

Paving the Digital Path in Central and Eastern Europe

Regional perspectives on advancing digital transformation and cooperation



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FOREWORD



Mark Boris Andrijanič
Minister of Digital Transformation

Dear friends,

Today, digitalisation is the name of the game. Bits of data are fuelling our economies and driving innovation. Advanced digital services and disruptive business models are re-shaping our economies faster than ever before. Moreover, the pandemic has accelerated digital transformation of nearly everything around us.

Europe has a historic opportunity not only to become the regulatory leader in the digital arena, but also to establish itself as a formidable competitor in the global tech race. That is why the Slovenian Presidency of the Council of the European Union elevated Europe's digital transition to the very top of its agenda.

Together with our partners, we have achieved important milestones related to the EU regulations in the area of digital services and markets, artificial intelligence, and data governance. Once enacted, these forward-looking regulations will strengthen consumer protection and safeguard our core values. At the same time, they will foster innovation and ensure fair competition.

Central and Eastern Europe has a special role to play in Europe's digital transformation. With its highly competitive business environment and superbly skilled workforce, the region holds an enormous potential to embrace new business models and breed tech champions of the future.

So far, the CEE's economic transformation over the past few decades has been one of the greatest success stories in the post-war European history. Pro-market reforms, sound money, and the EU integration have resulted in rapid economic growth across the region.

The ten CEE countries (Bulgaria, Croatia, the Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia) increased their per capita GDP by a staggering 115% in the period 2004–2019. Since many of the growth drivers have been winding down in recent years, digitalisation will be vital for the continued growth of these economies.

However, significant economic and social gap persists between CEE and Western Europe despite decades of growth. Regional cooperation within the Three Seas Initiative plays very important role in bridging that divide. Joint development of energy, transport and digital infrastructure has the potential to supercharge our growth, benefitting consumers and businesses alike. Besides significant economic benefits, digital transformation can also strengthen geostrategic resilience of the region. All of these efforts are fully integrated with the EU's ambitious agenda promoting competitive, inclusive, and sustainable Europe.

As the cyberspace is globalized as never before, we must work together with like-minded partners and allies in harvesting its limitless potential and addressing the growing challenges. We need a strong transatlantic partnership to tackle issues ranging from cybersecurity to AI development and tech regulation.

I am proud that digitalisation gained a new momentum in Slovenia this year. In April 2021, Slovenian Government established the National Strategic Council for Digitalization, comprised of Slovenia's leading tech entrepreneurs, researchers and educators. The Council has drafted 40 measures that will accelerate the digital transformation of government services, healthcare, education, and the society as a whole. In order to bring these measures to life, I was appointed as the Minister of Digital Transformation this July.

In a couple of months, we will be launching the largest digital skilling programme in our country's history. Our goal is to bridge the digital divide by providing the elderly and other vulnerable groups with essential digital skills and modern computer equipment. Moreover, we will also provide free courses in programming, robotics, AI, and entrepreneurship to our youth. We will also establish an international AI center and a tech embassy in the Silicon Valley.

As a firm believer in CEE's tech potential, I am delighted to host the Three Seas Initiative Ministerial Conference on digital transformation organized under auspices of the Slovenian Presidency of the Council of the European Union and in partnership with the Atlantic Council. This event will bring together the region's leading policymakers, businessmen, and civil society leaders to exchange best practices, address key strategic challenges, attract investments, and strengthen cooperation within the EU and the transatlantic community.

I am grateful to the Atlantic Council for driving the Three Seas Initiative and supporting this event. I have no doubt that this path of collaboration, dialogue, and reform will help CEE become the tech engine of Europe.

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Introduction

Digital technologies are the future of our everyday life. The Covid-19 pandemic further increased the pace of adoption and penetration of digital solutions into all pores of our society, from our workplaces to our social interactions.

The digital portfolio is one of the top priorities of Slovenia's Presidency of the Council of the EU and Centre for European Perspective (CEP) has been actively supporting the Presidency through its activities. We also recognize the importance of engaging in the ongoing debate on the EU's digital future because of the impact it will bring for decades to come. It is therefore crucial to look at digital development from two perspectives – what EU as a whole needs (for instance what kind of digital standards will prevail in the future and whether or not they correspond to the EU's values) and what individual member states need, what challenges they face and where opportunities lie. Wanting to contribute a regional, CEE perspective to the debate, we issued a collaborative report with the Kosciuszko Institute in May 2021 titled The Transformative Power of Digital: Central and Eastern Europe's leap towards greater prosperity, innovation and resilience. Bled Strategic Forum 2021 also featured a strong digital component with the debate clearly showing the need for further cooperation, particularly of CEE countries.

This publication aims to continue in our quest to enhance cooperation in CEE and bring regional perspectives on digital transformation to the fore. We are thankful for contributions from prominent European think tanks and organizations and find their perspectives invaluable.

In the first chapter, Théodore Christakis affirms that the EU already is and remains a digital regulatory superpower, but that going forward, international cooperation and strategic partnerships may help securing digital standards that protect and support its values. Fredrik Erixon and Oscar Guinea alert us to often overlooked aspect that the distributional consequences of the new digital regulations are still unknown but may prove to be critical for Central

and Eastern European (CEE) countries. Digital challenge and digital future for Slovenia, for the CEE and the entire EU relies heavily on two factors: smart digital regulation and unified, competent and innovative digital environment write Katja Mohar Bastar and Jaka Repanšek in the third chapter. Catching up with developed European countries requires the countries of the 3 Seas Initiative (3SI) to grow faster, become more competitive and build on its potential and synergy effects write Ewelina Kasprzyk and Kamil Mikulski. They argue that increasing connectivity should be the focal point of such efforts. Soňa Muzikárová tackles the importance of skill development and posits that shortage of relevant skills, talent and brains is likely to be the number one bottleneck for further growth, therefore governments may want to stay open to collaboration with the private sector, and other economic actors on skill enhancement. Márton Ugródsy takes an honest look of what he calls a too optimistic approach to the CEE's digital potential and highlights some of the current challenges through the Hungarian case study. Christian Kvorning Lassen discusses the challenges facing Czechia in digital development, explores policy solutions for a successful digital transformation and outlines key priorities of the upcoming Czech Presidency in support of such transformation – progressing the Digital Services Act (DSA) and the Digital Market Act (DMA), continuing work on making e-commerce part of the EU commercial policy and to further develop the Digital Compass.

Finally, Mindaugas Ubartas makes a case for creating a digital environment that enables real-time economy and move away from document management. Both as a means of avoiding middle-income trap.

Setting rules for the digital world

The EU and democracies should show the way

By **Théodore Christakis**, Professor, Chair AI-Regulation.Com, Université Grenoble Alpes, Member of the French National Committee on Data and AI Ethics

The pace of digitalization is speeding up significantly and this is having a huge impact on society and economies. While governments around the world are trying to encourage digital innovation and to incentivize the development of new technologies for the benefit of society, they are also increasingly acknowledging the need for regulation in order to prevent or mitigate the negative consequences and risks posed by the rampant digitalization of our world.

Digital technologies and cyberspace present huge challenges for governments and regulators in terms of how they have traditionally regulated private actors. Several signs - including China's strong presence in international standardization bodies¹ or the cyber-related discussions at the UN - show that there is probably "a titanic struggle for regulatory dominance"² going on internationally. This paper will show that Europe has a big advantage in this struggle not only because of its past legacy and ongoing prominence in regulatory affairs, but also because its values and its vision often appear socially desirable at the international level. However, Europe cannot regulate everything unilaterally. The strong interdependence in our digital world obliges Europe to find international solutions to certain problems and to seek strategic partnerships with like-minded countries in order to protect its values and send a strong message to authoritarian regimes.

“European Digital Sovereignty”

“The Times They Are A-Changin’”. When Jean-Claude Juncker, then President of the European Commission, proclaimed in 2018 that “The Hour of European Sovereignty” had come, half of Europe criticized him, recalls Paul Timmers³. Today hardly

a day goes by in Europe, without a politician talking about “digital sovereignty”.

Although, from a purely normative point of view, it's controversial⁴, from a political point of view, the concept of “European digital sovereignty” is extremely powerful, and is broad and ambiguous enough to encompass very different things, becoming a “projection surface for a wide variety of political demands”. This concept basically encompasses two dimensions. One dimension, that I will not discuss in this paper⁵, relates to the capacity of Europe to achieve strategic autonomy in the digital sphere and to boost European competitiveness in tech. A second, and probably most important dimension, concerns Europe's power to regulate what is going on in cyberspace and in the digital sphere, including the activities of big tech. This is what the European Council calls Europe's ability to “reinforce its ability to define its own rules” and to “leverage its tools and regulatory powers to help shape global rules and standards”.

The “Brussels Effect”

Critics have sometimes claimed that the tech giants' control over everything from social media and online search engines to e-commerce and cloud computing is proof of Europe's failure to “rein in Big Tech”. Presenting Europe as somehow weak in this field is, however, in contrast with the legacy of the EU in the arena of digital regulation. Indeed, Europe has become the “world's digital policeman”⁶ and, while there are some limits to the regulatory reach of the EU, there is no sign of an end to this global regulatory influence in the near future.

In her remarkable book “The Brussels Effect”, Anu Bradford⁷ described how the EU remains an “influential superpower that shapes the world in its image”, including the digital sphere. The term “Brussels Effect” refers specifically to the EU's unilateral power to regulate global markets.

As Anu Bradford observes, “the EU has become the global regulatory hegemon unmatched by its geopolitical rivals. [This] challenges the critics' view that portrays the EU as a powerless global actor, and shows how such a criticism focuses on a narrow and outdated vision of what power means today”.

Bradford highlights that the EU today “promulgates regulations that influence which products are built and how business is conducted, not just in Europe but everywhere in the world”. What is remarkable, writes Bradford, is that the EU is able to do so not by using brute force, through sanctions or through other forms of coercion. Market forces alone are often sufficient to convert the EU standard into the global standard. This is due to a combination of three factors. Firstly, the EU's market is so enormous - roughly a fifth of global GDP at market exchange rates - that producers cannot ignore the continent, no matter how onerous its regulation. Secondly, in contrast to the US where light-touch regulation is often the goal, the EU revels in making its rules exacting and prides itself on having the toughest regulations on everything from privacy to the environment. So, if a company wants to sell the same product everywhere (including the EU market), then rather than wasting money on having lots of different versions, they simply adapt to European standards. These two factors combine to produce a third way of influencing global regulation, as different stakeholders (NGOs, local governments, politicians and the companies themselves) lobby their domestic governments to raise their regulations to European levels. The Brussels Effect therefore can lead, in certain circumstances, to “unilateral regulatory globalization” where “regulations originating from a single jurisdiction penetrate many aspects of economic life across the global marketplace”.

The field of data protection is, of course, one of the best illustrations of Europe's tremendous global regulatory influence (but is far from being the only illustration). Long before the adoption of the GDPR, Directive 95/46/EC concerning the protection of individuals with regard to the processing

of personal data had already influenced domestic legislation in several countries. It is estimated that today nearly 120 countries around the world have adopted data protection or privacy laws, with most of them reflecting, more or less, the EU data protection regime.⁸ Brazil, for instance, recently enacted the LGPD, its own data protection regulation, which, despite some differences, was heavily influenced by the GDPR. Even in “fortress” US, some States have “jumped on board the EU regulatory train”.⁹ Most notably, in June 2018 California lawmakers passed the strongest data privacy law in the US: The California Consumer Privacy Act, which was inspired by the GDPR, and entered into force in January 2020.

One important reason for adopting this attitude could be the hope that by enacting domestic legislation inspired by the GDPR third States might facilitate and accelerate an “adequacy decision” by the European Commission permitting the creation of a strong legal basis for transfer of personal data from the EU to these countries. It is also noteworthy that third States espouse themselves the EU protective tools for international data transfers independently. Several States are therefore progressively adopting the EU “adequacy” mechanism for their own data transfers, while the ASEAN adopted model contractual clauses for international data transfers earlier this year which, while not identical, are inspired by those proposed by the EU. As Bruno Gencarelli, head of the International Data Flows and Protection Unit at the European Commission, observed recently,¹⁰ the convergence of data protection standards and safeguards around the world “has reached a certain critical mass” and we are witnessing the emergence of “regional networks” in the field of data protection.

The influence of the EU in global digital regulation extends well beyond the important field of data protection, as the EU has over the last few years been at the forefront of almost all global regulatory endeavors aimed at checking the powers of digital giants. From privacy to data protection, from competition issues, taming “gatekeepers” and platform dominance to protecting copyright and publisher's rights, from fighting hate speech and online disinformation to taking the lead on AI regulation, the EU has been a spectacular leader in digital regulation. Far from being normatively irrelevant, Europe has become, “the only functioning regulator of Silicon Valley”.¹¹

Taking into consideration Europe's achievements in setting global standards in the digital sphere, it is somewhat surprising that people still present Europe as being "unable" to exercise regulatory influence. It is ironic that, at the very same moment when people in Europe are questioning Europe's "sovereignty" as a regulatory power, certain foreign States are asserting that Europe is going "too far" with regulation, that it is trying to impose "diktats" in a form of "data imperialism"¹², or that it is affecting their own sovereignty by encroaching upon their regulatory freedom. It would therefore be a mistake to underestimate, or undermine through poor policy choices, the importance of Europe's "sovereignty" as regulatory power. **Europe's ability to shape, through unilateral regulation, the digital world, represents an enormous power, which is envied by other countries.**

Limitations and Risks

This does not of course mean that **Europe can or needs to regulate everything. Europe is limited in terms of what it can regulate. This is due to internal and external factors.**

Internally, regulatory action could be blocked by political disagreements among EU Member States; legal obstacles (starting with the national security exemption or the absence of a solid legal basis in the treaties for new legislative proposals); or economic considerations - for instance the fear that overregulating AI or other digital fields could hinder innovation and affect competitiveness.

Externally, situations involving interdependence could render international cooperation necessary in order to avoid retaliation, find constructive solutions and resolve conflicts of laws and jurisdictions. **These interdependence situations are commonplace in international relations and are becoming increasingly widespread in our globalized, connected world.** The resolution of these situations requires international cooperation and international law solutions. I will provide examples of this in the next section.

At the same time, there are certain **risks** that could lead to a reduction in the influence of the "Brussels Effect". Commentators have hinted at the risks associated with a potential future "*Beijing Effect*"¹³ or a "*Washington Effect*"¹⁴ that could limit or counterbalance Europe's regulatory influence.

However, the most important risk seems to be that Europe's own potential policy errors might "delegitimize" European rules in the future. The

Brussels effect has been made possible not only because of the importance of the European market, but also because Europe has been able to convince the world that its rules are both ethically desirable and normatively justified - as they promote social welfare and (in the field of data protection) promote individual self-determination. **The regulation of the digital sphere by Europe appears to many people to be a natural and healthy consequence of the earlier mistake, made mostly by other jurisdictions, of conflating globalization with deregulation, and digitalization with a "free for all" attitude which led, in the private sphere, to what Shoshana Zuboff called "Surveillance Capitalism"¹⁵ and, in the public sphere, to "Surveillance States" such as China.** If the current calls for "European digital sovereignty" turn into restrictive and unjustified protectionist policies, this could limit Europe's ability to set global rules. Europe should put its effort into navigating its quest for strategic autonomy in the digital sphere and seize the opportunities while avoiding the pitfalls.¹⁶

International Cooperation

A major limitation of the Brussels Effect relates to the fact that in certain specific areas unilateral regulation by the EU might affect the interests or legal order of third States. This, in turn, could elicit strong reactions from certain powerful actors which would hinder the effectiveness of the EU regulation. Put another way this is a situation where the exercising of "digital sovereignty" by the EU and its Member States might affect the "digital sovereignty" of other States, leading to a legal dispute and, eventually, retaliation. Very often, in order to resolve these disputes and conflicts, States use the channels of international cooperation with the objective of reaching, if possible, commonly accepted solutions.

