Digital Innovation Profile
Serbia

ICT centric innovation ecosystem *snapshot*

NATIONAL EXPERT ASSESSMENT

“ ICT centric innovation ecosystems are key to achieve the 2030 Agenda for Sustainable Development. I am delighted to introduce the Digital Innovation Profile of the Republic of Serbia. This brochure provides a snapshot of the country's ICT centric innovation ecosystem and sets out its great potential for sustainable growth and new opportunities both for the country and its citizens.

I look forward to collaborating further on specific projects which will accelerate digital transformation in the Republic of Serbia. ”

Brahima Sanou
Director, Telecommunication Development Bureau, ITU

“ The previous success stories of the IT industry in the Republic of Serbia position the country well in its drive towards a digital economy. However, many opportunities need to be addressed in the ICT centric innovation ecosystem to unleash the full potential. The government is working towards implementing appropriate policies and projects, which will help develop a stronger digital economy and competitive integration to the Digital Single Market. This is why renewed efforts are needed to strengthen the enabling environment for accelerated digital transformation. ”

Irini Reljin
Assistant Minister, Ministry of Trade, Tourism and Telecommunications, Republic of Serbia

SUSTAINABLE DEVELOPMENT GOALS

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

17 PARTNERSHIPS FOR THE GOALS

#ICT4SDG

Digital Innovation Profiles are an important element in the ITU series of snapshots of countries' ICT centric innovation ecosystems. Each Profile assesses and summarizes the opportunities and challenges facing the country's ICT ecosystem. The at-a-glance format enables international comparisons and meaningful measurement of a country's capacity to accelerate digital transformation and of its innovative ICT capability.

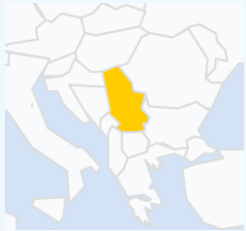
Digital Innovation Profiles offer a rapid and straightforward means of analysing and optimizing your ICT ecosystem. This analysis then helps navigate through a country's fast-moving ICT/ telecommunication landscape with a view to building a competitive, sustainable, ICT-enabled economy. Further collaboration with ITU can go on to target specific engagements, including the implementation of co-developed bankable projects which are appropriate to and of high value in the national context.

All Digital Innovation Profiles are developed by experts specially trained in ITU's Digital Innovation Framework process. This features highly structured workshops and facilitated assessments, designed to build national capacity, enhance on-the-ground skills and powerfully accelerate digital transformation. The Framework process equips ITU Members with the tools for ongoing assessment and monitoring of their own ICT innovation ecosystems.

The analysis and the positions expressed in this initial high-level assessment, reflect opinions and research of the national expert, working within ITU's Digital Innovation Framework process and with guidance from ITU Innovation.

Contents

Background & Context



KEY INDICATORS

Population: **7,04** million
Population density: **85.33**
GNI per capita: **5,280**
Region: **Europe, Developed**

ITU Global ICT Dev. Index 2017: rank **55** /176, score **6.61** /10
Global Innovation Index 2017: rank **62** /127
Innovation Efficiency Ratio: ratio **0.6**; rank **67** /127
Global Competitiveness Index 2017: rank **78** /138
Business Sophistication & Innovation: rank **110** & 9**5** /138
Global Human Capital Report 2017: rank **60** /138

- Generally, the ICT sector has seen positive development over recent years. However economic results and other data indicate the necessity for government action in support of the ICT ecosystem if the sector is to thrive. This would include establishing incentive structures as part of an environment designed to help ICT innovation converge with other technological innovations – and with the overall clear objective of strengthening the Serbian ecosystem.

- Affordable and accessible high speed broadband is an important enabler for competitiveness across many areas including education, health, entertainment – and for general social cohesion. Serbia offers a vibrant and competitive landscape for broadband services, with 58.7 per cent of subscribers accessing fixed broadband. This places Serbia among countries that need to develop broadband infrastructure further and promote digital technologies in business.

