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Editorial Office: Rzeszów University of Technology, The Faculty of Management,
10 Powstańców Warszawy Ave., 35-959 Rzeszów, phone: 17 8651383, e-mail: zeszyty@prz.edu.pl
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FROM THE EDITORIAL COMMITTEE

We are giving you the next 30th 2 (2023) issue of the Scientific Journal of the Faculty of Management at the Rzeszow University of Technology entitled "Humanities and Social Sciences".

The aim of the Publisher is to raise the merits and the international position of the quarterly published by the Faculty of Management, that is why we are still developing the cooperation with foreign team of reviewers, as well as an international Scientific Council. The Editors have also attempted to apply for international databases; currently the quarterly HSS is indexed in **Index Copernicus Journal Master List, The Central European Journal of Social Sciences and Humanities (CEJSH) ERIH PLUS, DOAJ and EBSCO**.

The Journal has been also included in the list of projects qualified for funding under the **"Support for scientific magazines program"**.

The articles published in this publication are devoted to the broader issues of the humanities and social sciences. They are the result both of theoretical and empirical research. The subjects covered vary considerably and reflect the interdisciplinary nature of the Journal. We do hope that the papers published will meet your kind interest and will be an inspiration to further research and fruitful discussions.

On behalf of the Editorial Board of "Humanities and Social Sciences" we would like to thank the Authors for sending the outcomes of their research. We would like to express particular gratitude to the Reviewers for their valuable feedback that greatly contributed to increasing values of the scientific publications.

With compliments
Editorial Committee

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Adeoluwa ADEWUMI[1]
Crispen CHIPUNZA[2]

THE CHARACTERISICS AND CHALLENGES OF THE INFORMAL SECTOR: IMPLICATIONS OF THE COVID-19 PANDEMIC FOR SMALL AND MICRO-BUSINESSES IN LAGOS, NIGERIA

The future of small and micro-enterprises (SMEs) in Nigeria's informal sector has received less attention since the emergence of the COVID-19 pandemic. In this article, the challenges and characteristics of the informal sector are used as arguments for understanding the future of SMEs in this sector in the era of the COVID-19 global pandemic. The study recruited a total of 17 informal-sector SME business owners in Lagos, Nigeria. The major implications of the pandemic include reduced patronage, low financial turnout, increased operational costs, poor supply chain functions, and liquidation of many SMEs. The need to embrace innovation and strategic change management is shown as critical to the sustainability of SMEs in the informal sector. This research echoes the need for a more regulatory function of the operations of informal-sector SMEs towards addressing the challenges of the COVID-19 pandemic for small businesses.

Keywords: Informality, COVID-19, small business, entrepreneurship, economics.

1. INTRODUCTION

The Coronavirus also christened COVID-19, pandemic has continued to engender challenges on business operations and customers' loyalty across the globe (Nasar, Akram, Safdar, Akbar, 2021). The spontaneous spread of the COVID-19 has provoked socio-economic consequences for developed and developing countries with more implications on the survival of small and micro-businesses (SMEs) (Anakpo, Mishi, 2021). According to a recent report by the World Bank on Global Economic Outlook (2020), the fallout from the COVID-19 pandemic has the most potent implications on economic growth and business survival among all other economic recessions (Khambule, 2020). It suffices to argue that the emergence of the COVID-19 pandemic has engendered more deleterious effect on SMEs, particularly from the Global South countries in Africa with limited

[1] Adeoluwa Adewumi: Central University of Technology, Bloemfontein, Republic of South Africa; e-mail: sadewumi@cut.ac.za (corresponding author). ORCID: 0000-0003-4156-0971.
[2] Crispen CHIPUNZA: Central University of Technology, Bloemfontein, Republic of South Africa, e-mail: cchipunza@cut.ac.za. ORCID: 0000-0002-9823-6112.

government support for SMEs (Amankwah-Amoah, Khan, Wood, 2020). The non-pharmaceutical intervention of lockdowns and social distancing indicates serious economic implications for business survival. The COVID-19 pandemic has also stimulated poor business activities for SMEs with truncated demand and market stagnation (Anakpo, Mishi, 2021). In other words, the SME business environment has been transmuted into an atmosphere of uncertainties with decreased business activities.

Across the globe, SMEs in the informal sector are experiencing a strenuous time sustaining and developing their enterprises. There exist sparse possibilities for these categories of entrepreneurs traversing from the traditional business trends to digital business activities even as this COVID-19 implication on survival becomes harder for SMEs. Suffice it to say that, as the economic consequences of the COVID-19 pandemic continue to bite harder, informal sector SMEs will continue to experience a difficult business trend, particularly with countries with low government SMEs support. Globally, studies have shown that informal sector SMEs were the most affected by challenges of the COVID-19 pandemic (Sun, Zhang, Dinca, Raza, 2021; Kumar, Luthra, Mangla, Kazançoğlu, 2020). As a cushioning effect for SMEs, many countries employed various measures, including loans, tax relief measures and other palliatives considerations. Specifically, the Nigerian government in 2020 announced some palliative stimuli to alleviate the effect of the lockdown on SMEs in the transportation component of the informal sector with a roll-out fund of 5 billion naira (Premium Times, 2021). Unfortunately, reports have it that the earmarked fund was embezzled and mismanaged, and the challenges of SMEs continued unceasing (Premium Times, 2021).

