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THE DEMANDS ON COMPETENCIES FOR DIGITAL TRANSFORMATION AND THE PERCEPTION OF BUSINESS STUDENTS

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Abstract:

Digital transformation is just as much about people as it is about technology. Little research has been done on the gap between the competencies required in research surveys and business students' points of view. This research explores business university students' perception of the competencies needed for digital transformation. Using the Delphi technique followed by focus groups, the research attempted to capture student perception in depth. The findings revealed that university students of business study programs assess higher level behavioural competencies and technological competencies rank lower, but both domains only by weak consensus. In conclusion, the research also highlights the need for development of specific required technical competencies to meet the business point of view in HEIs programs and to fill the current gap.

Keywords:

digital transformation, behavioural and technical competencies, business students' perception, human resource development

JEL Classification: O33, M10, A23

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1 Introduction

Digital technologies are now imperative for working, learning, entertaining, socialising, shopping and accessing almost all services and activities in society today. Digitalization is an ongoing trend, and EU countries have digitalized rapidly over the last two decades. Development of the digital infrastructure and rapid connectivity bring citizens and businesses in EU countries new opportunities (European Commission, 2021). It is evident that new technologies, the digitalisation of processes and automation of work are changing the manner of doing business, work and everyday lives. The level and pace of digitalization vary widely across countries (DESI, 2021), industries and other social spheres influencing not only business and working processes but also consumption, education and recreation, etc. Furthermore, surveys conducted during the pandemic (e.g. McKinsey, 2021; World Economic Forum = WEF, 2020) reported that the COVID-19 pandemic has become a watershed moment in the digital transformation not only in business but also in people's lives.

Digitalization and technological changes including those in ICT play a crucial role in fostering economic prosperity. Digital technologies have transformed business models, bring new types of products and services and create new types of customer experiences. Their impacts occur not only at the business level; they also have environmental, societal, and institutional implications (Kraus et al., 2021; Myovella et al., 2020; Nabisan et al., 2019). Generally it is also recognized that the digital transformation holds societal implications at broader regional/national/global levels.

Existing research on digitalization and digital transformation has largely focused on specific fields or disciplines (e.g., management and marketing, economics, information systems, operations, strategy) and in contrast, limited effort has focused on human resource development. For example, Henriette et al. (2015) in a systematic literature review found that most existing papers regarding digitalization dealt with technological innovations and pointed out that this subject actually covers a wider potential of scope.

Digitalization is changing the skills needed to access economic opportunity (Adamková, 2020; Muro et al., 2017). In 2019 the OECD predicted that many new, productive and rewarding forms of work and jobs will be created as part of the digital transformation, but at the same time, many jobs will disappear and this process will most probably continue in the future. McKinsey (2020) in the survey *The future work in Europe* then stated that more than half of Europe's workforce will face significant transitions.

In terms of employment, the issue of human resources development is also linked to the question of which core competencies (cf. Armstrong & Taylor, 2014; Dessler, 2020; Hecklau et al, 2016) employees must possess in order to fulfil their current and future job. In addition, the perceptions of people about digitalisation, and their differences among specific socio-demographic groups, need to be researched (cf. Vailescu et al., 2020).

The change in required and predicted skills and competencies leads to a gap between what companies and other organizations will need and the professional profiles that are available in the job market or which the current education system including HEIs offers (Cesco et al., 2021; Marnewick & Marnewick, 2020). Additionally, we recognize the importance of students' views on the required competencies, particularly in the face of digital transformation. From this point of view, fresh graduates of economics faculties play a specific role. These young people are not only entering the labour market during the ongoing digital transformation, but are also expected to be

immediately involved in the management of other workers and will therefore influence their development.

University students' views on required competencies, particularly in the face of digital transformation, are considered an important emerging topic. The research also intends to analyse the perceptions of individuals regarding the challenges faced by organizations (Sousa & Rocha 2019). Thus, the research raises the following research questions:

What are the perceptions of young people when they are completing HEI regarding the competencies needed for digital transformation?

How do they rank competencies recommended by selecting surveys in relative importance? Further, is there a gap between what research predicts and the market sees as relevant and what HEIs graduates understand as important?

The research looks at the difference between the perceived challenges faced by young people, fresh graduates of HEIs, and the new competencies required in research surveys in the context of digital transformation. The research contributes to understanding and fostering employee competencies and is aimed at explaining how individual points of view influence the final view of a selected target group.

