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Estimating E-workability Components Across Central European Countries

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Abstract

At present, shifting the workforce to a home-based work environment was and is a necessary response to Covid-19 crisis. In the post-pandemic work environment, e-working may continue being popular even in agribusiness. The study objective was to examine the motives for adopting face-to-display working environments within selected V4 countries and Austria in 2019, with the study being done in terms of the various components related to the spread of e-working. The study adopted Spearman's Rho correlation using 16 numerical variables to measure the strength of association between two variables (e-working and 16 numerical variables). This study investigated the impact of 16 selected factors in determining e-workability in V4 countries and Austria. The study found that when e-working and the percentage of GDP services are considered, a very strong positive correlation is indicated: As the GDP increases, the probability of e-working increases. High levels of education and of technology reveal a strong positive correlation. When the number of highly educated employees decreases, the number of e-workers decreases. In respect of technology, greater utilisation of digital public services, internet access and computer access from the home increase the likelihood of e-working. A medium education level and the use of the internet show a strong negative correlation: When the medium educational attainment level rises, e-working decreases. As the utilisation of the internet increases, the proportion of e-working falls. These components affected higher e-workability. Through the examination of the motives for adopting face-to-display working environments, this study advances the knowledge in the e-working field of the selected countries..

Keywords

Agribusiness, e-working, e-workability, Spearman's Rho correlation, V4 and Austria.

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Introduction

In the past, globalisation has been about the trading of goods, not services. Globalisation has intensified the world's economic growth. This began with mechanisation (Industry 1.0), mass production (Industry 2.0) and automation (Industry 3.0); we are now in the stage of Industry 4.0, with the Internet of Things and services. In response to Industry 4.0, the new term Industry 5.0 appeared (a kind of revolt against the dehumanisation of industry that was manifested in the concept of collaboration between man and robot in specific jobs). We understand this as a return of the human touch or contact in production.

The services sector was the biggest contributor to GDP in 2018 (Worldbank, 2020a). E-working can be seen as the catalyst that unlocks workplaces (remote professional services) in further globalisation. According to Davies (2021), the main obstacle to the remote working environment in some rural areas and for some inhabitants is the urban-rural digital divide, as is also confirmed by the EPRS study (EPRS, 2015). A recent study further stresses the greater urgency and necessity for a renewed focus on digital divides (Doyle et al., 2021). Low-paid and low-skilled jobs are the most vulnerable, as the next industrial revolution is rapidly increasing automation and robotics. Workplaces globally are also threatened by industrialisation. There is evidently a concern about job losses as a result of the digital transformation. But not all jobs are affected, and not all are discontinued. The outcome depends on routine vs. non-routine and cognitive vs. manual tasks.

Globally, many companies work remotely. Is it possible to sustain different components with e-working? E-working situations are directly dependent on the industry sector and the job

requirements needed to complete the assigned tasks.

Our study adds to the literature by providing evidence of e-workability changes in selected countries. Analysing this data allows us to understand the spread of e-working among these countries. We interpret the results obtained as showing an increase of working remotely.

The study objective was to examine the motives for adopting face-to-display working environments within selected V4 countries (the Czech Republic, Hungary, Poland and Slovakia) and Austria in 2019, with the study being done in terms of the various components related to the spread of e-working. Our propositions is that different components (socio-economic and societal) affect the demand for e-workable jobs in the surveyed countries. Correlations were used to find answers to the following research questions: (i) RQ1: Is it possible to sustain different components with e-working?; (ii) RQ2: Do diverse components affect the scope of e-working agreements?; and (iii) RQ3: What causes a higher level of e-working in selected countries?

E-working

Interest in the idea of telework first arose during the oil crises and the skyrocketing fuel prices of the 1970s. Since then the term has varied within the literature. Over these periods, interest in teleworking began. It subsequently slowly but steadily increased around the world, and now the number of e-workers is generally climbing.