In general terms, it is evident that some informal sector SMEs are being affected by the disruptions of the Nigerian economy with the emergence of the COVID-19 pandemic (Akpan, Udoh, Adebisi, 2020). For instance, SMEs in the travel and tourism, agricultural production, services and transportation were generally more negatively impacted by COVID-19 due to a few constraints, including lean numbers of patronage and low delivery turn-around time among others (Khambule, 2020). The concern of SMEs' future as the COVID-19 pandemic continues no doubt looks skirmish with the challenge of a lack of capital and innovation, and the limitation on skill and technological-driven enterprising drive, among many informal sector SMEs (Sun, Zhang, Dinca, Raza, 2021). To be sure, the far-reaching effect of these factors on the future of SMEs will depend on several policy and strategic interventions constituted for the support and revival of informal sector SMEs. In a recent report released by the National Bureau of Statistics-NBS (2020), SMEs contribute an estimated 48% to Nigeria's national GDP, 96% of all business activities and 84% of total employment in the country. With these narratives, the survival of the informal sector SMEs amid the COVID-19 pandemic becomes crucial to the future of SMEs being pursued for economic sustainability and continuous employment.

The argument pursued in this paper is laced on the narrative that the emergence of the COVID-19 pandemic has engendered disruptive consequences on the operations and activity of Nigeria's informal sector with ensuing challenges for the survival of the SME operators with uncertain sustainability and future for operators selected in the Lagos State informal sector economy. The literature is replete with studies on the informal sector arrangement and structure in Nigeria, including rebased Nigerian gross domestic product: the role of the informal sector in the development of the Nigerian economy (Awojobi, Ayakpat, Adisa, 2014); precarious working conditions and exploitation of workers in the Nigerian informal economy (Akinwale, 2014); and contributions of urban informal enterprises to the economy of Ibadan, Nigeria (Abolade, Adebayo, Ogini, 2013).

Available studies have also interrogated the challenges of the SME operators in the informal sector prior to COVID-19 in Nigeria, such as entrepreneurship and economic growth (Adelekan, Arogundade, Dansu, 2016); women and the informal sector in Nigeria: implications for development (Fapohunda, 2012); and the role of entrepreneurship in rural development in Cross-River State, Nigeria (Ihejiamaizu, 2019). From a global context, available similar studies include COVID-19 and business failures (Amankwah-Amoah, Khan, Wood, 2020); determining the impact of COVID-19 on the business norms and performance of SMEs in China (Sun, Zhang, Dinca, Raza, 2021); a qualitative assessment of entrepreneurship amidst COVID-19 pandemic in Pakistan (Nasar, Akran, Safdar, Akbar, 2021); the effect of COVID-19 on the South African informal economy, limits and pitfalls of government's response (Khambule, 2020). However, in the broad canon of informality and SME studies, there exist sparse studies on the understanding of informal sector SMEs' challenges considering the implications and effect of the COVID-19 pandemic on the survival and future of SMEs within the Nigerian context. This study hopes to address this gap by bringing on board a context-based approach that can ignite and survive the SMEs in this epoch of the COVID-19 pandemic. The objectives include to identify and explain the challenges of the informal sector; assess the challenges of the COVOD-19 pandemic for SMEs in the informal sector and understand the future of SMEs in post COVID-19 pandemic.

The contribution of this paper is the interrogation of informal sector SMEs' challenges within the context of the COVID-19 global pandemic. It is undoubtable that existing studies on informal sector SMEs are not comprehensively interrogated in the broader canon of the impact of the COVID-19 pandemic on small businesses in Nigeria. By advancing this discussion, it is possible to engender a nuanced debate on the impact of the COVID-19 pandemic on the performance and survival of small businesses in the post-COVID-19 era. In view of this, the paper seeks to understand the characteristics and challenges of the informal sector through the prism of the implication of the COVID-19 pandemic on small and micro-businesses in Lagos, Nigeria. After a short explanation of the structure and arrangement of the informal sector, the paper proceeds to expunge COVID-19 implications for small and micro-businesses in the informal sector. The different methodological frameworks employed were subsequently explained. The study echoes the need for a regulatory function of the activities of the informal sector, particularly SMEs, towards addressing the mitigating impact of the COVID-19 pandemic on small businesses.

2. STRUCTURE AND ARRANGEMENT OF THE INFORMAL SECTOR

The structural explanation of the informal sector defines it as an unregulated and non-formal component of the market that deals with the production or manufacturing of goods for remuneration (Akinwale, 2014). The conceptual understanding of the informal sector activities depicts all economic activities executed or involved in by workers or economic units that are not protected or are inadequately covered by any known formal labour protection or arrangement. In other words, the informal sector is characterised by low entry prerequisites regarding capital experience and educational qualification (Abolade, Adebayo, Ogini, 2013), largely comprising SME operators and low utility of conventional labour practices (Adewumi, Adenugba, 2010). The literature has shown different causatives of informality including structural, institutional and behavioural drivers (Emmanuel et al., 2016). For instance, pressure oozing from the increasing excess of

low-skilled young labour market participants remains a key driving force expanding the informal sector operations and activities in many developing countries (Adelekan, Arogundade, Dansu, 2016). Another important driving force is the introduction of new business pathways within the context of trade liberalisation and expanding global competition, which has given rise to the introduction of more flexible production systems within the confine of informal economic activities (Etim, Daramola, 2020). Institutional constraints, on the other hand, include regulatory difficulties, high taxes and feeble law enforcement direction, which all play important roles in the activities and characterisation of informality (Chiwendu, 2016).

