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## Competitiveness Studies – The Digital Preparedness of the Hungarian Public Service\*

### Abstract

The paper gives an overview of the digital preparedness of the Hungarian public administration, with a particular view to the civil servants. In order the paper could attain this objective, some preliminary considerations are necessitated by its subject-matter, wherefore, the Author first proposes a brief summary of the changes caused by the digitalisation phenomenon in the field of public administration and a general introduction to the evaluation of digital competencies together with their significance. The paper thus intends to draw the picture of the current state of digitalisation in the Hungarian public administration by way of adopting both the relevant academic analyses and a specific competitiveness ranking (DESI). The second part of the paper constitutes a detailed analysis of the data provided by the Author's empiric survey concerning the preparedness of the Hungarian professional staff of public administration for those changes that came along with the recent, 21<sup>st</sup> Century technological evolutions. Among others, the inquiry reflects on demographic data, user habits, respondents' self-assessment regarding their knowledge of digital competencies and queries on work performances. According to the Author's hypothesis, digitalisation ought to be regarded a significant factor of competitiveness, the developed level of which influences favourably the competitiveness of the given state, yet, since the civil servants consider digitalisation a challenge that could endanger

their status, it is necessary to prepare them for all those challenges that go along with this process of digitalisation.

### Absztrakt

A tanulmány célja, hogy bemutassa Magyarország digitalizációval kapcsolatos felkészültségét a közigazgatás, annak személyi állománya vonatkozásában. Ehhez érdemes nagyvonalakban megvizsgálni a digitalizáció okozta változásokat a közigazgatás terén, valamint a digitális kompetencia bemutatása és jelentőségének hangsúlyozása is elengedhetetlen a tanulmány célkitűzéseinek megvalósításához. A tanulmány tehát elemzéseken és egy versenyképességi rangsoron (DESI) keresztül igyekszik képet adni a digitalizáció helyzetéről a magyar közigazgatásban. A tanulmány második részében a szerző által végzett empirikus felmérés adatainak elemzése található, melynek célja annak felmérése, hogy a tisztviselők mennyire felkészültek a XXI. század technológiai változásaival összefüggő kihívásaira. A vizsgálat kitér többek között demográfiai adatokra, eszközhasználattal kapcsolatos szokásokra, a válaszadók digitális kompetenciákkal kapcsolatos ismereteinek önértékelésére, valamint a munkavégzéssel kapcsolatos kérdéskörre egyaránt. A szerző hipotézise szerint ugyan a digitalizáció komoly versenyképességi tényező, melynek magas szintje kedvezően hat egy ország versenyképességére, a tisztviselők komoly kihívásként, veszélyként élik meg munkájukkal kapcsolatban azt, így a digitalizáció okozta kihívásokra fel kell őket készíteni.

### Digital governance, digital public administration

Kosorukov (2017) and Białożyty (2017) analyse the effect of digitalisation on public administration and governance. These inquiries provide some useful insights to and a general overview of both the development of the Weberian public administration (the idealisation of public services, formulation of special regulations for civil servants) and the New Public Management. According to Białożyty (2017: 123), digitalisation results in inevitable changes at all levels, that is why, it is insufficient to transform

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the processes prior to digitalisation into a digital space, rather, these processes need to be reconsidered altogether. The distinct paradigm shifts and processes of modernisation in the field of public administration demonstrate that these changes did not come to pass voluntary, due to the implementation of some administrative decisions, rather, the structure of public administration was compelled to adopt to the new conditions caused by the development and introduction of technological innovations (Varga 2006). For sufficient demonstration, it is enough to consider the introduction and spreading of the use of written records and printing, or that of telecommunication and computer technologies (Lőrincz 2010). Varga (2006) asserts that information society (e-government, recently also referred to as digitalisation) has brought forth a new state, the digital state. His 2006 prognosis well approximated nowadays' reality (he recognised for instance the significance of AI, the leading role of info-communication technologies, or the significance of developing the populances consciousness and knowledge thereof). In his prognosis, he wrote that by 2020 that process of modernisation resulting – in line with the information society ideology – in the development of the Hungarian digital state will presumably have taken place, assuming in a certain sense the characteristics of a network state, which probably would not take the form of the centralised sovereign institutions of the 20<sup>th</sup> Century. (Varga 2006: 23.) The new state requires the mastering of new skills. In Varga's (2006) prognosis, the state will promote that the state and its apparatus shall continuously ascertain and apply this new knowledge. Varga's ideas are reaffirmed by Csath's (2016) inquiry, according to which there is a need for an active and innovative state. He emphasises that most likely the office and administrative positions would come to an end due to the described technological changes, wherefore the importance of certain novel skills, such as fast problem-recognition and resolution, creativity, team-work, etc. could prove essential. Csath (2018a) and several McKinsey reports mention that the future workplaces will require developed cognitive, social and emotional skills, creativity and a higher level of education. (McKinsey 2018b: 20.) That is