There is still no uniform definition of teleworking. There are broader approaches of this kind of work, some requiring specific regularity and location, while others are fairly traditional about regularity and location. The concept of ICT (information and communications technology) enabled work from afar or telework, also known as remote work, virtual work or telecommuting (Gajendran and Harrison, 2007). Telecommuting involves (1) members of an organisation (2) performing their regular work away from the central workplace at a remote location, (3) while using technology to complete the work (Pinsonneault and Boisvert, 2001). “Since the idea of telecommuting has been around for decades now, it makes sense that new words and phrases would come to replace what is, in theory, a not-so-new workplace concept” (Parris, 2018, para. 7).

While a range of definitions has been implemented, we understand e-working as, in effect, working using ICT at home or other places instead of in business premises on a full- or part-time basis. There are two types of remote workers: e-workers (fully remote workers) and hybrid e-workers (those who work partly from home and partly at the office).

E-working presents mixed results due to a focus on many factors, e.g. individuals, managers or cubicle colleagues, gender, before and after starting to e-work, culture.

The concept of work ability was introduced into medical literature by Ilmarinen et al. (1991). The potential for being able to work remotely varies a great deal among different occupations, especially in customer-facing service providers (AlAzzawi, 2021). The author adds that a major factor of e-working is having the necessary tools. Academic works demonstrate diverse factors of the emergence and development of e-working from different points of view. One factor is the workplace culture of encouraging employees to work remotely when they are sick (Ahmed et al., 2020). Next is work-life flexibility (Kossek and Lautsch, 2018). Furthermore, the inability to work remotely and lack of paid sick leave and income are associated with working employees’ ability (Blake et al., 2010). Moreover, digital inequalities combine with race, class, gender and other offline axes of inequality (Robinson et al., 2015). Besides, Mas and Pallais (2020) emphasize that college graduates have a 28% higher rate of home work. López-Calva (2020) compares a higher GDP per capita to a higher rate of e-working. López-Igual and Rodríguez-Modroño (2020) summarise the principle determinants of e-working such as self-employment, a higher educational level and non-manual occupations, especially highly skilled ones. The authors also add that age, living in urban areas, higher status and better working conditions lose importance in the face of the strong expansion of e-working. Home-based e-working is predominant among the analytical workforce (Thulin et al., 2019). Recent studies show how the Covid-19 pandemic has greatly affected the way of working in social services, which was practically entirely face-to-face work (Morilla-Luchena et al., 2021). Remote work encourages employees to relocate to less congested urban and rural locations, therefore promoting balanced regional development (DoETaE, 2021). The OECD (2021) study highlights the positive aspects and opportunities for rural areas. Beňo (2021b) states that improving the status of e-working can reanimate rural development.

Dingel and Neiman (2020) found that 37% of jobs in the US can be carried out exclusively at home.

In the same vein, Sostero et al. (2020) estimate that the same rate of dependent employment in the EU is currently e-workable. Bonavida Foschiatti and Gasparini (2020) conclude that 26% to 29% of jobs in Argentina can be performed remotely. In Uruguay, 20% to 34% of jobs can be done as distance work (Guntin, 2020). The percentage of individuals who are able to work from home varies from 7% in Guatemala to 16% in the Bahamas according to Delaporte and Peña (2020). Boeri et al. (2020) estimate face-to-display work as 23.95% in Italy, 28.22% in France, 28.70% in Germany, 25.44% in Spain, 30.74% in Sweden and 31.38% in the UK. In Portugal, about 30% of all occupations can be probably be performed remotely (Martins, 2020), and in Greece up to 37% of all salaried jobs can be done remotely (Pouliakas, 2020).