The recent successful conclusion of the OECD international talks on a global taxation system for tech giants, following the EU's previous failed attempt to impose a "Digital Services Tax" on them, is a good illustration of how some international organizations, and especially the OECD, could represent the appropriate fora for addressing the complexities of certain digital regulatory projects and finding satisfactory multilateral solutions.

A second very topical example concerns access to electronic evidence (e-evidence) by law enforcement agencies.

Increasingly, evidence critical to ordinary criminal investigations is located across territorial borders. "Before the rise of cloud computing, evidence of crimes generally was available within the requesting country's territorial jurisdiction. Today, the content of emails, social network posts, and other content are often stored in a different country".¹⁷ A 2018 report by the European Commission found that electronic evidence is required in around 85% of all criminal investigations, and in two-thirds of these investigations there is a need to obtain evidence from online service providers based in another jurisdiction.¹⁸

This globalisation of criminal evidence is creating significant challenges for law enforcement. Traditional cross-border mechanisms such as Mutual Legal Assistance Treaties are widely considered too slow and cumbersome. Countries around the world are responding with new laws and legal instruments to deal with the situation.

In the US, the Congress adopted the CLOUD Act in March 2018. This Act enables US authorities to request, under certain circumstances, e-evidence from service providers "regardless of whether such communication, record, or other information is located within or outside of the United States". This could create conflicts of laws with Article 48 of the GDPR (which prohibits, in principle, such disclosure of European personal data to foreign governments) and national blocking statutes.

As far as the EU is concerned, on 17 April 2018 the European Commission introduced "E-Evidence", its own legislative package, which aims to streamline cooperation within the EU between service providers and supply law enforcement and judicial authorities with expeditious tools to obtain e-evidence. The legislative process in the EU is ongoing. If E-Evidence is adopted in its current form (as amended by the European Council and Parliament), this could create future conflicts of laws with US Law (the Stored Communications Act) which prohibits disclosure of content data to foreign governments.

It is against this background that, on September 25, 2019 the EU and the US officially started negotiations for the conclusion of a very important transatlantic agreement on cross-border access to e-evidence with regard to judicial cooperation in criminal matters. The conclusion of such an EU-US Agreement appears to be the most efficient way of resolving the problem of conflicts of laws. As explained elsewhere¹⁹, **the ongoing EU-US negotiations present a lot of challenges. However, this is a typical example of a field where international**

cooperation could be a much more successful way forward than unilateral measures, permitting the enhancement of judicial cooperation in criminal matters, the protection of human rights, the fostering of legal certainty and the avoidance of conflicts between the legal orders of different countries.

Strategic Partnerships

Beyond using international law to resolve specific problems in specific countries, **strategic partnerships** seem to represent an interesting option in terms of being able to promote certain important values in cyberspace. Several experts have warned that the future of the internet as we know it is far from guaranteed. The very architecture of the internet is being challenged in some standardization bodies; more and more States are hankering after erecting firewalls, which would lead to a splintering of the internet, which could in turn be detrimental for human rights and for a free, open and global internet; and artificial intelligence, if used in an unethical way, could be turned into a very powerful surveillance tool by authoritarian States or lead to other problems and abuse. **Cooperation with like-minded countries may therefore be the best option for Europe as a means of protecting its values.**

Of course, as Paul Timmers notes, "like-mindedness" is a somewhat relative concept depending on the issue and values at stake.²⁰ Serious disagreements about *whether* to regulate and *how* to regulate in certain specific cases persist between the EU and some of its closest allies. **Still, the EU could strengthen cooperation with States that share similar values in terms of democracy, human rights and a rules-based international system, in order to set the standards and rules of tomorrow in the digital world.** Democracies could work together on issues such as cybersecurity and resilience (including those relating to the Internet of Things); the fight against cybercrime; the fight against illegal online content and disinformation; the protection of freedom of speech and access to information; setting global democratic standards and safeguards for access, by law enforcement and intelligence agencies, to data held by the private sector - a topic for which an extremely important process is currently underway at the OECD; and a human-centred approach to artificial intelligence.

The concept of strategic partnerships should not exclude the private sector. Tech companies should remain the principal target of global regulation in

order to deal adequately with a number of issues including privacy and data protection; market dominance; power concentration; Zuboff's "surveillance capitalism"; hate speech; or Commissioner Thierry Breton's accusation that they are sometimes "too big to care"²¹. But tech and other companies can also become, in some cases, a precious ally in promoting values. Tech companies have, willingly or unwillingly, played a major role in the dissemination of certain European rules and values by implementing, for instance, in the very engineering of their products, the GDPR's principles of "privacy by design" and "privacy by default". Initiatives such as the Paris Call on Trust and Security in Cyberspace²² show how advantageous it is to have a multi-stakeholder approach to promoting cybersecurity and resilience. Global companies could also play an

important role, together with NGOs and civil society, in pressing governments to put in place effective tools, protections and safeguards when it comes to access by governmental authorities to data held by the private sector.

In conclusion, it is useful to quote Audrey Plonk, who, as head of the OECD's Digital Economy Policy Division, leads the organisation's efforts to establish global rules and principles in fields such as AI and Government access to data held by the private sector: **"It's a chance for the West to do some collective soul searching"**, she said.²³ "The opportunity for us is to look really hard at **what does that mean to be a democracy in this day and age**" of AI and **mind-blowing technological development**.

Endnotes

- 1 See, for instance Anna Gross and Madhumita Murgia, "China and Huawei propose reinvention of the Internet", *Financial Times*, March 27, 2020. or Anna Gross, Madhumita Murgia and Yuan Yang, "Chinese tech groups shaping UN facial recognition standards", *Financial Times*, December 1, 2019.
- 2 Martin Sandbu, "Globalisation need not mean deregulation", *Financial Times*, August 20, 2020.
- 3 Paul Timmers, "When Sovereignty Leads and Cyber Law Follows", *Directions/Cyber Digital Europe*, October 13, 2020.
- 4 As I noted elsewhere, the concept could only further accentuate the classic confusion surrounding the use of the term "sovereignty", which is one of the most equivocal terms in legal theory and which has been criticized by a famous scholar for often being nothing more than "a catchword, a substitute for thinking and precision". See Christakis, Theodore, 'European Digital Sovereignty: Successfully Navigating Between the 'Brussels Effect' and Europe's Quest for Strategic Autonomy, December 7, 2020 (available at SSRN: <https://ssrn.com/abstract=3748098>), at 4.
- 5 See *ibid.*, pp. 40-103.
- 6 Mark Scott, "Europe's tech ambition: To be the world's digital policeman", *Politico*, August 20, 2017.
- 7 Anu Bradford, *The Brussels Effect*, Oxford University Press, 2020.
- 8 Daniel Michaels, "Hot U.S. Import: European Regulations", *The Wall Street Journal*, May 7, 2018.
- 9 Mark Scott, "Europe is fighting tech battle with one hand tied behind its back", *Politico*, February 24, 2020.
- 10 Gabriella Zanfir-Fortuna, "Dispatching from the Global Privacy Assembly: The Brave New World of International Data Transfers", *Future of Privacy Forum*, November 10, 2021.
- 11 Mark Scott, "Europe's tech ambition: To be the world's digital policeman", *Politico*, August 20, 2017.
- 12 Marc Scott, Laurens Cerulus, "Europe's new data protection rules export privacy standards worldwide", January 31, 2018.
- 13 Anu Bradford (note 5) argues that the EU is still one of the world's biggest markets, but its share of the global economy is likely to fall in the coming decades. As "demand in places like China grows, businesses' dependence on their access to the EU market will inevitably diminish". As EU economic influence wanes, so does the incentive to follow Brussels' rules. "Given that the possession of large relative market size is critical to exercising unilateral regulatory influence, most would agree that the EU's relative economic decline has the potential to significantly undermine the Brussels Effect [and] constrain the EU's ability to set global standards".

- 14 See Marietje Schaake, "EU risks being dethroned as world's lead digital regulator", *Financial Times*, August 23, 2020. Referring to several strong US actions within the framework of the "Clean Network programme", which claims to keep "unsafe" companies out of US cable, cloud and app infrastructure, Schaake argues: "Recent years have seen the acceleration of national security arguments to restrict market access for global technology companies. Decisions on bans and sanctions tend to rely on the type of executive power that the EU lacks, especially in the national security domain. If the EU wants to continue to use its economic and political weight to set higher standards, it cannot stand by while others invoke security threats".
- 15 Shoshana Zuboff, *The Age of Surveillance Capitalism*, New York, PublicAffairs, 2019, 704p.
- 16 See my study on European Digital Sovereignty (note 2).
- 17 Peter Swire, Theodore Christakis, Jennifer Daskal, "The Globalisation of Criminal Evidence", *IAPP Privacy Tracker*, October 16, 2018.
- 18 See European Commission, "Impact Assessment Accompanying the E-Evidence Proposal", April 17, 2018.
- 19 Theodore Christakis, Fabien Terpan, "EU-US Negotiations on Law Enforcement Access to Data: Divergences, Challenges and EU Law Procedures and Options", *International Data Privacy Law*, 2020 (available at <https://ssrn.com/abstract=3728548>).
- 20 Paul Timmers, "Challenged By 'Digital Sovereignty'", *Journal of Internet Law*, Vol.13, n°6, December 2019, at 15.
- 21 Thierry Breton : « L'UE doit organiser l'univers numérique pour les 20 prochaines années », *Le Point*, September 27, 2020.
- 22 Paris Call For Trust and Security in Cyberspace, November 12, 2018.
- 23 AI Decoded, *Politico*, March 24, 2021.



The DMA, the DSA and the new AI regulation

Mapping the economic consequences of new digital regulations in Central and Eastern Europe²⁴

By **Fredrik Erixon**, Director and **Oscar Guinea**, Senior Economist at ECIPE

The European Union is about to introduce new digital restrictions. The Digital Market Act, Digital Services Act, and the Artificial Intelligence regulation are all working their way through EU institution – and they have the potential to shake Europe’s digital economy. These regulations include aspects ranging from new conditions for intermediary liability and new restrictions on “gatekeeper” platforms, to policies for the development and use of Artificial Intelligence (AI). Since these regulations cover how firms and societies can use their data and digital endowments, and the digital comparative advantage that countries have built up, these regulations will likely have a strong economic impact. Every regulation that helps or restricts economies to move with the flow of new technology and get closer to the global innovation frontier have outsized effects on economic productivity and dynamism.

However, we are still in the remarkable situation of not knowing much of the economic consequences of these regulations. The Commission has produced economic impact assessments, they don’t go very far in the economic analysis – and have been criticised by the EU’s own Regulatory Scrutiny Board. **The EU and member states also struggle to understand the distributional economic consequences across countries and sectors of the proposed regulations – in short, what countries and sectors can benefit or lose from these regulations?** The European Commission suggests economic gains will result from the DMA and the DSA. But who will pocket these gains – and in which countries and sectors will they emerge?

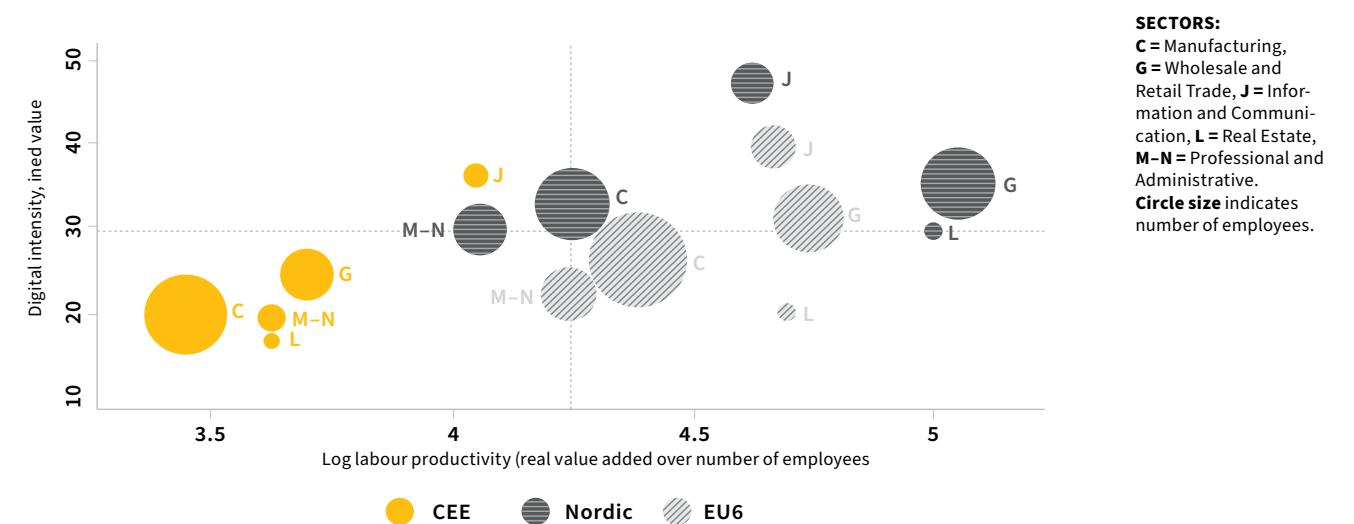
So far, European policymakers have not responded to these questions. The underlying assumption seems rather to be that Europe’s economies will respond alike to the introduction of these regulations.

However, this is highly unlikely. In fact, it is reasonable to expect that the consequences of these regulations will vary substantially between countries because there are big differences between the European economies in how they have digitalised – in their “digital economy endowments”, the intensity of their use of digital services, and the extent to which they are home to AI development and deployment. After all, the lesson learned from many other digital regulations in the past is that they affect countries in very different ways.

The distributional consequences of the new digital regulations are critical for Central and Eastern European (CEE) countries. These economies have gone through a period of substantial structural economic change – in the decades that followed on their independence or collapse of communism – and have a firm profile that is uncommon in other EU countries. Due to high levels of firm exit in their transition phase – a lot of companies going bankrupt or getting acquired by foreign firms – they have comparatively few incumbents and a comparatively high share of new firms. These firms are also growing faster compared to firm growth in the EU. They are too small to develop their own technology and are dependent on external digital technologies and services. In other words, the firm structure of most CEE countries is different from the rest of the EU and is likely to be an important factor determining how countries like Poland and Slovenia will be influenced by new digital regulations.

In relation to the digital economy, CEE countries are small and open economies that depend on economic integration with other economies for the supply of data and digital technologies. The domestic data supply is comparatively weak, with few data suppliers. Even if firm growth in the digital

FIGURE 1: LABOUR PRODUCTIVITY AND FIRMS’ USE OF DIGITAL TECHNOLOGIES



Source: ECIPE, CompNet, and Eurostat. 2010-2016 average, plotted against digital intensity by sectors and country group. Labour productivity is defined as real value added over the number of employees. Following the specifications in CompNet, we only consider those companies with at least 20 employees. Digital intensity was produced using the ECIPE e-business indicator.

economy has been strong because of the widespread economy of SMEs, the CEE countries have no digital champion and unicorn.

