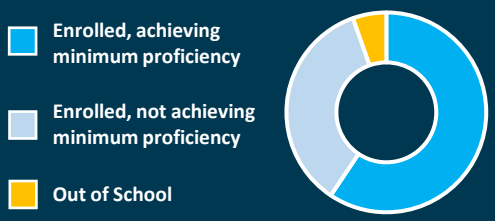
Serbia Country Brief

Connectivity in Education

A Crisis of Learning in Education…

In Serbia, there exists a crisis of learning in education. This is exemplified by out-of-school rates in the country, as well as those not achieving minimum proficiency. While 792,952 children and adolescents are enrolled in primary and secondary schools, **45,473 between the age of 6 and 17 are out-of-school**. Additionally, approximately **37.2% of children and young people do not achieve minimum proficiency** in foundational skills needed for further learning and skills development.[1,2]



… becomes acute.

When the COVID-19 pandemic disrupted in-person learning in Serbia starting in March 2020, the importance of devices and connectivity for the education system was placed in stark relief — as were the inequitable access to such crucial tools.

Increasing Importance of ICTs for Education

All strategies for continuing education during COVID-19 depended on ICTs as a medium for delivery. But **unequal preexisting infrastructure** in households and schools is also a major driver of the longer-term crisis of learning. Access to **connectivity** and **devices** is a **crucial enabler** of the learning process, particularly in:

1. allowing a more effective administration of education systems, and
2. developing digital skills to prepare students for the future workforce

What's been done?

COVID-19: Strategies for Distance Learning

"Moja Škola"
on-demand video service

"RTS My School"[3]
Impacted 770,000 students via broadcasting

EU support for IT-related tools in education
3.2 Million EUR

Government Strategies Addressing Challenges

The strategy, Development of Education in the Republic of Serbia until 2030, was adopted in 2021. One of the key objectives, embodied by Specific Goal 1.3, is to "establish foundations for the development of digital education at the pre-university level".[4] The focus is on supporting institutions in pre-university education to improve not only the digital competencies of students, but also the digital competencies of employees in education

Serbia's "**Strategy for Development of New Generation Networks Until 2023**", adopted in 2018, defines measures to ensure infrastructure development of a Single Digital Market in the country.[5] Among the targets of the strategy there is "strengthening broadband capacities for the needs of state/public institutions", which includes schools and other educational institutions.

In 2018 the Serbian government structured a **Unique Education Information System (UISE)**, which contains: 1) a register of institutions; 2) a register of employees; 3) a register of children, students and adults; and 4) a register of accredited study programs

Many solutions involve digital technology.
This, in turn, requires both **connectivity** and **devices**.

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What Gaps Remain?

Connectivity and Devices at Home[6]

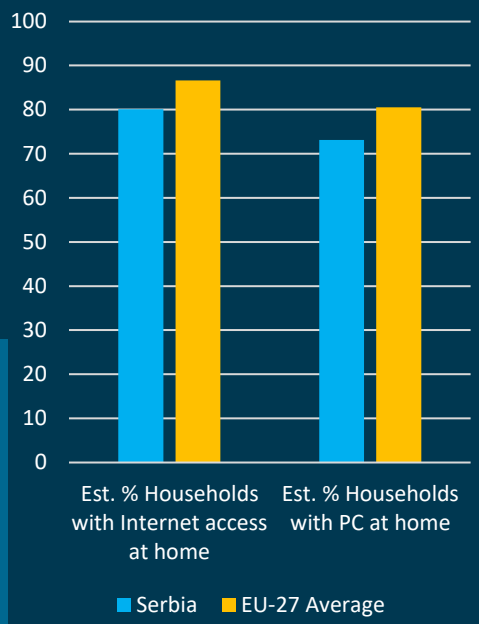
762,860
Serbian households are not in possession of a PC

564,346
Serbian households do not have access to the Internet

Exacerbating pre-existing inequalities:

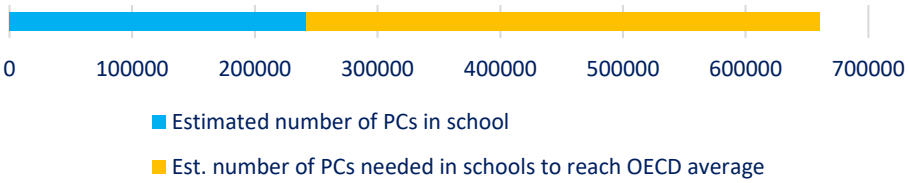
The persistent lack of PCs in households is particularly significant when lockdowns triggered by COVID-19 facilitated the transition of economic activity to the digital sphere and transferred both educational and work activities to the household. An OECD-led assessment revealed that in 2008 approximately 9% of 15-year-old students did not have a desktop computer available to use at home. Similarly, 17% of 15-year-olds in Serbia did not have a portable laptop or other device available to use at home. These indicators also pointed out that about 3% in Serbia did not have an Internet connection available to use at home.[7]

Contextualizing the Gaps



Connectivity and Devices at School

Computers per Student in School[8]



418,777
computers are needed in Serbia to reach the OECD average of 0.83 PCs per student.

