

Marinko Jurčević
University of Zagreb
Faculty of Transport
and Traffic Sciences
Vukelićeva 4,
10000 Zagreb, Croatia
marinko.jurcevic@fpz.hr
Phone: +38512380230

Lukša Lulić
Zagreb School of Business
Ullica grada Vukovara 68,
10000 Zagreb, Croatia
dekan@pvzg.hr
Phone: +38516310844

Vinko Mostarac
Croatian Chamber of Economy
Roosveltov trg 2,
10000 Zagreb, Croatia
vmostarac@hgk.hr
Phone: +38514561562

Preliminary communication

Received: September 25, 2019
Accepted for publishing: November 11, 2019

This work is licensed under a
Creative Commons Attribution-
NonCommercial-NoDerivatives 4.0
International License



THE DIGITAL TRANSFORMATION OF CROATIAN ECONOMY COMPARED WITH EU MEMBER COUNTRIES

ABSTRACT

The modern world is witnessing change on an unprecedented scale, driven by rapid technological advancement and increasingly unpredictable economic and social landscape. Against this background of increasing complexity and volatility of change, there is a need to embrace it and take advantage of the opportunities it brings. Changes brought about by the emergence of digital technologies have prompted the need for digital transformation, not only of the economy, but also of society as a whole. The aim of this paper is to analyse the state of digitalisation in the economy of the Republic of Croatia and compare its digital competitiveness to the economies of other European Union Member States. An analysis of the digital competitiveness of Croatia was conducted using the Croatian Digital Index (*Hrvatski Digitalni Indeks*), the Digital Economy and Society Index (DESI), and the IMD World Digital Competitiveness Ranking. The results indicate that the Croatian economy has not yet reached the expected level of competitiveness compared to other EU economies.

Keywords: Economy, digital competitiveness, Croatia, European Union

1. Introduction

The simplest way to define the European Union (EU) would be to call it an association or community of a number of European countries which, strive to achieve common and individual goals through mutual synergies. However, the EU is much more, or at least it should be.

The history of the European Union dates back to the period after the World War II when economic cooperation was encouraged because it was believed that countries as trading partners would become economically interdependent and therefore more

likely to avoid conflicts. This assumption led to the establishment of the European Economic Community (EEC) in 1958, which initially included six countries: Belgium, Germany, France, Italy, Luxembourg, and the Netherlands. What began as a purely economic union has developed over the years into an organisation spanning numerous policy areas, ranging from climate issues, environmental protection, and health to external affairs, security, justice, and migration. In 1993, the EEC changed its name to the European Union (European Union, European Commission¹).

As of 2019, the European Union is a unique economic and political union of 28 countries which together cover a large part of the continent. The Member States of the European Union are (in alphabetical order):

- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czechia
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- Netherlands
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Sweden
- United Kingdom.

The main goals of the EU are to promote peace, its values and the well-being of its citizens, guarantee freedom, security and justice without internal borders, work for sustainable development, a highly competitive market economy and environmental protection, combat social exclusion and discrimination, promote scientific and technological progress, strengthen economic, social and territorial cohesion and solidarity among EU countries, respect its rich cultural and linguistic diversity, and establish an economic and monetary union whose currency is the euro. The fundamental values of the

EU are human dignity, freedom, democracy, equality, the rule of law, and human rights (European Union, European Commission).

The Republic of Croatia joined the European Union on 1 July 2013, becoming the 28th full Member State.

Both before and since its accession to the EU, Croatia has used certain EU countries as a benchmark, i.e. a point of reference to compare to. The aim of this paper is, therefore, to analyse the state of digitalisation in the Croatian economy. To this end, an analysis is carried out of the secondary data collected during previously conducted survey among Croatian companies. Finally, the digital competitiveness of Croatia is compared to the digital performance of other EU Member State economies based on the results of internationally-recognised rankings and indices.

2. Definition of the term “digital transformation”

Before examining the digital transformation of the Croatian economy and the economies of other EU Member States, it is necessary to define and discern the meaning of certain terms related to digital transformation, which are used in everyday discourse.

The term “digital” is an adjective that describes the intensity of information and comprehensive interpenetration and interactivity of various physical devices and resources. Physical resources, such as buildings, plants, automobiles, items, processes, people or teams, become digital with the use of technologies that display the information about their situation and forward it to other devices in their surroundings. The intensive adoption of digital technology has brought about numerous changes, in particular to business models and their adaptation to the digital age. One of the most important features of digitalisation is the ability to transform and change the ways of doing business and to create completely new digital business models that revolutionize the way business processes are implemented. Digital business models encompass all business activities that take place electronically using digital technologies, through intensive electronic connectivity with the environment with the aim of creating new value and taking advantage of digital opportunities. In other words, digital business models refer to the adaptation of existing business models to the

requirements of the digital economy with the aim of finding sustainable sources of income and added value of the new business model that heavily relies on digital technology (Spremić, 2017).