why, it is necessary to develop improved ability of adaptation, creativity and skills relating to decision-making, empathy and argumentation among the children. Also, they ought to be trained from elementary education in skills relating to programming, information science, data-processing and other digital competencies. (McKinsey 2018b: 58.).

### **The digital competencies**

Nowadays' quick and mostly technology-based processes demand novel knowledge from both state and people. According to Mazzucato (2017), state actions shall not exhaust only in supporting given sectors, rather the state ought to resolve problems, create opportunities and avert dangers that is to say, the state ought to be in the possession of different competencies. In 2006 the European Union specified those competencies – among these, the digital competencies – people shall possess e.g. with a view for employment. The relevant EU recommendation states 'that a European framework should define the new basic skills to be provided through lifelong learning as a key measure in Europe's response to globalisation and the shift to knowledge-based economies, and emphasised that people are Europe's main asset.' (2006/962/EC) In 2018 these previously determined competencies were revised, but no significant modifications were accepted, although true it is, they emphasised the need for redefining the competencies concerned.

This decision was anticipated by the EU Leaders' meeting in Gothenburg on 17<sup>th</sup> November 2017, where the following statements concerning digitalisation were made (European Commission 2017):

- 1) Europeans do not possess even the basic digital skills (169 million Europeans between 16 and 74 years – 44% – do not have sufficient digital skills).
- 2) 90% of workplaces will require a certain level of digital competencies in the future
- 3) 40% of those European enterprises that intend to employ ICT specialists can hardly find suitable candidates
- 4) 65% of children entering elementary education will have a profession, not existing today

In the beginning of 2018 the Digital Education Action Plan of the EU Commission was formulated (European Commission 2018b). The Plan was intended to promote both the adaptation of education and training to the changing, digital world and the development of digital competencies. (European Commission 2018a) In line with the statements of the Gothenburg meeting, the plan emphasises the significance of developing digital skills and that of lifelong learning. The plan identified several effects of digital transformation on education, such as the consolidation of online cooperation, reduction of social inequality, or the consolidation of a more accepting and tolerant society. The plan regards however the technologie's lack of application in the field of education alarming. The Digital Education Action Plan also sheds light to the circumstance that in the digital age the ability of critical thinking is required at a yet unprecedented level and this competence ought to be acquired in the course of education. The Plan formulates three priorities:

- 1) a more suitable application of digital technologies in the fields of education and learning;
- 2) the development of the competencies and skills relevant with a view to the digital transformation;
- 3) the development of education via the application of better data analyses and prognoses.

### The current state of digitalisation in Hungary

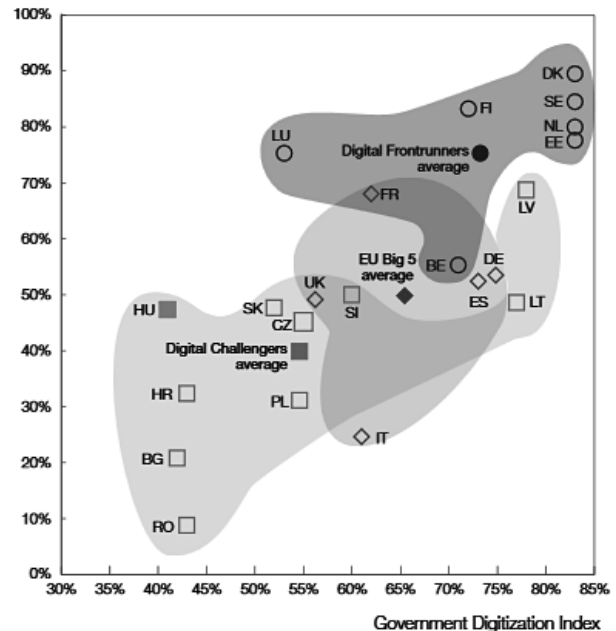
In the preceding inquiry, I have presented an overview of digital public administration and that of digital competencies, next, I shall consider the current state of digitalisation in Hungary from two aspects, that is, via analyses and by examining the data provided by Digital Economy and Society Index. The report issued by McKinsey in 2018 analysed Hungary in the perspective of digitalisation. Accordingly, the Report 'consider[s] Hungary to be one of 10 Digital Challenger markets based in Central and Eastern Europe. These countries exhibit lower digitalization rates than the so-called Digital Frontrunners (Belgium, the Netherlands, Luxembourg, Denmark, Finland,

