

V4 CONFERENCE ON DIGITAL TRANSFORMATION

6 JUNE 2019



PERMANENT REPRESENTATION OF THE SLOVAK REPUBLIC TO THE EU
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MAIN OUTCOMES AND MESSAGES OF THE V4 CONFERENCE
ON DIGITAL TRANSFORMATION IN THE NEW ERA:
CURRENT STATUS AND FUTURE CHALLENGES

6 June 2019

Brussels

On June 6, 2019, the V4 Conference on Digital Transformation took place at the premises of the Permanent Representation of the Slovak Republic to the EU in Brussels. The conference was jointly organized by the **Slovak Liaison Office for Research and Development in Brussels** together with the **Permanent Representation of the Slovak Republic to the EU** and the **Czech Liaison Office for Research, Development and Innovation (CZELD)**, the **Polish Scientific Contact Agency (PolSCA)** and the **Permanent Representation of Hungary to the EU**. The conference was one of the final events under the Slovak Presidency of the Visegrad Group, the political and cultural alliance of the four Central European states.

The aim of the half-day event was to create a platform for a discussion of distinguished experts, policy makers, professionals and researchers from various areas, who have direct experience with the uptake and applications of digital technologies. The main topics of the event were policy strategies at the European and national levels of the Visegrad countries in the field of digital transformation and presentations of scientists and researchers from the Visegrad countries, contributing to the creation of new knowledge and practical applications of digital technologies.

The conference was attended by 120 guests from EU Member States and Associated Countries, European institutions, universities, expert platforms and associations, industry representatives and SMEs. The speakers talked about the digital transformation from two different points of view. First, the panellists discussed the pace of change and the imperative it creates for businesses. Next, the event provided the context for the transformation and what it takes to win in the digital age. The participants of the conference also walked through research and innovation in the Visegrad countries which help create competitiveness of the EU in new digital technologies and processes.

The aim of this brochure is to summarize the main outcomes and messages of the conference and provide an overview on steps and activities at the EU level and the national level of the Visegrad countries.

HOW THE DIGITAL REVOLUTION IS TRANSFORMING THE EU

As the world continues to be remodelled by the digital revolution, we see digital technologies embedded into all aspects of our lives. In general, we can see digitization as a positive force which offers more positives than problems and more opportunities than threats. However, progress is impossible without change which brings about new challenges and issues to be solved in order to reach the full potential of digital technologies.

Digital technologies can be seen as new instruments and tools for higher efficiency, greater transparency and better cooperation. On the other hand, we have to face the entire spectrum of new questions regarding automation of jobs, cyber security, ethics, or even effects of digital technologies on our mental well-being. Without any question, the Digital revolution has resulted in broad social impacts and widespread lifestyle changes. It has increased and improved the ability to communicate and have an access to data, it has resulted in more effective and efficient business productivity. On the other hand, the European Union and its member states at their national level as well, have to monitor closely the fast changes and address them properly and implement new laws and rules reasonably quick.

Achievements of the Digital Single Market

New challenges related to the digital transformation have been taken into account while creating the new digital policies and strategies. In May 2015, Jean-Claude Juncker announced A Digital Single Market Strategy for Europe – a strategy which became a first priority in paving the way for the digital transformation that make life of citizens better and safer and it is done along the EU values.

The EU aims to achieve access to online products and services, help to create conditions for digital networks and services to grow and thrive and generate growth of the European digital economy. This strategy showed the goal of the European Commission to reflect on the challenges of digitization, build necessary digital infrastructure, promote the digitisation of the European industry and consider the 'digital by default' principle for all new EU legislation.

During these five years of building the Digital Single Market (hereinafter DSM), the **European Commission has proposed 30 legislative initiatives**, out of which 28 have been politically agreed or finalised by the European Parliament and the Council of the European Union. Two legislative initiatives are currently on the table to be decided.

One of the most tangible and greatest achievements of the DSM which has changed the daily life of the EU citizens is **abolition of roaming charges across the EU** which became valid as of 15 June 2017. The roaming charges do not longer apply in the EU and citizens who travel within the EU are able to call, text and connect on their mobile devices at the same price as the pay at home.

Another significant achievement is the **ban on unjustified geo-blocking and removal of e-commerce barriers between the Member States**. The main objective of this proposal is to prevent discrimination of consumers and companies on access to prices, sales or payment conditions when buying products and services in another EU country.