The remainder of this paper is structured as follows: first, the theoretical background is described, the effect of digital transformation on people's life and the labour market is presented briefly, and then expectations of future requirements for competencies are described. Second, the Delphi technique was used with the purpose to examine students' views on digital transformation. Third, to gather information about the students' views on digital transformation and the competencies needed in detail, focus groups were implemented. Fourth, this paper concludes with a discussion of the research results and then the limitations of this research are presented as well as implications for further research.

2 Theoretical background

2.1 Digital transformation and human resource development

Digital transformation is just as much about people as it is about technology. Digital transformation has a great effect on people's lives and the labour market (European Commission, 2019; Dengler & Matthes, 2018) and places pressure on employee skills that organizations need to succeed (Ostmeier & Strobel, 2022) and overcome the rising challenges to this transformation (Sousa & Rocha, 2019). Employees stand on the front line which is affected by transformation change, whether in a positive or negative direction (Adamková, 2020; Stanimir, 2020).

Businesses and other organizations at all levels are focused on developing digital transformation frameworks and undertaking research to better understand the new professional competencies that are and will be required. Developing human resources and matching job profiles have become essential tasks to promote economic and social growth (Goulart et al., 2021). The global survey by McKinsey (2021) underlines that many companies face large and growing skills deficits.

The WEF (2020, p. 5) summarized the situation regarding job change in the context of digital transformation and the onset of the Covid-19 pandemic as follows: "Although the number of jobs destroyed will be surpassed by the number of 'jobs of tomorrow' created, in contrast to previous years, job creation is slowing while job destruction accelerates."

Skills or competencies?

This research focused on current assessments and expectations of future competence requirements. It could be mentioned that Hecklau et al. (2016) in their meta study concluded that the surveyed studies used different terms and definitions for competence and its elements (e.g. “skills”, “abilities”, “knowledge”, “know-how”) inconsistently. Thus, in the next two paragraphs we provide examples of this fact as evidence, how researchers and world renown agencies really use the two main terms, skills and competencies.

For example, Sousa and Rocha (2019) contribute to the discussion of effective digital transformation of organizations based on the latest trends of skills. Also Goulart et al. (2021) use “skills in the digital area“, and Ostmeier and Strobel (2022) focus on the employee skills that organizations need to succeed, particularly in the face of digital transformation. Similarly, the global surveys by McKinsey (2020, 2021) use the term workforce skills or the skills required to work, etc. On the other hand, Shet and Pereira (2021) call for the managerial competencies needed for a successful Industry 4.0 environment. For example, Frey and Osborna (2017) rank occupations according to the mix of knowledge, skills, and abilities they require. Fonesca and Picoto (2020) apply the DigComp conceptual reference model when searching for competencies needed for digital transformation. Furthermore, WEF (2020) presents the composition of the skills list in Table 2 which contains items of competency bundles.

Fonesca and Picoto (2020) explain that although the word skill may suggest the concept is the same as competencies, they are different. Skills are the ability to do something well, they represent human expertise. Competence is defined as the set of knowledge, skills and attitudes that are necessary for personal and professional development in different contexts (European Commission, 2020). SHRM (n.d.) defines competencies as follows: “A competency is a cluster of highly interrelated attributes, including knowledge, skills, and abilities (KSAs) that give rise to the behaviours needed to perform a given job effectively. Competencies can be either technical or behavioural. Technical competencies reflect the knowledge required to perform a specific role.” This definition is also used by Dessler (2020), who emphasizes that many employers use a different job analysis approach when listing competency profiles that people need to do certain jobs. The profiles then contain the knowledge, skills, and experience.

According to the generally stated requirements for human competencies in the context of digital transformation mentioned above, it seems that this is primarily an area of technical competencies according to the SHRM definition. Behavioural competencies reflect how people apply their knowledge and related skills and significantly influence people’s success and performance in a job. The concept of competencies by SHRM (n.d.) and Fonesca and Picoto (2020) is applied in this research.

2.2 Digitalization and country context

For the subject of this research, it is important to briefly make a few basic remarks on the context in the Czech Republic (OECD, 2021). The Czech Republic is the most competitive country in the CEE region and its economy is a highly open and one that is more affected by external influences than other EU countries.