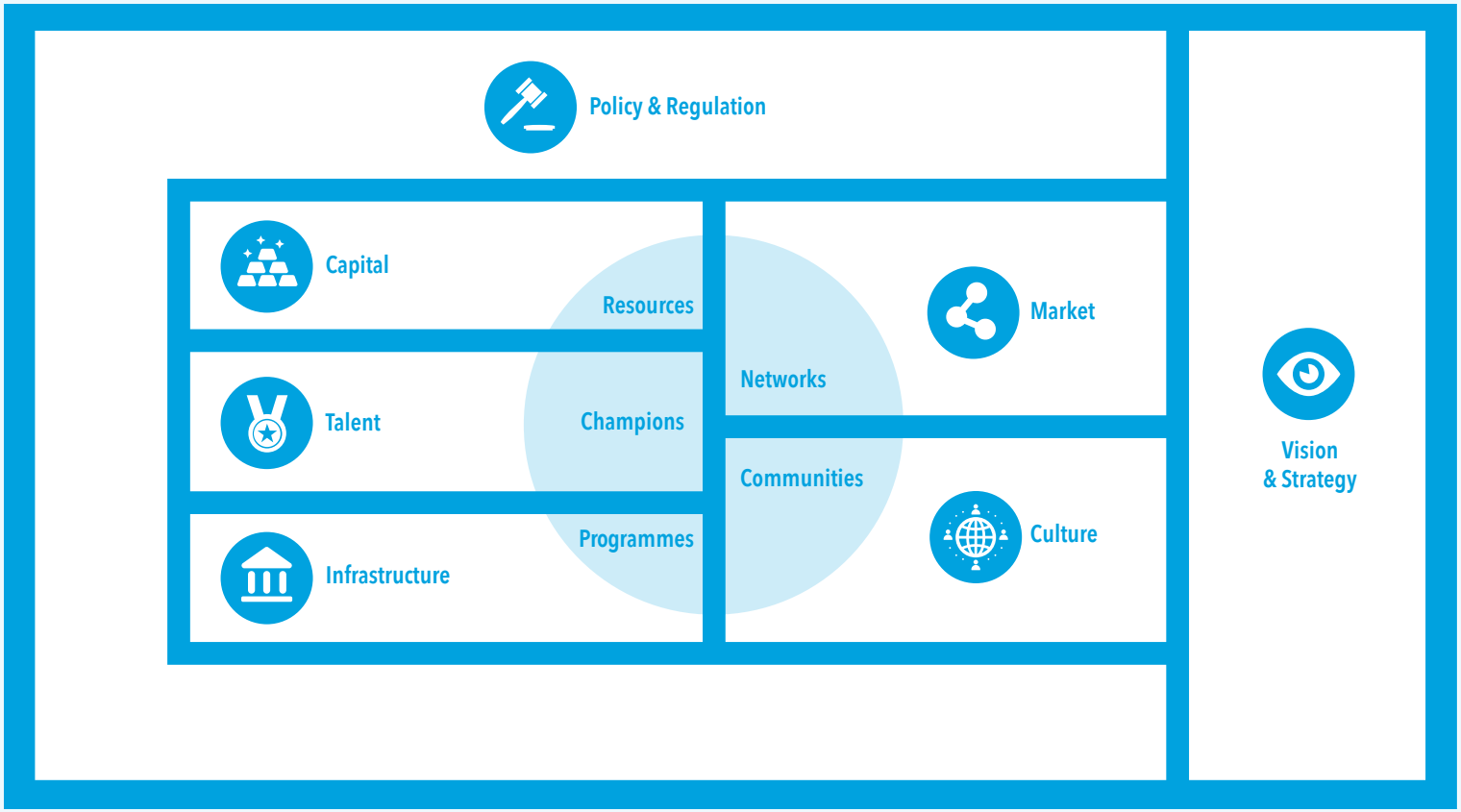
- The primary objective of the Republic of Serbia is to achieve sustainable and dynamic economic development across technology and manufacturing in line with European Union targets, while able to withstand competition from its members. To achieve this, the government has adopted a number of strategies designed to boost ICT and progress towards a knowledge-based economy. The Digital Agenda for Serbia includes the 'Strategy for the Development of the Information Society in the Republic of Serbia to 2020' and the 'Strategy for the Development of Electronic Communication in the Republic of Serbia from 2010 to 2020'. In addition, a 'Strategy for the Development of Next Generation Networks (NGN) in the Republic of Serbia to 2023' has been drafted, which includes fibre as an essential element of the future infrastructure to meet growing demands for bandwidth. Furthermore, the government has adopted the 'Strategy for the Development of the IT industry in the Republic of Serbia to 2020' designed to support and facilitate IT companies, the development of domestic technology products, and the broader acquisition of digital skills across the population.

- In 2016, the GDP of Serbia was 37.745 billion US dollars, and the country's rate of economic growth was 2.8 per cent, while estimated growth for 2017 and 2018 has been revised up to 3.0 per cent and 3.5 per cent respectively. In Q1 2016, GDP grew by 3.5 per cent primarily on the basis of better construction and industrial performance. The rate of real economic growth in Q2, Q3 and Q4 2016 was 2.0 per cent, 2.5 per cent and 2.5 per cent respectively.

- Serbia has some of the highest penetration rates for mobile services in the Balkans and a competitive mobile market with three competing operators. The fixed market was liberalized relatively late in 2010 – and fixed-broadband penetration remains low compared to the European average. The FTTH (fibre to the home) Council in Europe has recently recognized Serbia for reaching commendable penetration FTTH levels in excess of 1%.


SHOP
SHOP
SHOP
Belgrade

INFO BOX Ecosystem Assessment Canvas



The Ecosystem Assessment Canvas offers at-a-glance an overview of the components that make up the ICT centric innovation ecosystem. It helps assess both the challenges and opportunities for those components essential to building a digital ecosystem that is vibrant and innovative.

Current Landscape

ICT CENTRIC INNOVATION ECOSYSTEM

VISION AND STRATEGY:

The main challenges in terms of vision and strategy are as follows: identifying new businesses opportunities that contribute positively to the Serbian ICT market; creating mechanisms to identify appropriate partners and suitable cooperation models which will ignite innovation and go-to-market strategy. Signs of improvement are visible, buoyed up by increasing high-level support for digital transformation at all levels of society. A number of documents exist outlining a strategic approach for broadband development, support to IT industry, e-government and so on. Recently, the government's Office for IT and e-Government and the Ministerial IT Council have been established to coordinate cross-administration e-government and IT industry support activities. However, there is no single national strategy on digital transformation. *OVERALL ASSESSMENT: around 7.7/10*

INFRASTRUCTURE AND PROGRAMMES:

The existing infrastructure meets the needs of the majority population, but access speeds and the introduction of new technologies could be faster. Infrastructure, both soft and hard, is clustered mainly around big urban areas. The Republic of Serbia has achieved good results in the area of digital technology integration. Investment in increasing broadband access penetration, through future construction of access networks in the rural regions, is predicted to bring further progress – as is the current implementation of a fixed telecommunication network modernization project set to replace most of the existing network with a modern optical network. Over 150 000 households will be connected to a fibre network in the next two years. Regarding soft infrastructure, some training programs exist and some innovation events take place, but both need to be boosted in volume, accessibility and quality. In some segments, for example software development, Serbia is competitive at both regional and global level. *OVERALL ASSESSMENT: around 5.9/10*