Digital transformation is characterised by a fusion of advanced technologies and the integration of physical and digital systems, the predominance of innovative business models and new processes, and the creation of smart products and services (Digital Transformation, European Commission²). It refers to a broad concept that encompasses the changes facilitated by the increased availability and use of digital technologies in almost every domain of human activity. For businesses, this implies that digital technologies contribute to the change of their business models, products and services, production methods and delivery, as well as to the required skills with the aim of maintaining competitiveness in a fast-changing environment (Digital Transformation Scoreboard 2018, Interreg Europe³).

Digital transformation of business is the intensive application of digital technologies and digital resources with the aim of creating new sources of income, new business models and, generally, new ways of conducting business. It is created when an organisation, simultaneously and in a very short period, carries out fundamental changes in its most important business activities, such as strategy, structure, business processes, business model, and organisational culture. Organisations that have managed to transform their business to digital have been successful in adapting their business model and operation to the requirements of the digital economy, which often results in taking a leading position and increased competitiveness in the market (Spremić, 2017).

Digital transformation involves changes in operation, roles, and business offers, as well as challenges related to digital technologies in an organisation or its business environment on several levels: the process level (adopting new digital tools and streamlining processes by reducing manual steps), the organisational level (providing new services and doing away with outdated practices and providing existing services in a new way), the business domain level (changing roles and value chains in ecosystems), and the social level (changing social structures) (Parviainen et al., 2017).

The digital economy is an umbrella term used to refer to new models of business, processes, ser-

vices, markets and fast-growing economic sectors, particularly the ones that use digital technologies as their underlying business infrastructure. Digital economy is often identified with terms such as industrial revolution 4.0, new economy, internet economy. It refers to the economy of knowledge, the economy of innovations, the economy of information, which means an economy in which people work using their intellectual rather than physical power and effort (Spremić, 2017).

Digitalisation is a phenomenon similar to globalisation –in that it must be managed and governed. Institutions and enterprises must, therefore, be able to rise up to the challenges arising from digitalisation (Digitalization is like globalization: it needs to be managed and governed, European Commission⁴).

These definitions of the term “digital” confirm that the concepts of digital economy and digital transformation of business adhere to the following key principles:

- integration and simultaneous application of independently developed technologies and opportunities they provide;
- integration of progressive business concepts;
- use of digital business platforms;
- successful and robust digital business models;
- management based on entrepreneurial organisation culture, innovation, and creation of added value (digital management) (Spremić, 2017).

3. A comparative analysis of the digital competitiveness of the Croatian economy and the economies of EU Member States

In order to present the state of digitalisation and digital transformation of the Croatian economy, the following chapter analyses in detail the results of the Croatian Digital Index (HDI). In addition, the Digital Economy and Society Index (DESI) and the IMD World Digital Competitiveness Ranking will be used in determining the position of the Croatian economy in terms of digitalisation compared to the economies of other members of the EU.

3.1 Croatian Digital Index (HDI)

The Croatian Digital Index is based on a survey carried out among 300 medium and large Croa-

tian companies between October 2018 and March 2019. The aim of the survey and publication of the index was to provide an assessment of the state of digital transformation in the Croatian economy, i.e. to analyse and assess the digital readiness of Croatian companies from various economy sectors, and draw up a proposal of recommendations and guidelines for improving their digital capacities and thus of the economy in general. There are four key areas of digital transformation that the research has covered: the state of digitalisation and digital transformation in Croatia, digital readiness, digital strategy and internal processes, and the impact of digital transformation on business (Digital Transformation in Croatia 2019, Apsolon⁵).

The results of the study Digital Transformation in Croatia 2019 (sorted according to the basic areas) point to the following key indicators (Digital Transformation in Croatia 2019, Apsolon):

A. The state of digitalisation and digital transformation

- a. 84% of the respondents believe that digital transformation refers to the digitalisation of existing business models and/or analogue processes;
- b. The state of the digitalisation in Croatian economy was rated with a 2 (weak).
- c. The key elements (social/political) for the improvement of digitalisation in Croatia are:
 - i. the digitalisation of administration and promotion/active participation in the development of key digital technologies;
 - ii. expanding e-services for citizens and legal entities;
 - iii. broadband internet connectivity and digital education for schools.

B. The digital readiness of companies

- a. 47% of the respondents reported that digital transformation is among their top 10 priorities;
- b. 35% assessed their company's preparedness for digital transformation as good;
- c. 53% perceive digital transformation as a significant opportunity for the improvement of the company's business, while only 1% perceive it as a minor threat.

- d. The most common obstacles encountered in the process of digital transformation are:
 - i. focus predominantly on the existing business priorities;
 - ii. financial reasons (costs);
 - iii. lack of time for digital transformation.

C. Digital strategy and processes

- a. 15% of the respondents have developed a strategy for digital transformation, whereas 65% do not but plan on developing it.
- b. The most significant measures and activities companies use to carry out digital transformation are:
 - i. increased training of employees on digital topics;
 - ii. use of external consulting;
 - iii. integration of methods that focus on the user;
 - iv. integration of methods for agile product development;
- c. the majority of the respondents reported that costs relating to the development of employees' digital skills account for 25% of the total investment costs;
- d. 94% of the respondents believe that the lack of digital transformation will have an impact on their company's business.