Nigeria's informal sector comprises SMEs with economic activities spanning production, wholesalers, retail traders and consumers (Abolade, Adebayo, Ogini, 2013). There are also economic activities, including middle service providers alongside the value chain production including the production and supply of raw materials. The informal sector workers are almost self-employed, spanning across economic activities, such as traders, artisans, farmers, service providers and craft men, among others (Akinwale, 2014). The absence of conventional technological tools is limiting the production expansion of informal sector workers. The economic operation of this sector operates on a labour-intensive technological approach in production and distribution of goods and services. The concern of safety in production is simply ignored and most informal sectors operates in an unconducive work environment with eminent dangers to the health and safety of the human person (Chidoko, Makuyana, 2012).

Other concerns of the informal sector work arrangement are lack of job protection and security and social protection to include pension and sick and maternity leave and other important work entitlement (Awojobi, Ayakpat, Adisa, 2014). Across the globe, informal sector workers encounter a greater amount of occupational risk than workers in the formal employment sector. For the Nigerian case, informal sector workers are daily confronted with high incidence of vulnerable work status, and on many occasions, inferior working conditions and high counts of work-related poverty in many developing nations (Awojobi, Ayakpat, Adisa, 2014). In other words, the disruption caused by the emergence of the COVID-19 pandemic can be argued to have conveyed more deleterious implications for these sets of workers.

The informal sector faces a high propensity to risk and lacks admittance to access appropriate risk-management mechanisms. There are two important impeding factors largely affecting informal sector workers from participating in the benefits of prevention and protection measures against work associated risks. These include the constraint of organisation and prohibition from labour law legislation and protection with an emphasis on occupational and health protection and other social dialogue concerns as enacted by labour standards (Fapohunda, 2012; Sojo, 2015). However, new research frontiers explain that the lack of implementing effective policy standards in the management of risk associated with informal sector workers will continue to spread the mammoth of challenges confronting these arrays of workers daily (Etim, Daramola, 2020).

Nigeria's ambiguous labour laws have been argued to worsen the challenges SMEs in the informal sector economy. For instance, the non-recognition of these workers in any known labour laws continues to expose the myriads of challenging economic activities executed in the informal sector with consequences for participants and family in terms of income, protection and well-being. While several policy papers have been rolled out on the need for a regulatory legislative framework for the control and supervision of the activities of the informal sector, little evidence towards addressing organising the informal sector in

Nigeria is visible. Importantly, the argument pursued in this paper is the position that COVID-19 implications on the survival of SMEs in the Nigeria informal sector will continue unabated as the daunting impact of COVID-19 continues to rampage on in economic spheres across the globe.

3. COVID-19 IMPLICATIONS FOR SMALL AND MICRO-BUSINESSES IN THE INFORMAL SECTOR

The outbreak of the COVID-19 global pandemic, considered as one of the most deleterious public health crises in recent times, has provoked strands of hardships on people, with the most discerning concern for businesses, particularly SMEs, across the globe (Shen, Fu, Pan, Yu, Chen, 2020; Eggers, 2020). In Nigeria, an estimated two-thirds of the labour are employed in the informal economy, surviving on low wages and an absence of labour protection (National Bureau of Statistics-NBS, 2020). The overwhelming majority of these workers experienced business fluctuations and low patronage as a result of the non-pharmaceutical prevention of the COVID-19 virus and the consistent lockdowns. Major fallouts in income for SMEs in the hospitality industry are being experienced through social distancing and major international travel bans, especially for SMEs in the business component of ticketing, tour agent and tour guides, respectively (Akpan, Udoh, Adebisi, 2020; Beglaryan, Shakhmuradyan, 2020). The lockdowns and restrictions have further compounded the fragility of the Nigerian economic, thereby affecting the economic abilities and competitiveness of people, with a consequence on economic difference among people in terms of their purchasing power and behaviour with a collapse of many sole proprietorships and SME businesses (Akpan, Udoh, Adebisi, 2020; Gerald, Obianuju, Chukwunonso, 2020).

Many SMEs reported problems with liquidity during the COVID-19 lockdown and only a few could survive past the lockdown. The overwhelming number of SMEs were ill-prepared for the economic disruptions of the COVID-19 pandemic, and this has provoked major business closures among the SMEs across the globe and financial constrictions ensuing from low sales and profit margins (Fairlie, 2020; Adam, Alarifi, 2021). The evidence of economic disruption is manifested on both large conglomerates and SMEs; however, the adverse effects are more discerning on the survival of SMEs. For instance, the Organisation for Economic Corporation and Development (2020) reports that more than half of SMEs surveyed across 40 countries had a depreciating revenue loss and experienced fear of liquidation during the lockdowns, and calls were made for public assistance through government palliatives and other support measures. As a resurgence measure from the economic disruptions caused by the COVID-19 pandemic, the literature has shown evidence supporting the utility of digitisation by many SMEs as a coping strategy and means to stay in business (Zhang, Diao, Chen, Robinson, Fan, 2020).