Digitization and digital transformation have been the subject of increasing public debate over the last ten years, and have become the subject of political agendas. Digital transformation was initially influenced by Germany with the focus on Industry 4.0 (Hejduková et al., 2020). The survey by McKinsey (2020) counted the country in the “Digital Challengers”, countries that demonstrate strong digital growth potential and the ability to emulate the success of “Digital Frontrunners”, a

group of countries in Northern Europe with high digitalization rates. The Czech Republic is among the top 30 countries in the world in terms of the quality of the digital environment (Digital Quality of Life Index, 2021). The environment enabling digitization in the Czech Republic has increased in the last few years (Euler Hermes, 2021). In recent years, the Czech Republic has significantly increased its efforts in the area of digitalization of e-Government, healthcare, education, including in connection with the Covid-19 pandemic.

For example, in ICT development (DESI, 2021), the number of corporate websites and e-commerce (Lone et al., 2021), the country is above the European average and the survey by IRF (2020) ranks Czech industry 15th in the world in terms of robot implementation. Furthermore, in recent years, the Czech Republic has significantly increased its efforts in the area of digitalization of e-Government, healthcare and education. Also as a result of the Covid-19 pandemic, students can encounter manifestations of digitalization at every turn

3 Methods and results

Owing to the exploratory nature of the research questions of this research, the researcher adopted a sequential qual + qual mixed method research design (Creswell, 2014). Molina-Azorín (2016, p. 37) states that “The use of mixed methods research in business studies may play an important role in the development of our field because results obtained from different methods have the potential to enrich our understanding of business problems and questions.” The conducted research applies the rationales and advantages of mixed methods research: complementarity (elaboration or clarification of the results from one method with the findings from the other method) and development (the results from the first method help to develop the use of the second method).

In order to address the first and second research questions, the Delphi technique was used with the purpose to review students’ opinions and views on the competencies that are important for job positions. The students’ views were examined according to digital transformation. Additionally, the focus group method was used to collect data about the students’ views on digital transformation and the competencies needed in detail and to address the third research question with the aim to understand the findings from the first stage of the conducted research.

3.1 Delphi

The Delphi technique is a formal consensus method and a systematic means for measuring and developing consensus among participants regarding a particular topic (Green 2014; Linstone & Turoff, 1975). The Delphi technique may also be used to further clarify or validate findings from previous surveys and also in this research the method did not try to “predict” the future in digital transformation, but rather attempted to reach an understanding on the selected topic. Delphi may be characterized as a method for structuring a group communication process and can be useful in gathering the opinions of a large number of people in order to provide data for formulating or clarification of a selected topic and discovering areas of consensus. In this sense, the primary goal of Delphi is consistency of opinion from a group of experts (students) regarding an area of interest, here on the human competencies needed for digital transformation.

The technique uses a set of carefully designed questionnaires with summarised information and feedback on opinions derived from earlier responses of participants to gain new information about a particular topic (Green, 2014). The Delphi process is conducted over several rounds, initial and

subsequent (Geisser, Alschuler, & Hutchinson, 2011), the classical version applies three rounds (Linstone & Turoff, 1975).

The conducted research used four key features which may be regarded as necessary for defining a procedure as a 'Delphi'. These are anonymity, iteration, controlled feedback and statistical aggregation of the group response.

The first round (initial stage) focuses on the selection of the group of experts and the construction of issues related to the research (Questionnaire 1).

The selection of the panel of participants (business university students) is a critical aspect of the Delphi method (Pollard, C. & Pollard, R., 2004). Participant panel selection in this research was based on the following criteria: the participant is a final-year business student (master's programme) and is seeking employment. The Delphi panels in this study consisted of 67 final-year faculty of economics students. All students fell within Generation Z (Cesco et al. 2021, Egerová et al., 2021).

The research using the Delphi technique used three separate groups. The number of participants in the groups was as follows, the first group 21, the second 23 and the third 23 participants. It is important to mention that almost 50 % of respondents already had at least part-time work. This shows that business university students currently have work experience not only in practice and occasional work. Most of them are no longer in the role of university students, but as young workers they also know the corporate (organizational) environment. Each panel of respondents worked separately.

In the first round, information about the subject matter was gathered and a list of items was created to formulate the questionnaire. The specifically designed and constructed online questionnaire for the present research contained 13 items intending to reflect the main competencies found in the literature reviewed in this research.