D. The impact of digital transformation on business

- a. 20% of the respondents believe that the process of digital transformation will lead to the creation of new employment opportunities, while 59% think the process will not affect the number of jobs.
- b. The percentage of respondents who believe that digital transformation will not change the company's revenue in the next two years and those who believe that it will increase it is roughly the same, 38% and 39% respectively.
- c. The most significant outcomes achieved by implementing digital transformation include:
 - i. digitalisation of business processes;
 - ii. adoption of new technologies/market trends;

- iii. efficiency/lower costs as a result of streamlining business processes;
- iv. optimisation of user experience.

The results of analysis of the digital transformation in the Croatian economy and the Croatian Digital Index show that companies in Croatia are not familiar enough with digital transformation. Consequently, for most companies, digital transformation is not among their top priorities and only a few respondents believe their company has developed a strategy for digital transformation. More than half of the respondents believe that the digital transformation process will not impact the overall number of job positions in companies, and the number of those who believe that digital transformation will affect the company's revenue is almost equal to the number of those who believe that it will not.

3.2 Digital Economy and Society Index (DESI)

Since 2014, the European Commission has been monitoring EU Member States' digital competitiveness with the annual Digital Economy and Society Index (DESI). The DESI summarises the relevant indicators and monitors the performance of EU Member State economies in the domain of digitalisation and digital competitiveness. The overall DESI is calculated on the basis of the weighted average across 5 main dimensions of the index: *Connectivity*, *Human Capital*, *Use of Internet Services*, *Integration of Digital Technology*, and *Digital Public Services*.^{*} The main dimensions include over 34 indicators (European Commission, Digital Economy and Society Index⁶).

^{*} *The Connectivity dimension measures the deployment of broadband infrastructure and its quality. The Human Capital dimension measures the skills needed to take advantage of the possibilities offered by a digital society. The Use of Internet Services dimension accounts for a variety of online activities. The Integration of Digital Technology dimension measures the digitisation of businesses and e-commerce. Digital Public Services dimension measures the digitisation of public services, focusing on eGovernment and eHealth.*

Below are the rankings of EU Member State economies based on the Digital Economy and Society Index for the period from 2014 to 2018 (Table 1).

Table 1 The rankings of EU Member State economies based on the Digital Economy and Society Index for the period 2014 – 2018

Member State	2014	2015	2016	2017	2018
Austria	11	11	10	11	11
Belgium	7	7	7	6	8
Bulgaria	27	26	26	26	26
Croatia	23	24	23	23	22
Cyprus	24	22	20	21	21
Czechia	19	16	19	17	17
Denmark	1	1	1	1	1
Estonia	8	8	8	8	9
Finland	3	2	2	2	3
France	16	17	17	18	18
Germany	10	12	13	14	14
Greece	26	27	27	27	27
Hungary	21	21	21	22	23
Ireland	12	10	9	9	6
Italy	25	25	25	25	25
Latvia	18	19	18	19	19
Lithuania	13	14	12	13	13
Luxembourg	5	5	6	5	5
Malta	9	9	11	10	12
Netherlands	4	4	4	4	4
Poland	22	23	24	24	24
Portugal	15	15	15	15	16
Romania	28	28	28	28	28
Slovakia	20	20	22	20	20
Slovenia	17	18	16	16	15
Spain	14	13	14	12	10
Sweden	2	3	3	3	2
United Kingdom*	6	6	5	7	7

^{*}The United Kingdom is hereinafter abbreviated as the UK.

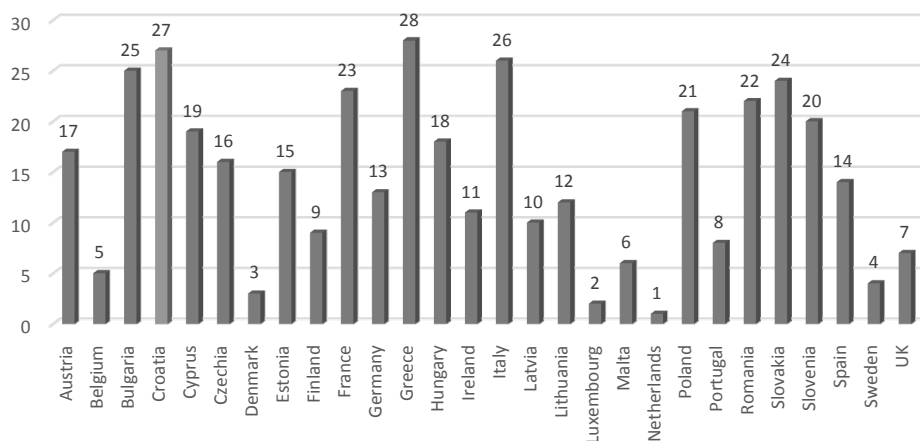
Source: Authors, based on the Digital Economy and Society Index (DESI) 2014 – 2018

It is clear from Table 1 that Denmark ranked first each year, followed closely by Finland and Sweden. Croatia ranked below the EU average and remained at the bottom of the ranking throughout the period. Economies that have consistently ranked be-

low Croatia in the last five years are Italy, Bulgaria, Greece, and Romania. In the 2018 report, Croatia placed 22nd, which is a step up compared to the previous year. In 2018, Croatia ranked higher than Hungary, Poland, Italy, Bulgaria, Greece, and Romania.