As modern technology advanced, it became possible for agriculturalists to use multiple platforms to engage their farm supply companies or to work from a home office or anywhere else in agribusiness (da Silva and Pilla, 2009). Agribusiness clearly indicates the application of theories and practice of business administration to organisations engaged in agriculture and agriculture-related products and services (Van Fleet, 2016). As stated by Krievina et al. (2012), a decrease in employment in agribusiness can also influence the public and private sectors that serve people in a rural environment. But in MENA countries, construction and agriculture have a very low level of teleworkability (AlAzzawi, 2021). There is a need for a mix of accurate technology tools to enable smooth and uninterrupted farm operations similar to the 5G RuralFirst project (5GruralFirst, 2020) and the needs of talented people (Puri, 2012). This also confirms Herbst's (1976) statement that in the global demand for food, a considerable amount of work is required in agrieducation.

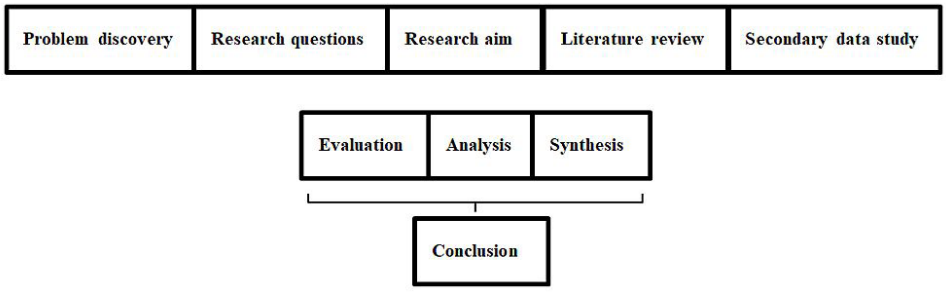
Materials and methods

In this paper, we go beyond the literature review dealing with the feasibility of e-working and focus on different socio-economic and societal characteristics covering the entire field of e-working as it is distributed in the examined countries. This is done by using comparable data. With this, we identify a specific group for an examination. The sample included member countries of the EU. Additionally, the difference between the low proportion of e-working in all V4 countries and the high proportion of e-working in Austria among all member states was significant for the analysis. Moreover, the field of the author's research interest played an important role in the selection of the target country sample.

This study aims to look at the nature and extent of e-workability of a group of five countries (V4 and Austria). Our research is based on processing secondary data and deriving relevant conclusions as shown in Figure 1.

We combine different sources of data to develop measures for e-workability: GDP, agriculture, risk poverty, CO_2, education, DSL, Internet and computer access and DESI Index from various databases, as shown in Table 1.

Generally, it cannot be said with certainty which coefficient is more suitable. It depends more on the research questions. The correlation coefficient according to Pearson processes the metric distances, while Spearman's coefficient only establishes the ranking of the measured values, regardless of the distances between the values. We can explain this as follows: Imagine a sprint race with three competitors. Two are in top shape and finish in 9.90 and 9.91 seconds. The third one gets injured, but crosses the line after 16 seconds. Pearson's coefficient notices that the first two are



Source: Author's illustration

Figure 1: Flow chart of research methodology.

	Austria	Czech Rep.	Hungary	Poland	Slovakia
E-working	12.1	5.4	3.4	9.8	5.8
GDP per capita USD	38170	18330	13260	13000	15860
Services % of GDP	62.6	56.2	55.3	56.9	58.1
Agriculture	3	3	5	9	2
Risk poverty	17.5	12.2	19.6	18.9	16.3
CO_2 per capita	0.19	0.29	0.14	0.93	0.1
Education low	12.7	5.6	13.7	6.3	7.8
Education medium	50.7	68.4	58.2	56.4	63.6
Education high	36.6	26.1	28	37.3	28.7
DSL	96.9	97.4	95.5	83.5	89.7
Internet access	89.9	87	86.2	86.7	82.2
Computer access from home	85.4	82.2	79.7	81.8	81.8
Connectivity	47.22	44.94	59.82	51.33	47.5
Human capital	56.7	48.7	41.9	37.3	41.8
Use of Internet	54	54.1	56	49.6	53.4
Integration of digital technology	40.5	49.6	25.3	26.2	32.5
Digital public services	80.8	62.4	57.8	67.4	55.6

Source: Author's own compilation based on Eurostat, 2019a,b;, 2020a,b; European Commission, 2020a; OECD, 2020a,b; Publications Office of the EU, 2020; Ritchie and Roser, 2020; Worldbank, 2020a,b.

