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## **MACEDONIA'S CHALLENGES ON THE ROAD TO BUILDING A TRUE DIGITAL SOCIETY**

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### **Abstract:**

*The article discusses the Macedonian experience in implementing E-Society, which is a mixed bag of good and bad practices and results. While Macedonia has been fairly successful in certain aspects, like in the introduction of E-Taxes and electronic public procurements, other projects that strive to widen the adoption of E-practices among the youth and the population in general in economically deprived areas, as well as among the country's army of civil servants, have experienced a complete fiasco.*

### **Key words:**

*Youth, digital skills, education, transformation of learning processes, digital literacy*

### **Izvleček:**

#### **Izzivi Makedonije na poti k izgradnji digitalne družbe**

*Prispevek obravnava makedonske izkušnje pri vpeljavi e-družbe, ki je zmes dobrih in slabih praks oziroma rezultatov. Določene projekte, kot so e-davki in elektronski javni razpisi, je Makedonija uspešno izvedla. Pri projektih, katerih namen je bil razširiti uporabo e-storitev med mladimi in prebivalstvom na ekonomsko revnejših področjih ter javnimi uslužbenci, pa je doživela popoln fiasko.*

### **Ključne besede:**

*mladi, digitalne veščine, izobraževanje, preobrazba učnega procesa, digitalna pismenost*

## **1. INTRODUCTION**

Since 2001, Macedonia recognized the pressing need for rapid development in the field of establishing a true digital society. Although the Ministry of Information Society and Administration has already set the legal framework in place, experts are unanimous – practical implementation is largely lagging behind, putting Macedonia years behind more developed European countries.

Driven by the need to streamline administrative work, boost its efficiency and make it more transparent, all with an ultimate goal to offer better public services for its citizens, certain projects are already in the implementation process.

However, a top-down approach restrained to political decision making as well as legislative, technical, financial and administrative aspects of this endeavor, is only part of the equation.

More work needs to be done at ground level in order to empower the administration workers to fully implement digital practices into their work, educate citizens about the use of digital platforms to their own benefit, and maybe most important – providing proper education for younger generations so that they can be on par with their peers in other EU countries.

Surveys and analyses done recently show that Macedonia is still far behind in this area and that most of its citizens can still be considered digitally illiterate.

One stark example is a UNDP research carried out in 2010 which showed that only 1.45 per cent of children in elementary schools have access to personal computers (eGovernance and ICT Usage Report for South East Europe, 2010).

In order to pick up the pace, Macedonia needs to take lessons from the European success stories, from countries like Estonia, which have made astonishing progress in making digital a part of people's everyday life.

In September 2017, the first EU summit on building digital society was held in Tallinn. Recognizing the rapidly changing world, it set an ambitious timeframe for boosts in the field of E-government, electronic security and integration of industry, economy and society as a whole in a digital framework until 2025 (Tallinn Digital Summit, 2017).

Can Macedonia learn anything from these recommendations, and what, in order to speed up its progress as well, all with one ultimate goal in mind, to make its citizens digitally literate and true citizens of the future world?

Mariya Gabriel, Commissioner for Digital Economy and Society, said:

*»The commitment to the Digital Agenda will ensure that citizens have the skills to match the demands of the new economy and will help modernize public administrations, strengthen cybersecurity, increase connectivity, and improve the business climate.«*

(European Commission launches Digital Agenda for the Western Balkans, 2018).

## **2. STRENGTHENING THE DIGITAL ECONOMY AND SOCIETY**

The Digital Agenda will support the deployment of eGovernment, eProcurement, and eHealth tools and help increase digital skills among citizens. This will be done by supporting the involvement and representation of the Western Balkans in EU initiatives and events. (European Commission launches Digital Agenda for the Western Balkans., 2018).

This includes the Startup Europe Summit 2018 in Sofia, enabling regional startups to connect and network with major European hubs; opening digital opportunity traineeship to students and young people from the Western Balkans to acquire firsthand training in digital areas; and opening the EU Code Week for all Western Balkan partners, bringing coding skills and digital literacy to the region.

