve digital literacy, including online courses for students and adults. Despite these initiatives, the EU Progress Report for Serbia noted that only about 15% of the adult population participated in formal digital skills training, indicating that awareness did not always translate into widespread skill development.</p>						

TOPIC	CLAIMS	AVAILABLE ANSWERS				
		This finding is inconsistent with the research findings in the country	This finding is partially consistent with the research findings in the country	This finding is very consistent with the research findings in the country	This finding is entirely consistent with the research findings in the country	Assessment is not possible due to a lack of research or other reasons
<b>TRUST IN TECHNOLOGY</b>	Research shows that citizens' concerns about data privacy and security when using digital services can further affect their willingness to engage in the digital world.	1	2	3	4	5
Serbia has adopted the Law on Personal Data Protection, which is aligned with the European Union's General Data Protection Regulation (GDPR). While most citizens consider data protection important, overall awareness and understanding of their rights remain limited. Two-thirds of citizens state they are only somewhat familiar with the concept of personal data processing, and over half report being unfamiliar with the work of the Commissioner for Information of Public Importance and Personal Data Protection. A significant share—more than one third—openly say they are not familiar with how their personal data are collected, used, or stored, while many are unsure whether legal mechanisms exist to exercise their rights. Although trust is generally higher in state institutions than in private companies, more than half of the population sees no difference between them regarding risks of data misuse. These findings indicate that legal provisions alone are not sufficient to ensure meaningful data protection; greater efforts are needed to improve public literacy, institutional transparency, and accountability in the digital environment.						
<b>TRAINING INITIATIVES</b>	There is a growing number of programmes and initiatives that focus on increasing digital literacy, particularly among vulnerable groups, including older adults, women, and people with disabilities. Research often emphasises the need for continuous education and training in this area, along with the need to expand the offer.	1	2	3	4	5
Based on research findings and numerical indicators from SORS, EU reports, and various government and NGO initiatives, it is evident that Serbia has made significant progress in enhancing digital literacy, particularly among vulnerable groups, such as older adults, women, and persons with disabilities. However, challenges remain, particularly in ensuring continuous education and improving the training offer to better meet the diverse needs of these groups. Therefore, there is a strong need for ongoing efforts to further enhance digital literacy in Serbia, with a focus on making training more accessible and tailored to specific vulnerable groups.						
<b>CHALLENGES IN EDUCATION</b>	Research indicates that the country's education system remains largely unprepared for digital learning. Additional investments in infrastructure and teacher training are needed to enable the integration of digital tools into teaching.	1	2	3	4	5
The education system in Serbia is still adapting to digital learning, and there are still substantial shortcomings in both infrastructure and teacher training. UNICEF and MoE support continued investments in infrastructure and the effective integration of digital tools into classrooms. MoE acknowledges the need for ongoing professional development in teachers' digital skills. Although the Digital Competence Framework for Teachers was introduced in 2019, its uptake has been slow, with only around 20% of teachers completing digital literacy training through formal government programmes.						

TOPIC	CLAIMS	AVAILABLE ANSWERS				
		This finding is inconsistent with the research findings in the country	This finding is partially consistent with the research findings in the country	This finding is very consistent with the research findings in the country	This finding is entirely consistent with the research findings in the country	Assessment is not possible due to a lack of research or other reasons
<b>POLITICAL AND INSTITUTIONAL SUPPORT</b>	Research indicates the need for more robust national policies and strategies to advance digital inclusion. There are initiatives at the government level, but stronger co-ordination and resources are needed.	1	2	3	4	5
<p>Although Serbia has adopted strategic and legal frameworks addressing digital skills, e-government, accessibility, and anti-discrimination, digital inclusion remains only partially integrated into national policy. While progress has been made in legislation — such as laws on electronic communications, sign language, and digital administration — implementation remains inconsistent and lacks coordination. Initiatives on digital accessibility are still limited, with the most recent efforts focused on physical connectivity rather than digital environments. There is a notable lack of data on the digital skills of persons with disabilities and other vulnerable groups, which prevents targeted policymaking. Awareness and institutional capacity at the local level remain low, especially regarding the integration of accessibility standards in municipal digital services. Structural inequalities are reinforced by these gaps in local capacity, weak monitoring, and the absence of trained experts in digital inclusion, all of which reduce the effectiveness of broader digital transformation efforts.</p>						



## ANNEX 2.

# INSTITUTIONS REPRESENTED IN INTERVIEWS AND FOCUS GROUPS

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### Individual Interviews

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1. Digitas24 – Association for Digital Accessibility (three interviewees)
2. Ministry of Education, Sector for Prevention and Protection from Violence and Inclusion of Vulnerable Groups in Education
3. Ministry of Education, Sector for Digitalisation in Education
4. National Employment Service – Zvezdara Branch
5. Association ‘Knights of Smiles’ (Udruženje ‘Vitezovi osmeha’)

### Focus Group with Teachers

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1. Primary School ‘Milan Blagojević’, Lučani

### Focus Group with Civil Society Organisations (CSOs)

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1. Association ‘Halfway There’, Pančevo (Udruženje ‘Na pola puta’, Pančevo)
2. Centre for Democracy Foundation
3. Belgrade Open School

### Focus Group with Digital Inclusion Researchers

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1. Faculty of Philology, University of Belgrade
2. UNICEF Serbia

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