On 9 October 2017, the Council of the EU adopted the **WIFI4EU scheme, which will provide access to a secure high-speed internet connection** in at least 6.000 local communities across the EU by 2020. This scheme will make high-quality internet more accessible for many EU citizens and will thereby facilitate introduction of new digital services in the European cities and municipalities.

Some of the examples mentioned above show that the Europeans Commission looks at the digital transformation from various perspectives and tries to adapt it to the needs of the EU citizens. On top of that, the proposal for a new Multiannual Financial Framework also demonstrates the EU's intention to be a global leader in digitization due to considerably high budget allocated for investments in supercomputers or state-of-the-art infrastructure.

Digitising of European Industry

In order to become a global leader, digitisation of the European industry is one of the main pillars which boosts the full benefits of the DSM. The European Commission launched **the Digitising European Industry initiative (DEI)** already in April 2016. As part of the Digital Single Market Strategy, the DEI initiative aims to reinforce the EU's competitiveness in digital technologies and ensure that every business in Europe, regardless of the sector, location and the size, can draw the full benefits from digital innovation.

Building on and complementing the various national initiatives for digitising industry, the DEI actions are structured around five main pillars. One of the pillars is based on creating **Digital Innovation Hubs (DIH)**. DIHs serve not only as one-stop-shop where SMEs and start-ups can get help to develop their business, products and services by the use of digital technology, but also where they have an access to testing experiments. The centres offer the latest technology and connect the companies across the EU. European Commission is willing to support a strong network of DIHs to ensure that every company in Europe can take advantage of digital technologies.

The European Commission has a very ambitious plan to ensure that Europe drives the digital transformation of society and economy bringing benefits to all citizens and businesses. The next step during the upcoming

years is to materialise the ambitions and more specifically:

- reinforce the EU's digital capacities (computing power, data, cybersecurity, AI...);
- ensure their widest possible roll out and maximize their benefits;
- prepare for and lead the development of next generation technologies;
- build world-leading connectivity infrastructure;
- support creators of digital content and ensure the widespread distribution of their works.

How to be first in the digital race?

Digital transformation is not a new phenomenon. Compared to the past, there is a difference in the pace and mass of the transformation. The process of digitization is run mostly by private businesses. The transformation process does not entail unknown or completely new challenges, but creates changes that are put into practice at an unprecedented speed.

If the EU wants to become more relevant in digital technology, it is necessary to address the fundamental challenges. Currently under preparation, the new Digital Europe programme reflects on the challenges the EU is facing in the new digital era and each and every part of the programme complements each other and addresses the issues.

The Digital Europe programme aims at increasing EU's international competitiveness as well as developing and reinforcing Europe's strategic digital capacities by proposing more investment in **Artificial Intelligence, high-performance computing, cybersecurity and trust, advanced digital skills and digital transformation of areas of public interest** – all identified by the EU leaders as the 5 key areas for the future competitiveness of the EU.

Implementation

The remaining challenge for the EU is to speed up the processes of implementation and adoption of a set of laws which take into account the outcomes of the research and help place the new innovations and technologies in the market.

In this context, support of SMEs is absolutely essential and the EU policy instruments have to make sure that the companies have the best conditions and environment to generate innovations

Digital skills

The European Union struggles to recruit and retain talents with digital skills. Skills shortages might damage the growth prospects of companies and the EU economy. The most alarming lack of talents are in digital skills and we have to take into account that successful digital transformation strategies will depend on changes in the size, shape and skill set of the workforce. Almost 90% of the current jobs in the EU need or will need soon full digitalisation. Because of digitisation and Artificial Intelligence in industry, many new professions have been created or will be transformed, but the workforce has to be qualify to exercise a profession.

The OECD Survey of Adult Skills (PIAAC) reveals that 15% of adults lack basic digital skills, and 13% lack basic digital, numeracy and problem-solving skills. Thus, there is a very likely risk that the citizens without

basic skills will end up on the margins. Moreover, on average in the OECD, 6.6% of young graduates have low literacy and numeracy skills and this share goes up to almost 20% in some countries.

According to the findings of the latest 2019 Digital Economy and Society Index (DESI), only 31% of Europeans in the active labour force possess advanced internet user skills. At the same time, there is an increased demand for advanced digital skills across the economy, with employment of Information and Communication Technology (ICT) specialists growing by 2 million over the last 5 years in the EU. However, more than one third of Europeans in the active labour force do not have basic digital skills being required in most jobs.