### **3. WHAT IS NEW IN THE COMMISSION'S PROPOSALS?**

With an overall budget of €9.2 billion, the new **Digital Europe Programme** will shape and support Europe's digital transformation to the benefit of citizens and businesses. Here are a few examples of what sort of endeavors will be financed. (Digital Transformations, 2018).

### **4. UPSCALING OF DIGITAL INNOVATION HUBS TO MAKE THE MOST OF ARTIFICIAL INTELLIGENCE**

The real value of the data economy will be captured only if artificial intelligence is widely adopted by the public and private sectors. Companies are reluctant to invest in artificial intelligence due to cost and lack of means to experiment. An essential step is to ensure the availability and proximity of facilities and expertise. One way to achieve this is through regional competence centers that could offer expertise and guidance for artificial intelligence uptake. The Commission proposes open platforms and 'common data space' for artificial intelligence to be made available across the EU in digital innovation hubs, providing testing facilities and knowledge to small businesses and local innovators.

Digital Innovation Hubs are today one of the key elements of the Digitizing European Industry strategy.

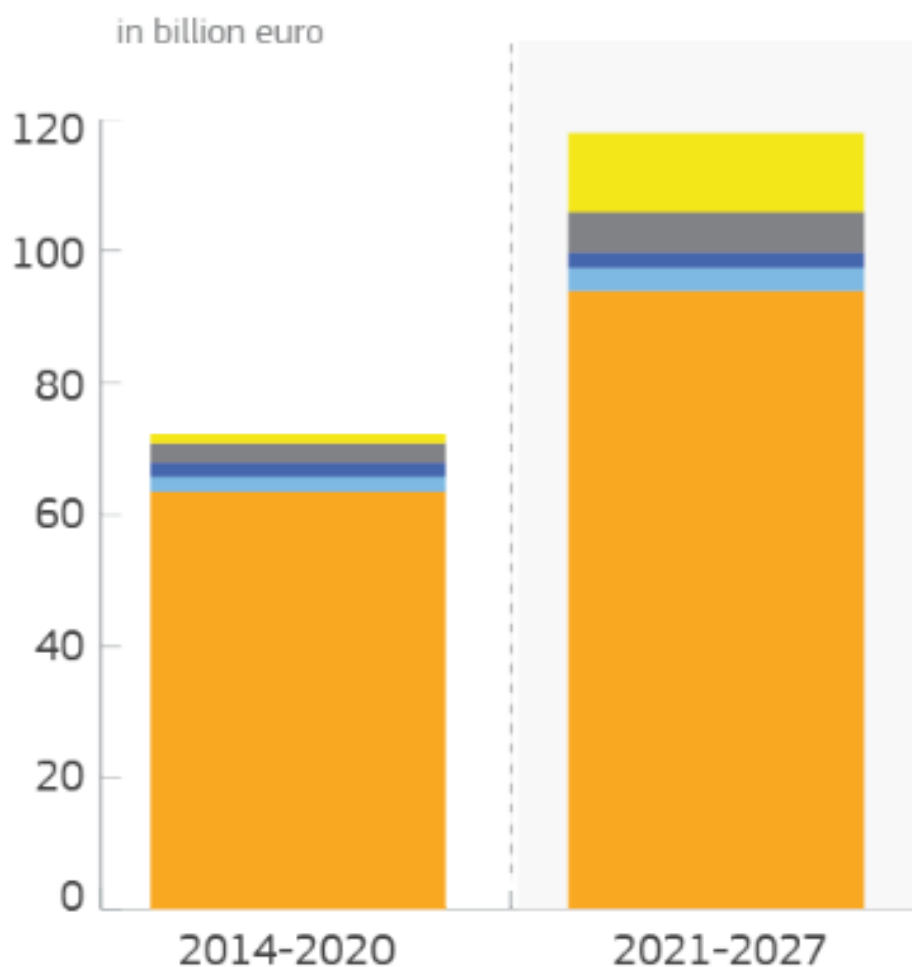
Under the Digital Europe Programme, they would act as a one-stop-shop, providing their customers with:

- access to digital technologies and competences,
- infrastructure to experiment with digital innovations,
- training to develop digital skills,
- financing advice,
- market intelligence and
- networking opportunities.

## 5. WHAT DOES THIS MEAN IN FINANCIAL TERMS?

The Commission proposes to create a new Digital Europe Programme with an overall budget of €9.2 billion to shape and support the digital transformation of Europe's society and economy.