Illustration 1. Hungary's Digitalisation Index

#### E-GOVERNMENT PENETRATION AND UPTAKE



Individuals accessing public services online,  
% of individuals aged 16-74



Source: McKinsey (2018a):  
*The rise of Digital Challengers*. 24.

Norway, Sweden, Estonia and Ireland), or EU Big 5 markets (France, Germany, Italy, Spain and United Kingdom). However, Hungary has strong foundations on which to accelerate its digitalization. The size of the digital economy in Hungary (at 6.9 percent of GDP in 2016) is above the CEE average of 6.5 percent, and on a par with EU Big 5 markets. And while a gap to Digital Frontrunner markets such as Sweden (9.0 percent) remains, Hungary has recently gained substantial momentum in its digital economy – between 2012 and 2016, it grew by 4.1 percent a year, twice as fast as the non-digital economy and faster than the EU Big 5.' (McKinsey 2018a: 6.)

Digitalisation provides advantages to the state as well, such as by providing digital public services the improvement of efficiency and that of the population's satisfaction is guaranteed. Furthermore, since digitalisation communicates lifelong learning, it manifests itself in objectives pertaining to the improvement of education and that of forming the populace's

attitude towards education. The state can promote these objectives by way of supporting educational programmes (e.g.: development of digital skills in public education, retraining programmes to deal with the effects of automation) and by making the populace widely acquainted with the digital methods (McKinsey 2018a: 5.) Integrating these technological methods could greatly benefit the public sector as well, for thereby its efficacy and the quality of services provided to both enterprises and citizens could be also improved. For a detailed analysis see Csath et al. (2018b) The Report mentions several recently realised best practices in Hungary, such as ‘the e-SZJA (electronic tax administration) system, online cash registers, and Ügyfélkapu (the online governance administration system). (McKinsey 2018a: 7.) Concerning automation, the Report estimates ‘that up to 49 percent of workplace activities today in Hungary – the equivalent of around 2 million jobs – could potentially be automated by 2030’. This rate is identical to the data pertaining to CEE region. According to the Report, 150 000 people work in the public administration sector, with an automation potential of 59%. (McKinsey 2018a: 16-17.) Based on a different analysis, 37% of the activities pertaining to public administration could be automated in Hungary. (McKinsey 2018b: 61.)

### Digital Economy and Society Index

DESI (Digital Economy and Society Index) is an index, created by the EU. It is constituted of 5 dimensions:

- Connectivity
- Human Capital/Digital skills
- Use of Internet Services by citizens
- Integration of Digital Technology by businesses
- Digital Public Services

Apparently, the DESI index placements were revised after the base year. ‘The DESI was re-calculated for all countries for previous years to reflect the above changes in the choice of indicators and corrections to the underlying data. Country scores and rankings may thus have changed compared with previous publications.’ (DESI – Hungary 2019)

Table 1. Hungary’s placements (EU28)

	DESI-index	Human Capital dimension	Digital Public Services dimension
2014	22. <sup>1</sup>	18.	22.
2015	20. (21.) <sup>2</sup>	19. (21.) <sup>3</sup>	26.
2016	20.	20. (18.) <sup>4</sup>	25. (24.) <sup>5</sup>
2017	21. (22.) <sup>6</sup> (23.) <sup>7</sup>	18.	27. <sup>8</sup> (28.) <sup>9</sup>
2018	23.	21. (19.) <sup>10</sup>	27. (26.) <sup>11</sup>
2019	23.	20.	26.

Source: Digital Economy and Society Index (DESI) (edition mine: Cs. F.)

According to the DESI, the Human Capital dimension is constituted of sub-dimensions, such as the use of internet services, basic and advanced digital skills. According to the previous DESI reports, Hungary placed last among the Visegrád countries in relation to this index, but the 2019 DESI report contains a retroactive correction for the placements of the preceding two years as well. In line with this correction, Hungary placed third among the Visegrád countries, prior to Poland both in 2019 and 2018. In 2017, Hungary placed second in that comparison, prior to both Poland and Slovakia.