But being users rather than producers of digital technology does not make the digital economy unimportant for the CEE countries. CEE countries are large outsource destinations of digital services – Romania is a case in point – and freelance services work in digital sectors exported through online platforms.²⁵ Countries such as Poland, Hungary, and Romania have developed a strong position in outsourced micro activities as they receive relatively high levels of income value through digital labour platforms such as Freelancer and Upwork. The growth prospects are sizable for these firms: one study finds that these markets have expanded by about 25 percent globally a year.²⁶

The big digital challenge for CEE countries is comparatively small digital endowments – or the low digital penetration. The uptake of digital technologies is important because it is positively related with labour productivity. In a study that assesses the impacts of DSA, DMA, and the AI regulation across EU countries, we show that the CEE firms lag substantially behind other EU countries in terms of labour productivity and the use of digital technologies like 3D printing, AI, big data analytics, or cloud computing (see Figure 1). This should concern policymakers in CEE countries since many of their firms with growth potential may suffer from low productivity and low uptake of digital technologies. This is vital

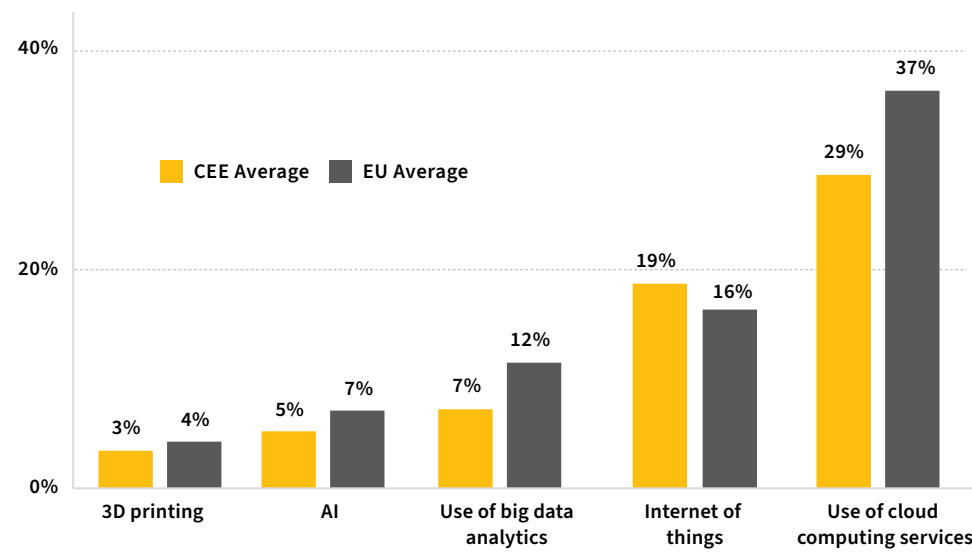
because the young firms with high growth potential of today are significant drivers of a country’s aggregate productivity in the future.

Source: ECIPE, CompNet, and Eurostat. Labour productivity is defined as real value added over the number of employees. Following the specifications in CompNet, we only consider those companies with at least 20 employees. Digital intensity was produced using the ECIPE e-business indicator.

We can take the analysis of digital penetration a step further and point more clearly to where the challenges are (Figure 2). While there are some differences between countries in the CEE region, they are all below the EU average in the use of 3D printing, AI, big data analytics software, and cloud computing services. However, they are above the EU average in the use of Internet-of-Things technology. These data points are not surprising. Many CEE countries have digitalised through supply chain effects in the manufacturing sector. Sectors that intensively produce or use digital services are generally small.

Policy also matters. CEE countries have different degrees of business and market restrictiveness in sectors that affect the digital economy, and therefore it is likely that the effects of the new regulations will be felt differently across them depending on the composition of these existing business regulations. Figure 3 shows that some CEE countries have some of the highest restrictions

FIGURE 2: PERCENTAGE OF FIRMS USING DIGITAL TECHNOLOGIES (2020)



Source: Eurostat, authors' calculations.

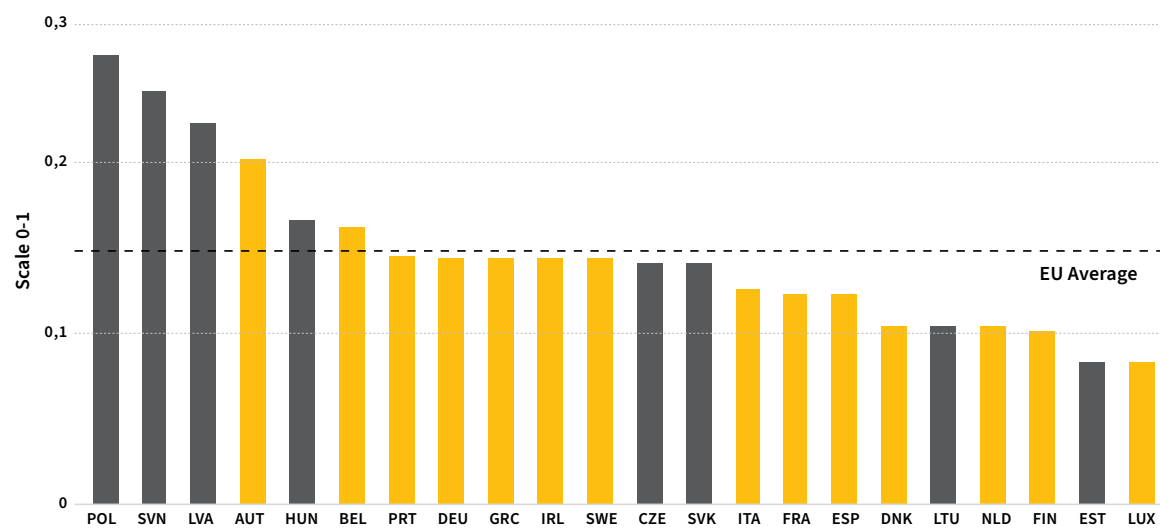
on digital trade and technologies which contributes to the lower adoption of digital technologies (see Figure 1). Regulation should therefore be seen as one of the major drivers for the competitiveness in digital technologies and services.

The effects of restrictive digital regulations are twofold. Firstly, they reduce the exploitation of existing digital endowments such as data and the ability of firms to grow by leveraging these endowments. Secondly, it changes the competitiveness

of domestic firms depending on their ability to substitute foreign or internal endowments that are restrictive with other endowments.

If access to foreign digital technologies and services get restricted, the question is if a country can substitute this digital endowment with its own endowments. If not, the economy will get saddled with old or poorly performing technology and will gravitate towards other sectors where domestic endowments are relatively abundant.

FIGURE 3: DIGITAL SERVICES TRADE RESTRICTIVENESS INDEX (2020)



Source: OECD, authors' calculations.



Hence, **smaller firms and smaller countries with few or no scale advantages will feel the effects of restrictive digital regulations more strongly.** Small countries, such as those of the CEE region, rely on importing key digital technologies and services. For example, many CEE firms – particularly smaller firms – are active users of online platforms to reach customers and partners, thereby helping the CEE region to improve market inclusion by allowing their smaller firms to grow.

Our analysis shows that some of the digital restrictions included in the draft DSA and DMA could lower access to online platforms and slow-down their diffusion – which will have a strong negative effect in the economies of the CEE countries. Other countries that are not dependent on importing data, digital technologies and services will be far less impacted; some may even benefit as these regulations will benefit large economies and large firms that have size advantages. Moreover, as firms in the CEE countries benefit disproportionately from digital innovations done elsewhere, **any digital**

restriction in the upcoming wave of digital regulations that lowers the adoption of digital technologies like cloud and Machine Learning (ML) and AI technologies will harm CEE countries as exporters of digital services and as adopters of digital technologies such as the Internet-of-Things, robotics, and AI in services and manufacturing.

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Boosting digital environments in CEE – a Slovenian perspective

Harmonized and transparent digital regulation and a connected digital environment are the keys to our digital future

By Slovenian Digital Coalition, Strategic Committee for Regulation and Environment
Katja Mohar Bastar and **Jaka Repanšek**, co-chairs

The digital decade, boosted by the pandemic in the last two years, significantly influenced all the economies and raised awareness of the importance of digitalisation in all areas of our society. But above all, we realized that our digital challenge and our digital future on the national level, in Central Eastern Europe (CEE) and the entire EU relies heavily on two factors: smart digital regulation and unified, competent and innovative digital environment.

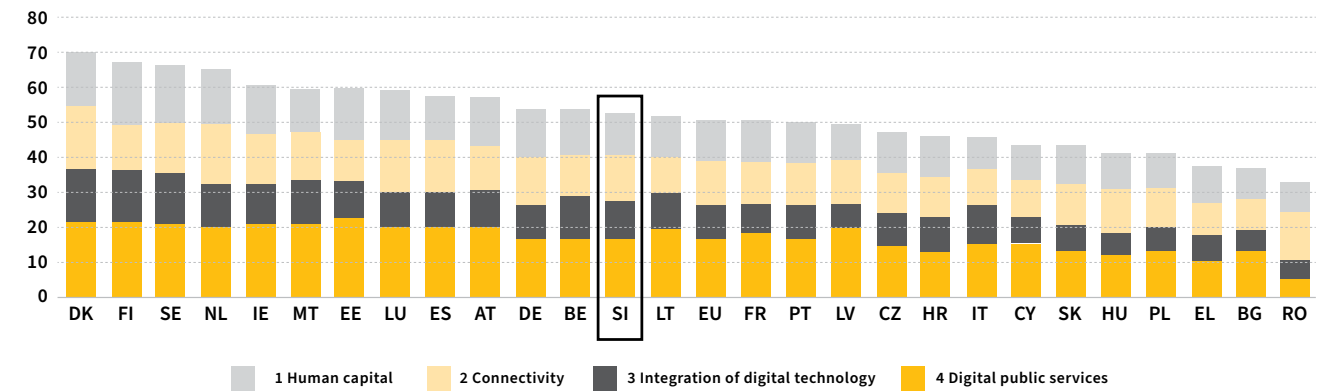
First: Digitalization first and foremost relies on infrastructure and competences. When the country has sufficient network coverage, the appropriate IT services and people who are able to use it, the first essential step towards digital transformation is done.

Second: the whole social environment should show a high degree of readiness for digital transformation, including the public administration, especially in the legislative and broader regulative processes. The efforts from the innovative and development environment must be supported by the applicable laws and secondary legislation acts which enable gains. **We must understand that Europe's problem is not dependency on others – on the contrary – it is mostly in the slow adoption and uptake of modern technology and adaptive (global) business models. Therefore, digital regulation for the “EU's Digital Decade” must strive towards several goals: maintaining European values and principles of democracy, freedom of expression and privacy on one side and a unified, transparent and applicable regulatory framework on the other.**

Slovenia gained three ranks on the DESI index²⁷ ranking in 2021 and it is now in the 13th place among EU member states in a composite index (see Figure 1). This advancement is attributed mostly to increased connectivity, especially due to the multiband auction for the implementation of 5G networks. Slovenia ranks above the EU average also on the indicator marking the ‘Integration of digital technology’, due to increasing digitalization of SMEs and new technologies uptake. State aid projects vouchers for digitalization that already include Artificial intelligence (AI) also contribute to digitalization of SMEs. AI is undoubtedly one of the technologies with a long history in Slovenian academia, and is lately increasingly implemented into business processes. One of the biggest achievements on the global level is the positioning of the International Research Centre on Artificial Intelligence (IRCAI), the UNESCO AI institute, in Slovenia in 2020. Another major achievement is also the installation of HPC Vega, one of the strongest supercomputers in the Europe and in the world.

Slovenia though, ranks 15th in the public services with the best indicator being open data. Improving digital competencies of the employees in the governmental sector is where the action is needed most. In addition, we also need to secure and improve access to open databases and e-identifiers and strive towards other improvements in the e-government sector.

FIGURE 1: DIGITAL ECONOMY AND SOCIETY INDEX (DESI) 2021 RANKING

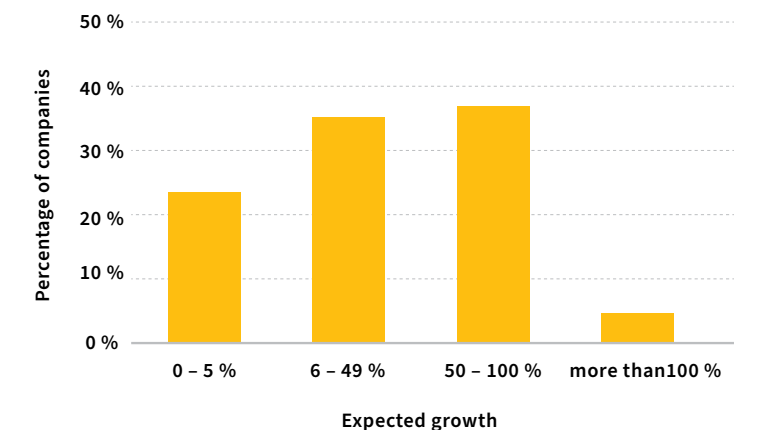


Source: <https://digital-strategy.ec.europa.eu/en/policies/countries-digitisation-performance>

Digital competences are a must in all sectors of the digital society, and they also represent the base level for digital profiles. Digital skills enhancing programs are available not only to students and employees, but also to elderly people. During the pandemic, those people who had better digital skills, were able to stay in touch with their families and friends, were able to shop online and attend virtual events. For the work force the primary driver of adopting new digital skills is acquiring new work processes and dynamics rather than having a social connection digitally. Many professions will undergo drastic changes due to digitalization and the labour market should adapt accordingly. School and study programs must follow the needs of the market, which brings numerous challenges – from educating teachers and mentors to more flexible and efficient curriculums. Digital Innovation Hub (DIH) Slovenia conducted several research studies, namely Forecasting staffing needs in the field of digital profiles²⁸ and Development of content for different study programs²⁹. The results of the former research clearly show the growing need for ICT profiles over the next years. DIH Slovenia proposed the methodology used to forecast the needs for ICT profiles in the individual small or medium organizations. The acquired data helped us to predict that for the next 5 years the demand for ICT experts and other digital profiles is expected to grow (see Figure 2)

Based on the Skills Panorama³⁰ report we can predict 98.000 new ICT profiles in Slovenia will be needed. If we combine this result with the report from the European Commission³¹, we can assume that the technological development will create

FIGURE 2³³: EXPECTED GROWTH OF THE NEEDS OF ICT EXPERTS OR OTHER DIGITAL PROFILED IN THE NEXT 5 YEARS ON THE SAMPLE OF SLOVENIAN COMPANIES.



Source: https://dih Slovenia.si/assets/images/20210215_Napovedovanje-potreb-po-kadrih-na-podrocju-digitalnih-prodilov-poro%C4%8Dilo_v2.pdf

new working places connected to big data and the development, maintenance and updating of the AI technology. These expect the fastest growth until 2030. Such work positions demand a higher level of education, intensive usage of social and interpretative skills and at least basic knowledge from the ICT field. Digital competences are the basis for digital profiles and for this reason Slovenian digital coalition is addressing the area of competencies in a strategic working group.

Second basis for the successful digitalization is the infrastructure. The European Commission issued the directive EECC – European Electronic Communications Code²² in 2018 which should have been transposed into national legislation by the end of 2020. In Slovenia ZEKom-2 (Telecommunications act) is still in the governmental procedure. Proposed changes of this extremely complex act, covering the functioning of telecommunications operators, represent one of the most important regulations for further development of the digital environment.