For a more detailed analysis of the individual scores and rankings of the EU member economies, we need to look at their rankings in the main dimensions. Therefore, the following charts illustrate the 2018 rankings in DESI and its main dimensions (Figure 1, 2, 3, 4, and 5).

Figure 1 DESI dimension – Connectivity

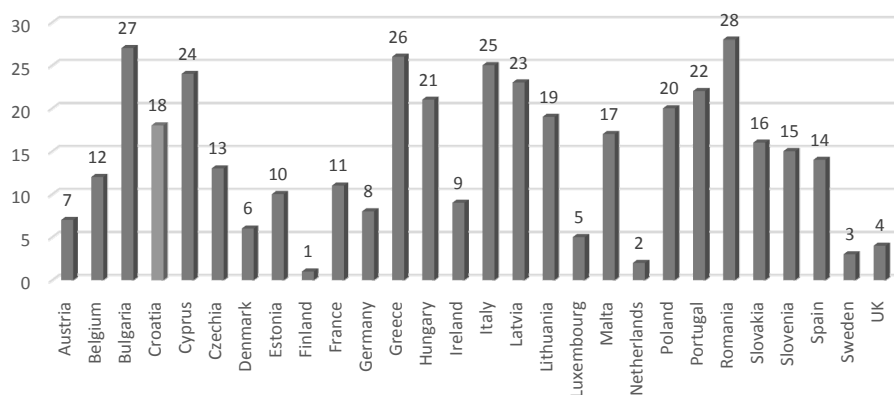


Source: Authors, based on the Digital Economy and Society Index (DESI) for 2018

In *Connectivity* dimension, the highest-ranked was the Netherlands, followed by Luxembourg and Denmark. Croatia is in the 27th place (of 28). The

only country that ranked lower than Croatia in this dimension is Greece.

Figure 2 DESI dimension – Human Capital

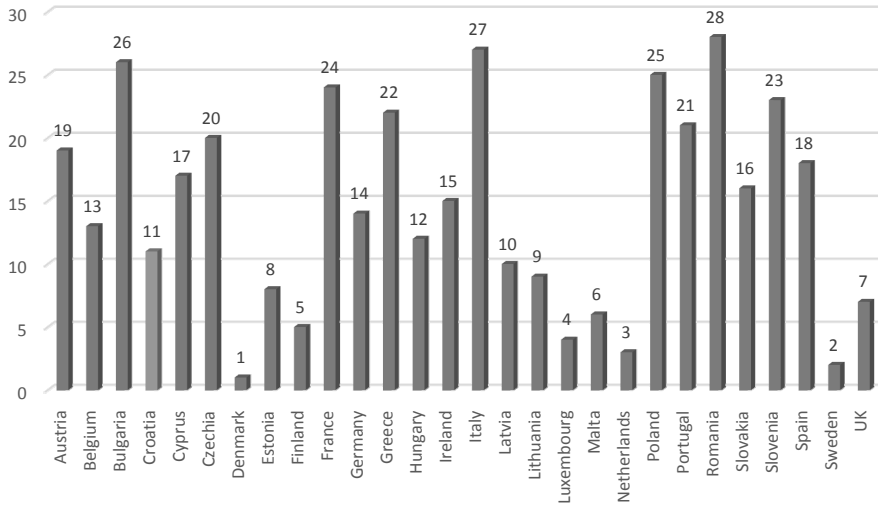


Source: Authors, based on the Digital Economy and Society Index (DESI) for 2018

The highest ranking EU countries in *Human Capital* dimension for 2018 are Finland, the Netherlands and Sweden. Croatia is in the 18th place (of

28), ranking higher than Lithuania, Poland, Hungary, Portugal, Latvia, etc.