Table 1: E-working ratio and 16 variables of selected countries.

almost equally fast, but the third lags far behind. For Spearman's coefficient, on the other hand, there is only ranking: first, second and third; the size of the differences does not matter. To determine the existence of dependency between e-working and 16 individual dimensions (as shown in Table 1), Spearman's Rho correlation (non-parametric test) in SPSS was applied because each variable has only five values. It will allow the calculation and measurement of the strength and the direction of the relationships between two ranked variables. Similarly, as stated by Walker and Maddan (2012, p. 254): "it is a measure of association for the ranks of the data."

By making use of correlations, answers were sought for the research questions: Is it possible to sustain different components with e-working? Do diverse components affect the scope of e-working agreements? What causes a higher level of e-working in selected countries?

The descriptive statistics method was used to analyse and describe the basic features of the data in developing results and drawing conclusions.

Results and discussion

The main idea of conducting this examination was to validate the different rate of e-working in the surveyed countries and the e-workability of each component. Table 2 shows Spearman's Rho correlations that test relationships among the study variables.

Components	Correlation coefficient	Sig. (2-tailed)
GDP per capita	0.300	0.624
Services in % of GDP	**0.900**	**0.037**
Agriculture	-0.051	0.935
Risk poverty	-0.100	0.873
CO_2 per capita	0.300	0.624
Education low	-0.100	0.873
Education medium	**-0.700**	**0.188**
Education high	**0.800**	**0.104**
DSL	-0.200	0.747
Internet Access	**0.500**	**0.391**
Computer Access from home	**0.667**	**0.219**
Connectivity	-0.300	0.624
Human capital	0.100	0.873
Use of internet	**-0.700**	**0.188**
Integration of digital technology	0.300	0.624
Digital public services	**0.700**	**0.188**

Source: Author's own compilation

Table 2: Correlations – Spearman's Rho (N=5).

E-working situations rely directly on the industry and the specific job requirements needed to complete the assigned tasks. E-working and the percentage of GDP services have a very

strong positive correlation: As the GDP increases, the probability of e-working increases. There is therefore a direct correlation with GDP services. This confirms a recent study showing that the employment and the GDP effects of lockdown policies are U-shaped in income per capita (Behrens et al., 2021). While workers in rich countries have a substantially higher ability to work from home, which mitigates the declines in employment and GDP, poor countries concentrate employment and value-added production in essential sectors that are not shut down. Middle-income countries see the largest declines as they feature a relatively large share of employment in non-essential sectors and a relatively low work-from- home ability (Gottlieb et al., 2020). Additionally, an IMF study highlights the dependency between the level of economic development and the ability to work remotely. This suggests that workers in emerging and developing economies could face daunting challenges in continuing to work during periods of hard lockdowns (Brussevich et al., 2020). Further findings indicate that the extent to which jobs are amenable or responsive to being done from home increases with the level of economic development of the country (Hatayama et al., 2020). It seems that, in general, countries with higher GDP per capita also tend to have a higher share of teleworkable jobs (López-Calva, 2020).

High levels of education and technology have a significant positive relationship. When the rate of highly educated employees decreases, the number of e-workers decreases. Leščevica and Kreituze (2018) stress that executives are required to be organised for mutual cooperation with education and research institutions in order to gain higher added value (especially in rural areas). Our data confirm the statement of Anghel et al. (2020) that higher education means a higher share of e-workers. According to data from Aguilera et al. (2016), highly skilled and autonomous workers are the most likely to work remotely. This is similar to Sarbu (2015), where higher education levels, tenure and computer skills increase the probability of working remotely. Nicholas (2009) found that the level of education had a significant association with an interest in e-working. “Partial support was found for the effect of autonomy and work/ life balance toward the preference to telework.” Men were more interested in teleworking than women (Nicholas, 2009). Although, in reality the educational system still exposes students to a socialisation process that is strongly based on face-to-face education (Steizel, 2011) instead of face-to-display.