Hungary’s ratio of advanced internet users and ICT specialists (which serve to measure the advanced digital skills) is barely behind the EU average, while the ratio of ICT graduates is 4.3% in Hungary, which exceeds the EU average (3.5%). (DESI Hungary 2019) The low ratio of those having basic digital skills is however a significant risk factor. According to the 2019 DESI report, Hungary placed in this respect 21<sup>st</sup> out of the 28 member states. The country report states that only 50% of the population has at least the basic digital skills. ‘There is large skills gap: only 21 % of people aged 55 and

Table 2. DESI’s placement of Visegrád countries regarding Human Capital dimension (2019 data are in brackets)

Country	Human Capital		
	2017	2018	2019
Czech Republic	13. (16.)	13. (16.)	16.
Poland	21. (22.)	20. (24.)	22.
Hungary	18.	21. (19.)	20.
Slovakia	15. (19.)	16. (18.)	18.

Source: DESI (Country Profiles: Czech Republic, Poland, Hungary, Slovakia), edition mine: Cs. F.

above (34% in the EU) and only 25 % of people with low education (30 % in the EU) has at least basic digital skills.’ (DESI Hungary 2018: 5.)

The 2019 DESI report’s analysis on Human Capital emphasises the significance of such momentous and progressive governmental actions as the implementation of Digitális Oktatási Stratégia [Digital Education Strategy], the preparation of Digitális Munkaerő Program [Digital Workforce Programme], the establishment of Digitális Pedagógiai Módszertani Központ [Digital Pedagogic Methodological Centre] and the planned spending of EU funds (development of digital skills among active and inactive populace with a view to promoting integration). The report mentions the penning of the new national curriculum, which is going to emphasise the importance of digital skills.

In 2019, the ratio of the populations of the Visegrád countries’ having at least basic digital skills is as follows: Poland is brought up the rear with 46%, 59% in Slovakia, 60% in the Czech Republic and 50% in Hungary, whereas the EU average is 57%. Compared to the ratios provided by the 2017 DESI report, all the Visegrád countries except for Hungary have managed to improve their statistic in this respect. (DESI Country Profiles 2019: Czech Republic, Poland, Hungary, Slovakia) It is im-

Table 3. DESI’s placement of Visegrád countries regarding Digital Public Services dimension (2019 data are in brackets)

Country	Digital Public Services		
	2017	2018	2019
<b>Czech Republic</b>	23.	22. (21.)	20.
<b>Poland</b>	18. (19.)	24. (25.)	23.
<b>Hungary</b>	28. (27.)	27. (26)	26
<b>Slovakia</b>	24.	20. (22.)	21.

Source: DESI (Country Profiles: Czech Republic, Poland, Hungary, Slovakia), edition mine: Cs. F.

portant to note however that even in 2019 the levels of digital and at least basic software-user skills were determined based on the 2017 data.

States can resolve the problems related to the lack, or insufficient level of basic digital skills by way of education, training and changing of attitude, even by direct governmental actions and financial support. More precisely, by implementing the development of digital skills into the curriculum of elementary education (at a level, appertaining to the children’s mental state of development). It is important to emphasise the significance of further vocational trainings and those programmes that promote the development of digital skills among the middle-aged and elderly population. The governance’s ‘key priorities include the digitisation of education, the development of digital competences among adults above the age of

Illustration 2. Digital Public Services in Hungary

	Hungary		EU	
	DESI 2017 value	DESI 2018 value	DESI 2019 value	DESI 2019 rank
<b>5a1 e-Government users</b> % internet users needing to submit forms	<b>38%</b> 2016	<b>45%</b> 2017	<b>53%</b> 2018	<b>20</b> 2018
<b>5a2 Pre-filled forms</b> Score (0 to 100)	<b>23</b> 2016	<b>28</b> 2017	<b>31</b> 2018	<b>23</b> 2018
<b>5a3 Online service completion</b> Score (0 to 100)	<b>63</b> 2016	<b>75</b> 2017	<b>82</b> 2018	<b>22</b> 2018
<b>5a4 Digital public services for businesses</b> Score (0 to 100) - including domestic and cross-border	<b>68</b> 2016	<b>73</b> 2017	<b>77</b> 2018	<b>24</b> 2018
<b>5a5 Open data</b> % of maximum score	<b>NA</b>	<b>NA</b>	<b>NA</b> 2018	<b>64%</b> 2018
<b>5b1 e-Health services</b> % individuals	<b>NA</b>	<b>7%</b> 2017	<b>7%</b> 2017	<b>26</b> 2017
<b>5b2 Medical data exchange</b> % of general practitioners	<b>NA</b>	<b>NA</b>	<b>28%</b> 2018	<b>15</b> 2018
<b>5b3 e-Prescription</b> % of general practitioners	<b>NA</b>	<b>NA</b>	<b>69%</b> 2018	<b>14</b> 2018