Figure 3 DESI dimension – Use of Internet Services

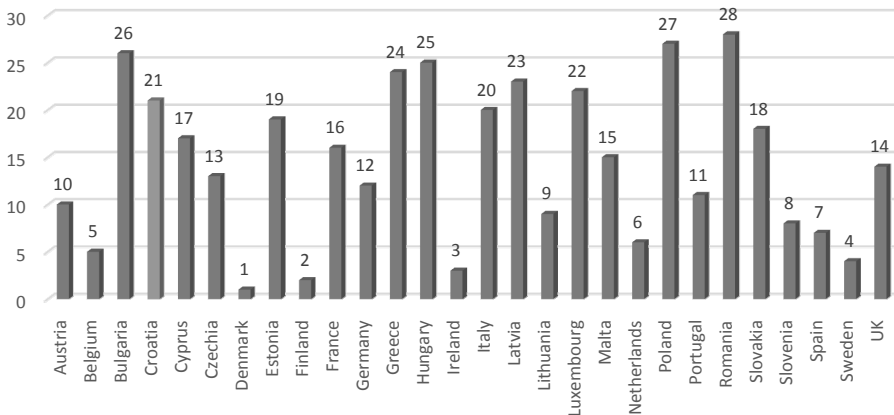


Source: Authors, based on the Digital Economy and Society Index (DESI) for 2018

The DESI rankings in the dimension *Use of Internet Services* for 2018 show that Denmark, Sweden and the Netherlands ranked highest in this dimen-

sion. Croatia is in a very good 11th place (of 28), ranking higher than its neighbouring EU Member States.

Figure 4 DESI dimension – Integration of Digital Technology

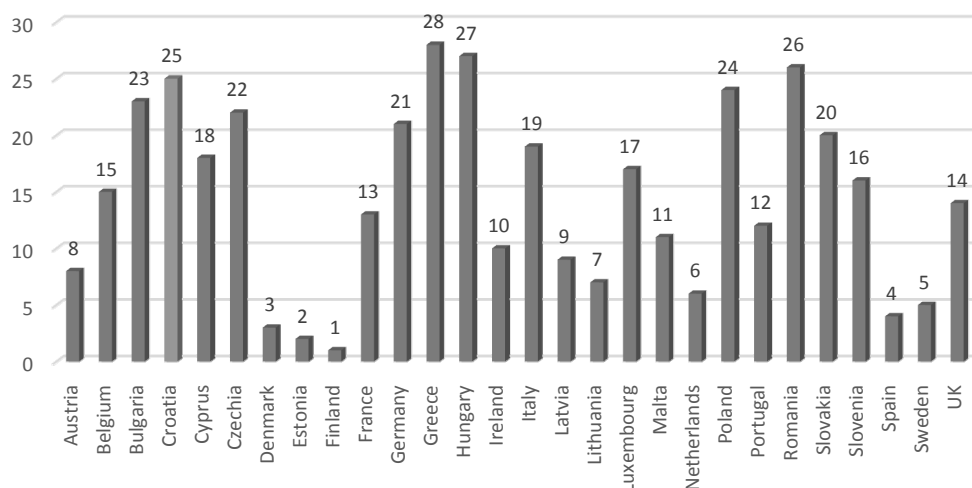


Source: Authors, based on the Digital Economy and Society Index (DESI) for 2018

According to the 2018 DESI rankings, in the *Integration of Digital Technology* dimension, the highest-ranked Member States are Denmark, Finland

and Ireland. Croatia is in the 21st place (of 28), ranking higher than Luxembourg, Latvia, Greece, Hungary, Bulgaria, Poland and Romania.

Figure 5 DESI dimension – Digital Public Services



Source: Authors, based on the Digital Economy and Society Index (DESI) for 2018

The highest-ranked EU countries in the DESI dimension *Digital Public Services* for 2018 are Finland, Estonia and Denmark. Croatia is in the 25th place (of 28), an unfavourable position given that only Romania, Hungary and Greece ranked lower than Croatia in this category.

The analysis of the results of the Digital Economy and Society Index for 2018 and its main dimensions indicates that Scandinavian countries – Denmark, Finland and Sweden ranked the highest. Croatia achieved its highest score in the dimensions *Use of the Internet Services* and *Human Capital*. On the other hand, in the dimensions *Connectivity* and *Digital Public Services*, Croatia is close to the bottom of the ranking.

3.3 The IMD World Digital Competitiveness Ranking

The Institute of Management Development (IMD) carries out research to analyse and rank countries all over the world based on their ability to adopt digital technologies leading to transformation in

public services, business models, and society as a whole. The ranking is based on three key factors, nine sub-factors, and a total of fifty criteria. The key factors are 'Knowledge', 'Technology', and 'Future readiness'. The *Knowledge* factor refers to the know-how needed to discover, understand and create new technologies; it comprises three sub-factors: Talent, Training & Education, and Scientific concentration. The *Technology* factor is the all-encompassing context that enables the development of digital technologies, with sub-factors Regulatory framework, Capital, and Technological framework. The *Future readiness* factor is the preparedness of a country to exploit digital transformation; its sub-factors are Adaptive attitudes, Business agility, and IT integration (IMD World Competitiveness Center, IMD World Digital Competitiveness Ranking 2018⁷).

Below are the rankings of EU Member States based on the IMD World Digital Competitiveness Ranking for the period 2014 - 2018 (Table 2).