In technology, greater utilisation of digital public services, internet access and computer access from home mean more possibility of e-working. Sanchez et al. (2020) emphasize that the correlation between GDP per capita and the feasibility of home-based work strengthens when internet connectivity is taken into consideration. Grant et al. (2013) found that differentiating factors between e-workers included access to technology, ability to work flexibly and individual competencies. Greer and Payne (2014) identified that strategies for coping with teleworking included using advanced technology.

A medium education level and the use of the internet had a significantly strong negative correlation. When the number of workers who have attained a medium level of education increases, e-working decreases. As the utilisation of the internet increases, the portion of e-working falls. Overall, these results indicate that countries with a high GDP, higher level of education and a greater spread of technology experience a higher ratio of e-working. When e-working increases, the ratio of a medium level of education and the use of the internet decreases. A recent study confirms that developed countries with higher levels of internet access, a mix of occupations and pro-worker policies naturally fared the best in transitioning to remote work; these include Belgium, Canada, and Sweden. Developing and middle-income countries such as Brazil, China and Nigeria face the most obstacles, including low internet quality and large, intergenerational families that can make it challenging to work at home (Bana et al., 2020).

E-working is steadily becoming common due to the increase of ICT at the workplace. The share of e-workable jobs is 9% points higher in cities than in rural areas (Eurocities City Dialogue, 2020). But promoting e-working can revitalise rural development (Beňo, 2021a). The e-working experiment has begun. A remote workforce offers many opportunities, but it also comes with its share of challenges (Beňo, 2021b).

Preliminary results show that e-working increased when it was obligatory under lockdowns (Beno, 2021a). But this was a novelty for most workers, and it was a test of a new workplace culture mediated by technology and Covid-19 pandemics. This is similar to a recent study from Japan, where the ratio of e-working was low due to organisational, technological and environmental barriers (Hosoda, 2021). Nevertheless, when we delve further into the detailed data, the striking results are that it

is possible to sustain GDP in services, technology and education with this kind of work flexibility. Clearly, there is a strong asymmetry of workplaces dividing workers into two groups: e-workers (working from everywhere) and on-site workers (being on location), and the unequal access to e-working.

When e-working and the percentage of GDP services are considered, a very strong positive correlation is indicated: As the GDP increases, the probability of e-working increases. This is the opposite of Hatayama et al.'s (2020) data, which shows a positive correlation between e-working and GDP per capita. According to the data, the distribution of economic activity across sectors also reflects the type of work that is developed and that distinguishes workers in terms of their access to working remotely. This is in the same vein as recent data showing that the industry where the employee is occupied identifies the e-workability (Gaduena and Alcantara, 2021). Correspondingly the latest results demonstrate that very few agricultural jobs can be done remotely; more importantly, there is no correlation between GDP and working remotely (Sanchez et al., 2020). In addition, Nakanishi's (2016) data highlight that only a few factors of GDP can be estimated quantitatively in regard to e-working. Another analysis advises that e-working makes the greatest contribution in terms of decreasing GDP loss (Zaballos et al., 2020).

