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Digital competitiveness of Ukraine and Poland

The integration of Ukraine into the European Union requires the fulfillment of a number of certain conditions for the gradual transformation into a country with a high standard of living. One of the prerequisites for this is to increase the competitiveness of the country, regions and enterprises on an innovative basis. Taking into account the modern conditions of the development of Industry 4.0, digital competitiveness is taking the leading position. Therefore, the goal and result of this work is a comparative analysis of the digital competitiveness of Ukraine and Poland.

Analysis of the publication activity of researchers over the past 12 years (2011–2022) made it possible to reveal the growing dynamics of research intensity in the field of digital competitiveness (Fig. 1). However, the intensity of research is still not high, compared to, for example, the number of publications on industry 4.0, since more than several thousand works are published in this area recently every year.

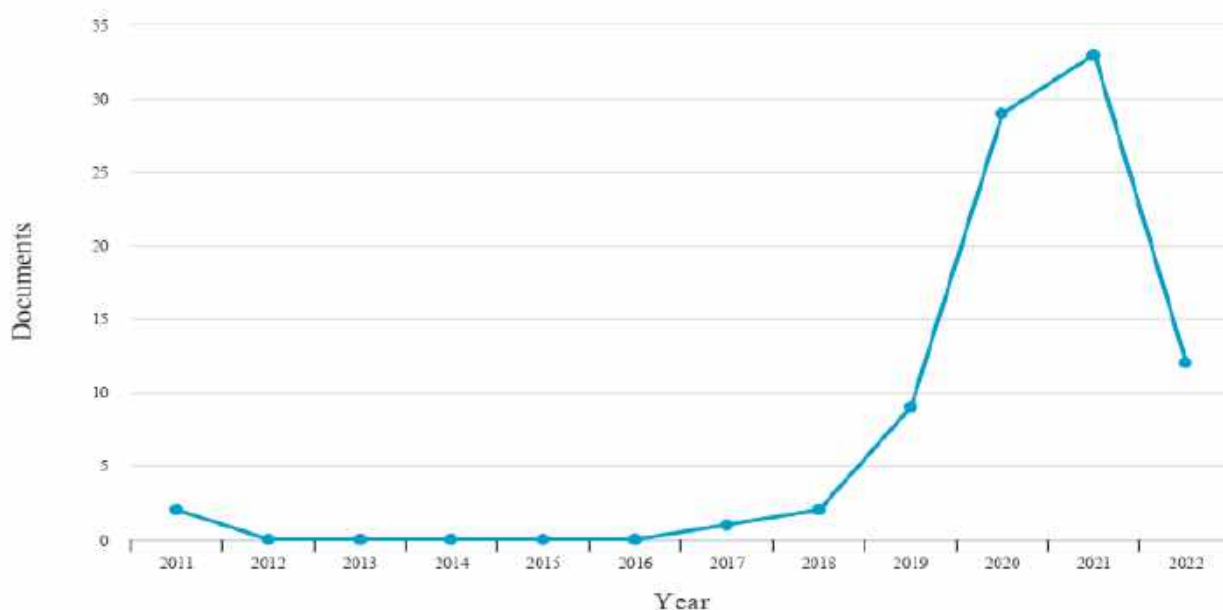


Fig. 1. Dynamics of publication activity on digital competitiveness in the world

Source: formed by the authors on the basis of the Scopus database.

Digital transformation – is the process of transition to new ways of enterprise activity through the introduction of digital technologies and digital services, which is based on the strategic partnership of all interested parties and the simultaneous development of software, digital transformation and assessment of the level of digital transformation of the enterprise [1]. It has been established that the low level of infocommunication development of Ukraine in comparison with geographically close

countries reduces the ability to achieve the key goals of digital strategies, placing the following tasks in the foreground: development of ICT infrastructure due to increased access and innovativeness of communication networks; ensuring access of the population, business and government to ICT; sustainable development of the ICT manufacturing subsector [2].

Thus, one of the current megatrends of economic development is digitalization, but according to the World Digital Competitiveness Index, Ukraine does not currently have a leading position in the world and Europe (Table 1).

Table 1

The place of Ukraine and Poland in the ranking of countries according to the World Digital Competitiveness Index