TALENT AND CHAMPIONS:

In Serbia, ICT education is taught in 40 Higher Education institutions across 21 cities, a level of access that helps recruit a wide base of ICT students. The Serbian ICT sector these days absorbs the vast majority of ICT graduates although this has not always been the case – for years Serbia faced a massive 'brain drain' of ICT graduates and professionals. Given today's increasing demand for ICT products and services, (a trend not only in Serbia but throughout Europe) Serbian educational institutions will need to attract higher numbers of students and will need to make more experts available to the market. Domestic universities have implemented substantial reforms in line with international standards to further enhance the quality of teaching provided. More flexible and diversified curricula, along with hands-on training and new textbooks, are designed to equip students with necessary and fundamental skills. *OVERALL ASSESSMENT: around 7.5/10*

NETWORKS AND MARKET:

Serbian IT companies developing their own products are in need of capital to cover their financial needs during the business cycle – from product patents, market entry and simply to maintain the stability of the company. Organizations exist that provide support to ICT businesses,

but efforts need to be expanded. Computer software is one of Serbia's main exports. In 2008, the value of exported services was around USD 100 million and by 2016 it had reached USD 450 million. This promising rate of growth is expected to continue, helped by a favourable tax environment designed to attract foreign investors. One example of the success of this policy is the agreement signed between Serbia and the Hong Kong-based manufacturer Johnson Electric to open a car engine manufacturing plant in Nis. More recently, Italy-based Aunde opened a factory in Serbia to produce automobile seats and technical textiles for the automotive industry. *OVERALL ASSESSMENT: around 5/10*

CULTURE AND COMMUNITIES:

Business development is supported by the private sector. For instance, the Serbian Network of Business Angels (SBAN) aims to connect angels and entrepreneurs with developed business plans and entrepreneurs ready to implement ideas and business projects. Influenced by digital transformation and other ICT trends, private firms are increasingly active in the area of research and securing funding for it. While there is room for improvement, the coming period is likely to see an expansion of such activities and more firms look set to begin engaging either in research or funding. As graduates acquire skills and take these forward into innovative businesses, universities need to improve the quality of their programmes and training for students in this field. Universities (especially economic and technical colleges) encourage entrepreneurship through their programmes and initiatives. In addition, stable funding ensures basic research and prototyping takes place, supporting the success of entrepreneurs, who in turn will provide inspiration for and mentorship of new entrepreneurs. *OVERALL ASSESSMENT: around 5.8/10*

CAPITAL AND RESOURCES:

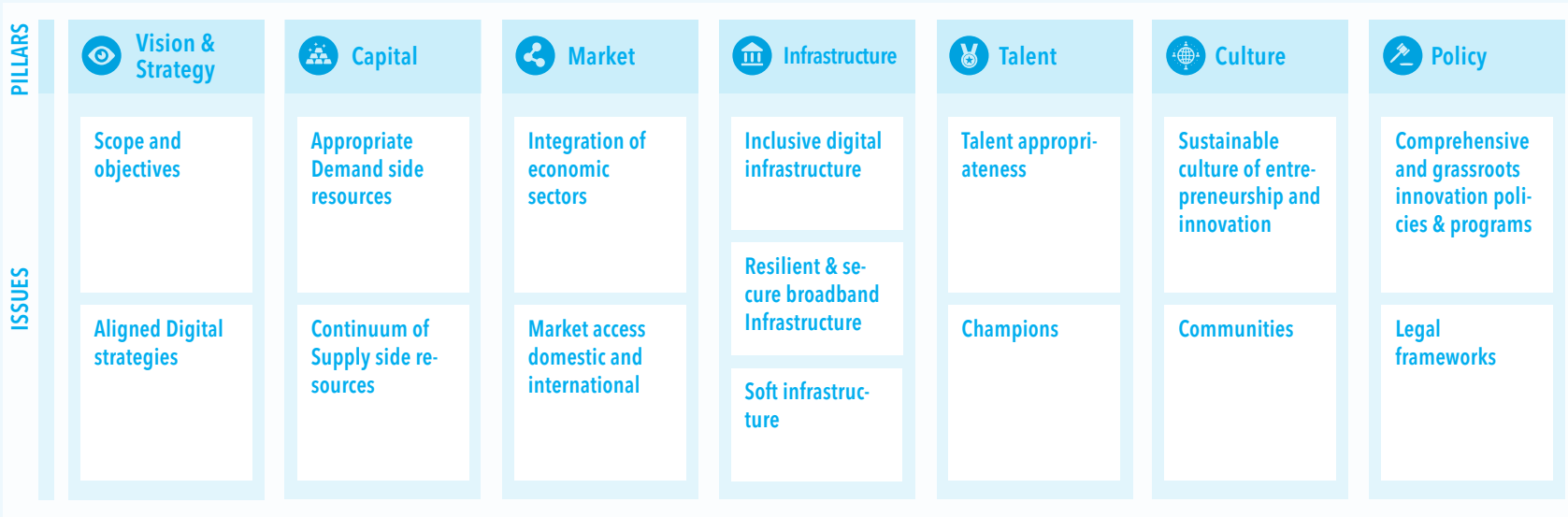
Serbia was one of the first countries in the region to embrace the so-called "innovation imperative" – encouraging public and private collaboration to drive innovative technology and research capability as a means to full participation in the global knowledge economy. The State Innovation Fund cooperates with public research organizations and small and medium enterprises to provide financial support to innovative projects with commercial potential. Also available are private investors' funds, state support, and EU support (e.g. the Innovation Fund). The ICT Hub Venture – a private investment fund worth EUR 1 million – invests in start-ups at an early stage of business development. Telekom Serbia provides financial support to start-ups through the programme 'mts start-up acceleration'. South Central Ventures, a fund for high-risk investment allocates EUR 40 million for technology startups in Serbia and the region. Traditional loans and funds support the conventional SME segment. The limited supply of early-stage financing has proved an obstacle to the growth of Serbia's ICT industry. The lack of adequate financing through capital and loans is particularly acute; there is a very small number of active and experienced angel investors in the country, with very few newly created companies in receipt of their financial investment. *OVERALL ASSESSMENT: around 4.1/10*