In terms of gender balance in the ICT sector, significant inequalities are observed. According to Eurostat, around 8.9 million people were employed in the European Union (EU) as ICT specialists in 2018. The profession was predominately male, as only 17 % (1.5 million) of the ICT specialists were women. This percentage varies from 9 to 28 % across the EU Member States.

In order for the EU to be able to secure the demands of the labour market, a big revolution in thinking, education and flexibility will be absolutely crucial. Education systems should start reflecting the need of the market and contribute to a better balance between demand and supply of digital skills. All governments must take a close look at their training systems to ensure that all individuals, particularly the low-skilled, get more access to lifelong learning and better training opportunities.

Data security and fake news

The exposure of citizens to fake news, disinformation or verifiably false or misleading information is one of the most serious challenges the EU is currently facing. The European Commission is working on implementation of a clear, comprehensive and broad set of actions to tackle the spread and impact of online disinformation in Europe and ensure the protection of the European values and democratic systems. Spreading fake news may have significant consequences on democratic political system, policy-making processes and protection of EU citizens.

The European Union shall keep fighting disinformation in Europe, strengthen cooperation between the Member States and improve detection and cooperate with the online platforms to tackle disinformation.

Increasing inequality

Digital innovation is strongly associated with increasing inequality. The income of average workers is stagnant or even declining, profit from digitalisation accrue to top managers or capital investors. Thereby the gap between workers and top managers is widening and inequality is likely to rise gradually higher level of digitization. On the other hand expenditure for social protection is unsustainable due to smaller workforce and larger low-income fraction.

Digital transformation has to be accompanied by social and economic transformation and policy makers have to create the environment so that economic and social interests balance out.

DIGITAL TRANSFORMATION IN THE VISEGRAD COUNTRIES

Visegrad Group has shown the willingness to discuss and focus on the topic and leverage the potential of digital transformation and new digital technologies. To succeed, it is necessary to attract the best researchers and motivate talents to stay or come back to Europe to help shape digital transformation along the EU values. Not only the EU as a whole, but also individual Member States have to create conditions for the world class researchers, innovators, laboratories and companies including start-ups in the digital area to stay in Europe, while continuing to drive scientific excellence in Europe.

In March 2019, during the occasion of the high-level OECD Going Digital Summit, the Visegrad countries ministerial representatives met to discuss and find a common agreement on the cooperation on the digital challenges and various changes that the digital transformation brings to our societies. The Visegrad countries discussed a possible cooperation in eGovernment, as well as the advantages of the use of AI technologies, data economics, and the digitalisation policies in light of the next Multiannual Financial Framework (MFF) of the European Union. This agreement was officially confirmed by the signature of the joint Declaration, which creates a committee of experts from the Visegrad countries aiming at identifying the measures on how to better shape the national policies, governance models and strategies.

By this mutual learning experience, the Visegrad region desires to make itself visible as a region actively contributing to the digital transformation processes and encourage its cooperation with other European countries, especially in light of the upcoming directly managed programmes, such as Digital Europe, Connecting Europe Facility, Horizon Europe and others. These new resources including the well-established aid through the European structural and investment funds are seen as the main vectors of cooperation among the Member States of the Union.

Czech Republic

The government of the Czech Republic has decided that the promotion of science, research and innovation will not become a mere phrase, but a very specific activity that will be driven by the ambition to become one of Europe's innovative leaders and become a technological future. The Czech Republic wants to maintain the performance in a competitive environment and thus support the final production, technological solutions and knowledge-based services. The goal must not only be to generate volumes, but mainly to add value. As a result, an innovative concept was created for the first time, which covers national key activities across sectors, sets out external framework objectives and addresses strategic tools for their implementation.

The Czech government has put together a team of corporate leaders, scientists, academics, and key personnel from the governmental agencies who first identified all the ongoing science, research and innovation activities. The team has gradually defined nine strategic pillars that are interrelated and which are decisive for achieving the ambition to be one of Europe's innovative leaders. The government has also confronted it from the outset with the international environment, the requirements for innovation performance, and has drawn on the strategies of the countries that have succeeded in inspiring them.

The strategy is supra-departmental, apolitical, balanced involving representatives of all areas of innovations, and it is a simple framework document with ambitious goals that meet the international requirements of a number of so-called innovative scoreboards.