As mentioned above, it is not easy to create this list and therefore we followed the approach by Hecklau et al (2016), who used the established "generic concept of competence" for identifying, classifying and aggregating competencies. They argued that "according to a wide range of authors competence includes motivation, attitude, abilities, skills and knowledge needed by employees to cope with job-related tasks and challenges in order to achieve business success" (Hecklau et al. 2016, p. 2). Possible competencies were derived using the logical deduction of required core competencies for employees in the digital transformation process presented by research and surveys, which are presented in the following table.

Table 1 Competencies needed for digital transformation (Industry 4.0)

Meta-Study, Hecklau et al. (2016)	Managerial competencies Shet & Pereira (2021)	Building a better working world, EY (2021)	Needed competencies, Fonesca & Picoto (2020) Essential competencies Dig Comp Vuorikari et al. (2016)*	World Economic Forum (2020), classification of skills, competency bundle
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Communication & cooperation	Collaborative mind-set	Communication	Collaborating through digital technologies	Coordination and time management, Memory, verbal, auditory and spatial abilities, Persuasion and negotiation
Leadership competence	Entrepreneurial intelligence	Leadership and social influence	Identifying needs, gaps	Leadership and social influence
Analytical competence	Data analysis	Analytical acumen, Data analytics and data science	Evaluating data, information, digital content	Analytical thinking and innovation, Critical thinking and analysis
Complex problem solving	Problem solving decision making		Solving digital problems	Complex problem-solving, Reasoning, problem-solving and ideation
Decision making	Project leadership	Decision making		
Creativity	Design thinking	Innovation, User experience design and design thinking	Creatively using digital technologies	Creativity, originality and initiative
Willingness to learn		Learning agility		Active learning and learning strategies
Flexibility & adaptability	Agility	Change management, Resilience		Resilience, stress tolerance and flexibility, Troubleshooting and user experience
Digital networks		Digital literacy	Interacting through digital technologies	
Digital security		Digital literacy	Personal privacy, netiquette	Quality control and safety awareness,

				Technology use, monitoring and control
Coding competence	Digital intelligence, modelling	Artificial intelligence and augmented reality	Programming	Technology design and programming
Process understanding	Robotic process automation, Concerned technology architecture			Quality control and safety awareness, Systems analysis and evaluation
Interdisciplinary competence	Sustainability	Intellectual curiosity	Protecting the environment Integrating and re-elaborating	Service orientation
	Disruptive leadership		Managing digital identity	Attention to detail, trustworthiness
	Research orientation		Browsing, searching, filtering data, information, and digital content	
	Business acumen		Managing data, information and digital content	Emotional intelligence

Source: Own

*These sources present other detailed items, e.g. Instruction, mentoring and teaching, Management of financial, material resources, Management of personnel, Manual dexterity, endurance and precision, Reading, writing, maths and active listening, Technology installation and maintenance, Visual, auditory and speech abilities, that were not taken into account when creating questionnaire no. 1.

For the input of the data in questionnaire 1, the competencies were ordered alphabetically. The final list of competencies used in this research is in Table 2 and the competencies here were ordered after the third round of Delphi and poses the summary information.

In the second round, participants were asked to rate the items in the questionnaire using a predetermined 5-point Likert scale ranging from 'Not at all important' to 'Very important'. The Delphi moderator applied measures of central tendency to determine consensus from the second round.

The third round provided feedback from the previous round to reach a final consensus or indicate whether a consensus could be reached (Green, 2014). First, questionnaire 2 was constructed and launched. The participants were invited to rank the 13 competencies with the first being the most important and the 13th being the least important. To measure the consensus, the Kendall W coefficient of agreement was used.

3.2 Results of Delphi

Table 2 shows how selected groups of business study programs rank competencies recommended by selecting surveys in relative importance.

Table 2 List of competencies according to group evaluation

Competencies	Groups			Overall place
	First	Second	Third	
Communication & cooperation	1	1	1	1
Digital security and netiquette	2	4	2	2
Creativity with focus on innovation	4	2.5	3	3
Learning agility	9	2.5	5	4
Complex problem solving	3	5	9	5
Decision making	6	7	8	6
Analytical competence and data science	5	10	7	7
Leadership, social influence and strategic orientation	13	6	4	8
Browsing, searching research data	12	8	6	9.5
Communication using digital networks	7	9	10	9.5
Process understanding (robotics process and automatization)	10.5	11	11	11
Technology design and programming	10.5	12	12.5	12
Flexibility and adaptability & resilience	10	13	12.5	13

Source: Own

To measure the degree of consensus in the ranking of the items across all participants within a group of students, Kendall's coefficient of concordance (W) in Equation (1) was applied in the third round. Kendall's W ranges from 0 (no agreement) to 1 (complete agreement).