POLICY AND REGULATION:

A range of statutory documents provide a framework for broadband network deployment, internet and network services. As Serbia is an EU accession state, these documents are heavily influenced by the EU regulatory framework and EU Digital Agenda. While innovative, internet-based e-commerce is expected to bring significant growth and development, obsolete legislation and a lack of harmonization with EU standards and best practice persist, hampering progress. Intellectual property protection is being continually improved both in terms of regulation and legal practice. For the moment, no dedicated courts exist – IP disputes are entrusted to courts of higher instance with more experienced staff, as proceedings are considered to be more complex than standard litigation. The Strategy of Information Society Development in the Republic of Serbia until 2020 addresses this, emphasizing the intellectual property protection of software and digital content as a clear priority. The Strategy of Public Procurement in the Republic of Serbia 2014-2018 defines the goal of fostering innovation through innovative partnership in accordance with EU directives as well as the creation of a manual for innovative procurement. *OVERALL ASSESSMENT: around 7.6/10*

Understanding Digital Transformation Capabilities

INFO BOX



The image above sets out the major elements which are key to understanding the country's digital transformation capability.

Digital transformation is what happens when innovation is applied to solve problems through the use of ICT/Telecommunication. The benefits to a country and its people are immense – significantly increased productivity, economic growth and increased employment opportunity. The degree to which these benefits are within reach depends on the vibrancy of the ICT-centric innovation ecosystem and a corresponding, long-term vision and strategy that supports it.

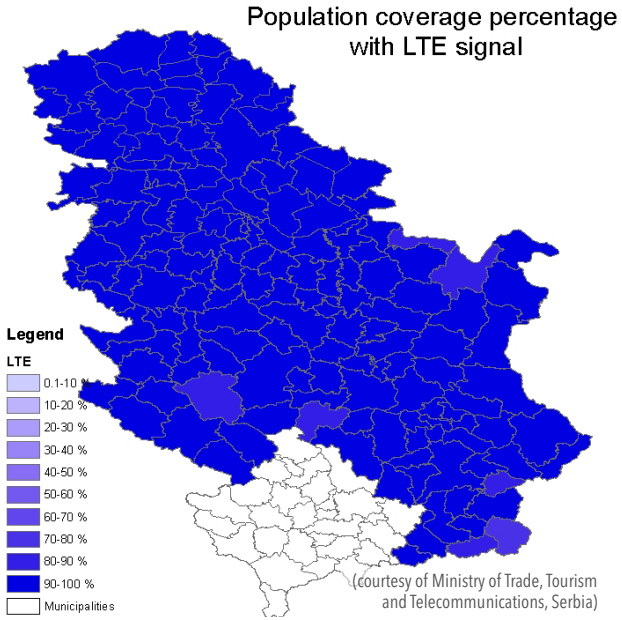
All stakeholders in the ecosystem need to understand their potential for making a difference, as well as their very real capabilities – as they engage in transformation. The ITU Digital Innovation Framework not only helps transfer this understanding but also clearly sets out what enablers can achieve – as well as identifying the barriers they will encounter along the journey of change. Key factors and components that enhance, foster and facilitate digital transformation are clearly clustered and helpfully organized in the diagram above.

Key points

CHALLENGES & OPPORTUNITIES IN THE ECOSYSTEM

STRENGTHENING EDUCATION–BUSINESS LINKS

With support and commitment to innovate, leading university technical programs have the opportunity to help strengthen the country's ecosystem and ICT industry – particularly by fostering links with the business community. Partnering with international ICT companies, donors and public sector institutions can bring valuable access and resources – for example, expanding business networks and links with the international market and providing a market-ready, skilled IT workforce to ICT companies through hands-on training and development of university students. One living example is the University of Belgrade's Mihajlo Pupin Institute which runs a partnership programme with major ICT companies in innovative technology development, designed to provide students with practical experience and industry-relevant IT skills.



MOBILE BROADBAND

The setting for mobile broadband is promising. In just one year, operators developed 4G networks delivering 4G coverage to 95% of population. In 2015, Serbia successfully completed digitalization of terrestrial television. Serbia is the only country that has made both digital dividends free at the moment of its switchover to digital broadcasting. The 800MHz (DD 1) band was sold, and 700MHz (DD2) band was earmarked for use by 5G systems. Unfortunately, no countries neighbouring to Serbia have freed the 700 MHz band (Digital Dividend 2), and so Serbia will have to wait for these states to complete freeing up Digital Dividend 2.

BETTER REGULATION FOR INVESTMENT

The lack of a comprehensive legal framework for capital investment and early-stage investment is a major obstacle for many newly established companies. Such a framework is urgently needed as an update to existing frameworks governing access to venture capital, business angels and investment mechanisms – and will need to encourage risk funds and private capital investment in start-ups and similar initiatives.