In order to fulfil the above mentioned goals, the government of the Czech Republic plans to:

- Increase spending on research and development that will strengthen the Czech Republic's place in the world, especially in the area of Artificial Intelligence and digitalisation of economic sectors;
- Promote citizens' right to digital services;
- Develop an effective polytechnic education system, new teaching methods, digital education, technical education support and manual skills
- Modify curricula and educate and train teachers by experts in the field;
- Strengthen the intellectual property protection continuously. This requires, in particular, support for systematic training in this area from primary schools, the promotion of patent protection and enforcement in this area;
- Support endogenous Czech companies, spin-offs and start-ups. According to the Israeli model, the Czech government has also committed itself to creating an environment where the state will support the most risky period of new business.

When it comes to digitization, the Czech Republic already reports top results in SMEs selling online (23% versus the EU average 17%). Also, almost half of the general practitioners use e-prescription and the Czech Republic also nearly met its target for fixed broadband full coverage.

Hungary

Hungary follows the other EU Member States and also takes digitalisation as a key factor for strengthening Hungary's competitiveness. The new national research, development and innovation strategy for the post-2021 development period, which has not been adopted yet, builds on knowledge production and flow, cooperation, knowledge use and enterprise innovation. Hungary could have significant research and development potential at the European level in key economic areas, and that SMEs would be able to innovate widely.

The aim of the strategy is to improve the susceptibility to innovation, to encourage creative thinking and value creation, and to create a modern regulatory framework and business environment that supports research and development. Research, development, innovation, digitalisation and Industry 4.0 technologies play a decisive role in today's development competition. Hungary is currently among the moderate innovators in the European Union EU Innovation Scoreboard, but by 2030, Hungary has ambition to be among the major innovators. The performance of the Hungarian economy can be significantly enhanced if the innovation capacity of SMEs is improved, and innovation should be encouraged.

Hungary is also a member of the EuroHPC Joint Undertaking and performs well in the use of electronic prescriptions (69%). Hungary experienced sustained relative improvement in connectivity in recent years. The new 5G network is set to increase internet speeds, provide more secure and reliable connections, and bring down costs.

Poland

The main government strategy document in Poland is the Strategy for Responsible Development until 2020 (with a perspective until 2030) so called - SDR. SDR aims at changing the structure of the economy in favour of making it more innovative, effectively using resources of physical and human capital. In addition to SDR, there are several other key strategic documents from the point of view of digitization that shape national policy in the area of digitization, such as the National Policy Framework for Cybersecurity Republic of

Poland for 2017-2022, National Broadband Plan 2020 (currently revised), Integrated State Informatization Program (currently revised), but also many interesting programs that will make a significant difference in the digitization of the country.

The main program financing digitization is 'The Polska Cyfrowa Operational Program', consisting of three pillars: infrastructure, e-administration and digital competences. DSE is an unprecedented scale project in the EU and its aim is to provide a fast and safe internet to every school in Poland. Regarding the e-Government, Poland is carrying out a number of activities to refresh already existing e-services by increasing the level of their maturity and providing new e-services for citizens and entrepreneurs.

Poland also launched the Foundation of Polish Platform of Industry 4.0 (Platforma Przemysłu Przyszłości). E-health services are used by 14% of individuals (EU average is 18 %). On the top of that, Poland took a number of steps towards 5G rollout in 2018 and the very first 5G trials were already carried out.

Slovakia

In May 2019, the Office of the Deputy Prime Minister of the Slovak Republic for Investments and Informatization announced a successful delivery of the *Strategy of the Digital Transformation of Slovakia 2030* – a strategic document, which together with its Action Plan, is going to guide decision makers at the level of public administration, businesses and society through the coordinated and controlled changes. The Strategy, among others, puts its primary focus on the digital citizen that understands and benefits from the advantages of novel technologies and the rise of miscellaneous digital enablers, but is aware of the way the personal data is handled and who is responsible for its protection.

The Strategy underlines the importance of the uptake of Artificial Intelligence, blockchain, IoT, Data and privacy protection, high-performance computing and 5G. As a horizontal issue, it pays attention to the human capital – the digital transformation can solely succeed, if it is addressed by educated citizens and employees with appropriate digital skills.

The newly defined Strategy of the Digital Transformation of Slovakia 2030 introduces a vision for a digital Slovakia focused on 5 key areas:

- Economy in which entrepreneurs are successful and able to use and create innovations;
- Society in which citizens and users are able to use their potential to profit from digitalisation, while having their rights fully protected;
- Public administration which can effectively administrate its territory, from the national to the local level;
- Development of the territory whose aim is to build smart cities and regions by adopting an inclusive, data-based approach;
- Research and innovation which can keep pace with the world trends and bring new scientific knowledge of high quality to the society.