(1)

$$W = \frac{\sum x^2 - \frac{(\sum x)^2}{n}}{\frac{1}{12} k^2 * (n^3 - n)}$$

Notice. k = number of respondents (panellists), n = number of factors (Chráska, 2007)

The Kendall W value obtained is 0.107 for the first group, 0.254 for the second group and 0.184 for the third group of students, which indicates weak agreement.

As can be seen from Table 2, the order of importance of selected competencies was very similar for all three groups. On the other hand, the obtained Kendall W values show that there are large individual differences in participants' views on the competencies needed for digital transformation.

3.3 Focus Groups

Thus, with the purpose to gather information about the students' views on digital transformation and the competencies needed in detail, as an additional stage of this research, focus groups were implemented. This method allows researchers to develop an understanding about why people feel the way they do (Bryman, 2016). This means the main purpose of this stage of the conducted research was to learn about the students' views, reactions and opinions to the topic, as well as to gather information from group members in relation to "the competencies needed in the era of digital transformation".

Generally, the focus group research involves bringing a small group of people together for an interactive and spontaneous discussion of a particular topic or concept (Hair et al., 2021). The research method of the focus group interview is a formalised process in which a small group of people discusses a joint topic or concept as a team in an interactive way. Based on the discussion with a selected panel of respondents under the leadership of an expert moderator we gain information about the opinions of the panel members on the selected topics/issues (Gray, 2009).

Each focus group consisted of 12 students whose discussion was chaired by one trained moderator and lasted for approximately 1 hour. The focus group approach was prepared on the basis of the literature review mentioned above (e.g. Ernst & Young 2021; Hecklau et al., 2016; WEF, 2020). The moderator informed participants about the purpose of this research and the focus group method. Ethical aspects of the research were emphasized.

In this stage of the research, 5 focus groups were carried out in December 2021. As a result of the ongoing COVID-19 pandemic, focus groups were organized online using Google Meet. Assistants to moderators recorded the discussions in writing to support anonymity and open discussion. The participants were business university students studying study programmes at economics faculties. All participants participated also in stage one, and were members of groups in the Delphi stage. Each focus group was mixed in gender.

All the focus groups were facilitated by one moderator who had received training in focus group moderation and two assistants to the moderator. The main sub-topics and questions in the conducted focus group research were prepared as follows (scenario):

Sub-topic A: Research using the Delphi technique has shown that you have rated the following competencies the most and vice-versa. Can you comment on the outputs?

Sub-topic B: The survey by The World Economic Forum 2020 also underlines the competencies: Resilience, stress tolerance and flexibility, Active learning and learning strategies. What is your view on these two competencies?

Sub-topic C: The survey by Ernst & Young 2021 also works with so-called skills and competencies in the technical field. How well prepared do you feel in these fields?

3.4 Results of Focus Groups

In the table below (Table 3), results in relation to sub-topics and questions from the scenario are presented. This table provides a brief overview of the findings for each sub-topic and also provides

evidence of the discussions in focus groups with important and interesting statements by participants.

Table 3: FG results and information that contains details relevant to selected sub-topics