Digital regulation will be another key factor to the success of Central Eastern Europe (CEE) and the entire EU in the next digital decade. Countries of the CEE have a harder task in assuring that our legislative framework remains open to new business models, in line with innovative global trends. Our economies rely mostly on SMEs, which are crucially dependent on technologies, available on the global digital market. Our ability to shape economic outcomes within the EU and on the global level must not be diminished by (over) burdensome regulation on one side and poor economic performance on the other. **Fragmented markets and closing the doors of “fortress Europe” will only push more SME’s and other businesses to grow their enterprises in other parts of the world.** We strongly believe that the EU has the chance of a decade to become the “global digital regulator”, as we did to a notable extent in the field of personal data and privacy with the GDPR. But we believe this goal can only be achieved by observing the realities, challenges and opportunities in the global, interconnected digital market.

Slovenian presidency of the Council of the EU in the second half of 2021 proved to be a success in the drafting of new digital regulation, mostly embodied in the Digital Services Act, Digital Markets Act, regulation of AI, Digital governance, ePrivacy and many other digital files. Despite rather pessimistic predictions, Slovenia managed to maintain its role as the “fair and honest” broker in the shaping of the Council’s proposal of the Digital Services Act, perhaps the most notable success of the entire (digital) presidency. Compromise wording, adopted by the Member States on the 25th November represent a good basis for further shaping on the triologue levels and a balanced compromise between the expectations of the “maximalist” and the “minimalist” Member States.

In conclusion, we believe there are a few things all of us in the digital environment and economy agree upon. Above all: we strongly support Europe’s goal to ensure development of its digital economy, society and digital capabilities. There is no doubt about that.

But we must also encourage European start-ups, SMEs and other companies to address challenges of today, such as the pandemic, lack of digital competences and the lack of resilience in our supply chains. **We must maintain cross-border data and technology sharing in order to be globally competitive. Our industrial players must have all the tools to assert their position and to promote open markets, European values and international standards reflecting those values. Only by promoting a clear, united, competitive, collaborative and transparent European regulation and overall position in the global digital arena shall we have the potential to strengthen European digital society and our industry not only during the next digital decade, but for the decades to come.**

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Growing stronger together

Increasing the Three Seas' connectivity

By **Ewelina Kasprzyk**, Researcher and Project Manager, Kosciuszko Institute and **Kamil Mikulski**, Senior Hybrid Threats Analyst, Kosciuszko Institute and

PART I – STATUS QUO

The Three Seas region is looking to stimulate its growth and increase convergence with Western European counterparts. To achieve that, the twelve countries are striving to secure resources for their international and cross-border projects, which includes attraction of private investments and FDIs. Within the Three Seas Initiative (3SI), the eight Central and Eastern European countries (Bulgaria, Croatia, the Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia) are developing twice as fast as the “Digital Frontrunners” (Belgium, Denmark, Estonia, Finland, Ireland, Luxembourg, the Netherlands, Norway, and Sweden) and three times faster than the “Big 5” (France, Germany, Italy, Spain, and the United Kingdom)³⁴. **Catching up with rich and developed European countries requires 3SI to grow faster, become more competitive, and to build on its potential and synergy effects.**

(Smart) Connectivity in the Three Seas

The increase of a (smart) regional connectivity should be seen as one of the goals of the 3SI. In short, a mixture of political stimulus, infrastructure investment and facilitation of regional coordination in the fields of energy, digital networks and transport should build on synergy coming from smart planning and data exchange, and develop into (smart) mobility, enablers, and energy. In the vision of 3SI, that would further enhance green growth, economic competitiveness, innovation, and energy security³⁵.

In more practical and evaluative terms, the current regional state of play can be expressed by two important factors – infrastructure investments and

connectivity. In the 3SI framework, the former is developed in the so-called Priority Projects, whilst the latter (connectivity) can be seen as a political objective. Smart connectivity was first introduced during the Three Seas Virtual Summit in Estonia in 2020, and translates into the idea that the 3SI should strive for expanding digital components across key infrastructures. Moreover, the investments in energy and transport should be made future-proof and improve the overall competitiveness of the Three Seas region³⁶.

Digital connectivity in the region itself is growing steadily, but not dynamically enough to see great results yet. Around 87% of households have access to Internet³⁷ and 83% of citizens use it daily³⁸. The average download speed has increased in all countries, with Romania, Hungary and Slovenia noting the biggest jumps.³⁹ This development is partially due to switch to remote working during the pandemic, which forced employees and companies to invest in faster and more efficient connections. However, it is worth noting that download speeds correlate with the degree of urbanisation. And surprisingly enough, only four of the Three Seas countries – Estonia, Lithuania, Romania and Slovenia – exceed the minimum of 30 Mbps for municipalities set by the European Commission as part of the Digital Agenda for Europe. Most municipalities in Austria and Bulgaria sit on the 30 Mbps threshold, while Croatia, the Czech Republic, Hungary, Latvia, Poland and Slovakia lag behind.⁴⁰ This is due to the fact that private sector providers strongly prefer to operate in cities and agglomerations, leaving rural areas to local and public sector operators.⁴¹ We can therefore speak of a stable, although macro-regionally differentiated increase in average download speeds.

Implementation of 5G technology is also vital for the region. Here, too, we can count on support from the European Union and its instruments, such as the European Electronic Communications Code, which came into force in every Member State at the end of last year. 5G is considered to be one of the key elements in the post-pandemic recovery, providing for a stable and fast communications that will enable, for example, remote health care and business continuity. In this context, the EU is committed not only to technology development and deployment, but also to exploiting its full potential as part of the recovery plans. The Three Seas region can also benefit from this.

According to data collected by the 5G Observatory, by March 2021 most countries in the region could enjoy access to commercial 5G – apart from Lithuania.⁴² **The initial shock of the pandemic outbreak hindered progress on 5G deployment, but such state did not last long: by March 2021, all countries had managed to hold public consultations, which are a key stage of the development and implementation process.** In addition, seven countries in the region have already scheduled auctions for the coming months.

Priority Projects – modest start, gaining speed

Since its establishment in 2015, the 3SI has registered 90 Priority Projects, but only 17 of them marked ‘substantial progress’ or have been completed (in fact, only two⁴³). Both were proposed and run by Croatia, which built a compressor station 1 at the Croatian gas transmission system (energy), and created a Zagreb Deep Sea Container Terminal (transport).

The remaining 15 projects reported activity, and as many as 58 are declared as registered and awaiting/seeking resources. It must be noted that the internal dynamics of 3SI has visibly increased – during the summit in Tallinn, 2020, only 12% of projects have secured financing, whereas before Sophia summit in 2021, this number rose to 53%. Additionally, the number of registered projects has more than doubled from the time of 3SI summit in Bucharest, 2018 and their total value rose from 85,5 bln euro in 2020 to 180,9 bln in 2021⁴⁴. This shows that limited number of completed projects plausibly result from 3SI being a relatively young initiative, and its shared investment potential is on the rise.

TABELE 1: PROJECTS DEVELOPED CURRENTLY AND THEIR POTENTIAL IMPACT

1. Transportation stock exchange in the 3SI region⁴⁵

This project introduced by Romania aims to optimize transport in the region by establishing an intelligent digital platform connecting transportation nodes in all 3SI countries. Due to the volume and speed of processing of data generated by the sector, said platform will allow for monitoring traffic, sending documents, and tracking payments, thus enabling efficient transaction of transport and logistics in the region, while cutting the overall costs of transportation and production.

2. Interoperability solutions for a digitized and sustainable energy sector in the 3SI area in the field of energy storage⁴⁶

This Romanian project promises to develop a smart digital platform to monitor energy storage (both electricity and natural gas) across the region. Its goal is to digitize the energy sector and make it more sustainable.

3. NP-BBI Programme⁴⁷

National programme of Croatia to build Broadband Backhaul Infrastructure across the country in areas with insufficient commercial interest for investments, supporting ultra-high speed internet access through passive multi-fibre cables infrastructure. The objective is to provide country-wide infrastructure enabling digital services (like e-Government or e-School) to all citizens, while raising local market competitiveness.

4. The 3 Seas Digital Highway⁴⁸

A Polish project conceptualised by the Kosciuszko Institute which aims to develop a secure and resilient digital infrastructure on the north-south axis, interlinking member states and bridging gaps in the communication infrastructure. It is composed of two elements: optical fibre and 5G infrastructure. The main objectives are to enable access to new mobile tech to citizens of the region, support market competitiveness through secure and efficient industrial data transfers, improve crisis management capabilities and reporting systems, and finally allow for a spill-over of knowledge and skills to areas where technology gap is hindering our region's development.

PART II – TRANSITIONARY PERIOD

As of now, the 3SI has a few interconnectivity projects under development – amongst them are those relying heavily on the digital infrastructure (see Table 1). These projects are – according to the 3Seas Priority Projects database, either at the stage of substantial progress or actively reported. Their main objectives are to develop digital solutions that would not only interconnect countries, but also support technological and economic growth of the region, especially in the two other pillars of the 3SI: energy and transport. If introduced and managed properly, those projects could attract investment and raise overall market competitiveness of the Three Seas region. **Secure, resilient, interoperable and universal infrastructure and systems are the main prerequisites to build economy of the future, which will be data-based and digital. The region has a lot of potential in this area, as a home to some of the most innovative and respected ICT companies and start-ups in the world.**

The missing link

Despite being registered in 2018, the four projects mentioned above still lack concrete actions and are at the planning stage. Furthermore, only the NP-BBI Programme in Croatia has secured its budget, while the rest of the projects' reports offer only estimates and lack any financing sources – even though, according to the 2021 report, more than half of all priority projects have secured their funding. We believe that the use of financing opportunities within the European Union like the Connecting Europe Facility (CEF), European Regional and Development Fund (ERDF) and Cohesion Fund (CF) should be a priority for the Initiative as a whole.

Finally, the Three Seas Initiative Investment Fund (3SIIF) itself, whose mission is to support key infrastructure projects in the region should gain even more traction in the upcoming months to deliver real results. The Fund established in 2019 continues to grow, both resource- and membership-wise. The latest additions to the 3SIIF are Lithuania and Croatia which joined Poland, Romania, Estonia, Latvia, Hungary, Slovenia and Bulgaria in February 2021. It is estimated that in order to bridge the gap to the Western part of the European Union, the Three Seas region needs to invest approximately €600 billion in its three key sectors, according to Beata Daszyńska-Muzyczka, chairperson of the supervisory board of the 3SIIF, as expressed during CYBERSEC CEE Regions&Cities in 2021. Such investments can also help the region recover from the economic crisis related to the pandemic, and

focusing on connectivity projects themselves can additionally provide for greater resilience and continuity for businesses and states, as well as make the region more digitally inclusive towards all citizens. Furthermore, Bulgaria announced plans to develop another financial vehicle, one that would focus solely on supporting young people and their ideas for innovating the region.

PART III – FUTURE OF 3SI CONNECTIVITY

The 3SI is booming with new projects, many of which are in the phase of planning (see Table 2). There are quite a few of them that focus on building digital solutions to further enhance the level of connectivity on the region. Some of the key ones are:

Trends of 3SI development

Although each country has their own approach and strategy towards digital solutions, we can identify a few trends common for the entire region. The most obvious one is the **continuous growth of investments in digital solutions (both in public and private sectors). Initial shock linked to the pandemic did not last long – according to Atomico's the State of European Tech report, value of European tech companies both on public and private markets is growing significantly, thanks to not only COVID-19 related solutions (such as contact tracing and remote working) but also projects focusing on enhancing connectivity and strengthening supply chains.**⁵³

5G development will surely play a key role in enhancing the connectivity in the region. Connected and automated mobility, which involves creating intelligent, efficient and above all safe routes and vehicles is one of the directions in which the region might turn. Out of 12 cross-border 5G corridors in Europe, five are located or pass through major cities of the Three Seas, including Via Baltica (Tallinn - Riga – Kaunas), where 5G connectivity will be tested both on land and water, with the planned budget of €11.7 million. Although the five corridors are still in the testing phase, the map of 5G routes in the region may soon develop even further. An opportunity for this is the Connecting Europe Facility, which includes plans to build corridors connecting all European Union countries.⁵⁴

TABLE 2: PLANNED 3SI PROJECTS

1. 5G Cross border transport corridors for connected and automated mobility (CAM) in Baltics (Via-Baltica/Rail-Baltica)⁴⁹
2. This Lithuanian project including other Baltic states aims to ensure 5G connectivity along country's key transport corridors by installing missing mobile infrastructure (ducts, fibre optics, towers, electricity etc.). This system will enable deployment of CAM, which will surely provide for a more sustainable and safe transportation.
3. Development of Cross-Border Network of Data Centres⁵⁰
4. The goal of this project (introduced by Latvia) is to build secure and efficient cross-border connectivity through a data centre platform and acquisition of regional data centres. All countries of the 3SI are included.
5. Development of Cross-Border Optical Fibre Network⁵¹
6. A twin project of the abovementioned network of data centres, focusing on building resilient fibre connections across all 3SI nations, with the aim of enabling better and more secure data transfers.
7. Development of High-Performance Computing (HPC) infrastructure, establishment and operation of HPC ecosystem in the CEE-n region⁵²

This project proposed by Hungary aims to strengthen regional economy's competitiveness by introducing a HPC ecosystem connecting Hungary, Austria, Czechia, Poland, Slovakia and Slovenia.

All of the projects above were registered in 2020. When it comes to funding, the Via-Baltica/Rail-Baltica has already proposed the budget for Lithuania (€27 million) and financing sources (CEF and 3SIIF); the HPC project has an estimated budget of €50 million and covers costs in Hungary only.

Overall, the European Commission has been setting some ambitious targets for member states. Under the Connectivity for a European Gigabit Society agenda, by 2025:

- all schools, transport hubs, public service locations and online businesses should have gigabit network access;
- all European households should have access to broadband speeds of at least 100 Mbit/s, with the possibility of upgrading to 1Gbit/s;
- urban areas and major transport routes should have uninterrupted access to 5G.⁵⁵

The Three Seas countries should also incorporate those goals in their national strategies, as well as international projects under the 3SI.

Recommendations for decision-makers

It can be stated that both Europe and the Three Seas are still only walking towards a gigabit society, while some other parts of the world seem to be running towards it. This situation may change in the coming months due to national strategies and programmes supporting the development of connectivity, such as "Connected Bulgaria", the "National Plan for the Development of Very High Capacity Networks"

from the Czech Republic, the Hungarian digitisation strategy, or the updated National Broadband Plan of Poland adopted in November 2020. Additional support will be provided by the EU, which under the "Connecting Europe Facility" assumes investments in digital connectivity equivalent to €2.06 billion.⁵⁶

Both the EU and the 3SI countries are looking for new solutions and developing their capabilities in this area. In addition to strategies beyond 5G (implicitly focusing on the next generation networks), the region is opening up and increasing technology interoperability through Open RAN. An example is Polish company IS-Wireless, which in July signed an agreement with Hubraum (Deutsche Telekom AG's incubator) to build a 5G network in Krakow, one of the key cities/agglomerations in Poland. The company has no intention of stopping there - in the next three years it plans to take over 5% of the global Open RAN market by entering into cooperation with European, Asian and American entities. This is a great example of the extraordinary potential that lies in the region.

We recommend that decision-makers on all levels – national, regional, and European, follow those principles while working on increasing connectivity in the region:

- **Digital infrastructure and cybersecurity should go hand in hand in all projects relying on digital solutions. Given their importance to the functioning of the 3S economy, every 3SI project should be developed with cybersecurity-by-design as a standard.**
- Development of digital connectivity projects should consider security risks and concerns and rely on trusted partners and vendors, as well as the open interoperability standards.
- Projects in the region should also focus on promoting innovation among young professionals, bridging skills gaps in various sectors, and building trust in digital solutions. The new financial vehicle suggested by Bulgaria focusing on investing in young innovative citizens of the region can greatly help in that.