Slovakia has not yet developed any operational Digital Innovation Hub, but two hubs are being currently built. E-health services are used by 16% of individuals, while the average of the EU is 18%. Slovakia has also been developing a 5G Action Plan.

The Visegrad countries agreed on common approach towards the new challenges of digitalisation and a cooperation in all fields. All the Visegrad countries have signed the Declaration on Cooperation on Artificial Intelligence. Among other important measures for successful digital transformation are: timely and well-allocated funding, cooperation and open communication.

All the strategies of the Visegrad countries go hand-in-hand with pursuing the ambitious European digital

agenda. This is why continuous cooperation at all political and administrative levels is particularly important. The Visegrad group aims to continue the active membership of the EU.

Digital transformation in the Visegrad research and innovation

Digital transformation is not a new phenomenon. However, compared to the past, there is a difference in the speed and mass of the transformation. The process of digitization is run mostly by private businesses. The transformation process does not entail unknown or completely new challenges, but rather entails changes happening at an unprecedented speed.

No EU Member State can succeed alone and there is a clear added value in acting together and cooperating in research and innovation across the EU and beyond. It is necessary not only to create attractive conditions for researchers and innovators to further develop digital technologies and innovations in Europe, but also to create a supportive environment in terms of regulation and investment.

Collaboration, communication, a well-allocated budget and support for businesses and institutions to coordinate the digital activities are the key factors for successful transformation.

Visegrad researchers and innovators address various areas of the Digital Europe programme and their research is carried out in the field of Artificial Intelligence, e-Government, digital skills, digital security and also supercomputers.

Czech Republic

The Department of Computer Science of the Technical University in Ostrava successfully cooperates with a number of companies, in particular in the fields of software development (e.g. information systems and databases), visualization of scientific-technological data, digital processing and analysis of images, development of computer system units.

Technical University in Ostrava tackles research issues of Industry and Energy 4.0, smart city and environment as well as intelligent transportation. Department of Computer Science focuses also on machine learning, soft computing and real-world applications of intelligent methods.

Hungary

The Centre of Digital Pedagogy and Methodology (DPMK) is an organization supporting the implementation of the Digital Education Strategy (DOS) of Hungary. Its task is to provide methodological support for the digital transformation of public education, to ensure its professional background and expert base, and to provide professional support for applications and priority projects related to DOS implementation.

In connection with the implementation of the Digital Education Strategy, the Center supports the infrastructure, organizational and content development necessary for the digital transition of the educational and training institutions and implements and coordinates the development of individual digital pedagogical methodologies.

Poland

The University of Warsaw in Poland is one of the institutions focusing on new digital technologies. The University hosts 13 ERC grant holders out of which 6 ERC grants are placed at the Institute of Informatics and contribute to digital technologies. One of the focus areas are crypto currencies, cryptographic protocols with smart contracts and application of the blockchain technology.

Slovakia

The Faculty of Informatics and Information Technologies of the Slovak University of Technology in Bratislava covers the very area of informatics and information technology in research and education. The covered topics are mostly Artificial Intelligence, machine learning, information processing, cyber security and computer vision.

In cooperation with partners from the industry and with the support of the Slovak government, the university established the Slovak Research Centre for Artificial Intelligence named Slovak-AI. The platform Slovak-AI works, among others, on the task of predicting new developments in Artificial Intelligence and related fields. The Centre produces knowledge in the field of Artificial Intelligence from three main perspectives: analysis and prediction (in energy domain, cancer treatment, atmosphere pollution...); computer vision; and personalization.

Digital transformation affects or soon will affect every aspect of our lives. Special attention must be paid to education and training to cope with the challenges it brings. Digital literacy is a survival skill in cyberspace. The European Union should promote the use of digital technologies which are closely in line with its core values.

The world is in a time of immense change being brought about by the technological revolution. Therefore, we have to make sure that new technologies create new opportunities for everyone. The task is huge; the challenges are many. However, one thing is certain: we will not reach new destinations without taking new roads.

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The Visegrad strategies and represented institutions:

Innovation Strategy of the Czech Republic 2019-2030

The pillars of the new national strategy for research, development and innovation

Strategy for Digital Transformation of Slovakia 2030

Technical University of Ostrava

<https://www.vsb.cz/en>

University of Warsaw

<http://en.uw.edu.pl/>

The Centre of Digital Pedagogy and Methodology

<https://dpmk.hu/>

Slovak University of Technology in Bratislava

<https://www.stuba.sk/>



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