IMPROVE REGULATORY FRAMEWORK FOR DIGITAL TRANSACTIONS

New regulation is needed to help implement modern technologies and to speed up business transactions as part of modern business process management: e-signatures and e-documents, e-payments and e-archiving. This was recognized as an important issue by both businesses and r elevant state institutions.

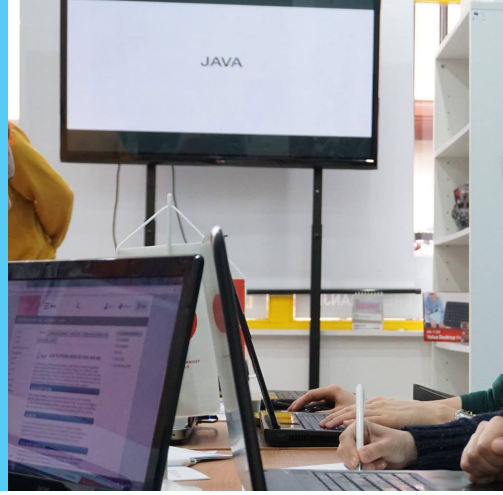
TAKE ADVANTAGE OF E-GOVERNMENT OPPORTUNITIES

A further area of opportunity is the development of e-government applications. The Government of Serbia itself constitutes a large market, with the National Investment Plan earmarking over EUR 40 million for e-government applications. Serbian companies have developed innovative applications and can build branding in e-government capability.

BRAND SERBIA'S ECOSYSTEM WITH FOCUS ON FOSTERING GOOD PRACTICES

Serbia's small core of highly skilled and experienced IT applications development companies can generate growth and opportunity, helping brand Serbia as attractive for foreign investment, and inspiring other IT firms in the country. Major areas of strength for Serbian companies are financial services applications and industrial applications/process control. Serbia is beginning to emerge as a distinct and positive brand in these areas.

(courtesy of Ministry of Trade, Tourism and Telecommunications, Serbia)



Relevant Practices

The following practices were identified during the assessment process as noteworthy and potentially positive activities in the ecosystem.

As a next step in this process and with further engagement, an in-depth collaborative analysis could identify champions and good practices.

Connecting schools to AMRES

(Academic Network of the Republic of Serbia)

The recently launched initiative 'Development of ICT infrastructure in education, science and culture institutions' is in the process of connecting all schools in the country to the Academic Network. So far, 1800 institutions in Serbia receive free and secure internet, active protection, and online support, including access to international electronic education services. The ability to block sites with harmful and inappropriate content and other undesirable pages is a distinct advantage in regard to the connection – as well as being free of charge.

'Smart and Safe' platform

The 'Smart and Safe' platform, recently launched by the Ministry of Trade, Tourism and Telecommunications, aims to raise awareness of the importance of citizen engagement with the education system and the greater digital economy. The platform launches educational and promotional projects designed to support digital literacy, digital competencies and digital security culture throughout Serbian society.

National contact centre for the safety of children on the internet

The centre, launched by the Ministry of Trade, Tourism and Telecommunications is based on regulations governing the protection and safety of children using new technology. This unique resource offers advice, help, information and research to children, parents, teachers and other relevant individuals in regard to online safety. Problems can also be officially reported at the centre. Other institutions involved in the work of the contact centre are the Ministry of Education, Science and Technological Development, Ministry of Interior affairs, Ministry of Health, Ministry of Labour, Employment, Veteran and Social Affairs, as well as the Republic Prosecutor.

(courtesy of Ministry of Trade, Tourism and Telecommunications, Serbia)

IT retraining of women

The Ministry of Trade, Tourism and Telecommunications has launched a training project for women looking to acquire and develop digital skills and digital literacy – as well as learning programming and re-training in the field of IT. Nine projects were approved at a public competition for funds targeted at further initiatives providing specialized skills and retraining for women in the field of ICT.

Relevant Stakeholders

SELECTED ACTORS IN THE ICT CENTRIC INNOVATION ECOSYSTEM

ENTREPRENEURS

Selected stakeholders: ComTrade, Nordeus, RT-RK, Roaming Networks, Logo, Saga.

FINANCE

Selected stakeholders: Serbian Innovation Fund; Balkan Venture Forum; Serbian Private Equity Association; Serbian Business Angel Network; SEE ICT Potkrovlje Hub; ICT Hub, business incubators in Belgrade, Novi Sad and other cities (approximately 15 incubators); StartLabs (first Serbian/USA accelerator and seed fund).

PRIVATE SECTOR

Selected stakeholders: Arthur D. Little, Huawei, ZTE, Cisco SR, Ericsson, Microsoft, NCR, SandT Serbia, HP Computing and Printing, Dell, IBM, Schneider Electric DMS NS.

ACADEMIA

Selected stakeholders: Faculty of Electrical Engineering in Belgrade; Faculty of Mechanical Engineering in Belgrade; Technical University in Novi Sad; Faculty of Computing in Belgrade; Faculty of Organizational Sciences in Belgrade; Faculty of Mathematics in Belgrade; Faculty of Transport and Traffic Engineering in Belgrade.