Sources: DESI Hungary (2019)

45, small enterprises and micro businesses as well as public servants.’ (DESI Hungary 2018: 5.) In order to accomplish these objectives, the state must provide funding (either by way of organising these courses by itself, or by way of financially assisting the participants/educational centres)

From 2016 onwards, the field of Digital Public Services was identified as the greatest challenge in Hungary. (DESI Hungary 2016) At the same time, the Index admitted that Hungary improved in this respect (online public services) at a rate above the average. That is why, Hungary was listed among the states, closing up in respect of digital public services. The new e-ID was introduced also in 2016. (Europe’s Digital Progress Report Hungary 2016) The Europe’s Digital Progress Report (2017) describes Hungary in respect of digital public services as follows: the automatic filling-out of forms constitutes a great challenge, but Hungary has managed to improve not only in this respect, but also regarding the whole-scale online administration and in respect of increasing the number of e-governance services’ users. The 2018 DESI index indicates that Hungary is well behind the EU average in respect of digital public services. Accordingly, ‘[i]n Hungary, Digital Public Services remain one of the most challenging areas of the digital economy and society.’ (DESI Hungary 2018: 9.) The 2019 report mentions that ‘[s]ince 2016, e-government users have increased substantially, from 38 % to 53 %, although this is still below the EU average of 64 %.’ (DESI Hungary 2019: 12.) Besides, Hungary’s ratio and placement regarding whole-scale online administration and the automatic filling-out of forms has also improved compared to the 2018 values.

### Empiric inquiry

As I have argued in the preceding inquiry, digitalisation and its effects, e.g.: the widespread use of AI fundamentally transforms the labour market. Several studies<sup>12</sup>, addressing the subject-matter asserts that AI supported automation carries great potentials that may benefit the governance as well. The Forbes (2017) stresses that by applying automation, a given entity can provide a more efficient service with

fewer employees, which – besides resulting in cost reductions – could promote the citizens rate of satisfaction, automation could improve the standards and efficiency of services and could make public administration appealing to the public. According to the McKinsey report, the modern automated machines can process an extensive amount of data, digitalise the paperwork and carry out cognitive, not routine tasks in a growing number at a more and more reduced cost. (McKinsey 2018b: 15.) It is important to emphasise however that the introduction of intelligent automation to the public administration would seem to be a more complex task, due to its cautiousness and aversion of new technological methods. It is worth noting that the organisational culture may impede automation: the administrative staff needs to understand that automation results in higher standard work environment, where the employees could carry out more creative and less routine-like tasks. As a matter of fact, this could even improve the employees’ rate of satisfaction. Thus, the potentials in intelligent automation are enormous and these – together with its potential dangers – ought to be reckoned with by the governance. In agreement with these positions, some other studies (Governing 2017) (Everson – Hubbard 2017) note that thorough planning and suitable communication is necessitated on the side of the administrative bodies prior to the implementation of automation. First, it is necessary to determine and categorise (1. routine-like tasks, 2. communication with the clients, 3. complicated, more complex tasks) the activities appropriate for automation and it is possible only afterwards to proceed to the implementation procedure.

### Methodology

In order to survey the civil servants working in public administration, an empiric survey was introduced with a view to appraise the civil servants’ level of preparedness for the daily changing challenges of the 21<sup>st</sup> Century. The questionnaire was issued on 6<sup>th</sup> May 2019 and its results were at hand by 24<sup>th</sup> May 2019. The questionnaires were transmitted to the civil servants working in government and district offices electronically via the Probono

system, the site dedicated to the further vocational training of civil servants. The questionnaire was drafted in line with the provisions of GDPR, the data were provided voluntarily and were processed anonymously. The questionnaire consisted of open- and close-ended questions, in a total number of 31. The questions were grouped as follows: demographic data, questions relating to device utilisation, digital competencies related knowledge, questions regarding work-performance. The questionnaire was filled out and sent back by a total of 758 persons. In the following part of my discussion, I submit the results based on the preliminary procession of these answers.