- **Development and adoption of common standards of processing, transferring, sharing and pooling of non-personal data is crucial for creating an enabling digital environment that will allow the 3S economy to benefit from the deepening digital revolution. Region's competitiveness and position in global markets will depend on its ability to harness data and create innovations based on it.**
- The 3S countries should look to leverage EU funds (including the Connecting Europe Facility, European Regional and Development Fund and Cohesion Fund), as well as investments from like-minded partners outside of the EU to secure funding for the development of the projects.

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CEE fit for the digital age

Creating enabling environment in four priority areas

By Soňa Muzikářová, chief economist at GLOBSEC Policy Institute

The Slovenian EU Presidency comes at an important juncture for policymaking, as the pandemic presents a unique historical opportunity for the region of Central and Eastern Europe (CEE) to transform its growth paradigm for greater prosperity, sustainability, productivity, quality of life, better jobs, and morphing the region into a home of talent and innovation.

Joining forces may help driving regional economic development and upgrade region's standing in Europe and the global stage. To these ends, the following four structural areas must be underpinned by enabling policy to make the CEE-region fit for the digital age:

I. Education and Skills

The onset of COVID-19 has intensified the use of modern-age technology tools with a knock-on effect on jobs and skills. According to the OECD, almost one-third of all jobs worldwide will likely be transformed by technology in the next decade, and the World Economic Forum estimates 133 million new jobs in major markets will be created to meet the demands of the ongoing fourth industrial revolution by the end of next year.

This renews the impetus to upgrade to skills of the 21st century across the CEE-region and all age groups. Better equipped and more literate current and future generations are a prerequisite for progress on a host of important policy issues, including moving to a more innovation-driven and knowledge-led economies, fighting disinformation, strengthening our democracies, and accessing better quality jobs. Better skills and jobs lie at the root of better lives, generate prosperity, and promote social inclusion.

May governments define their policy goals as reclaiming competitiveness at micro- and/or macro-levels, levelling up with global leaders on innovation, boosting economy-wide productivity, improving quality of public service through smart tech solutions, building more resilient societies and economies by digitizing households and firms, forging external resilience through more diversified and complex export portfolio, shortage of relevant skills, talent and brains is likely to be the number one bottleneck. GLOBSEC strategic transformation index, as well as number of other quantitative metrics, jointly identify shallow talent pools, lack of skills and the quest for next-gen education systems as CEE's key lacking macroeconomic fundamental (Table 1).

TABLE 1: THE GLOBSEC CEE STRATEGIC TRANSFORMATION INDEX 2021: SELECTED DIMENSIONS

	EDUCATION	GREEN ECONOMY	DIGITALIZATION	INNOVATION
Slovakia	29,5	50,9	57,5	28,0
Czechia	46,8	42,1	69,8	40,3
Poland	57,4	35,0	53,0	35,0
Hungary	30,2	50,5	55,6	39,2
Austria	50,8	65,2	65,4	65,9
Slovenia	59,0	56,6	58,8	53,0
Croatia	34,8	58,3	48,6	29,7
Bulgaria	22,4	38,2	29,2	23,4
Romania	11,2	47,4	35,4	12,0
Germany	44,3	61,0	71,2	67,8
Belgium	57,7	59,5	76,6	66,0
Denmark	70,2	66,9	89,3	76,1
Estonia	66,3	48,3	67,8	56,3
Finland	71,3	60,5	77,1	73,5
France	47,9	67,5	69,8	58,6
Ireland	65,7	56,9	81,2	45,3
Netherlands	62,4	62,4	78,0	65,0
Sweden	68,8	78,8	86,6	73,0
United Kingdom	47,8	69,4	80,6	72,6

Source: GLOBSEC. Note: The heatmap uses conditional formatting, which rests on automatic thresholds (maxima and minima) by each column ("Education", "Green economy", etc.), applied separately for the CEE9-sample (top block), and for the control group of advanced economies (bottom block). Best performance is designated by bright green and worst performance by bright red. For more refer to GLOBSEC Tatra Summit Insight Report 2021, available at <https://www.globsec.org/publications/globsec-tatra-summit-insight-report-2021/>

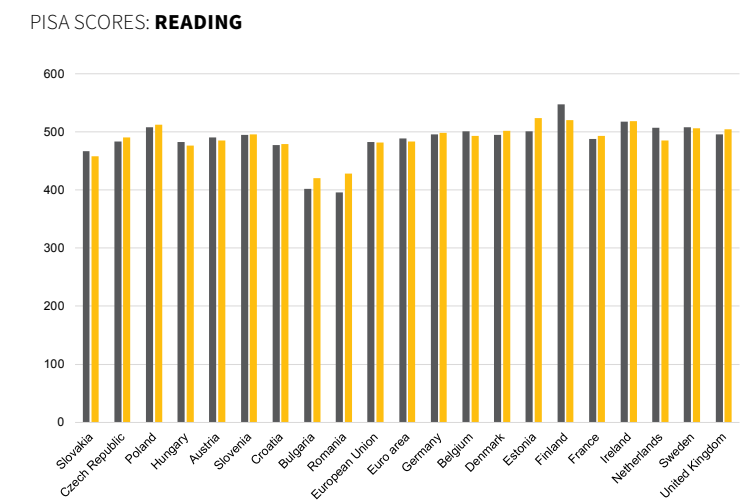
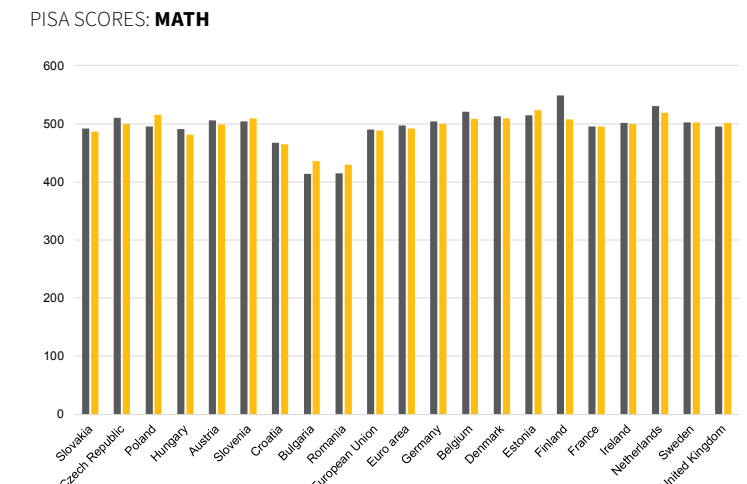
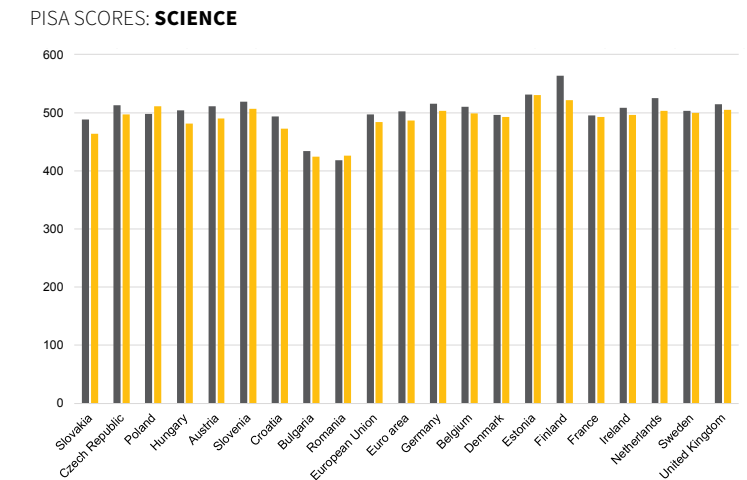
Shortage of relevant skills, talent and brains is likely to be the number one bottleneck, no matter the policy aim. In the post-covid era, governments may want to stay open to collaborate with the private sector, and other economic actors on skill enhancement.

In attempts to raise the bar, a classic top-down curricula reform to improve education outcomes, has been the golden standard and remains the system's best bet. Evidenced based research of international organizations and subject-matter experts, such as the OECD and the European Commission, consistently recommend increasing uptake of science, technology, engineering and mathematics studies in school, intensifying provision of digital skills in schools, paying attention to the reduction of social inequalities in accessing the education system. Such recommendations and best practices constitute a valuable framework for a top-down education reform.

Nonetheless, the systemic reform takes a long time to translate into tangible improvements in talent and skills, and historically has failed to produce desired improvements in attainment. Diagnostic tools suited for monitoring progress in educational attainment point to lacklustre state of play in some cases (Figure 2). Against such background, **governments may want to stay open to collaborate with the private sector, and other economic actors on skill enhancement.** Grassroots bottom-up initiatives run by firms, NGOs and other key economic actors can act as a complementary source of skills to the formal system and generate pilot approaches and schemes that can be picked up, adapted and scaled-up by governments, ultimately improving formal education systems.

Joining forces cross-border to forge broad and deep talent pools present additional policy opportunity for regional cooperation. Creation of a single top-ranked higher education institutions with campuses all across regions, industry appendices, and research facilities could lay down foundations for a vibrant regional innovation ecosystem.

FIGURE 2: SELECTED CROSS-COUNTRY PISA SCORES IN SCIENCE, MATH AND READING IN THE PAST DECADE ARE INCONCLUSIVE AT BEST



Source: OECD. Legend: 2006 (dark grey), 2018 (yellow)

II. Innovation

The challenge presented by the pandemic is exacerbated by the climate crisis and technological revolution. This is high-noon for a material change in the way the CEE-growth is powered, which should be underlined by a mindset shift at the levels of policymaking and business. CEE-economies must gear up for the global economy of tomorrow to become more resilient and competitive.

Innovation is key in resurrecting the region's competitiveness, which has been, on average, faltering for CEE in the period between the Great Financial Crisis until the pandemic had hit (Figure 3). Many CEE-economies are stuck in the trap of growth stagnation and escaping it requires deep structural reforms toward sustainable, intelligent, high-tech growth paradigm. Even before the pandemic, the region was struggling to remain competitive with the U.S. and major Asian economies in adopting and developing frontier technologies, while the CEE-region has by-an-large reached the frontier of its development policy, failing to transition to a high-income bracket due to rising costs and declining competitiveness. While Europe retains some advantages in fields such as mobility and green technology, in many areas including artificial intelligence, e-commerce, internet of things, and computing, the region is barely in the race.

Yet, the CEE-region represents a unique combination of traditional industries, corporations, and forward startups, and possess economic, societal, and demographic circumstances highly compatible with next-generation technology and Industry 4.0 to fast-forward towards sustainable, smart, and green growth. These shared endowments, core competencies and flagship industries present a policy opportunity for regional cross-border cooperation and common approaches to tech-driven transformation of the region.

The region presents a unique combination of traditional industries, corporations, and forward startups. It possesses economic, societal, and demographic circumstances highly compatible with next-generation technology and Industry 4.0 – representing a policy opportunity for regional cross-border cooperation and common approaches to tech-driven transformation.

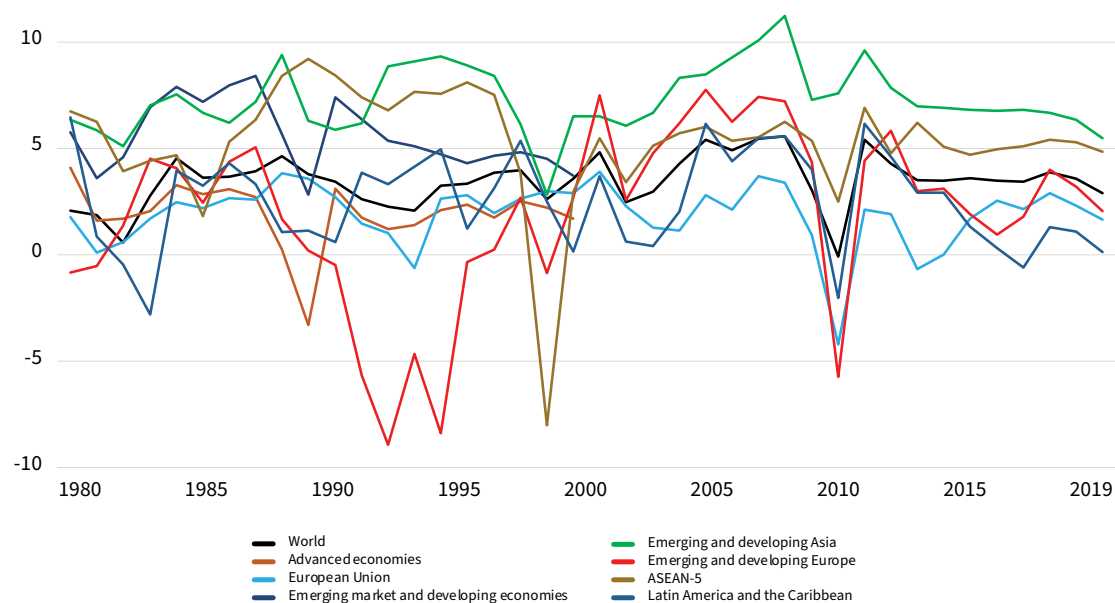
The Recovery and Resilience Facility (RRF) under the EU Next Generation pandemic response package is one significant tool focused on the double challenge emanating from environmental degradation on the one hand, and on the need to keep up the pace with technological advances on the other – to invest in change and push forward a previously unpalatable structural reform. Over 50% of budget outlays are earmarked for modernization programs such as

R&D investments, decarbonization programs, and innovation initiatives. Spending rules for the €672.5 billion Recovery and Resilience Facility (RRF), the centrepiece of the Next Generation EU, mandate that 37% of funds be directed towards climate investments and reforms, and that at least 20% of funds are directed towards digitalization. There are other, additional important standing facilities in the EU toolkit. However, public funds alone are not sufficient to close the investment gaps in the region: mobilization of private capital is additionally required.

To address the region's technological and entrepreneurial weakness compared to its EU and major market peers, anaemic investment in research and development, weak capital markets, and fragmented regulatory framework and economic environment, targeted and efficient allocation of recovery funds, private capital mobilization, paired with national and unionwide policy reforms, and cross-border policy collaboration will therefore be crucial in resetting the regional innovation trajectory and improving the block's global competitiveness. Against this backdrop, cross-border collaboration would be useful in the following strategic areas:

- **Support for a joint R&D through enhanced cooperation among leading R&D centers in the Danube region (focusing in particular on infratech innovations, i.e. disruptive technologies with a strong potential for cross border infrastructural scale up)**
- **Improving the regulatory framework for innovative companies**
- **Financial support for innovation through strengthening and integrating regional capital markets**
- **Creating a joint capital markets instruments (i.e. venture capital fund in cooperation with EIF, EIB and other financial institutions)**
- **Strengthening cross border value chains in the region in such sectors as automotive, biotech, IT (with a special focus on building a Danube 5G corridor) and agriculture**

FIGURE 3: CEE REGION BELONGED TO REGIONS WITH FASTEST GROWTH GLOBALLY BEFORE 2009 (GROSS DOMESTIC PRODUCT AT CONSTANT PRICES, ANNUAL PERCENT CHANGE)



Source: International Monetary Fund, World Economic Outlook Database, April 2020.