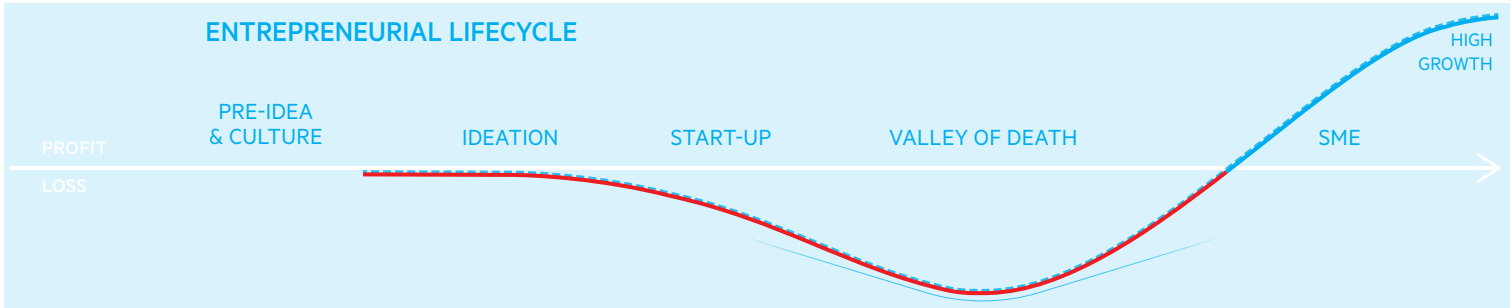
PUBLIC SECTOR

Selected stakeholders: Ministry of Trade, Tourism and Telecommunications, Agency for electronic communications and postal services; Academic Network of the Republic of Serbia; Telecom Serbia, Office for IT and e-Government; Ministry of Education, Science and Technological Development; Ministry of Public Administration and Local Self-government; Public Utility Company 'Informatika.'

ENTREPRENEURIAL SUPPORT NETWORKS

Selected stakeholders: Vojvodina ICT Cluster, a business association founded as a bottom-up initiative of ICT companies and several supporting institutions; ICT Network Serbia, an association of companies, individuals, academic and research institutions devoted to developing Serbia's ICT sector; Nis Cluster of Advanced Technologies, an initiative comprising local companies, research institutions and economic development support; ICT Cluster of Central Serbia, a business association gathering together ICT enterprises, and organizations from Central Serbia; SEE ICT, a Belgrade based association which provides support to start-ups and entrepreneurs.

Innovation Journey Map – Serbia



ENTREPREN. PHASE / STAKEHOLDERS	PRE-IDEA & CULTURE	IDEATION	START-UP	VALLEY OF DEATH	SME
ENTREPRE-NEURS	ENTREPRENEURIAL INTEREST	ENGAGE WITH PROBLEMS	DEVELOP BUSINESS MODELS	BUILD COLLABORATION	EXPAND
FINANCE	RESEARCH FUNDING	SEED FUNDING	ANGEL INVESTMENT	VENTURE CAPITAL	BUSINESS FINANCE & LOANS
ENTREPRE-NEURIAL SUPPORT	ENTREPRENEURIAL EVENTS	HACKATHONS & COMPETITIONS	CO-WORKING & SUPPORT	INCUBATORS & ACCELERATORS	BUSINESS ASSOCIATION
PRIVATE SECTOR	SUCCESS STORIES	RESEARCH PROGRAMS	LAB PROGRAMS	B2B & SUPPORT SERVICES	SKILL TRAINING PROGRAMS
ACADEMIA	ENTREPRENEUR COMMUNITY	BASIC RESEARCH	SPIN OFFS	SOFT SKILL TRAININGS	HUMAN CAPITAL
PUBLIC SECTOR	VISION & STRATEGY	IP & R&D SUPPORT	TAX SUPPORT	PUBLIC PROCUREMENT	TRADE POLICY

The Innovation Journey Map sets out at-a-glance the work that needs to be done within the ecosystem to harness innovation on a transformative journey from pre-ideation to high growth. It describes each stakeholder's roles in support of entrepreneurs and innovators at each stage of the lifecycle. The colour-coding identifies areas which are well-supported (green), inadequate (yellow) and missing / weak (red).

Innovation Journey Map

PROFILING KEY STAKEHOLDER ACTIONS NEEDED TO ACCELERATE DIGITAL TRANSFORMATION

Narrative summary per stakeholder group

ENTREPRENEURS

Serbia has begun to attract many foreign entrepreneurs who are adapting to the changing job market that now allows technology-assisted work to be conducted remotely – and regardless of sector. The country aims to maximize positive trend by creating further opportunities through tax incentives and favourable regulation. Foreign entrepreneurs conducting business from Serbia may – as a Serbian tax resident – achieve up to 30% higher net profit than if the same activity was conducted in their country of origin. In addition, Serbian business registration regulation and processes for obtaining residence and work permits are all liberal and streamlined, with expatriates able to normalize their status in less than 1.5 months.

ENTREPRENEURIAL SUPPORT NETWORKS

Setting up clusters have helped companies accelerate their networking enabling them to reap the benefits of joint activities. These structures give very necessary institutional support and international visibility for their members. There is a plethora of entrepreneurial support networks in Serbia – and a list of selected stakeholders can be found in this brochure in the section 'Relevant stakeholders'.

FINANCE

The expensive conventional capital market presents an obstacle for companies across all sectors in Serbia – yet there are substantial signs of improvement. Serbian ICT companies are in constant need of seed, start-up, venture, and other forms of capital at all stages of the business cycle: from patenting, through market entry, helping with company stability and so on – and public and private support has improved significantly since 2010. There are several initiatives which provide project specific support to companies and investors in identifying suitable business ideas, in matchmaking and through the investment process – often with a clear focus on ICT.

ACADEMIA

Serbia produces around 47,500 graduates annually – one third from business and administration universities, and a third from technical universities. Leading institutions in this field (i.e. School of Electrical Engineering, School of Mechanical Engineering in Belgrade, and Technical University in Novi Sad), are internationally recognized for their expertise, with University of Belgrade ranking among the top 201-300 in the 2017 Academic Ranking of World Universities – known as the Shanghai List of top 500 universities globally. However, education-business links could be expanded and improved upon.