### **Preliminary results**

The great majority (73.9%) of the respondents are women, 26.1% men. Concerning the respondents' age distribution, 68.8% of them are between the age of 35 and 54. Concerning their education, 81.5% have higher education degree, 18.5% secondary certificate. The respondents' distribution of workplace (government, or district office) is approximately equally balanced. 90% do not employed in a leading position. The average respondents work in public administration for 14.5 years, the longest service time is 42 years (higher education degree, leading position, woman respondent). In conclusion, the questions were answered typically by middle-aged women with higher education degree, working in non-leading positions.

92.1% of the respondents replied to the question concerning device utilisation that they have smart phones, which they usually (in 97%) use 0-3 hours outside of the working hours, mostly for mailing, web-browsing, reading the news, using social media and online purchases. For the open-ended question, asking what kind of digital services of the public administration is utilised by the respondents as private citizens, the respondents indicated typically the *Ügyfélkapu* and a number of respondents the *e-SZJA*, the application of e-paper, online appointment-making, or the submission for state advertises. In the private sector, the respondents resort to online bank

administration, electronic billing and online purchases related services.

The framework for surveying digital competencies was provided by the DigComp 2.1. The Digital Competence Framework for Citizens document (Carretero – Vuorikari – Punie 2017). The framework measures five areas:

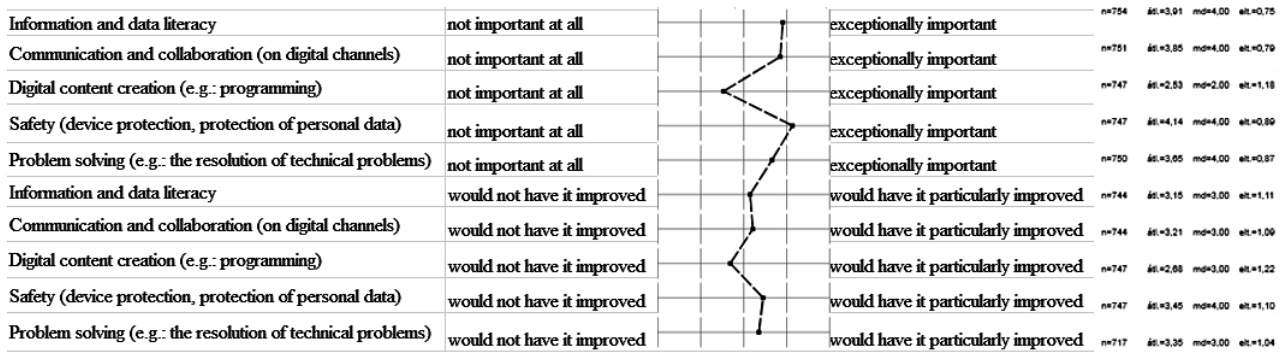
- 1) Information and data literacy (web-browsing, searching for information, filtering, evaluating and handling of the information obtained)
- 2) Communication and collaboration (on digital channels)
- 3) Digital content creation (e.g.: programming)
- 4) Safety (device protection, protection of personal data)
- 5) Problem solving (e.g.: the resolution of technical problems)

On these areas, the respondents could appreciate themselves on a five-degree scale

- 6) Foundation (the ability to solve simple tasks alone, or with assistance)
- 7) Intermediate (the ability to solve well-defined, routine-like / non-routine-like tasks alone, or with assistance)
- 8) Advanced (the ability to assist others in solving distinct tasks and resolving distinct problems)
- 9) Highly specialised (the ability to resolve complex problems and to develop the applicable method)
- 10) The respondent consider herself/himself to be below the basic level

According to their self-assessment, civil servants typically placed their digital content creation skills at a basic, or below basic level (77.9% - N=747), while typically placing their problem-solving (80.2% - N=748) and safety skills (82.3% - N=748) at a basic, or rather intermediate level. The majority of the respondents set their knowledge of information and data (91.5% - N=752) and communication and collaboration (89.1% - N=752) skills typically to an intermediate, in some cases to advanced level. The respondents consider the possession of the above detailed safety skills exceptionally important (40.2% regard it exceptionally, 39.5% greatly important), at the same time, they consider having the skills related to digital content creation moderately, or even less im-

Illustration 3. The importance of digital competencies and the importance of their improvement



Source: Summary of the results produced by the questionnaire survey

portant. The other areas are typically regarded very important. The same tendency was made manifest in the respondents' answers to the question concerning the respondents' opinion of the need for improving the given competencies. The areas considered less important were also regarded less important in respect of improvement priorities, whereas the number of those who regarded the improvement of such areas like security skills was above the average (one fifth of the respondents), they would have these areas improved at an exceptional rate.