The above reflection is unconnected with the Nigeria situation, as many SMEs have been perpetually collapsed during the lockdown of the COVID-19 pandemic (Oyewale, Adebayo, Kehinde, 2020). The presence of many SMEs in sectors greatly affected by the COVID-19 pandemic has been argued as one of the significant factors accounting for the vulnerability of SMEs, including the transportation, retail trade and tourism and hospitality sectors (Fairlie, 2020). Similarly, other vulnerable factors include that SMEs have less cash fall back than large corporations and are more impacted by the human resource and capital underuse (Guo, Yang, Huang, Guo, 2020). The contention also revolves around many SMEs' dependency on international and national supply chains, which were also affected

by the disruption caused by the COVID-pandemic (Lutfi, Buntuang, Erdiyansyah, Hasanuddin, 2020). SMEs also face the challenge of a decrease in consumer purchasing strength as a result of their consumers losing sources of income from the economic disruptions of the pandemic. In other words, it condenses consumers' economic capability ineffectually with consequences on SMEs patronage (Bartik, Bertrand, Cullen, Glaeser, Luca, Stanton, 2020).

Another implication of the COVID-19 pandemic on SMEs can be argued from the prism of social distancing introduced as a measure to curtail the virus. Studies have shown that the social distancing measure restricts SMEs' movement and interaction on many grounds with consequences such as declining customer bases and frequent patronage (Harel, 2021). Many SMEs have lost touch with customer bases and anticipated patronage. In other words, social distancing has engendered major disruptions to SMEs' business structures and the existing relationships between SMEs and other business partners, including suppliers, distributors and consumers, respectively. As the COVID-19 pandemic continues to unfold in strands and varieties, more evidence is being revealed about its impact on SMEs' jobs in the informal sector. Within the short term of impact, the economic performance of many nations continued to decline with mass liquidation of SMEs across major industrial sectors (Marques, Ferreira, 2009). While the uncertainty about the resurgence of SMEs remains unclear, available evidence reveals that the potential impacts on SMEs are probably going to persist for a long time, even after the pandemic (Williams, Kedir, 2018).

There is sparse literature that has interrogated the impact of the COVID-19 pandemic on the performance of SMEs in the informal sector economy, with reference to Nigeria. While it is clear that the economic impact of the COVID-19 pandemic cannot be entirely unravelled at this time, as the pandemic still ravages nations and economies, several arguments have been suggested through government interventions (Gerald, Obianuju, Chukwunonso, 2020). For instance, studies have reported the consistent government support for the revival of SMEs in China (Song, Yang, Tao, 2020; Guo et al., 2020). However, there is no evidence of government support rendered to SMEs during the pandemic. This conclusion explains the narration of liquidation among many SMEs in Nigeria during the pandemic (de Vries, Liebregts, van-Stel, 2020).

Nevertheless, as the crises continue to linger and the necessity for support deepens, it is important to access the effectiveness of current policies. For instance, Harel (2021) identified the paycheck and protection programme as significant to small businesses survival prospect in the United States. However, the structural arrangement of the programme lopsided its resource towards larger firms and this may have dwindled its efficacy for the revival of small businesses. In China, Song, Yang and Tao (2020) analysed government support in the form of disbursement deferments and indemnities for improving SMEs cash streams. The study found that the distribution of loans to small businesses is not effective in easing SMEs cash constraints or reassuring the reopening of small businesses. In contrast to the Nigerian case, there is no available evidence to support the revitalisation of small businesses affected by the global pandemic (Oyewale, Adebayo, Kehinde, 2020). This conclusion provokes the need to understand the impact of the COVID-19 pandemic on the survival of small businesses in Nigeria's informal sector.

4. RESEARCH METHODOLOGY AND METHODS

4.1. Research philosophy

The study employed the interpretivist research philosophical approach to appreciate and understand the characteristics and challenges of the informal sector on the one hand, and the implications of the COVID-19 pandemic on small and micro-businesses in the informal sector of the Nigerian economy. The interpretivist philosophical assumptions afford the opportunity to qualitatively understand and interpret the implications of the COVID-19 pandemic on SMEs in the informal sector (Saunders, Lewis, Thornhill, 2009.). Interpretivism allows for the integration of human elements into a study. It focuses on meanings that humans convey into a research situation and how these meanings are interpreted (Yin, 2016). The human elements of SMEs are interrogated to make meaning of the characteristics and challenges of the informal sector and the implications of the COVID-19 pandemic for business owners in SMEs.