PRIVATE SECTOR

Serbia is currently not among top FDI destinations, and foreign investment levels have remained low without government incentives. Another negative factor is local ICT companies' perception of foreign investments as a threat, ushering in foreign companies attracting skilled ICT staff with higher salaries – salary levels with which local companies and the public sector cannot compete. Attempts to reduce the negative impact of the recent economic crisis have included measures aimed at foreign companies interested in setting-up their businesses in Serbia. Recently the government passed legislation favouring foreign investment and the harmonization of Serbian legislation with EU economic policies.

PUBLIC SECTOR

The digital transformation of Serbia's public sector is still lagging behind both EU countries and Serbia's own local private sector. There are however recent improvements. Central and local administrations have launched digitization efforts in a strategic approach to develop e-government solutions while the establishment of a government Office for IT and e-Government and the Ministerial IT Council is expected to better coordinate activities on the path to a more digitally enabled state. The biggest challenge remains attracting a competent IT workforce to support these efforts of digital transformation – the limited availability of skilled ICT professionals needs very much to be addressed.

Perspective on Priorities

WHERE TO FROM HERE

The following expresses priority objectives for the ICT centric Innovation Ecosystem, from the perspective of the national expert of Serbia.

It is essential that the state takes on a more significant role in helping and fostering the domestic ICT sector in the future: the domestic economy requires modern ICT solutions, and the ICT sector acts as a powerful enabler of economic development. A closer collaboration involving the ICT sector, the education system and the private sector would create a positive synergy to the benefit of all. Government spending on ICT should target areas like e-government, e-taxation and the justice system.

The following measures would be a major boost for digital ecosystems: aligning the education system to respond to the needs of the IT industry; modernizing curricula and increasing enrolment quotas for IT studies; introducing tax incentives that encourage investment in the IT sector; providing support to domestic exporters of software; subsidize start-ups in the IT sector; subsidize equipment and software to enable end user purchase. ICT has become an important enabler for development that underpins both private and public sectors. To maximize ICT's positive effect, the following activities are recommended: develop strategic plans designed to help small-sized companies in the IT sector; organize joint promotion and grant provision for small IT companies; establish an IT association which engages in launching domestic IT products and services on the international market and which would function as an intermediary between consumers and small-sized IT companies.

It is important to develop a more efficient mechanism to allocate resources and to increase investment in the network and related services. A first step in this regard would be the improvement of regulations regarding cross-border data transfer. One of the challenges to more widespread practice of e-commerce and e-government is the limited practice of using electronic signatures – the identification process needs simplification with electronic signatures made affordable and available to all.

INFO BOX

Focus for Flagship Project Development

Decisive, active intervention can help transform an ICT ecosystem, making it more innovative and a real engine for accelerated digital expansion into every aspect of society – with real gains in public, business and personal life.
ITU innovation research has shown that three key pillars are of immense importance in exploring and addressing opportunity for digital transformation. These pillars align with Sustainable Development Goal 9 which calls for the building of resilient infrastructure, the promotion of inclusive, sustainable industrialization and the fostering of innovation. These three pillars are as follows:

Guiding Innovation Dynamics

Is innovation 'on the map'? How supportive of innovation is the general environment? A dynamic innovation environment demands regulatory organizational settings which are coherent and which guide, facilitate and promote innovation culture, mind-set, projects and programmes.

Building Innovation Capacity

Is there an innovation infrastructure? Is that infrastructure sufficiently well developed? Is it the right infrastructure to enable the ecosystem to grow sustainably? Does the infrastructure support, encourage and inspire innovation?

ICT Integration into Key Sectors

Is innovation integrated? Is ICT innovation integrated across key sectors? Innovative entrepreneurial ICT ventures realize their full potential only if they scale up well beyond their niche, enabling transformation across other industries.

Next Steps

Next steps for the ecosystem, the process for further engagement and collaboration with ITU Innovation.

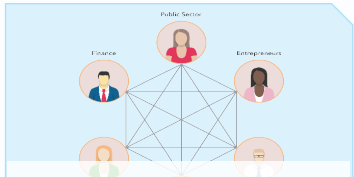
This Digital Innovation Profile provides an initial, high-value overview both of the ecosystem and of existing practices. The Profile is designed to raise awareness and generate commitment from all stakeholders to implement flagship projects – which in turn will foster an enabling environment for the ICT centric innovation ecosystem, helping unleash its full potential and ultimately to help bridge the innovation divide.

The value of this assessment – which clearly identifies key barriers and enablers already existing in the ecosystem – is that it constitutes the perfect platform for the launch and development of high impact flagship projects. Each would help accelerate digital transformation and each would be designed to be of unique relevance to Serbia.

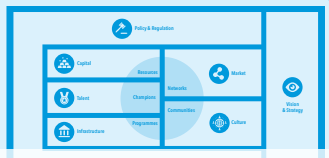
Building on this platform, and as a next step, further commitment is needed to generate a more in-depth assessment, detailed strategy and thoroughly planned flagship projects designed to help transform the ecosystem – all within the tried and tested ITU Digital Innovation Framework.