We find that high levels of education and technology reveal a strong positive correlation. When the number of highly educated employees decreases, the number of e-workers decreases. This is equivalent to a current study that reveals a positive correlation between e-working and PISA results (Hvorecký and Beňo, 2021). Other authors emphasize that college graduates have a 28% higher rate of home work than workers with a high-school qualification (Mas and Pallais, 2020). Gaduena and Alcantara (2021) emphasize that the education levels attained correlate with the greater likelihood of being able to do telework. In respect of technology, greater utilisation of digital public services, Internet access and computer access from the home increases the likelihood of e-working. Our data confirm how digital and automation inequality moderates the impact of e-workability. A medium level of education and the use of the Internet show a strong negative correlation: When the medium level of education rises, e-working decreases. As the utilisation of the Internet increases, the proportion of e-working falls. These components affect higher e-workability. It has to be pointed out that the correlation between GDP per capita and the feasibility of e-working strengthens with Internet connectivity (Sanchez et al., 2020). Noticeably, low adoption of modern technology and low rates of educational attainment are connected with adaptation of e-working processes (Chinn et al., 2010; Dewan et al., 2010). Working in a virtual environment will vary across organisations and will depend on actions taken (Jain, 2021, p. 30).

But would things be much worse without e-working if we were not in an e-society with ICT possibilities? This pandemic shows us winners in many fortunate sectors of our economy that are e-working already; many are not losers. The key question is how long this workplace disorganisation will last, because in the post-Covid-19 era the face-to-display will not be the preferred workplace for all employees. Bloom (2020) highlights that cities may suffer while suburbs and rural areas benefit from the relocation of organisations. Could our data in this study be described as showing a structural change in the workplace, or do they symbolise the effect of economic and societal changes? A recent publication highlights that organisations must rethink their work and the role of offices in creating safe, productive, and enjoyable jobs and lives for employees (Boland et al., 2020). The latest data show that companies must now support a hybrid work environment for in-office and remote employees with work flexibility, increased cleanliness and the right collaboration technology (Cisco, 2020). One might claim that the increase in the share of e-workability models represents the response of the seven factors obtained in this study and many others, such as occupation (Gädecke et al., 2021), GDP per capita, sector, worker characteristics (Brussevich et al., 2020) and cultural differences (Beňo, 2021a). Dingel and Neiman (2020) make a further distinction between e-workable and non-e-workable jobs. The positive effect of e-workability is stronger for workers in automatable jobs (Hou et al., 2021).

In this study we imply that extending labour markets into home-based premises or beyond the specific localisation of the companies increases the possibility of finding missing talents in workplaces. In addition, food and agribusiness can leverage e-working to attract potential talent (IFAC, 2019). Therefore, it is important that future policies should respond to e-working strategies for the ongoing digital transformation

to facilitate the creation of suitable conditions for the workforce, as well as for society and the economy. Our study demonstrates that countries should increase investments in digital inequality, including digital gaps in education (soft skills), and improve technologies to boost the positive effect of e-workability. The data show the potential impact of social and economic policies at national level.

A recent publication demonstrates that the pandemic has resulted in widespread unemployment in the surveyed countries and indicates that the younger generation is more affected than older generations (Beno, 2021b). E-working has allowed the workfoce to continue to work and to maintain social distancing (Beno and Hvorecky, 2021). E-workability varies worldwide depending on different factors, especially sectoral composition, including education, as confirmed in our results and among professional groups with the necessary skills. It is clear that changes in attitudes to work combined with modern ICT do not affect only employees, but managers too (Beňo et al., 2021, p. 94). Investigators find that in two-thirds of jobs, where e-working is practicable, face-to-face interaction plays a fundamental part (Sostero et al., 2020). Malkov (2020) stresses the long-term consequences on the employment outlook and earnings of a workforce that had non-e-workable or high-contact-intensity jobs at the onset of the Covid-19 outbreak. Digital skills (as stated in the results section on educational level) are essential when working remotely in potential e-workability environments. This is in the vein of Waschek (2021), who stresses that the "skills gap" in the agriculture industry seems to have been hit the hardest.

