Ranking Western Balkan countries according to the digital skills among older people

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Abstract: The twenty-first century brought accelerated technological progress and the need for adequate knowledge and skills that enable inclusion in contemporary trends. Having digital skills is considered an essential life competence. Their lack can increase the risk of social exclusion of already vulnerable social groups, such as people with disabilities, migrants, older adults, etc. Older adults mostly need help to use modern information and communication tools independently, which is why they cannot benefit from the advantages of the digital world. Regarding digital transformation, the entire Western Balkans region is far behind the European Union countries. This state additionally emphasizes the urgency of systemic and institutional action towards raising the digital expertise of the older population in this area. The goal of this work is to rank the Western Balkans countries based on the digital competences of the population older than 55 years. The database was created using statistical data from the EU database about individuals' digital skills in 2021. For the purpose of this study, the PROMETHEE II method was used. The obtained results indicate which of the analyzed countries should make the most effort in improving digital skills of older adults.

Keywords: digital competences, digital skills, older population, Western Balkan countries

1 Introduction

In the age of information and technology, digital literacy is becoming a need rather than a choice [1]. The gap between individuals who have access to computers and the ability to use them and those who do not is called the digital divide [2]. Numerous studies have proven that the digital divide can appear under the influence of numerous socio-demographic factors such as gender, education, age, and salary

[3, 4]. Digitalisation was implemented in recent years, so even though older people have life and work experience, they lack digital skills and access to the Internet and computers. Without digital knowledge and skills, older people cannot use social services, bank services, healthcare, or contemporary communication channels. Ageing populations and age-related e-inclusion remain fundamental European challenges [5], so digital empowerment of older people has become prominent. The discrepancies in digital skills are recognised in different European countries, especially in emerging countries [6]. The digital gap affects many aspects of life in developing countries, limiting access to contemporary technologies and preventing these countries from progressing further [7]. Economic policymakers in developing countries must realise that digital equality is closely related to the country's economic growth and development goals. It is very important for developing countries to overcome the age digital divide because older people are often forced to work even after retirement due to low pensions. By improving their digital skills, they would have the opportunity to improve their social status. Accordingly, governments should develop strategies to enhance the fundamental knowledge and abilities of older people required to succeed in a digital environment.

Recently, more studies are dealing with the development of a framework and scale for evaluating individuals' digital skills [8-10]. Technical skills are only one aspect of digital skills; other aspects include critical thinking, problem-solving, cybersecurity, content management, communication and collaboration, critical inquiry, responsibility, well-being, identity and development [11]. In 2014, the European Commission created a set of digital competence indicators [12]. This document defines five dimensions of individuals' digital competence: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. Indicators are measured annually and biannually at the EU level.

The aims of this study are to:

>1) rank Western Balkan countries based on the digital competencies of the population over 55.

>2) determine the most and the least prominent digital competencies among the target group from each analysed country.

The obtained results will indicate which Western Balkan country should make the most effort to improve the digital skills of older adults.

2   Methodology

This study focuses on Western Balkan countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, North Macedonia, Romania, Slovenia, and Serbia). The used dataset was created according to the official Open Data Base website, and

the research period was 2021. The database consists of values of five different indicators: information and data literacy (IDLS), communication and collaboration (CCS), digital content creation (DCCS), safety (SS), and problem-solving skills (PSS) of populations' digital competencies, for each analysed country.

This study used the PROMETHEE method, which is known as one of the most effective and simplest in many fields. It was developed by Jean-Pierre Brans and Bertrand Mareschal. To analyse Western Balkan countries according to the digital skills of the population over 55, this analysis was performed using the Decision Lab software, a sophisticated application of the PROMETHEE method.
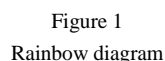
3   Results and discussion

The initial step in this analysis was the use of the entropy method in order to determine the relevant weights for each indicator. On the basis of such allocation of weights and by using the PROMETHEE II method, the rank of the analysed countries presented in Table 1 was obtained.

Rank	Action	Phi	Phi+	Phi-
1	Slovenia	0,4197	0,7098	0,2902
2	North Macedonia	0,2076	0,6038	0,3962
3	Croatia	0,1524	0,5762	0,4238
4	Serbia	0,1073	0,5537	0,4463
5	Bosnia and Herzegovina	-0,059	0,4705	0,5295
6	Bulgaria	-0,0927	0,4537	0,5463
7	Romania	-0,1373	0,4314	0,5686
8	Montenegro	-0,1597	0,4202	0,5798
9	Albania	-0,4384	0,2808	0,7192

Table 1.

Ranking results

According to the level of digital competencies of people over 55, Slovenia is the best-ranked Western Balkan country, and Albania is the worst-ranked country. According to the obtained Phi values, Slovenia, North Macedonia, Croatia, and Serbia have positive trends in digital competencies development. In other countries (Bosnia and Herzegovina, Bulgaria, Romania, Montenegro, Albania), most deficiencies in this kind of competencies have been proven.

Figure 1

Rainbow diagram

According to the level of digital competencies of people over 55, Slovenia is the best-ranked Western Balkan country, and Albania is the worst-ranked country. According to the obtained Phi values, Slovenia, North Macedonia, Croatia, and Serbia have positive trends in digital competencies development. In other countries (Bosnia and Herzegovina, Bulgaria, Romania, Montenegro, Albania), most deficiencies in this kind of competencies have been proven.

Conclusions

The disadvantages of the digital skills of the target population exist in Western Balkan countries. Individuals aged 55+ do not possess digital competencies at a satisfactory level. It is crucial to analyse the forward-looking policies of developing countries in response to digital technologies. The main problem in emerging countries is that there is no necessary level of sophistication and awareness in the state administration when it comes to institutionalizing the problem of the digital divide. Accordingly, policymakers in Western Balkan countries should focus more on improving the digital competencies of older people.

The study's limitation is reflected in the small data set, which consists only of one-year indicators. Recommendations are that in future research, a longer monitoring period should be considered. That way, the trend of progress in the acquisition of digital competencies of the older population could be analyzed.

Acknowledgement

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