INFO BOX ITU's Comprehensive Approach & Digital Innovation Framework

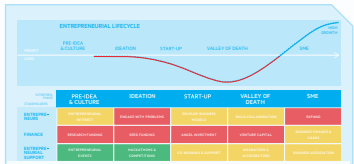
DIGITAL INNOVATION FRAMEWORK – ASSESS REALITY



Multi stakeholder and cross sectoral approach



Nurturing policy & good practices along the ecosystem's key enablers



Mapping key barriers in the ecosystem to assist stakeholders through their innovation journey

Tools, policy & project recommendations tailored to your context

Global Good Practices

CO-DESIGN & IMPLEMENT

Flagship projects, develop & facilitate implementation

Knowledge Sharing & Innovation Capacity Development

BUILD CAPACITY & NETWORK

ITU's **Digital Innovation Framework** is a scalable approach. It is based on a multi-stakeholder, cross sectoral, high-value analysis which maps both enablers and blockers in potentially vibrant ICT centric ecosystems. It assesses a country's capabilities in progressing towards an accelerated digital transformation.

Through expert assessment, the identification of good practice, capacity-building, tools and knowledge-sharing, ITU enables and empowers stakeholders to transform their own ecosystem.

The Framework's aim is to help countries fully realize their innovation potential and benefit from the enormous advantages this will bring. It first raises awareness of how innovation can address national challenges and subsequently creates sustainable, scalable projects designed to build environments that enable innovative digital ecosystems to flourish.

ITU Innovation Platform

'How do we get started, and how do we know we are heading in the right direction?' These are the questions ITU Members often ask as they embark on a programme to transform their ICT infrastructure into the innovative powerhouse it could be and indeed should be – one that will drive outstanding economic growth and place them squarely at the centre of the 21st century digital opportunity. While the questions can appear daunting, there is a solution – and a step-by-step process that leads the way.

Through its range of powerful products, services and tools that make up the ITU Innovation Platform, ITU supports its members in fostering vibrant innovation ecosystems and in accelerating digital transformation for sustainable growth in the digital economy. The goal is to place ICT innovation front and centre in a country's national development planning.

The ITU Innovation Platform offers four powerful elements:

- **Digital Innovation Framework**: a scalable approach mapping enablers and blockers in potentially vibrant ICT centric ecosystems and assessing a country's capabilities in progressing towards an accelerated digital transformation.
- **Country assessments**: powerful and high-value analyses of a country's digital ecosystems and its potential for digital transformation – such as country reviews, digital innovation profiles, and more.
- Co-development of country level **bankable projects**.
- **Knowledge sharing** and **capacity building**: including dialogues on innovation at regional and global level – and scaling of work through national and regional capacity building.

For more information visit ***innovation.itu.int*** *– or contact* ***innovation@itu.int***

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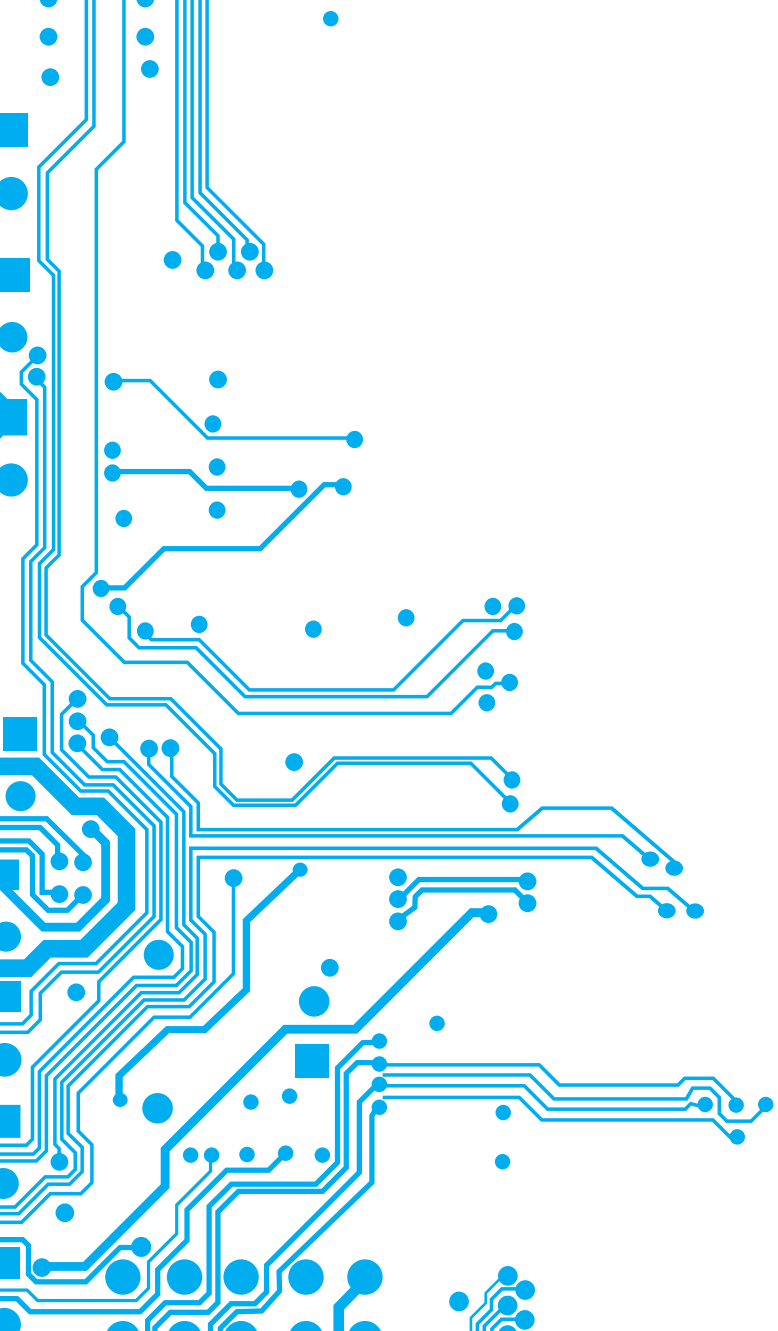

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