III. Sustainability, ESG

Contrary to conventional wisdom, sustainability and dynamic next-generation economic growth paradigm go hand-in-hand, not necessarily at the expense of one another. **Energy transition is the number one global megatrend**, the key challenge in fighting the climate change, and also a significant business opportunity, and the net-zero is becoming the new normal when it comes to corporate pledges.

Thus, the CEE-region needs to jump on the bandwagon towards progress on the sustainability-agenda. The progress will need to be measurable, and multilateral cooperation at various platforms (CEE-wide, G7, G20, OECD etc.) will be key in defining global standards of carbon accounting.

Governments' responsibility will be to incentivize reduction of carbon intensity all-across-the-board, one item at a time. Governments will need to, furthermore, find actionable ways to support their private sector actors – especially small and medium-sized enterprises (SMEs), which make up a

major part of their economies – in ESG compliance along the regional, EU, and global value chains.

The CEE-region needs to jump on the sustainability bandwagon: the progress needs to be measurable, and multilateral cooperation will be key in defining global standards of carbon accounting.

The future of CEE-mobility is green, both, on the production-side and on the infrastructure-side. On the production-side, governments may benefit from joining forces and co-shaping the transformation of industry narrative. They largely share a core competency in automotive and auto-parts manufacturing, as well as in other industry in some cases, which presents a policy opportunity for cross-border collaboration to enhance both scale and scope of next-gen technology takeup and greener and more sustainable industry with better quality jobs.

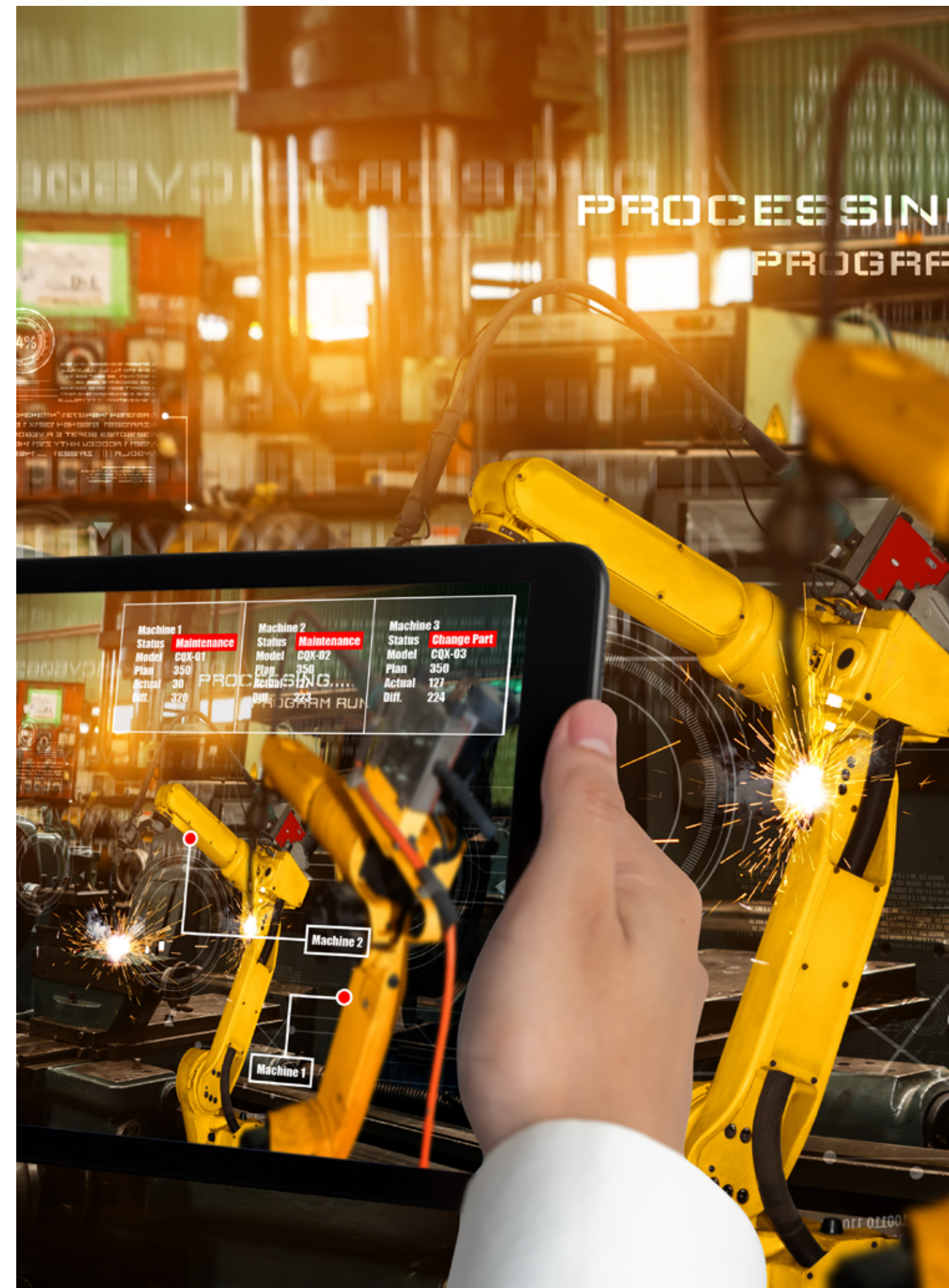
IV. Infrastructure and the Future of Mobility

We are at the verge of a historical turning point with respect to the future of mobility, driven by megatrends of electrification, automation, and connectivity. Due to these trends, even before the pandemic, automakers have been integrating smart, connected technologies at a rapid pace in their current models — in both electric vehicles (EVs) and traditional internal combustion engine (ICE) vehicles. Moreover, the future of mobility remains tied to connected, autonomous, shared and electric (CASE) technologies.

The region lags behind on both e-mobility and corresponding charging infrastructures. On the infrastructure-side, the main challenge ahead in terms of future of mobility will be battery infrastructure — both physical and digital — to support and enable the uptake of electric vehicles (EV). The EU uptake of electric vehicles is increasing, with 550,000 new registrations in 2019 compared to 300,000 in 2018. According to the European Environmental Agency, this is in line with the EU's emissions reduction objective in the transport sector. In contrast, CEE-region's EV uptake lags behind significantly.

E-mobility and the charging infrastructure backbone must continue to be prioritized in CEE to close the gap against the rest of Europe. Sticky consumer behaviour and low turnover rates need to be addressed through new regulation and alternative fuel technology to have a fighting chance at reducing transport emissions this decade.

Efforts have been made by CEE-governments to increase EV sales. Taking after the 2017 EU Clean Mobility Package and Alternative Fuel Infrastructure directive, many CEE countries have been rolling out national e-mobility strategies that incentivize the purchase of EVs and provide the core charging network. While most tick the boxes with some mixture of point-of-sale rebates, scrapping programmes, free parking etc., models remain limited, and sales culture biased towards more familiar internal combustion vehicles (ICE). Although an estimated 90% of EV charging occurs at home, the presence of urban charging stations offer assurance and EVs will not be purchased as primary vehicles if infrastructure cannot be relied on. These challenges are aggravated by prevailing CEE consumer sentiment and GDP per capita. Even as EVs get cheaper, high emitting second-hand vehicles get older and continue to pile up across CEE, further fuelling two-speed Europe in terms of green mobility and beyond, as more Western Europeans are selling their diesel and petrol vehicles, steadily purged by stricter local emission standards and environmentally conscious consumers, to countries where car regulations are lax.



The trends and politics of digitalization in Hungary

An honest self-assessment

By Márton Ugródsy, Director of the Institute for Foreign Affairs and Trade⁵⁷

Digitalization trends

The digital sector in Central and Eastern Europe (CEE) is believed to be one of the engines of future economic growth in the region. According to McKinsey's *The Rise of Digital Challengers* report, as well as the *Digitalization in Central and Eastern Europe: Building regional cooperation* report by The Atlantic Council Task Force on Digitalization in Central and Eastern Europe and the Three Seas Initiative which was later translated into recommendations for the Three Seas Summit in Sofia earlier this year, digitalization may add up to EUR 200 billion to the GDPs of the CEE countries. The same Digital Challengers report in 2020 stated that growth has been greater than expected, but some challenges remain before the full potential of the region could be unleashed. These practical challenges, as well as a bit too optimistic approach to the region that emerged recently in the press and some thinkers may raise some red flags before the region's potential can be fully utilized. The aim of this chapter is to highlight some of these red flags, in order to give a more comprehensive overview of the regional challenges and opportunities through the case of Hungary.

It has been stated many times, that the level of STEM skills in CEE tends to be higher than in Western Europe and paired with the lower wage standards across the Eastern part of Europe, this might result in a competitive edge for investors when they are trying to locate or relocate their existing operations to the region. Looking at the Hungarian numbers though, the overall picture seems more complicated.

According to a 2019 report by the Association of the Digital Economy (ADE) of Hungary, the ICT sector accounted for about 20 percent of the total

Hungarian Gross Value Added (GVA) two years ago. This meant about 25 percent of the Hungarian GDP, accounting for 17 percent of the total number of jobs in the country. ICT provided nine percent of the export of services in 2019, and this means high value-added jobs, which are a clear priority for the Hungarian government as the country is transitioning from assembly and manufacturing-based jobs to R&D intensive, high value-added activities and enters the age of Industry4.0.

Despite the beneficial contribution of the ICT sector to the national economy, the growth of the sector is seriously limited by the lack of skilled labor. Another ADE study finds, that **there were 22,000 vacant jobs in the sector (which has a total employment of 122,000 jobs), and adding the multiplier effect, another 72,000 jobs could be created in technology and R&D intensive sectors.**

Finding and training new talent is not easy though. The OECD's 2018 PISA study shows that CEE countries are lagging behind when one examines the mathematics and science scores of 15 years old students. With the notable exceptions of Poland and Estonia CEE countries tend to score in the lower half of OECD countries, but at least near the OECD average (see Table 1).

When it comes to STEM and IT skills, based on available data we cannot assume anymore that CEE has an edge over other European countries (having said that, it has an edge over non-European countries which might lead to favorable investment decisions for projects in the upper part of the global digital value chains). This lack of interest is visible on the statistics of Hungarian IT higher education as well.

Figure 1 shows the general trends of the Hungarian higher education sector in the field of IT. It has to be noted that in 2012-13, the Hungarian government made a serious policy adjustment in the state financing of STEM trainings: it was decided that STEM will have a clear priority over social sciences and humanities when it comes to state funding, and therefore the number of state funded places available. This has led to a gradual adjustment of the applicants' preferences, leading to a higher number of applications in the post-2013 period which is clearly visible on Chart 1 as well. However, the number of admissions did not necessary follow at the same pace, and the recent drop of the number of applications in 2020 are not encouraging either. Entry barriers are rather low, leading to a low quality of students at most universities, which result in higher dropout rates later.

According to industry sources the number of students entering higher education in IT is not enough to match industry needs. Furthermore, IT training in secondary education is focusing only on basic digital literacy skills instead of the problem-solving / coding attitude that the IT sector needs. Those teachers/lecturers who possess skills that are valuable on the market often leave education altogether because of low wages and discouraging career prospects. The government took action to remedy this situation, partly by launching programs to re-train people who have lost their

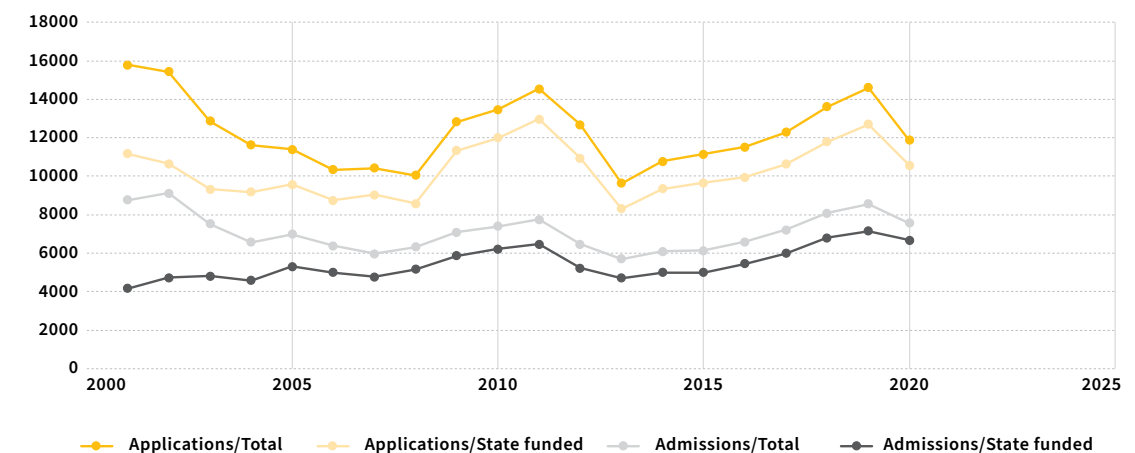
TABLE 1: THE PISA 2018 SCORES OF SELECTED COUNTRIES (RANKINGS BASED ON READING SKILLS NOT LISTED HERE)

	(on a scale of 600 points)	Mathematics	Science
	OECD average	489	489
1	Beijing-Shanghai-Jinagshu-Zhejiang	591	590
2	Singapore	569	551
5	Estonia	523	530
6	Canada	512	518
7	Finland	507	522
10	Poland	516	511
21	Slovenia	509	507
25	Czech Republic	499	497
29	Croatia	464	472
30	Latvia	496	487
33	Hungary	481	481
34	Lithuania	481	482
39	Ukraine	453	469
41	Slovak Republic	486	464

Source: OECD

original jobs due to the pandemic, and developing IT infrastructure in schools (which was essential anyway as instruction had to move online in a matter of days in early 2020 due to the nationwide lockdown measures).

FIGURE 1: APPLICATIONS AND ADMISSIONS IN THE FIELD OF IT IN THE ENTIRE HUNGARIAN HIGHER EDUCATION SECTOR BETWEEN 2001-2020.



Data: Education Authority of Hungary; Chart: author's compilation.

Hungary slid back two places in the 2021 DESI rankings, but the report also highlighted some issues which are already being acted upon. For instance, Hungary has improved its score in the ‘human capital’ dimension, where for example in the share of ICT graduates it still scores above the EU average (despite the difficulties outlined in the previous sections), while in the ‘connectivity’ dimension Hungary still scores way above EU average, which underlines the advanced state of digital infrastructure in the country – a factor which has led to a growing number of IT investments in the previous years as well.

The pandemic led to a rapid transformation in e-governance as well. With government offices shut down as part of the protective measures, citizens increasingly turned to online services to interact with the various branches of government. **For example, between 2019 and 2020, on a year-on-year basis the number of citizens using e-government services has increased almost six times, whereas the number of cases launched online tripled in the same period.** Individuals can, while businesses are obliged to interact with the relevant authorities electronically.

Three particularly interesting success stories are (1) the annual filing of the personal income tax statement (available since 2016), in which case the tax authority prepares the statement for the citizen who only has to sign off on it / make the necessary amendments online and pay any taxes due using their credit card via online payment; (2) the online healthcare records system, with which every citizen can have real time access to their entire medical history including medical reports while GPs have access to all the documents of all of their patients with a few clicks, which significantly reduces administrative workload and (3) the online cash-register system, which enables the tax authority to follow the turnover of all shops in the country real-time.

The politics of digitalization

The Hungarian government is interested in the closer regulation of large tech companies however its concerns are mainly related to issues pertaining to the freedom of speech and the ownership of data.