The results produced by the answers given to the questions concerning work-performance demonstrate that the respondents agreed with the assertion according to which public administration and its employees ought to be innovative, motivated, client-centred and action-oriented. 74% of the respondents (N=701) would reward (e.g.: with bonuses) those civil servants having more developed digital competencies, while 26% would not do so. 43.7% of the respondents regarded their level of preparedness for the changes attending on digitalisation moderately adequate, 29.8% rather adequate and 16.6% completely adequate (N=748), with 4.7% regarding it rather not adequate and 1.3% completely not adequate. The workplaces' technological and technical conditions necessary to efficient working were regarded by half of the respondents (50,7% - N=749) moderately given, another 30% regarded it rather, or completely given. The workplaces' present practises (processes) were regarded by the majority of the respondents unsuitable for complete digitalisation without any transformation.

The following answers were given to the important question addressing the respondents'

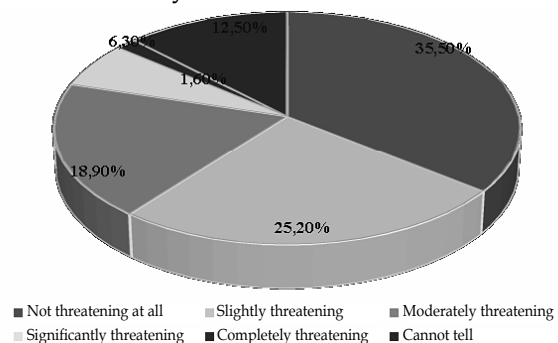
opinion whether the widespread application of digitalisation could threaten the respondent's work activity (N=746).

Contrary to the prior expectations, 35.5% of the respondents did not consider his/her work activity threatened at all, while 25.2% consider it slightly threatened. 18.9% replied that in their opinion it is moderately threatened and according to 7.9% it is significantly, or completely threatened. The results could demonstrate their optimism, but it is more likely that behind this optimism lies the civil servants' lack of thorough knowledge and information concerning the effects and potentials attending on digitalisation.

The respondents suggested among other things to implement the expected knowledge concerning digitalisation to the higher education curriculum, to organise internal and external further vocational trainings and to take the attitude of the elderly generation (to whom the changes caused by digitalisation are even more unfamiliar than to say the middle-aged generation) into account. Many respondents

Illustration 4. The relation between digitalisation and current work activities

In your opinion, how threatening is digitalisation for your work activity?



Source: Summary of the results produced by the questionnaire survey



suggested that public administration shall utilise the advantages of digitalisation the best it can, that the outdated infrastructure ought to be replaced, an adequate number of specialists (system administrator) and software ought to be employed.

**Summary**

As a digital challenger, Hungary is involved in the constantly changing challenges. The changing world is demanding changing skills and competencies from the citizens both in the private sector and in public administration. According to the DESI index, Hungary is constantly developing the dimensions concerned by our subject-matter (human capital and digital public services). It is an open question however, whether the progress is carried out in a sufficiently quick manner, or else. According to the 2017 illustration of the Digital Evolution Index, Hungary is facing with significant chal-

lenges, the pace of development seems to fall behind.