Does e-working work in agribusiness? A recent study from Romania demonstrates that Romanian employees in different sectors, including agriculture, are willing to have flexibility in the number of working days per week (Davidescu et al., 2020). Another conducted survey shows that to keep recent skilled employees, 25% of participating agriculture owners were providing flexible schedules for them, even higher than the 19% that were keeping work-from-home policies (Johnson, 2021). Generally, in MENA countries, construction and agriculture have a very low level of teleworkability (AlAzzawi, 2021). Similarly, McKinsey and Company's (2020) data highlight lower e-workability in occupations like retail services and agriculture. This corresponds with Oliver et al.'s (2016) evidence showing that agriculture, manufacturing and retail find it harder to adjust to e-working given the place-based nature of the work. This means that those occupations which require physical and manual activities, including agriculture, are not skewed toward e-working, but on the contrary agribusiness represents an essential potential through e-working.

Are V4 and Austria ready for e-working or not? This kind of work varies a great deal because only part of the work can be done remotely. This depends on many factors. As demonstrated in this study, the first factor is consideration of rich or poor, the second is the robustness of modern technology and the third is education. According to statistical data, it can be said that V4 and Austria are almost, but not completely, ready. This is in line with the EBRD report of the percentage rate of jobs that can be done remotely, which ranges from the highly developed economy of Austria, followed by Poland, the Czech Republic and Slovakia, and down to the lowest rate of e-workability in Hungary (EBRD, 2021). We agree with Gschwind and Vargas (2019) that the possibility of e-working correlates strongly with the shift in the economy (away from manufacturing) towards information and telecommunication enabled service and a knowledge workforce. This explains the e-working rates among those countries.

We conclude that the main implication of this study is the re-emphasis of the effect of e-working on the labour market because by implementing policies for remote working that enable hiring outside their immediate geographic areas, organisations ensure that residents, companies and communities all profit (Sutton Fell, 2017).

Conclusion

There is still no universal statistical definition, and therefore measuring and evaluating the level of e-working is difficult.

The study found that when e-working and the percentage of GDP services are considered, a very strong positive correlation is indicated: As the GDP increases, the probability of e-working increases. High levels of education and of technology reveal a strong positive correlation. When the number of highly educated employees decreases, the number of e-workers decreases. In respect of technology, greater utilisation of digital public services, internet access and computer access from the home increase the likelihood of e-working. A medium education level and the use of the internet show a strong negative correlation: When the medium educational attainment level rises, e-working decreases.

As the utilisation of the internet increases, the proportion of e-working falls. These components affected higher e-workability.

E-workability (also in agribusiness sector) is attracting more and more attention in organisation-related literature. We are of the opinion that this implies that a better understanding may affect workplace vulnerabilities. Our study adds to the literature by providing evidence of changes relating to e-workability in selected countries. This study has presented important information that should be taken into consideration in regard to maintaining or improving work participation in the selected countries. The results of the present investigation should consequently be given careful consideration in other countries too. Data from this study include important information for the labour market. The interventions should concentrate on the identified determinants in respect of e-workability in order to increase work participation and prolong the rate of working remotely. Our data from this study indicate that V4 and Austria may have optimal possibility of reaching the full development of their e-working efforts. However, the impact it has on the economies of these countries is not well understood. But the lasting success of e-working depends strongly on the right vision, including these three important key factors: business models, digital access and education.

This paper has certain limitations. Firstly, the literature review does not include publications in languages other than English and includes online-based data. An important limitation is the selection of variables for examination and the sample size of five countries. Therefore, some caution is needed in the generalisability of the study results in other countries. Another limitation lies in the nature of Spearman's correlation that the data must be linear, independent from each other and there should be between 10 and 30 pairs of data. The impact of Covid-19 on the workplace environment across sectors and countries depends on its adaptability on the basis of records of previous crises. The data in this study point out two major factors: on the one hand, GDP services, and on the other the educational level. These factors are associated with an increase of e-working. Taken together, these results suggest that further investigation in the area of the e-workability of face-to-display workers is necessary. Future research should focus on a broader perspective, including individual or job level. By verifying data from this study a new hypothesis could be formed, namely that e-workability could be perceived to be more advantageous in Nordic and Western than in Eastern and Mediterranean countries, which could form the basis of potential future investigation.

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