### Investing in the future



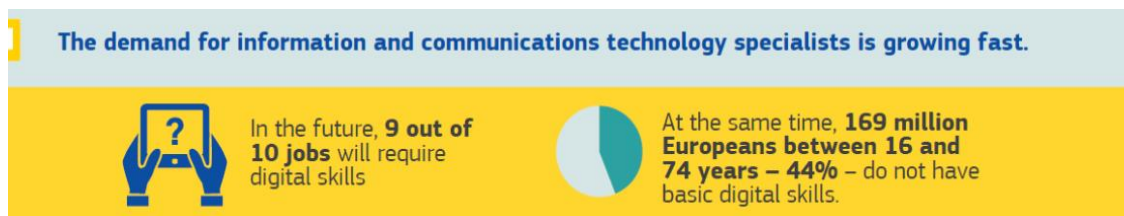
Source: European Commission

Note: Compared to the Multiannual Financial Framework 2014-2020 at EU-27 (estimate)

The digital strand of the Connecting Europe Facility has a budget of €3 billion, which will finance digital connectivity infrastructure.

## 6. INVESTING IN EUROPEANS' DIGITAL SKILLS

Digital Europe will offer students and technology experts the opportunity to pursue training in advanced digital technologies, such as data analytics, robotics, artificial intelligence, block chain technology, cybersecurity and high-performance computing. They will be offered specialized courses and internships in companies deploying advanced technologies.



## 7. JOINING FORCES AGAINST CYBERATTACKS

Digital technologies form the backbone of Europe's economy - they open up new opportunities for citizens to connect and facilitate the dissemination of information. However, they have also brought about new risks as non-state and state operators increasingly try to steal data, commit fraud or even destabilize governments.

Since information is a valuable resource and any organization would profit, if it uses it more efficiently, Macedonia needs a good information strategy. Significant change during the digital transformation will experience many professions, including the traditional archiving of objects in all institutions in the country. Digital Agenda brings policies to boost digital skills from an early age to the forefront. All views are focused on transforming the ways of learning, transformation of educational processes and building human capacities.

Today, when Macedonia is at the threshold of the fourth [educational] revolution, it is lagging far behind the European countries on the road to digitization. Macedonia has provided excellent projects, but with unsuccessful realization.

The National Strategy for Information Society Development and Action Plan (2005) defined the steps for the digital agenda.

According to the structure, the document is divided into two parts: Strategy and Action Plan for the development of the information society. In the Strategy development directions, the basic are divided into 7 pillars (Infrastructure, E-business, E-government, E-education, E-health, E-citizens, Legislation). Each of these pillars is based on a current state, goals, strategic measures and bearers with a list of priority projects, programs, initiatives or pilot projects.

However, the state has no specific analysis for the activities in these projects and measures proposed by the government. With the establishment of the national ICT Council, efforts are being made to adopt a national long-term ICT strategy by the middle of year 2019.

So far, the country has adopted a national strategy for open data and cyber security. Through various other strategies, the government will invest in human resources. By introducing E-taxes, a significant step forward in using the digital signature has been made.

The public procurement system has become 100 % digital in 2018.



The full implementation of e-Taxes and digital public procurement system has resulted in more than 20 % increase of usage of digital signatures in 2018, compared to one year before.

These two aspects have in fact been regarded as the most successfully implemented this far.

Macedonia is also involved in the coding week project promoted by EU Commissioner Maria Gabriel that aims to increase e-skills among youth. In Macedonia, this project is run by the Metamorphosis Foundation, an NGO, which has made more analyses of the situation in the direction of digitization.

## **8. CONCLUSION**

This leads to a general conclusion: when seen as a whole, the Macedonian experience is a mixed bag of good and bad results. While Macedonia has been fairly successful in certain aspects, some projects, and especially their implementation in practice, have experienced a complete fiasco.

We can conclude that despite the fairly adopted EU legislative, and in many cases, already allocated sufficient funds, the main shortcoming is the lack of educated staff that would implement the projects. This results in EU funds not being utilized in full by the country's administration.