4.2. Research design and population of study

The exploratory research design approach becomes important to expand the limited knowledge on COVID-19 implications on SMEs in the informal sector of the Nigerian economy. The population of study comprised SMEs business owners selected from retail traders, construction, agriculture, tourism and transportation, respectively, from the informal sector in Mushin Central Market of Lagos, Nigeria (see Table 1 for sample distribution). The justification for the choice of these businesses were based on their dominance in the SMEs businesses of the informal economy. The large number of businesses in these businesses are predominantly SMEs who are constrained with one challenge or the other, resulting from the global health pandemic (Sun, Zhang, Dinca, Raza, 2021). The characteristics of SMEs employed is defined in the Nigeria context as an enterprise consisting between 11–100 labour sizes (National Bureau of Statistics, 2020). The main population of study were, however, restricted to the owners of these businesses. A total of 17 SME business owners selected. This sample size is justified as appropriate to unearths deep and explorative research findings in tandem with the qualitative research philosophies (Creswell, 2014). The selection of SME operators does not involve the consideration of any known skills or criteria, hence the pattern of interaction between the interviewer and respondents aided in understanding their specific perceptions, opinions and experiences about the subject matter.

4.3. Recruitment technique and instrument

The study employed the purposive sampling technique to recruit SME respondents. The recruitment procedures start by first identifying a broad base of SMEs in the informal sector, and thereafter referrals were made for the recruitment of selected respondents who understand the characteristics and challenges of the informal sector and the implications of the COVID-19 pandemic for SMEs in Lagos, Nigeria. Semi-structured interviews were employed as the data collection instrument. The rationale is to allow for the uncovering of supplementary questions and to ensure lucidity to all responses in the circumstance that there are ambiguities (Kumar, 2012). An interview guide was used to guide the flow of questions and responses (Creswell, 2012). There are specific challenges common in the interview method of data collection, including vagueness in language non-clarity of responses to interview questions and the possibility of misunderstandings occurring between the interviewer and respondents (Sekaran, Bougie, 2016; Shields, Rangarajan,

2013). These challenges were overcome in this study as follows. Firstly, the interview questions were designed in the English language, a language understood by all respondents, and it was ensured that the structure of the questions minimises any possible misinterpretations as the interview unfolds. Secondly, possible misinterpretations between the interviewer and respondents were controlled by ensuring that leading and repetitive questions were avoided.

4.4. Data collection approach

The data collection procedures neatly comply with all the non-pharmaceutical interventions in the prevention and spread of the COVID-19 virus and all interviews were conducted through the telephone with the entire procedure lasting for three (3) months. All interviews were pre-recorded with a recording device and notes were taken in some instances to ensure clarity where ambiguity was observed. The interviewees were selected across five informal sectorial businesses. The interview commenced with a brief introduction of the researcher and the goal of the study. It was ensured that respondents indicated their willingness to participate with a consent form appropriately signed. The general question was designed to specifically uncover insight into the implications of the COVID-19 on SMEs in the informal sector of the Nigerian economy. Among the specific questions were: What are the structural arrangement and activities of the informal sector in this COVID-19 era? What are the challenges of the COVID-19 pandemic on the operations of SMEs in the informal sector economy? How has government support ameliorated these challenges? What are the innovative measures being put in place for business continuity in this COVID-19 pandemic era?

4.5. Data quality and analysis

The reliability of the qualitative data was ensured with Trochim and Donnelly's (2007) four measures of trustworthiness of qualitative reliability, including credibility, transferability, dependability and confirmability of data. For credibility, it was ensured that the opinions of all the respondents were reflected in the results of the study, while the concern of transferability was ascertained by ensuring that the results emerging from the data are transferable to other contexts. Dependability procedure was ensured by complying with all ethical considerations including the secrecy of respondents' information. Lastly, the confirmability of data was ensured such that there is a synergy between the data and results. The recorded interviews were later transcribed, and the NVivo (v.12) qualitative software was employed to make meaning of the data by identifying phrases and relevant themes and sub-themes that are related to the research problems.

The most frequently mentioned themes were identified with the utility of Word Cloud. Thereafter, the content qualitative analytical tool was employed to make sense of the different themes and sub-themes as they speak to the research objectives and problem (Yin, 2016). This procedure was further enhanced by reading and re-reading the transcribed interviews and the analyses of the themes and sub-themes thereafter were performed. The data analysis provides insight into the discourse of the characteristics and challenges of the informal sector, while drawing major implications through the lens of SMEs in the COVID-19 pandemic era. The themes and sub-themes were discussed and analysed using respondents' verbatim responses and pseudo codes such as Resp.1. Resp. 2, Resp. 3 etc. Regarding ethics, it was ensured that in the conduct of the study and reporting of findings, the identities of all respondents were properly protected, and respondents were adequately

briefed before their voluntary participation in the study. The limitation of the methodology is the challenge of assessing respondents for face-to-face interviews.