Table 2 The rankings of EU Member States based on the IMD World Digital Competitiveness Ranking for the period 2014 - 2018

Member State	2014	2015	2016	2017	2018
Austria	24	26	19	16	15
Belgium	25	19	18	22	23
Bulgaria	53	54	47	45	43
Cyprus	-	-	-	53	54
Croatia	45	46	44	48	44
Czechia	31	31	32	32	33
Denmark	7	8	8	5	4
Estonia	23	27	27	26	25
Finland	4	3	6	4	7
France	22	20	22	25	26
Germany	14	17	15	17	18
Greece	48	40	45	50	53
Hungary	36	44	42	44	46
Ireland	17	25	20	21	20
Italy	41	36	34	39	41
Latvia	33	34	33	35	35
Lithuania	32	28	29	29	29
Luxembourg	19	16	21	20	24
Malta	-	-	-	-	-
Netherlands	6	6	4	6	9
Poland	39	38	38	37	36
Portugal	30	29	31	33	32

Member State	2014	2015	2016	2017	2018
Romania	54	51	49	54	47
Slovakia	40	43	41	43	50
Slovenia	37	39	36	34	34
Spain	29	30	30	30	31
Sweden	3	5	3	2	3
United Kingdom	12	12	12	11	10

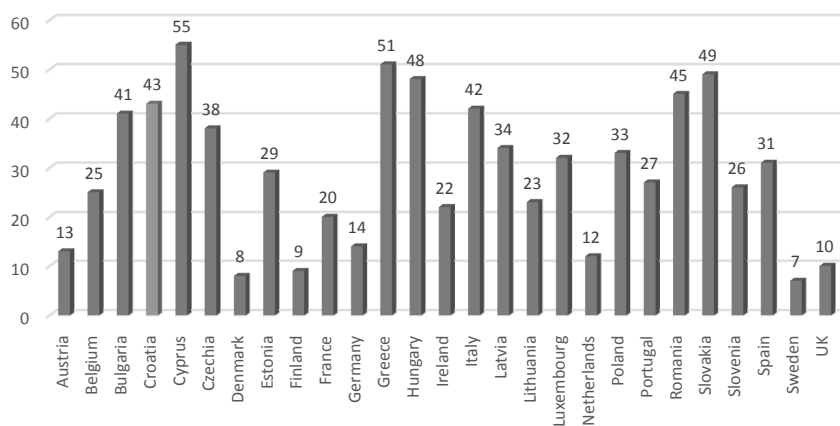
Source: Authors, based on the 2018 IMD World Digital Competitiveness Ranking

Over the last five years, Sweden has been among the top three highest-ranked EU Member States, with the exception of 2015 when Finland ranked third. In the same period, Croatia mostly occupied the bottom part of the ranking. In the 2018 report, Croatia ranked 44th (a four-place improvement compared to the previous year). Only Hungary, Romania, Slovakia, Greece, and Cyprus ranked lower. As evident from Table 2, Malta is the only EU Member State which is not included in the IMD research.

For a more detailed analysis, the paper looks at the rankings of EU Member States in the main factors. The following figure illustrates the position of EU countries in the 2018 IMD report that includes over 63 countries across the world (Figures 6, 7 and 8).*

* At the top of the IMD World Digital Competitiveness Ranking 2018 are: the USA, Singapore, Sweden, Denmark, and Switzerland.

Figure 6 EU Member States' rankings in the Knowledge factor

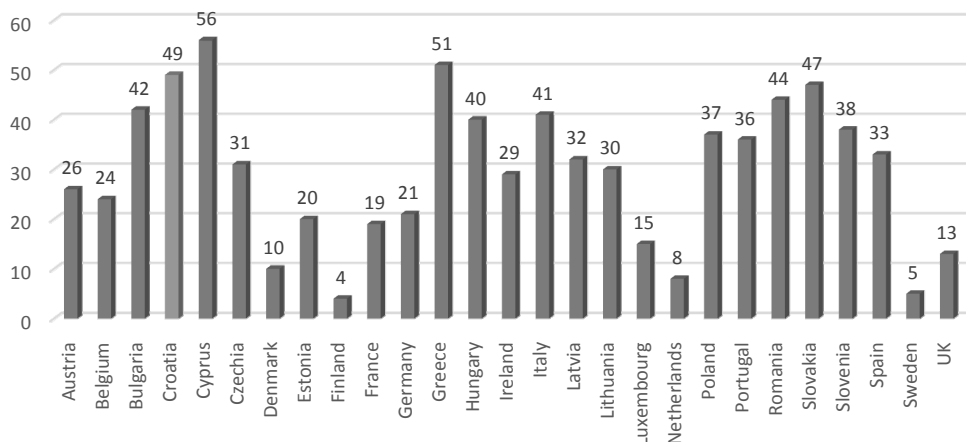


Source: Authors, based on the 2018 IMD World Digital Competitiveness Ranking

In the IMD factor *Knowledge* for 2018, the highest-ranking countries were the Scandinavian countries (ordered by ranking, from the highest- to the low-

est-ranking): Sweden, Denmark, and Finland. Croatia was in the 43rd place, above Romania, Hungary, Slovakia, Greece, and Cyprus.