<p>Sub-topic A, Top versus the lowest rated competencies from Delphi research</p> <p>Communication and collaboration are important in employment. Communication is important in every team so many students agree with its first place, complexity is also important for them. Digital security and netiquette on the Internet are very important, because nowadays much of the communication has moved to the online environment and we should pay attention to our privacy and security, because there are several threats on the Internet. Leadership - it depends from what point of view we answered the question asked, whether we took it from our point of view or in general, leadership, for example, will not apply to all people. Some students said that flexibility and adaptability are important, they would not rank it in the last three places. Complex problem solving - several participants think that the above should be evaluated. Adaptability is very much related to today's society, quick reactions are needed.</p> <p>"Communication is important online and offline, because if communication is stuck, then there is a problem in teamwork." "Digital security is a current topic, related to the Covid pandemic." "Communication and complex problem solving is more important in home office, because in the office one can ask others (because they are, e.g., in one room, so there is someone who will answer), but at home one has to know who to contact with a question." "The results of Delphi show that our views differ."</p>
<p>Sub-topic B, WEF 2020: Resilience, stress tolerance and flexibility, Active learning and learning strategies</p> <p>People with a higher education level want to be professionals in their field of interest. If we want to focus on our field, we need to keep learning, new information, new laws, etc., are constantly being added. Time management is very important so that we can prioritize our work so that we do not deal with less important matters. It is important to constantly work on ourselves due to technological development.</p> <p>"The will to be educated is very important, I start working and I have to learn to work with programs, etc." "It's important, I would give it a high ranking." "Being resistant to stress is not new. We have been experiencing stress from primary school and in everyday life, where we are exposed to similar situations. This shows us how to manage stress." "Through online learning, students have been able to experience how it is practical for someone to give them a job, not explain much, and want to complete a task." "Resistance to stress is important, but it depends on the individual, I do not know if it can be learned, but it is certainly not easy."</p>

<p>Sub-topic C, Ernst & Young (2021), skills and competencies in the technical field. How well prepared do students feel?</p>
<p>We all have a foundation in data analysis and orientation. In digital literacy as well. Some participants did not know what the terms VR and AR mean. The moderator called for examples and students mentioned: 3D, virtual tours including applications in B2C, virtual games, chatbots, examples in further education. In general, our generation, as it grew up with computers in a modern environment, is quite well prepared. Students from technically oriented faculties are more prepared than we economists.</p>
<p>"As for augmented reality, we don't have that much experience with it, but I think we have the competence to learn it quickly when needed." "The problem is design, that's not much of a topic in our study program." "We have encountered artificial intelligence, artificial intelligence is, for example, Siri on the iPhone, and virtual reality is on game consoles."</p>
<p>Examples of concluding remarks from focus groups.</p>
<p>"Technology development is really fast. But it depends on people how quickly they manage to learn them. There are also differences between generations." "We have to adapt and technology can make our jobs a lot easier. That's how it needs to be perceived." "The pace at which new technologies are emerging is faster than people can perceive." "People are hand in hand with technology, technology is dependent on people." "Technology is faster than man and time will not wait for people who will not be able to handle it and will not want to learn with it."</p>

The results of FGs help us to understand the findings from the first stage of the conducted research. Sub-topic A was focused on an explanation of the degree of consensus in the ranking of the competencies across all participants within a group of students. As can be seen from selected discussion records, students had differing assessments and there also exist almost opposite views. FGs confirmed the findings from Table 2, namely the importance of the first four items, but the difference in students' point of view really exist.

Sub-topic B was focused on students' views on topics (competencies) resilience, stress tolerance and flexibility, active learning and learning strategies. Students claim that people with a higher education level want to be professionals in their field of interest and they must continue in their learning. They consider time management and resistance to stress as very important and some of them stress that it depends on individual abilities.

Sub-topic C was focused on skills and competencies in the technical field. It is necessary to mention that the participants were economics students. As can be seen from selected discussion records, students were confident in ICT skills but not in all technical competencies listed by Ernst & Young (2021). Some of them stated that they did not have a clear idea about the application of VR and AR. For example, the topic of design, according to their statements, does not correspond to the study program. On the contrary, as economists, they believe they are able to analyse data. They

are aware of rapid change and express varying degrees of concern. The evidence is also in the concluding remarks.

4 Discussion and conclusion

The Delphi technique was used in this research as a valuable technique to gain information about the perceptions of young economists regarding the competencies needed for digital transformation and for evidence about consensus of the selected issue existing when empirical evidence is scarce. The main purpose was to find out how the selected target group of business university students perceive the demands of digital transformation for the necessary competencies of people today.

The findings show that there is a misalignment between the competencies required by surveys, e.g. WEF (2020) Ernst & Young (2021), or previous research in this field (e.g. Hecklau et al. 2016; Fonesca & Picoto, 2020; Marnewick, & Marnewick, 2020) and HEIs students' points of view. In this case, the students were represented by students of a final-year business master's programme who are seeking employment usually in managerial positions.