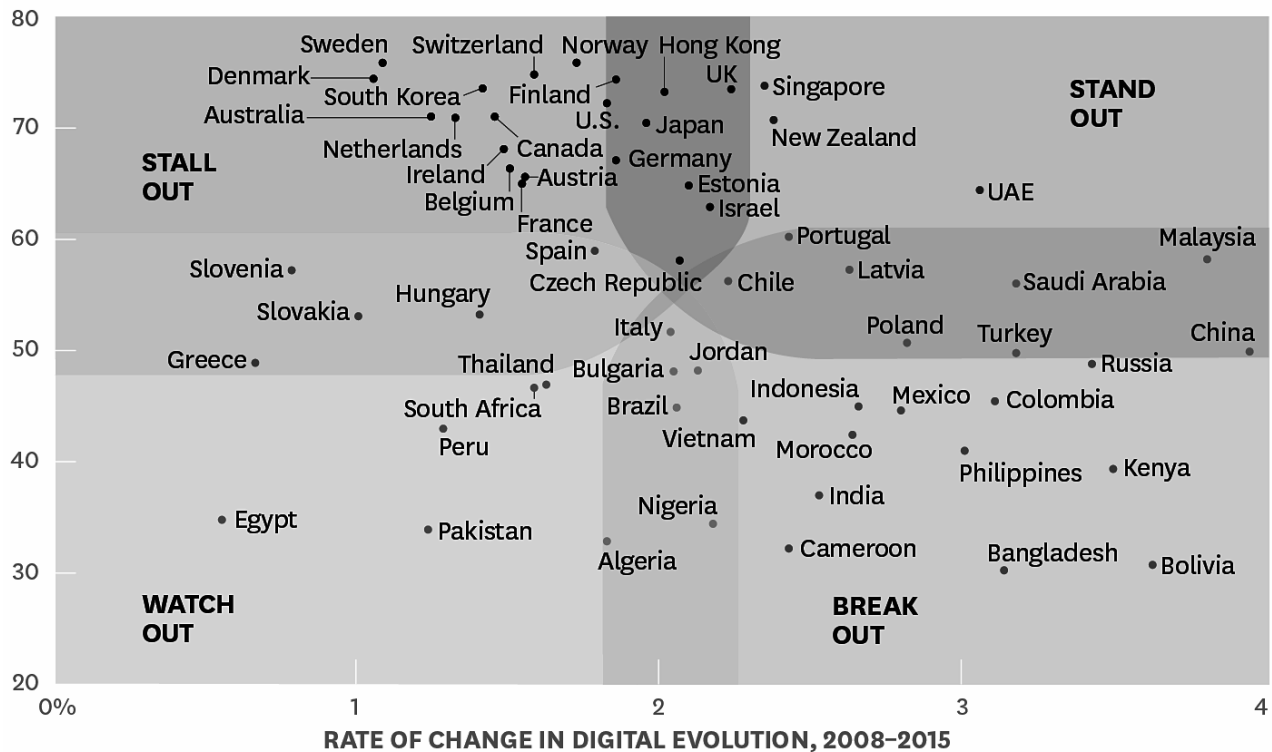
It is vital, that the development of soft skills be kept on the agenda. That is why, there is reason to prepare the civil servants for the challenges attending on digitalisation. The data of the empiric survey demonstrate that according to their self-assessment, their digital skills are at an adequate level, wherefore they do not tend to regard their work activities threatened by the phenomenon. At the same time, a kind of anxiety is also discoverable based on the answers given to the empiric survey, that is why, it is inevitable that the civil servants ought to be prepared for the changes caused by the digitalisation. In order to achieve this objective, it is necessary to constantly organise further vocational trainings and to be tolerant with the elderly generations, for digitalisation signifies a huge technical leap for those not accustomed to the phenomenon. Thus, in agreement with McKinsey (2018c), I would like to stress the importance of lifelong learning and reskilling/

*Illustration 5. Hungary's placement on the Digital Evolution Index's survey*

**Plotting the Digital Evolution Index, 2017**

Where the digital economy is moving the fastest, and where it's in trouble.

**HOW COUNTRIES SCORED ACROSS FOUR DRIVERS ON THE DIGITAL EVOLUTION INDEX (OUT OF 100)**



SOURCE DIGITAL EVOLUTION INDEX 2017, THE FLETCHER SCHOOL AT TUFTS UNIVERSITY AND MASTERCARD

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Sources: Harvard Business Review (2017)

retraining. According to the most recent data provided by Eurostat, only a low percentage of the population participate in adult education in Hungary (among the Visegrád countries, the Czech Republic precedes Hungary). (Eurostat 2018) Furthermore, it is urgent to rethink and if necessary remodel the processes applied at the workplaces in order to adapt them to the digital methods. The above detailed discussion thus proves that the significance and effects of digitalisation is a thorny question that ought to be subjected to further inquiries.

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## Notes

- 1 Based on the 2014 data (DESI 2015)
- 2 DESI 2016
- 3 DESI 2016
- 4 DESI 2017

- 5 DESI 2017
- 6 DESI 2018
- 7 DESI 2019
- 8 DESI 2017 and 2019
- 9 DESI 2018
- 10 DESI, 2019
- 11 DESI 2019

12 See e.g.: KPMG: Intelligent Automation in Government. <https://home.kpmg/us/en/home/industries/government-public-sector/intelligent-automation-in-government.html>