Table 1. Matrix of respondents' demographic distribution

Respondents	Gender	Sector of Business	Experience	Education	Age
Respondent 1	Male	Retail trade	13	Bachelor	44
Respondent 2	Male	Construction	10	Masters	40
Respondent 3	Male	Tourism	9	Bachelor	27
Respondent 4	Male	Retail trade	12	Grade 12	29
Respondent 5	Male	Retail trade	4	Grade 12	30
Respondent 6	Male	Construction	5	Bachelor	34
Respondent 7	Female	Agriculture	11	Bachelor	41
Respondent 8	Female	Agriculture	12	Masters	38
Respondent 9	Male	Transportation	3	Grade 12	33
Respondent 10	Female	Transportation	7	Grade 12	33
Respondent 11	Male	Retail trade	6	Bachelor	29
Respondent 12	Male	Tourism	10	Grade 12	39
Respondent 13	Male	Construction	16	Bachelor	30
Respondent 14	Male	Agriculture	2	Masters	34
Respondent 15	Female	Agriculture	10	Grade 12	21
Respondent 16	Male	Transportation	8	Bachelor	26
Respondent 17	Male	Tourism	4	Bachelor	26

Source: Data Analysis.

5. DATA ANALYSIS AND INTERPRETATIONS

This section of the paper present and analyse the different themes and sub-themes that emerged from the qualitative data analysis (see Table 2 and Figure 1). This becomes crucial to lay a foundation for clear analysis and interpretation of the various findings. Each objective is analysed in tandem with the various themes and sub-themes as shown below.

Figure 1. Word Cloud showing themes and sub-themes

Source: Qualitative data analysis.

5.1. Challenges of the informal sector

The informal sector across the globe constitutes the highest employer of labour in any known economy (Etim, Daramola, 2020). The composition and activities of this sector represent the highest revenue generation with different economic sector participants yet remain unorganised and structurally deficient in terms of regulations (Etim, Daramola, 2020) The case of Nigeria explains the myriad of unstructured and non-regulatory activities that make up the informal sector (Akinwale, 2014). The lack of appropriate regulatory frameworks and monitoring activities has continued to engender a constellation of challenges on the activities and for participants in the informal sector economy. These challenges continue to reflect on the nature of economic activities and the economic strength of participants. For instance, despite being the largest employer of labour in Nigeria, the informal sector has been argued as a poverty net for many Nigerians who could not access the formal economy as result of institutional and social constraints (NBS, 2020). The fundamental problem of the informal sector is further enhanced by the overwhelming presence of SMEs as participants who lack any regulatory guidelines within the context of Nigeria.

Most of the respondents express a collection of challenges embedded in the operation of the informal sector. For instance, some of the perceptions shared include precarious work conditions, absence of labour legislation, labour intensive production processes and poor risk management initiatives, among others. Several other challenges include poor working conditions, unorganised work arrangements and low entry requirements. Importantly, the challenge of low entry requirements validates the conclusion that the informal sector activities are largely open to all without checks and regulations. Respondents also argued that the need to constitute a regulatory system for the evaluation of the informal sector activities remains a concern for the growth of the informal sector. The analysis that this paper seeks to advance is the contention that having a regulatory framework without commitment to ensuring that the Nigeria's informal sector is regulated in tandem with international best standards results in activities in futility as the challenges of participants are bound to continue. Therefore, ameliorating the challenges of the informal sector in Nigeria requires charting a new course with robust commitment to address the problems of most of the labour force operating in the informal sector. One of the respondents reminisced in the following way:

> I have been in the informal sector for more than 15 years of operation and I can tell you the level of work activities that happens. We keep hearing that this sector generates revenue more than the formal economy and remains a haven for many unemployed Nigerians, yet there are several issues with this sector. The informal sector is not enjoying any form of regulation and the government seems not to recognize this important sector. As a result, every form of work activities is being perpetuated here and people are subject to many forms of work degradation as a result of the lack of organisation on the part of the government (Resp. 7).

Respondents also explain the absence of labour protection and safety for SMEs in the informal sector of the Nigerian economy with consequences for the protection of operators. Many of the respondents expressed an increased level of safety challenges for SME operators whose protection interest is not covered or recognised by any known labour legislation in Nigeria. For instance, the contentions advanced by the respondents include the exclusion of SMEs and informal sector operators from labour law legislation, which

has continued to be reflect as a limitation on the safety and protection of informal sector workers. One of the respondents, a construction SME, explained as follows:

> As SMEs operators in the informal sector, it is no doubt that we are daily confronted with several challenges. In my own opinion, one thing I am concern about is the safety of people that work in this sector. The labour law does not give coverage to the informal sector operators in Nigeria, even though this is not the case is some developing country like Ghana. People are subjected to varying work challenges without protection coverage. In the construction informal sector where I work for instance, I am not being protected by any known laws in the instance where I am involved in occupational accident. I have also seen a situation where people are abounded after their involvement in occupational accident. So, for me, the present state of the informal sector needs to be addressed so that SMEs in this sector can relish some labour protection (Resp. 13).

Many of the respondents also add to the challenges with evidence of poor risk-management initiatives and labour-intensive production systems among SMEs in the informal sector. For instance, it was argued that many SMEs lack skills for the management of risk for continuous business growth. This conclusion is a testament of the low entry requirement necessities such that hands on desk experience is not mandatory for operation. In addition, the production system is lacking in the utility of conventional technological expertise, provoking the need for labour-intensive capacity. This analysis explains the context and structure of Nigeria's informal sector considering poor support systems and effective adoption of global production acceptable production systems. In other words, labour-intensive production pathways are time consuming and financially challenging, with many SMEs facing bankruptcy. An agricultural produce business owner reported as follows:

> One of the challenges we face as SMEs in the informal sector is the lack of competitive technological process in our production systems. For instance, most of the SMEs in the informal sector that I know are not technology compliance and this has a huge effect on manpower and finances. We must take in more workers to execute a job, and this goes with more finance as well (Resp. 16).