Mapping School Connectivity…

Assessing the level and quality of broadband in schools, and proactively addressing infrastructure gaps, is increasingly important as students return to the classroom. This will ensure that connectivity is leveraged to deliver educational content and to manage the education system in an efficient manner, and that digital skills development is thoroughly included in curricula.

… Remains Imperfect.

Serbia has an infrastructure mapping system since 2016, but a layer for public institutions including school is not integrated. This would greatly support the rollout of the project on "Connecting Schools" and other.[9]

Filling the Device Gap in Schools

Low-Range Estimate[10]

$30.8 million
to reach the OECD average of 0.83 PCs per student.

High-Range Estimate[11]

$355.9 million
to reach the OECD average of 0.83 PCs per student.

To bridge learning gaps, devices are only as important as the connection that supports them and the access to high quality content and learning they enable. Investment in school and household connectivity as well as content development and robust digital education is vital and must be considered alongside device provision.

Funding as a Challenge

Public spending on education and training was **3.5%** of the country's GDP in 2018, while the European Union countries' average for 2017 was **4.7%**.[12]

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Looking Ahead

The Republic of Serbia has a successful history of leveraging innovative financing mechanisms and multistakeholder partnerships toward achieving appropriate levels of devices and connectivity in education. Three key examples are outlined below.

"Connected Schools" project

The project focuses on developing **ICT infrastructure** for educational institutions, by providing fast, stable and secure Internet access through the Academic Network of the Republic of Serbia (AMRES). Since 2017, the project has enabled Internet access in **500 schools** across Serbia, reaching about **11,000 classrooms** and over **220,000 additional students**. 10% use dark fibre (including 1G optic cables to gymnasiums) and 85% are using DSL with a speed of 20Mb to connect with the AMRES network. [13]

The project titled "**We Create Knowledge**", was carried out for the third year in a row by the Ministry of Education, Science and Technological Development together with a private sector operator. Between 2016 and 2019, the project has equipped classrooms in 60 elementary schools throughout Serbia.[14]

ITU and UNICEF are committed to helping the Government of Serbia and other stakeholders achieve national objectives. School connectivity is widely recognized as a means to a more efficient administration of educational systems, a building block in supporting innovative ways to distribute education content and increase access, and — most importantly — a fundamental prerequisite to endow pupils with the digital skills necessary to thrive in the job market. The achievement of appropriate device and connectivity levels, both at school and in the home, thus remain priorities of both the ITU Office for Europe and UNICEF Regional Office for Europe and Central Asia. Both offices cherish the opportunity to engage with partners and provide support through **technical assistance**, **capacity building** and **research**, as well as **knowledge exchange**.

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Endnotes

[1] Data from UNESCO UIS Database. http://data.uis.unesco.org
[2] UNICEF calculation of the number of students in primary, lower and upper secondary not achieving minimum proficiency in math; Data for Serbia is calculated using the latest figures available from UIS and PISA.
[3] See: https://www.rasporednastave.gov.rs/
[4] See: http://www.mpn.gov.rs/wp-content/uploads/2021/02/1-SROVRS-2030_MASTER_0402_V1.pdf
[5] See: https://mtt.gov.rs/en/releases-and-announcements/networks-of-new-generations-for-a-single-digital-market/
[6] ITU WTID Database.
[7] See: https://www.wb6cif.eu/wp-content/uploads/2020/05/Strategic-Response-to-Covid-19-in-SEE.pdf[8] PISA 2018 Results (Volume V); OECD 2020 (Figure V.5.4 School computers per student, school characteristics and reading performance)
[8] See: https://doi.org/10.1787/888934131253
[9] See: https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2020/RRF/20-11-26%20Background%20Paper_Broadband%20Mapping%20Systems%20in%20Europe%20and%20Regional%20Harmonization%20Initiatives_final.pdf
[10] This estimate is calculated using the cheapest smartphone available in the region, at $73.60 per device. Price estimate is taken from A4AI price data, averaging the cost of the cheapest smartphones available in Georgia, Turkey and Ukraine. Although Smartphones are used as a proxy for the cheapest way to access online educational content and represent a baseline cost, they are not ideal for sustained learning nor comparable to PCs for educational purposes.
[11] This estimate is calculated using using a price of $850 per computer and monitor, which is a UNICEF price estimation of a high-end computer and monitor more suitable for learning. It thus represents the most expensive end of the spectrum.
[12] See: https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?locations=RS and https://data.worldbank.org/indicator/SE.XPD.SECO.PC.ZS?locations=EU
[13] See: https://www.ekapija.com/en/news/2892115/preparation-of-computer-network-in-schools-in-serbia-begins-wireless-Internet -in
[14] See: https://mts.rs/About-Telekom/Media-center/a88155-Telekom-Srbija-equips-another-20-IT-classrooms-in-Serbian-schools-Computer-equipment-donated-to-Elementary-School-Milan-Munjas-in-Ub.html