The Ministry of Justice, which among other responsibilities covers EU affairs as well has established the Digital Freedom Commission, aimed at providing expert advice and facilitate interagency cooperation in order to scope the possibilities to regulate tech providers.

The work of the commission revolved around the White Book it published in 2020, outlining the main issues with large online service providers. This publication identified nine clusters of questions as follows.

1. freedom of expression and protection of individual privacy: how (mostly) social media platforms impact the freedom of speech, whether there is any way to appeal against bans/deletions, how the online sphere interacts with the election process, etc.
2. data protection: including the right to forget, how service providers can be appealed within and outside their own frameworks, the impact of information monopolies on the freedom of speech and expression, problems related to data integration
3. media regulation: transparency (of algorithms and codes), role of social media platforms in consuming news and other online content, protection of customers’ rights (once again issues pertaining to the right of appeal), online product placements
4. taxation: this largely follows the EU Directives
5. classifying online service providers: whether they fall under the media or other regulations
6. online IPR issues: the role of news aggregators and social media providers on media consumption and how this impacts the media, especially through the reallocation of advertising revenue
7. enforcing the penal code in the online sphere: countering online hate speech, cyberbullying, the role of social media in committing crimes and other malign behavior, cybercrime detection
8. child protection measures: protection of minors’ rights in the online sphere (use of filtering, etc), data handling practices related to personal data shared by minors
9. national sovereignty in the online sphere

Apart from the White Book, three major areas are present where the **Hungarian interests** are not always aligning with the interests of the major players on the market. These **pertain to the problems of regulation, the issues of taxation and the questions revolving around national sovereignty**, which is the at the core of the two earlier clusters as well.

As we see it worldwide, tech is very hard to regulate. Compared to the capacities and in-depth knowledge of the industry, regulators are always lagging behind – sometimes with many years – when they want to address the shortcomings of existing market mechanisms and those externalities which come with the emergence of new technologies. The main problem is that by the time governments realize that a new problem has emerged, it is already too late and new monopolies rule the market. The mismatch between industry and governments seems unbridgeable at the moment: in order even to understand what is shaping the market, the public sector should be able to hire those engineers and IT experts whom the public sector will never be able to pay or retain due to the hierarchic nature of the public service. Without expert knowledge however one might be tempted to apply old-fashioned remedies (like the anti-trust regulations of the 1920s to the problems of the 2020s) to these new problems, most probably producing government failures instead of solving market failures.

The second set of problems relate to the issue of taxation. Global tech companies always had the advantage of selling intangible goods and services, therefore they could easily relocate their operations to any country where the legal and tax system was the most favorable. This challenge was recognized by the G20 and the OECD’s proposal to introduce a global minimum tax of 15 percent also on multinational digital enterprises, addressing the tax evasion / optimization issues which were raised many times before. The Hungarian government also supported this idea, and it further recognizes the need for global digital services providers to contribute to the national economies of their countries of operation, for instance by employing staff locally and paying duties after advertisement revenues in the countries where these revenues were raised. This ‘localization’ of operations would also give CEE countries a competitive edge in the development of their own IT sectors, as nationals working for multinational enterprises would become an integral part of the economies of the countries where they live.

Finally, as an ardent supporter of the principle of national sovereignty, the Hungarian government is interested in protecting personal data, as well as the data that is essential for the smooth operation of the country. In the online sphere this is of course a complicated issue, but there should be an opportunity for national (or if a decision emerges on pooled sovereignty, maybe an EU-wide) regulators to act effectively against the market failures and inefficiencies social media and digital service providers produce at times. When a market intervention is needed, the regulator, whether on the Member State or on the EU level should have the necessary power to quickly and effectively act against the existing inefficiencies and provide for a better functioning of the market itself. This remains an uphill battle, but both the DMA and the DSA might point towards the way of solving this issue in the long run.

Finally, there is the transatlantic dimension: most of the digital service providers that the EU wants to regulate are American companies, and both the DMA and the DSA are clearly sources of transatlantic tension. In order to address this and have a solution that satisfies both ends of the Atlantic, a major controversy has to be resolved. At this time, the US Congress is trying to find ways to act against its own digital service providers and calls to apply anti-trust regulation against Facebook for example (resulting in the partition of the company into baby-Facebooks) is on the table. Thus, Congress concedes that the currently unregulated competition in the digital market has led to peculiar market failures. On the other hand, the US Government calls on the EU and the Member States not to regulate the digital services market in order to promote competition and refrain from overregulation, which stimulates innovation (and as the American speakers often note, give a competitive edge to China, where such regulations and concerns do not exist). In order to make a more compelling case to influence EU regulation, it would be useful if our American partners could resolve the controversy of the need for more regulation in the US vs. the need for less regulation in the EU for the very same companies, before a substantial debate in the TTC could take place on a delicate and timely matter.

Endnotes

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Bridging the digital gaps – a Czech perspective

How the upcoming Czech EU Presidency is a vital agenda-setting opportunity in the post-pandemic digital acceleration

By Christian Kvorning Lassen, Deputy Director & Head of Research at EUROPEUM Institute for European Policy

When Ursula von der Leyen in 2019 outlined her Commission's agenda for Europe, of which a "Europe fit for the digital age" was one of the key points, none could foresee the imminent arrival of the global COVID-19 pandemic, nor how it would accelerate digitalization at an unprecedented rate. Since the advent of the pandemic, public and private sector has been forced to adapt to digital demands necessitated by the pandemic. The success of adaptation has varied across the EU.

This brief will examine the current challenges facing the Czech Republic in its path towards realizing its digital economy potential, explore challenges and policy solutions at regional level through which the Czech Republic and wider Central Eastern Europe (CEE) can successfully manage its digital transformation, and analyze how the upcoming 2022 Czech EU Presidency priorities offer opportunities to this effect.

Czech Republic – State of Play

Czech growth drivers have over the past 20 years been comprised of traditional industries, dynamic exports, a cheap workforce and money from the EU. These traditional Czech growth drivers are approaching their exhaustion. While the green transformation represents a viable avenue for the economy of tomorrow, it is highly politicized and contentious in the Czech Republic. Digitalization and the digital economy, however, has so far avoided this fate, and represents a growth market able to constitute 16% of the Czech GDP in 2025 alone in the best case scenario – and 11% in a 'business as usual'-scenario.⁵⁸ Similar trends pertain to the rest of the CEE. It is, however, vital that the digital transformation is managed; even in a scenario of average

digital technology adaptation scenario, a million jobs are estimated to be automated by 2030.⁵⁹

Digitalization is one of the key drivers for future economic and social prosperity within the EU. The Czech Republic has pre-pandemic managed to grow its digital economy more rapidly than the five largest Western European economies⁶⁰, albeit not as fast as the digital frontrunners primarily comprising the Scandinavian and Benelux countries.⁶¹ The pandemic further exacerbated these trends; **within the first five months of the pandemic, the digital economy grew by 14.2% within the CEE.** Despite this strong regional performance, the gap between the digital frontrunners and CEE was widening pre-pandemic (see Figure 1). The pandemic has not reversed this trend.

However, the Czech Republic only experienced a comparatively moderate growth of 8.8% during the same period, signifying a slow-down in comparison with other CEE countries.⁶³ **The inability of the Czech Republic to capitalize on the pandemic-induced digital momentum is rooted primarily in an uneven adaptation rate to digitalization amongst key national sectors.** As seen in figure 2, the Czech Republic, emblematic of the wider CEE region as well, performs below the EU average on the 2021 Digital Economy and Society Index (DESI), in large part hampered by a lackluster performance in the digital public services category, where it ranks 20 out of the EU27 along with other CEE countries.⁶⁴

Regional perspectives

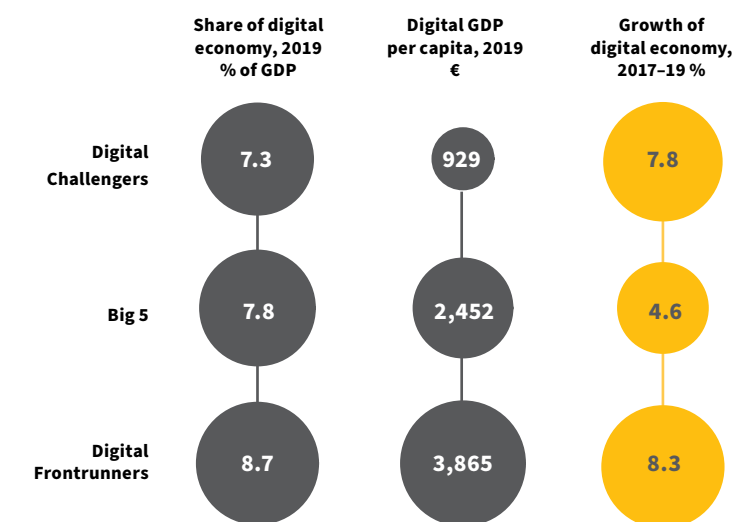
In order to realize its digital economic potential, the CEE region needs to address structural obstacles particularly, but not exclusively, within education, labor markets, and innovation.

Education

A strong education system remains the backbone of the digital economy. While CEE used to have the largest pool of STEM graduates in Europe, it was overtaken by the UK in 2018 while the digital frontrunners simultaneously overtook CEE in terms of share relative to population. During this period, the number of STEM graduates fell within CEE.⁶⁶ In terms of quality of education, the gap between CEE and digital frontrunners was already widening slightly in 2018, although CEE exceeded the aforementioned 'big five' in terms of maximum scores in PISA tests. However, CEE displayed higher volatility by having remarkably lower minimum scores in PISA tests, signifying a more shallow talent pool that can prove problematic in terms of digital transition to a higher skill-oriented economy.⁶⁷ Within CEE, there were sharp divergences in as well, with Poland and Slovenia performing better than the rest of CEE, albeit still falling short of the digital frontrunners.

Two policy approaches, not necessarily mutually exclusive, can be considered to address these gaps: **a top-down curricula reform emphasizing STEM subjects and digital literacy, or a bottom-up approach targeting key segments of the population in cooperation with civil society and private sector.** The former approach is exemplified in the **Estonian 'ProgeTiger' project from 2012**, in which computer programming has been introduced at all levels of education combined with an added emphasis on STEM subjects and online learning platforms. As Estonia currently ranks 5th in the global ranking, it can be considered **a best practice worth emulating.** For the latter approach, the **Croatian 'Croatian Makers' project holds valuable lessons** as the largest non-governmental education

FIGURE 1: DIGITAL ECONOMY INDICATORS FOR 3 GROUPS OF COUNTRIES⁶²

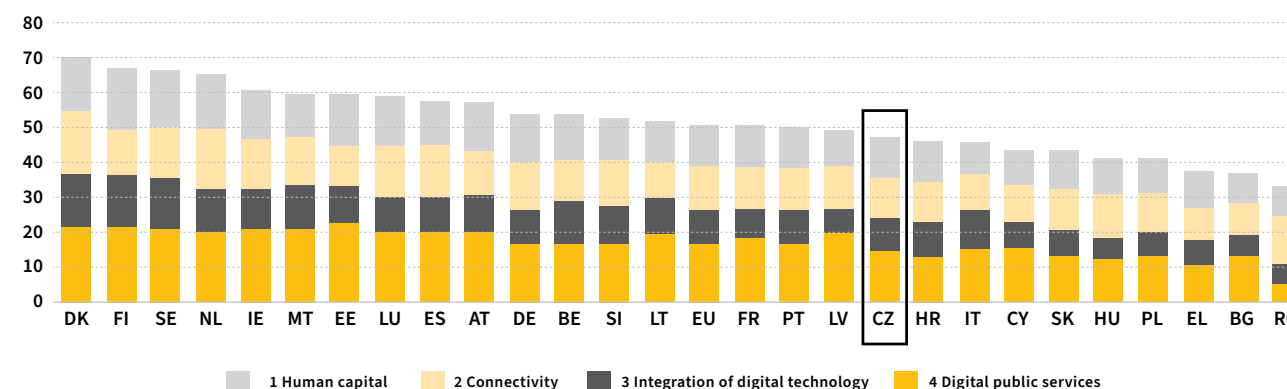


NOTE: **Digital Challengers:** Bulgaria, Croatia, the Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia; **Big 5:** France, Germany, Italy, Spain, and the United Kingdom; **Digital Frontrunners:** Belgium, Denmark, Estonia, Finland, Ireland, Luxembourg, the Netherlands, Norway, and Sweden. Source: McKinsey Digital, Digital Challengers in the next normal in Central and Eastern Europe, October 2020.

program in the EU, having supported the digital education of 150,000 children, leading to the highest level of digital skills within the EU amongst the age 16-24 segment.⁶⁸

The pandemic has furthermore widened education gaps as the educational sector in CEE was less accustomed to incorporating digital platforms in education compared to digital frontrunners. To illustrate, only 13% of Czech teachers had remote teaching experience prior to the pandemic, and 77% of educators in Slovakia had to use personal, sometimes improvisational, equipment to adjust to the pandemic-reality.⁶⁹

FIGURE 2:⁶⁵ DIGITAL ECONOMY AND SOCIETY INDEX (DESI) 2021 RANKING



Source: <https://digital-strategy.ec.europa.eu/en/policies/countries-digitisation-performance>

Development of stronger educational policies fit for the digital age necessitates the mobilization of civil society sector as evidenced by Croatia.

Educational reforms emphasizing digital skills and platform integration similar to Estonia's 2012 digital reform is long-overdue as the consequences of automation across the region will necessitate both upskilling, re-skilling and more basic digital literacy.

Study of best practices amongst digital frontrunners in Northern Europe and the Baltics, who themselves often regionally cooperate under, for instance, NB8.

Labor market and innovation.

One of the most defining features of CEE labor markets has been an affordable workforce with average hourly labor costs 3-4 times lower than that of Western countries.⁷⁰ However, the reliance on cheap labor and effective labor productivity has obfuscated a persistent significant gap in overarching productivity compared to Western countries (37 to 48%). The availability of cheap labor has managed to circumvent the need for higher efficiency. Yet as labor reserves dry up due to low unemployment coupled with lower capital stock within the CEE region correlating to fewer deployable assets and technologies relevant to automation and digitalization necessary in the digital economy, this economic model is steadily becoming unviable.⁷¹

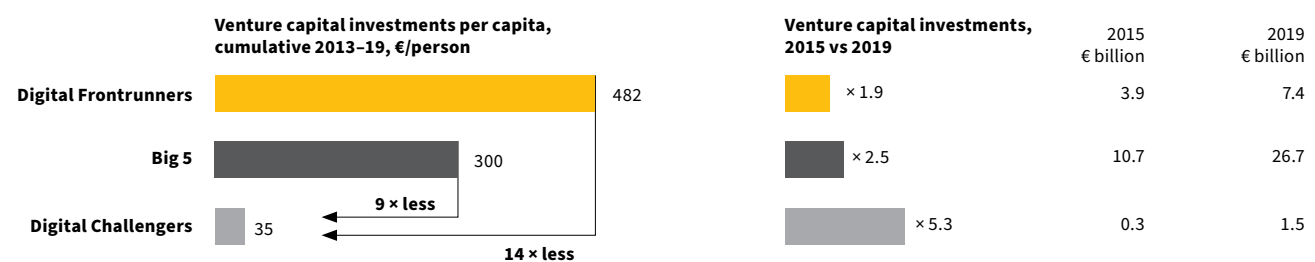
Innovation spurred by ambitious policies can mitigate these developments. Although CEE saw the first net increase in immigration in 2019, largely due to Poland, 30 years of net emigration preceded this.⁷² Over the past two decades, CEE population declined whereas the rest of Europe's population grew despite comparable fertility rates due to migration.⁷³ Although unemployment has been historically low in CEE, net job growth from 2014-2019 was less than half of that of digital frontrunners.⁷⁴

Emigration has led to prolonged 'brain drain' within CEE of highly qualified labor, attracted by higher efficiency correlating to higher salaries abroad, can be mitigated through strong investments into innovation. This is particularly crucial due to the vulnerability of CEE economies to automation, necessitating reskilling of large segments of the population even in the best case scenarios outlined before.