As an example, the nationwide project entitled "Computer for Every Child", aimed at providing PCs in every elementary school classroom, and the training project with the basic digital tools, did not give the necessary results in this field.

The percentage of children who in fact received plenty of computers and computer labs was insignificant. An analysis, carried out by the Metamorphosis foundation, measured the use of computers and the internet in the education process in the country.

Its conclusions indicate that there was insufficient transparency regarding the entire project, from procurement of computers, to distribution and the practical use in classrooms. A poor managerial capacity of schools was also detected. The teachers were not sufficiently trained, which resulted in poor transfer of experiences / effective models of the process in school communities as well as digital content from previous programs and initiatives.

Furthermore, the situation was so absurd that in some schools, that predate Macedonia's independence in the 1990s, the electrical wiring systems were not even able to sustain a grid of PCs.

If we return to the digital summit for the Western Balkan countries held in Skopje in September 2018, in which Commissioner Maria Gabriel said openly that the key to the successful realization of the digitization is in education and that it refers to the youth.

The greatest irony was that those who were the very target of this program, the schools, universities, ministries and state institutions, were not even invited to participate.

After the summit in Macedonia, a conference was held under the auspices of the Ministry of Information Society and Administration, where, obviously, perceiving the mistake of the summit, education institutions were present.

The data from the State Statistical Office confirms that in the past few years, the knowledge of students, as well as that of civil servants, regarding digital practices, has barely increased. This pinpoints to the need for sharp change when it comes to



introducing new and innovative educative practices, that would, in short, medium and long term yield some tangible results.

The Ministry of Information Society and Administration announces greater digitization of the public administration in pretty much every of its press releases and strategies, but also recognizes the insufficient staffing of the institutions with ICT experts and staff who possess real digital skills.

The problem is not only prevalent in educational institutions, it also concerns the state institutions, from the lowest to the highest level.

When we talk about civil servants, the sphere of archiving of documents, public data and records cannot be omitted. In addition,, just like in many other areas, the country does not stand so well, both in terms of use of technology and know-how. We do not need to stress out how the use of technology is essential for this sphere.

However, this reform is a complex cultural economic phenomenon that does not only mean functional infrastructure and equipment. Civil servants' readiness to embrace the digital age is the most important change in the whole process of transformation from traditional to digital archives.

Only this would enable a more transparent administration, which would be open to the needs of the citizens.

We can conclude that the conditions are far from ideal, however, the situation is gradually improving. Some examples, like the introduction of e-taxes, have shown that when there is a political will, and indeed a motivation of the civil servants, change is possible.

As such, Macedonia foremost needs a change in mindset, a gradual building of ICT culture that would serve as the basis for future development, which will in turn, make implementation of every future project easier.

## POVZETEK

### IZZIVI MAKEDONIJE NA POTI K IZGRADNJI DIGITALNE DRUŽBE

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Makedonija kot majhna država finančno ni dovolj močna, da bi lahko dosegala standarde Evropske unije na področju digitalne družbe. Čeprav je potrebna infrastruktura v večini primerov že vzpostavljena, pa je nujno dodatno investirati v znanje, potrebno za poln izkoristek prednosti, ki jih prinaša digitalni svet. Do danes izvedene primerjalne študije kažejo, da državi primanjkuje sredstev za investiranje v splošne programe usposabljanja, ki bi omogočili udeležencem, da bi se izenačili z vrstniki v drugih, bolj razvitih državah Evrope. Enako pomanjkanje sredstev se kaže pri usposabljanju javnih uslužbencev za uporabljanje inovativnih digitalnih praks.

Številne makedonske vlade so sicer pokazale voljo za reševanje tega problema, vendar se situacija le počasi izboljšuje. Postalo je očitno, da se mora država usmeriti v pridobivanje evropskih sredstev za ta namen.

Več denarja za usposabljanje bo oživilo nekatere ključne sektorje v državi, ki počasi zamirajo zaradi iztrošenosti in uporabe zastaranih metodologij. Tako je tudi v arhivski stroki, kjer se zaradi pomanjkanja inovativnosti vpiše vsako leto manj študentov na študij.

Pameten pristop k širjenju e-družbe bi celotni družbi prinesel veliko prednosti, hkrati pa bi povečal učinkovitost administracije.

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