Figure 7 EU Member States' rankings in the Technology factor

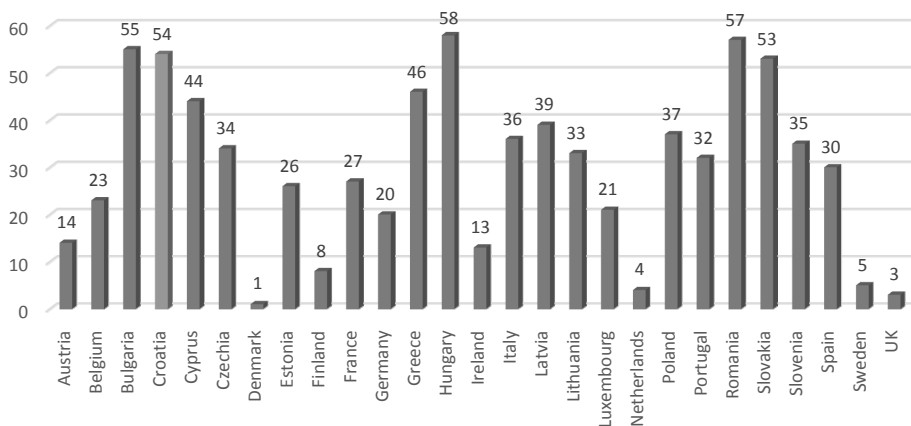


Source: Authors, based on the 2018 IMD World Digital Competitiveness Ranking

The highest-ranked EU countries in the *Technology* factor for 2018 were Finland, Sweden and the Netherlands. Croatia ranked 49th. The only EU econo-

mies that showed lower performance in this factor are Greece and Cyprus.

Figure 8 EU Member States' rankings in the Future readiness factor



Source: Authors, based on the 2018 IMD World Digital Competitiveness Ranking

In the IMD factor *Future readiness* for 2018, the highest-ranked EU countries were Denmark, the UK and the Netherlands. Croatia ranked 54th, with only Bulgaria, Romania and Hungary showing lower performance, among the EU countries. Considering IMD World Digital Competitiveness Ranking for 2018 and its main factors, Croatia was at the very bottom of the ranking in the factors *Knowledge*, *Technology* and *Future readiness* compared to other EU countries. The only notable area in which Croatia gained a competitive advantage is *Knowledge*, in particular in Education & Training and Scientific concentration.

4. Conclusion

Digital transformation refers to a broad concept that encompasses the changes facilitated by the increased availability and use of digital technologies in almost every domain of human activity. This implies the change to business models, products and services, production methods and supply, as well as to the skills needed to remain competitive in a fast-changing environment. Given that many countries seek to adapt their economies to the new conditions and exploit new opportunities as soon as possible, research is conducted to evaluate their progress in terms of digitalisation – both on national and global levels.

The Croatian Digital Index, which represents the results of the analysis of digital transformation of the Croatian economy, indicates that companies in Croatia are not familiar enough with the term digital transformation. Moreover, for most companies, it is not even among their top priorities. In fact, very few companies report that they have developed a strategy for digital transformation. More than half of the respondents believe that the digital transformation process will not impact the overall number of jobs in companies. The number of respondents who consider that digital transformation will have an impact on the revenue and those who consider that it will not are almost equal.

According to the Digital Economy and Society Index (DESI) for 2018, Croatia occupies the 22nd position (one position higher compared to the previous year) among the EU countries. The only EU members that ranked lower than Croatia are Hungary, Poland, Italy, Bulgaria, Greece and Romania. Croatia obtained its highest score and achieved its highest ranking in the *Use of Internet Services* and

Human Capital dimensions. In contrast, Croatia ranked at the very bottom in the *Connectivity* and *Digital Public Services* dimensions.

The analysis of the IMD World Digital Competitiveness Ranking for 2018 reveals that Croatia is in the 44th place (advancing by four places compared to the previous year). The only EU countries that ranked lower than Croatia are Hungary, Romania, Slovakia, Greece and Cyprus. Compared to other EU countries, Croatia is at the bottom of the ranking in the *Technology* and *Future Readiness* factors. An area in which Croatia still remains competitive, compared to other EU countries, is the *Knowledge* factor in particular in the Training & Education and Scientific Concentration sub-factors.

The overall performance and digital competitiveness of the Croatian economy, compared to other EU members, show that Croatia is not in an unfavourable position. Although individual results are not favourable for Croatia, there is some advancement compared to the results from the previous year.

According to the recently published study on digitisation in Croatia by a consulting firm McKinsey & Company, Croatia has a long-term automation potential to generate as many as 800,000 new jobs by the year 2030. The potential is based on three available factors: a great number of students with a degree in ICT in Croatia, a competitive advantage on the macroeconomic level and competitive labour costs in the ICT sector, and success stories from the private and public sector recognised on the international level. Additional efforts are necessary to support digital growth that should focus on four areas: the education system, ICT infrastructure, digital skills, and entrepreneurial environment. In addition, recommendations are given for actions aimed at accelerating digitisation of the public and private sectors, and of the individual. Some of these recommendations are: build skill set for the future, support technology adoption in the public and private sectors, invest in human capital, use the advantages of adopting digital tools in everyday life, strengthen regional digital cooperation, and others (McKinsey & Company 2018⁸).