5.2. COVID-19 conundrums for SMEs in the informal sector

The economic disruptions caused by the emergence of the COVID-19 pandemic have continued to engender havoc on organisations, with more discerning effects on the survival and operations of SMEs in the informal sector economy. Several economic disruptions were recounted during the lockdowns in Nigeria, with fallouts on the activities of SMEs. For instance, the World Health Organisation's (WHO) non-pharmaceutical promulgation of social distancing as a measure of curtailing the spread of the COVID-19 pandemic resulted in the closure of many SMEs as a result of poor purchasing power and declined patronage. Many of the respondents argued that their businesses suffered a massive setback during the pandemic leading to the liquidation of many SMEs. The respondents also reported other challenges of the COVID-19 pandemic on SMEs performance, including weak financial strength, low profit margin, reduced customer base, and low utilisation of human resources, among others. For instance, the financial strength of many SMEs was reported to be dwindling as a result of national lockdowns resulting in low patronage.

Many of the SMEs interviewed argued that the overwhelming impact of the COVID-19 pandemic on jobs across the industrial and service sector of the Nigerian economy has resulted in loss of jobs and unceasing retrenchment among many SMEs in the informal sector. In other words, many SMEs have gone into extinction with exuding consequence on family and household maintenance. The contention that follows with the constellation of submission is the consequence on the existing Nigerian over-saturated labour market. To be sure, the extinction of many SMEs will improve the unemployment rate with dire implications on the growth of the Nigerian economy.

The array of challenges was more deleterious among SMEs in the agro-allied produce. The argument captures that many SMEs in the agriculture sector were not able to continue with business, as customers continued to decline as a result of the social distancing policy, among others. Many SMEs lacking the appropriate skills and knowledge for a proactive response to the pandemic could not withstand the business challenges provoked by the pandemic. The pandemic engendered a rapid sales decline and poor financial capacity to deal with operational expenses, and poor structure of supply chain functions for many SMEs in the informal sector as it were. One of the respondents has the following to say:

> The pandemic has affected so much than I can explain, especially for agro-allied SMEs. We have drastically been witnessing a reduced customer base and low profit margin. We have lost so much since the pandemic started as our business has been witnessing a downward spiral. We cannot afford to pay rent for continued service since we have lost so much of our customer and how production has also been declining. As the impact of the pandemic continues, we might have to close business for now (Resp. 8).

Other SMEs that are still in business reported a reduced financial strength and gradual exit of their businesses as a result of low customer base and patronage. In the areas of maintaining staff strength and salaries, many of the respondents highlighted that the first lockdown measures greatly affected their human resource management, such that many employees were retrenched due to their reduced capacity to continue with the payment of salaries. One of the respondents explained as follows:

> The COVID-19 pandemic has seriously affected our business. The most devastating effect occur during the first phase of the national lockdown. At this point, we were unable to pay salaries and rents. We were struggling to ensure that the business does not close in every way possible. When the lockdown was lifted, we realized that people become sceptical to patronize us for the safety of their health and all of these made us suffer greatly in terms of financial strength (Resp. 10).

The challenge of the COVID-19 pandemic on SMEs in the informal sector were also reported through the lens of supply chain functions. For instance, many of the respondents in the service-related component of the informal sector reported disruption in the supply chain business activities. Specifically, the effect of the national lockdown disrupted the smooth running of supply of goods, and this affected the capacity of SMEs to adequately meet the demands of their customers. In effect, business integrity and finance of many SMEs were negatively impacted. A business owner in retail trade reported as follows:

> My business was seriously impacted during the national lockdown, and we could not get supply of materials from our supplier. This also affected our supply capacity to our customers and we still observing that our business was being affected negatively in a way. The supply chain disruption has caused also to lose many customers even after the lockdown was lifted, many of customers never patronize us again. It was understandable that some were mindful of their health, but we as SMEs are really feeling the impact (Resp. 10).

5.3. The future of SMEs amid the COVID-19 pandemic

The future of SMEs in the informal sector with the continued impact of the COVID-19 pandemic on economic worldwide looks uncertain. For instance, the changes that global economies have witnessed in recent times have much to say about the survival and continued relevance of SMEs. Several positive outlooks were argued as critical to the survival of SMEs, such as palliatives and loans, government support measures, the inculcation of technology and innovation, engaging with digital business and the need to adapt to the trends of the COVID-19 pandemic. Many of the respondents argued that the only option for the survival of SMEs is to embrace important changes in the transaction and management of businesses. It was further contended that since the COVID-19 pandemic still has a long path to extinction, it is logical for SME owners to start adapting to the changing trends of the pandemic.