Among the competencies identified by students the top positions were held by Communication and cooperation, Digital security and netiquette, Creativity with focus on innovation, followed by Learning agility, Complex problem solving and Decision making. This means, except for Digital security, competencies which experts count as behavioural. However, organizations seek professionals with technical and behavioural competencies (cf. Ernst & Young, 2021; Hecklau et al., 2016; WEF, 2020), especially those needed for changes in the era of digital transformation. And in context of automotive, engineering, manufacturing industry, etc., where work is highly automatable, and where many of the jobs are found in smart factories, digital transformation will require a higher level of technical and digital skills (McKinsey, 2020). In relation to the Czech Republic the existence of a significant lack of technicians on the labour market is mentioned (Balcar, 2021) and this is related to the demand for technology-oriented managers.

As can be seen from Table 2, students placed the requirements for technical competencies in the second (lower) half of the list of competencies for digital transformation. In addition, the subsequent detailed evaluation using the focus groups showed that they are very divided in their assessment. It may also be a surprise that students of the business study programs ranked the competency Leadership, social influence and strategic orientation in 8th place on the expert list of 13 competencies (cf. Philip & Aguilar, 2021). These findings answer the first two research questions and Table 2 presents the perceptions of young economists towards the competencies needed in relation to digital transformation requirements.

This result is in line with the findings by Goulart et al. (2021) who also focused on "skills in digital transformation era and the role of higher education". The authors claim that from the managerial point of view "Technical skills were also seen as critical, but there was an emphasis on soft skills." (Goulart et al, 2021, p. 7) It should be mentioned that their research focused on IT companies and found a significant gap between the professional profile required by IT companies and that shaped by HEIs. On the other hand, the research by Succi and Canovi (2020) focused on soft-skills and also identified differences in students and employers' perceptions. Equally, the findings of research conducted in the Czech Republic show that there exists a gap between the required competencies predicted by previous research and surveys and what students before graduation at the faculty of economics considered important. This result answers research question number 3.

In addition, interactive and spontaneous discussion of a particular topic using the focus group method brings other findings. These should be taken into account when planning innovation of the

education process in this type of university study program as well as in recruiting graduates of business programs to companies and considering their further development. First, students are aware that they live in a time of constant change and that they must continue in their education and develop their competencies, not only according to generally declared requirements, but also according to the requirements of future employers. Second, they recognise the importance of time management and stress management, but they also claim that there exist significant individual differences. Third, young economists believe they have very good ICT competence and they are able to analyse data very well. Fourth, as mentioned above, they are aware that their study programs are not oriented, for example, on the topic of design or programming. In addition, at least in the user perspective, there are differences between their experiences of VR and AR applications. Young people rated themselves as digital natives, but this does not apply to all of them (cf. Cesco et al., 2021, Egerova et al. 2021).

The conclusion section of the focus groups shows that young people are aware of their better preparedness for digital transformation in a number of areas versus older generations. However, some of them also perceive the rapid development of technology as a threat in the next period of their lives.

4.1 Application and recommendation

There is a significant need for more graduates of HEIs in fields that are in higher demand in the job market, which is changing/evolving at a very rapid rate and thus requires competencies needed for the digital transformation era (Cesco et al., 2021). The findings and results of the conducted research reveal that HEIs must in the area of business administration and management, etc. go beyond the current educational content and support the transfer of knowledge and skills to improve some needed technical qualifications. The goal is to fill the current gap in required competencies in both domains (cf. Cesco et al., 2021; Goulart et al., 2021; Marnewick, & Marnewick, 2020) but in a situation in which students point out shortcomings of the technical domain. The findings of this research show that there exists a gap between the requirements of the business sphere for technical competencies and university students' perception. Both HEIs and companies should be aware of this fact. From companies' point of view this is important for the hiring process and for planning and supporting young managers in their further development. The identified advantage is that current students from Generation Z and as a result of the Covid-19 pandemic are able to use ICT for their learning process and have gained considerable experience in this area. This is in fact very beneficial for their lifelong learning.

4.2 Limitations and further research

The research brought results in the field of competence assessment in relation to digital transformation from the point of view of students in the last year of study at university. The group of respondents represents business university students, basically fresh graduates looking for a job in the labour market. However, they were specifically students of economic study programs in the context of the Czech Republic and the current state of development of digital transformation. These limitations need to be taken into account for further research. This means obtaining information from students from other study programs (typically more technical ones or humanities), in a different cultural context, and following this theme also in the context of the development of digital transformation both in the world and in the EU.

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