For the last few years, the Government of the Republic of Croatia has been promoting digitalisation through the project entitled Digital Croatia. The Central State Office for the Development of the Digital Society is the state administration body

responsible for monitoring and promoting the development of digital society and the harmonisation of national rules and regulations with the guidelines and regulations of the European Union in the domain of digital society and economy. Among other activities in this context, it is necessary to point out that the Ministry of Public Administration has developed e-Croatia 2020 Strategy and Action Plan for its implementation, and that several financing agreements for the digitalisation project have al-

ready been signed (The Central State Office for the Development of the Digital Society⁹, Ministry of Public Administration of the Republic of Croatia¹⁰).

Carrying out the planned projects and activities requires the synergy of all stakeholders from the public, real, and social sectors, and the results are expected to improve Croatia's digital competitiveness ranking in the coming period.

REFERENCES

1. Parviainen, P., Tihinen, M., Kääriäinen, J., Teppola, S. (2017), "Tackling the digitalization challenge: how to benefit from digitalization in practice", *International Journal of Information Systems and Project Management*, Vol. 5, No. 1, pp. 63-77.
2. Spremić, M. (2017). *Digitalna transformacija poslovanja*. Zagreb: Faculty of Economics and Business.

ENDNOTES

- 1 European Commission, "The European Union", available at: https://europa.eu/european-union/about-eu_hr (Accessed on: May 24, 2019)
- 2 European Commission, "Digital transformation", available at: https://ec.europa.eu/growth/industry/policy/digital-transformation_en (Accessed on: May 24, 2019)
- 3 Interreg Europe (2018), "Digital Transformation Scoreboard 2018: Are EU companies adopting digital technologies?", available at: <https://www.interregeurope.eu/policylearning/news/3917/digital-transformation-scoreboard-2018-are-eu-companies-adopting-digital-technologies/> (Accessed on: May 24, 2019)
- 4 European Commission (2017), "Digitalization is like globalization: it needs to be managed and governed", available at: <https://ec.europa.eu/digital-single-market/en/blog/digitalization-globalization-it-needs-be-managed-and-governed>, (Accessed on: May 24, 2019)
- 5 Apsolon (2019), "Digital Transformation in Croatia 2019: Croatian Digital Index".
- 6 European Commission (2019), "The Digital Economy and Society Index (DESI)", available at: <https://ec.europa.eu/digital-single-market/en/desi>, (Accessed on: May 28, 2019)
- 7 IMD World Competitiveness Center (2018), "IMD World Digital Competitiveness Ranking 2018", Institute for Management Development, Lausanne.
- 8 McKinsey & Company (2018), "Croatia – Emerging Digital Challenger: Digitization as the new growth engine for Croatia", available at: <https://digitalchallengers.mckinsey.com/files/Digital-Challengers-Perspective-on-Croatia.pdf> (Accessed on: May 30, 2019)
- 9 The Central State Office for the Development of the Digital Society, available at: <https://rdd.gov.hr/> (Accessed on: May 30, 2019)
- 10 The Ministry of Public Administration, the Republic of Croatia, available at: <https://uprava.gov.hr/> (Accessed on: May 30, 2019)

Marinko Jurčević

Lukša Lulić

Vinko Mostarac

DIGITALNA TRANSFORMACIJA GOSPODARSTVA REPUBLIKE HRVATSKE U ODNOSU NA DRŽAVE ČLANICE EUROPSKE UNIJE

SAŽETAK

U sadašnjem vremenu svjedoci smo promjena koje se, kao nikada do sada, neprestano, nepredvidivo i velikom brzinom odvijaju oko nas. To nas dovodi do razmišljanja o tome kakva je budućnost, koja je nedvojbeno kao nikada prije, podložna velikoj nesigurnosti i neizvjesnosti. U kontekstu toga, globalna pojava digitalnih tehnologija zahtijeva promptnu prilagodbu novom digitalnom dobu te digitalnu transformaciju, ne samo gospodarstva već i društva u cjelini. Cilj ovog rada je utvrditi i analizirati poziciju gospodarstva Republike Hrvatske u području digitalizacije, odnosno digitalne transformacije te tzv. digitalnu konkurentnost u odnosu na ostale zemlje članice Europske unije. Kao osnova za analizu stanja i digitalne konkurentnosti hrvatskog gospodarstva korišteni su: Hrvatski Digitalni Indeks (HDI), Indeks digitalnog gospodarstva i društva (DESI) te IMD svjetska ljestvica digitalne konkurentnosti. Rezultati i zaključci analize ukazuju da hrvatsko gospodarstvo po pitanju digitalne spremnosti i transformacije još uvijek nije doseglo očekivanu razinu konkurentnosti u odnosu na ostale države članice Europske unije.

Ključne riječi: gospodarstvo, digitalna konkurentnost, Hrvatska, Europska unija