| Indexes | Years | | | | | | | | |
|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| <i>Ukraine</i> | | | | | | | | | |
| Digital Competitiveness Index | 54 | 50 | 59 | 59 | 60 | 58 | 60 | 58 | 54 |
| <i>Knowledge</i> | 35 | 29 | 40 | 44 | 45 | 39 | 40 | 38 | 37 |
| Talent | 52 | 46 | 55 | 58 | 57 | 55 | 57 | 52 | 46 |
| Training & education | 8 | 4 | 15 | 20 | 26 | 22 | 21 | 19 | 18 |
| Scientific concentration | 40 | 42 | 39 | 45 | 45 | 40 | 49 | 50 | 55 |
| <i>Technology</i> | 58 | 58 | 60 | 60 | 62 | 61 | 61 | 59 | 58 |
| Regulatory framework | 54 | 47 | 55 | 55 | 56 | 54 | 54 | 54 | 46 |
| Capital | 57 | 56 | 60 | 60 | 62 | 61 | 62 | 59 | 55 |
| Technological framework | 56 | 58 | 60 | 58 | 60 | 57 | 60 | 58 | 57 |
| <i>Future readiness</i> | 57 | 58 | 61 | 61 | 61 | 61 | 62 | 61 | 58 |
| Adaptive attitudes | 57 | 60 | 60 | 60 | 58 | 53 | 59 | 56 | 56 |
| Business agility | 48 | 58 | 58 | 59 | 56 | 53 | 45 | 51 | 45 |
| IT integration | 59 | 61 | 61 | 60 | 60 | 61 | 61 | 62 | 61 |
| <i>Poland</i> | | | | | | | | | |
| Digital Competitiveness Index | 36 | 39 | 38 | 38 | 37 | 36 | 33 | 32 | 41 |
| <i>Knowledge</i> | 30 | 36 | 31 | 27 | 32 | 33 | 33 | 30 | 38 |
| Talent | 20 | 31 | 22 | 17 | 28 | 30 | 28 | 29 | 41 |
| Training & education | 40 | 33 | 34 | 22 | 23 | 35 | 35 | 32 | 44 |
| Scientific concentration | 42 | 43 | 41 | 39 | 40 | 38 | 31 | 28 | 28 |
| <i>Technology</i> | 34 | 37 | 36 | 36 | 39 | 37 | 37 | 37 | 41 |
| Regulatory framework | 36 | 43 | 38 | 45 | 47 | 46 | 45 | 46 | 53 |
| Capital | 24 | 35 | 28 | 32 | 32 | 32 | 38 | 36 | 47 |
| Technological framework | 39 | 34 | 34 | 39 | 39 | 37 | 30 | 23 | 31 |
| <i>Future readiness</i> | 52 | 50 | 49 | 51 | 39 | 37 | 33 | 35 | 39 |
| Adaptive attitudes | 54 | 54 | 52 | 51 | 38 | 33 | 37 | 29 | 28 |
| Business agility | 57 | 52 | 55 | 55 | 45 | 40 | 28 | 33 | 44 |
| IT integration | 43 | 40 | 41 | 41 | 41 | 40 | 36 | 38 | 45 |

Source: formed by the authors based on IMD World Digital Competitiveness Ranking.

Analysis of the dynamics of changes in rating positions according to the World Digital Competitiveness Index of Ukraine indicates the absence of a clear trend both in general and in the context of specific components of this index. Comparative analysis shows that Ukraine's positions are almost twice as bad as those of neighboring

Poland. A similar situation is typical for the positions of Ukraine and Poland in the network readiness index (Fig. 2). In the dynamics of the Networked Readiness Index of Ukraine, a generally positive tendency was recorded, which made it possible to overtake Poland in 2021, but there are still significant opportunities to increase network readiness to the level of countries that are among the leaders. It is obvious that the growth of digitalization of the economy and society will take place in the future, which will have an impact on the agricultural sector of the economy [3].

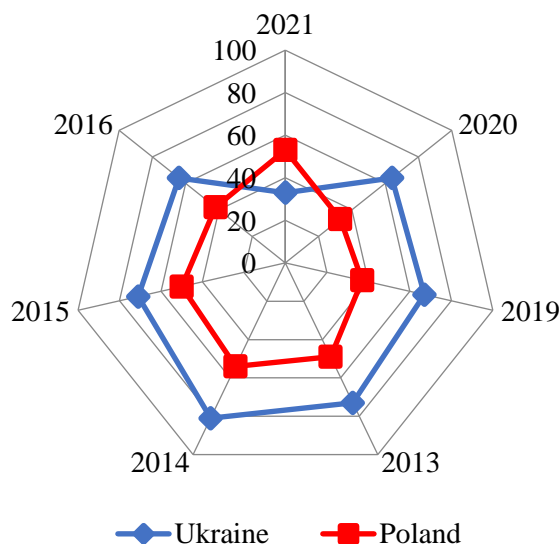


Fig. 2. The place of Ukraine and Poland in the ranking according to the Networked Readiness Index

Source: built by the authors based on Networked Readiness Index.

So, we can note that: (1) The analysis of the publication activity of researchers during 2011–2022 made it possible to reveal a growing trend of research intensity in the field of digital competitiveness. However, the intensity of research is still not high, compared to, for example, the number of publications on Industry 4.0. (2) The analysis of digital competitiveness of Ukraine showed that the strengths include knowledge, in particular training & education, talents. Weaknesses are: IT integration, technological framework, scientific concentration. (3) A positive trend was recorded in the dynamics of the Networked Readiness Index in Ukraine, while in 2021 Ukraine surpassed Poland in terms of this indicator, however, there are significant opportunities to increase the level of network readiness to the level of the leading countries.

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