While at least 20% of the budget of the Next Generation EU's €672.5 billion Recovery and Resilience Facility is earmarked towards digitalization, CEE countries cannot rely on public funds alone in its digital transformation. CEE countries have a burgeoning technology private sector ecosystem comprising numerous 'unicorns' and rising stars. Despite of this, the region still lags behind the West in terms of attracting investments, as seen in figure 4.

- **Joint regional capital investment funds in cooperation with institutions at EU level can accelerate innovation through financial support for cross-border R&D ventures.**
- **Integration of regional capital markets and strengthening of cross-border value chains within relevant sectors can help labor market mobility and flexibility while improving efficiency, creating more attractive labor markets while cushioning the impacts of automation across the region.**
- **Digitalization of public services should be emphasized to streamline the business and R&D environment, enabling higher efficiency levels approximating the digital frontrunners.**

FIGURE 3: DIGITAL CHALLENGERS HAVE 9 TO 14 TIMES LESS VENTURE CAPITAL INVESTMENT PER CAPITA THAN THEIR PEERS; HOWEVER, LEVELS ARE GROWING FAST



Source: McKinsey Digital, Digital Challengers in the next normal in Central and Eastern Europe, October 2020.

2021 Czech EU Presidency priorities

Digitalization features heavily in the agenda and priorities for the upcoming 2022 Czech EU Presidency.

The key priorities of the Czech Presidency will be: progressing the Digital Services Act (DSA) and the Digital Market Act (DMA); continuing work on making e-commerce part of the EU commercial policy; and further develop the Digital Compass.

The Czech Republic aspires to advance, if not finish, the common digital market. Both the DMA and DSA will strongly influence the future quality of the European Digital Single Market, whose projected pre-pandemic growth by 2020 was expected to be 14.1%. The Czech Republic is a frontrunner in terms of e-commerce, and one of the only Member States possessing a viable domestic competitors to digital giants such as Amazon and Google. Juxtaposed with this priority, e-commerce integration with EU commercial policy remains a priority from a Czech perspective as both the country's and the region's fortunes are inextricably tied to the Digital Single Market.

Another indicator that the Czech Republic will emphasize the DSA and DMA during its presidency is the fact that these flagship files are viable to advance on a legislative level; both align with the other members of the trio, France and Sweden.

Another key priority under the Czech presidency is the Digital Compass, where work remains on all fronts. In terms of skills, gender convergence of ICT specialists is a priority as female ICT specialists in the Czech Republic only amounts to 10% of all specialists, compared to the EU average of 19% - a trend that is mirrored to various degrees across CEE. With regards to business, the Czech Presidency will likely emphasize SME's as CEE is significantly behind the West in terms of tech up-take in this regard. Lack of digitalization of public services and interoperability of databases remain persistent obstacles across CEE; the new Czech government will emphasize work on this on both EU and domestic level, where the new government's coalition agreement outlines digitalization of public services as a key priority to be achieved by 2025 at the latest.

The upcoming Czech EU Presidency represents an opportunity not just for the Czech Republic but the entire CEE to advance the EU agenda while simultaneously generate momentum for both domestic and regional digital transformation.

Endnotes

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Real-time economy of Europe – a Lithuanian perspective

How real-time economy can help CEE and Europe reach its full potential

By Mindaugas Ubartas, CEO DigiTech association INFOBALT

My generation witnessed great transformation of Europe and started to enjoy freedom and benefits of democracy 30 years ago. We joined the EU and NATO in 2004, adopting the EURO as a currency back in 2014 and have generally been riding the wave of economic prosperity growth. Of course, the growth roller coaster had ups and downs caused by local and worldwide turmoils, but overall, we are living better than ever before and this is because the “Iron curtain” has disappeared and we live in a world of open trade, we adopted new technologies and, in some cases leapfrogged over development stages.

But now we face a dilemma of how to avoid the “middle-income trap” and how to continue with success stories. There are many scenarios, but all of them include digitalization and usage of technologies, so the faster we start – the faster we will enjoy the fruits of it. I believe that we should set our course towards creating an environment where real-time economy (RTE) would become possible. RTE is a digital ecosystem where transactions between diverse economic actors take place in or near real time⁷⁵. This means replacing paper-based business transactions and administrative procedures by automatic exchange of digital, structured and machine-readable data in standardized formats. RTE could be the highway to accelerate CEE economic growth in the future.

RTE would benefit countries and societies in 2 main ways:

Minimizing the wasted time/unproductive activities. (“Unproductive activities” includes, for example, the preparation and submission of reports to the state (including duplicate reporting); waiting time for getting permits, planning documents, filling in waybills; double and manual data entry and correction of errors, sending invoices by e-mail, excessive paperwork involved in purchasing a service or product, providing information to the authorities which is already available in state databases, filling in requests in forms instead expressing consent or will, a paper receipt with faded text to prove the warranty, etc.)

Maximising State Cash Turnover ratio. (Government is collecting taxes from transactions companies and individuals are making, so it’s Government/State interest that economical transactions would take only time it needs to – not a second more. Faster issued building permits allow faster transactions and brings more income to budgets in a form of VAT, Income tax etc.)

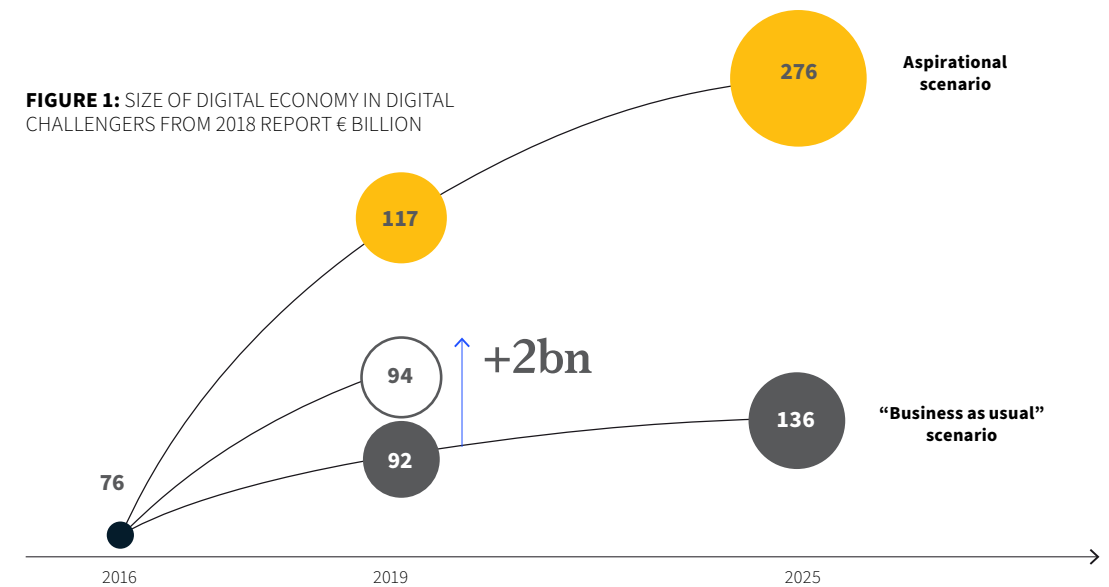


FIGURE 1: SIZE OF DIGITAL ECONOMY IN DIGITAL CHALLENGERS FROM 2018 REPORT € BILLION

Source: Eurostat; Euromonitor; McKinsey analysis

In 2019, the CEE digital economy surpassed the “business as usual” scenario by €2 billion—but its full potential was not realized

What does the fox (consultant) say?

McKinsey forecasts huge potential for digital economy in Central Eastern Europe (CEE) if countries are willing to capitalize on the opportunity at hand. COVID has accelerated the digital transformation and the region could greatly benefit from usage of technologies and digitalization moving towards RTE.

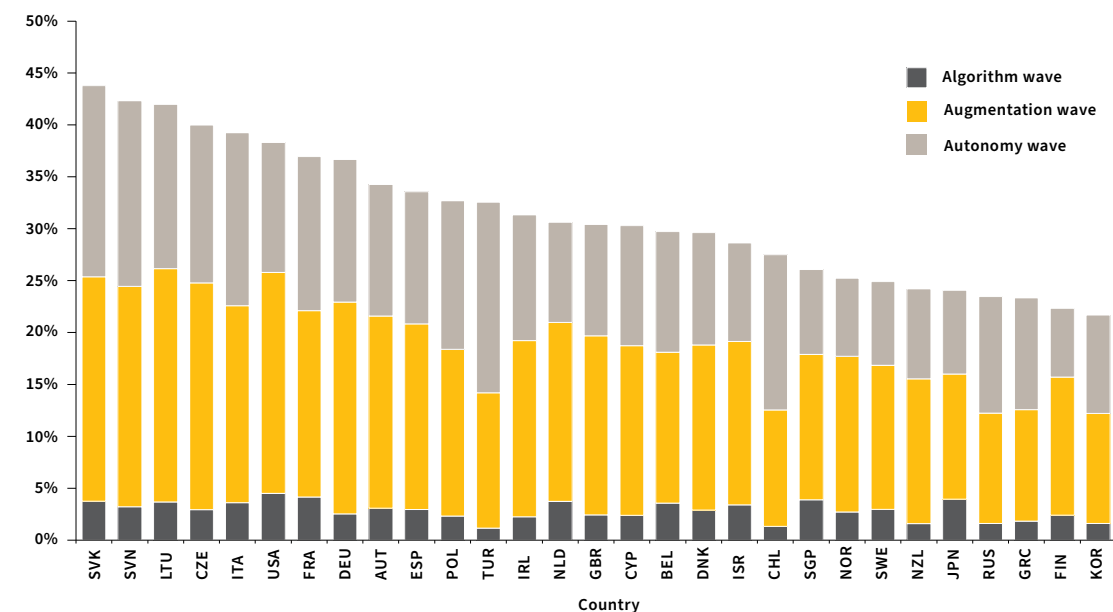
https://www.pwc.com/hu/hu/kiadvanyok/assets/pdf/impact_of_automation_on_jobs.pdf

On the other hand, Pricewaterhouse Coopers forecasts that there will be a wave of jobs automation and robotization which will affect all countries in the world. It is worth noting that 4 CEE countries sit atop of that list.

According to the analysis of leading consultancy companies there is a major opportunity in adopting DigiTech in CEE while the greatest threat to this region is not jumping on the digitalization wave.

I believe that in order to continue on the journey of our growing prosperity, the CEE has no choice but to fully embrace transformation of our economies towards RTE.

FIGURE 2: POTENTIAL JOBS AT HIGH RISK OF AUTOMATION



Source: PIAAC data, PwC analysis

Real-time economy fundamentals

There are strong fundamentals built in the digital domain in the EU which need to be exploited further to realize its full potential:

Principles	Concepts	Legal
<ul style="list-style-type: none"> • Digital by design • Only once • Openness & transparency • Interoperability by default • Trustworthiness and security 	<ul style="list-style-type: none"> • My Data • Government as a service • Seamless reporting • Free movement of data • Data Economy 	<ul style="list-style-type: none"> • GDPR • eIDAS • PSD2 • Free flow of data • AI Regulations • 2014/55/EU • etc.

EU legislation has laid fundamental building blocks for member states' digital economies by introducing Connecting Europe Facility (CEF) which is a key EU funding instrument supporting the development of high performing, sustainable and efficiently interconnected trans-European networks in the fields of transport, energy and digital services (telecom).

CEE EU member states could gain a competitive advantage by realizing their full digital potential and become a frontier in digital adoption of cross border services based on agreed building block principles laid down in CEF.

Political will in member countries is a key element for success on this journey.

CEE countries might not be able to become leaders across all emerging technologies. But multi-sectoral and cross-sectoral application of different technologies has the potential to transform industry and business models alike. **The complementarity of individual CEE countries' specializations, niche technologies, talent pools, and support services and their combination could become the winning recipe when competing together on global stage for transformative digital solutions.** Imagine what a combination of Estonian excellence in digital public services, Slovenian blockchain applications and AI advances, Lithuanian fintech expertise, and Romanian AI experience could achieve together.

Countries must adopt CEF building block technologies in their internal and cross border interactions which would ensure regional interoperability and enable digital single market.

In CEE governments should prioritize digital channel vs paper or "walk into public office" requests. If digital channels enabled faster solution of the case files (for instance in 10 instead of in 20 working days per case), citizens would increasingly employ such channels. Digital transformation of public sector as well as developing data management would thus replace today's document management.

Open data and modern way of providing services would allow effective reuse of data. Countries would keep the data monopoly, but services could be provided by different players and that would enable innovation and efficiency. One could make a tax declaration in e-banking, or open a legal entity while purchasing plane tickets. Countries could also have its own service centers, which would work as real one-stop shop instead now having many of them like customs, taxes, social security, post, registry etc.

"Only once" principle must be implemented. Data management needs to replace document management. If a public service already received/acquired some data, no one should be asked to provide it again.

"By losing your goal, You have lost your way."
— Friedrich Nietzsche

While huge potential of digital transformation has been identified, and legal background has been laid, the EU has nevertheless turned towards an ambiguous concept of a "digital island". Losing sight of the benefits that RTE brings and instead concentrating on localization of "enablers" for such transformation such as "local cloud services" or "localized technological solutions" or even demonization of third countries (including North America) software is simply not the way to go!

DSA, DMA acts are great if protectionism is excluded.

At a declarative level, the DMA aims to ensure fair conditions for online competition and improve the welfare of European consumers. These are goals we share and support as they represent an added value to the EU internal market and are beneficial to European businesses and entrepreneurs. While acting as gatekeepers in certain identified cases, platforms play a crucial enabling role for European entrepreneurship as they serve as a key gateway to the EU internal market. Although policymakers believe that the DMA is just about large technological companies, they fail to consider that proposed changes will inevitably bear a downstream cost for business users and consumers of those platforms. The implementation of the obligations by the gatekeepers should not affect the quality, functionality and integrity of the services that small businesses currently benefit from. It is therefore crucial to ensure that the DMA avoids unnecessary restrictions that would undermine the value of the digital economy for European businesses.

We must not lose our focus on our path towards the RTE. YES, as Europe we might be behind, we might struggle to realize the full potential, but we have all the building blocks ready! We might struggle with generation gaps and education gaps, but these should not deter us on the path towards becoming the frontrunners of RTE. It has to become a goal to onboard everybody to a new reality.

Sometimes it seems that for the EU "protectionism" or "local technology development" is a goal, but in CEE we know that adaptation of technology and transformation of society is key! From "planned economy" to "free market" from dictatorships to democracy, from "lagging" to "leading" – it's a will and it's an effort which makes the difference.

The EU should be doing everything that it can to support innovation, encourage entrepreneurship and driving economic growth. Instead, the European Parliament is proposing to upend the internet in Europe, stifle innovative new companies and introduce a raft of new regulations, restricting platforms in a way that will only make them less appealing to users and create entry barriers for others.

In the 21st century real-time economy is a competitive edge which will lead our region to prosperity - technology is an enabler, but the "WILL" is the driver!

Endnotes

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