The general perception of the future of SMEs presents a positive outlook if appropriate measure on the part of SMEs is imbibed for survival. The argument raised in this paper is the verity that SMEs need to employ strategic change tactics in the management of their business for the avoidance of extinction. One of the business owners shared the following:

> We have seen that the COVID-19 pandemic is yet to stay at least for a long time to come, and this means a lot for us in the SMEs. We cannot afford to go off from business and put our families and other dependents in hardship. We must do all to stay in business. One of the measures I think we can employ to sustain the future of SMEs is the need to embrace technology and innovation. This I believe we enhance our production and distribution capacities such that the concern of social distancing will be addressed (Resp. 2).

Many of the respondents also reflect on the importance of government support and palliatives for SME survival in the pre- and post-COVID-pandemic. The description of perspectives explains that the economic disruption by the COVID-19 pandemic on SMEs' business survival requires support in the form of palliatives from government and relevant stakeholders for SME continuity. This argument dovetails with the practice in other climes to keep SMEs in business. However, one wonders if the Nigerian government can live up to the expectation of rescuing SMEs in the informal sector for continued survival in the COVID-19 pandemic.

> I think the future of SMEs as we speak now. COVID-19 pandemic as you are aware has caused SMEs so much lost in terms of finance and customer base. We need the intervention of the government. We need palliatives and loans to be able to stay in business now and in the future. We understand SMEs in other countries are enjoying this privilege, but ours is still not clear. For the future of SMEs to be intact, we need this support (Resp. 15).

Table 2. Major themes and sub-themes

Objectives	Themes	Sub-themes
To identify and explain the challenges of the informal sector	Regulatory and monitoring activities, institutional and social constraints, precariousness, absence of labour legislation and unorganized work arrangement	Labour intensive production process, poor management of risk, poor work conditions and absence of labour protection
To assess the challenges of the COVID-19 pandemic on SMEs in the informal sector	Liquidation of SMEs, low patronage, low profit margin, weak financial strength and low utilization of human resource	Disruption of SMEs supply chain, loss of job, retrenchment and increased operational expenses
To understand the future of SMEs in post COVID--19 pandemic	Palliatives and loans, government support, inculcation of technology and innovation and strategic management of business	Digital business and adoption to global changes and trends in doing business

Source: Data analysis.

6. DISCUSSION OF FINDINGS

The focus of this study has been to be understand informality through the symbolic characteristics and challenges of the informal sector beyond the conventional discourse of participation to a more recent discussion of the implication of the COVID-19 pandemic on small business operations in the informal sector. The small and micro-businesses offer a rich empirical laboratory for understanding the impact of COVID-19 on businesses and economics across the globe. Small and micro-businesses have been harnessed to upturn the economic growth of many nations, and therefore some fallouts from the global health pandemic have consequently affected the performance of these economics. As the paper demonstrated, a number of challenges were unpacked from the activities of SMEs in the informal sector, such as unorganised and structural deficiency in terms of regulation, precarious work conditions, lack of access to technology and labour-intensive production systems. This array of challenges reinforces the poor management of the activities of the informal sector by the Nigerian government. Other challenges include lack of regulatory frameworks and monitoring activities, absence of labour regulations and poor risk management initiatives (Anakpo, Mishi, 2021; Akpan, Udoh, Adebisi, 2020; Emmanuel et al., 2016).

The findings also show that the COVID-19 pandemic has provoked major implications for SMEs in the informal sector, including continuous declines in purchasing power parity and patronage as a result of the social distancing measures and lockdowns. Many small businesses have been liquidated while surviving ones are left with weak financial strength. The concern of low profit margins and dwindling customer bases was also reported (Shen et al., 2020; Beglaryan, Shakhmuradyan, 2020). The collection of these challenges is evident in small businesses in Nigeria, where many SMEs are seen struggling with poor patronage in this era of the COVID-19 pandemic. Findings also revealed loss of jobs and retrenchment, increases in operational cost and poor supply chain functions for SMEs in the informal sector. Again, this reflects the swelling rate of unemployment in Nigeria as

many SMEs are being liquidated. These findings support existing research (Oyewale, Adebayo, Kehinde, 2020; Lutfi et al., 2020).

On the future of SMEs, the study has been able to establish that for survival amid the COVID-19 pandemic, informal sector SMEs must embrace structural changes, including the adoption of new technology for business. In addition, the sustainability of SMEs can also be backed with the provision of adequate government support through palliatives and the availability of loans to cushion the effect of the COVID-19 on small businesses. The crusade for SMEs' inculcation of innovation cannot be overemphasised, especially in this period of COVID-19. For instance, results showed the need for innovative production processes for continuous relevance. Similarly, emphasis on the application of strategic change management was stressed as critical to the sustainability of SMEs in the COVID-19 era. These findings support existing research (Harel, 2021; Gerald, Obianuju, Chukwunonso, 2020).

7. CONCLUSIONS, RECOMMENDATIONS AND FURTHER RESEARCH

Stretching the discourse of informality beyond the narrative of structural arrangement and organisation to a more profound theme of the challenges and characteristics of informal sector SMEs in a COVID-19 pandemic offers a new research frontier to appreciate the impact of COVID-19 on small businesses in Nigeria. The study concludes that while the performance of small businesses continued to be affected by the COVID-19 pandemic, the need to constitute appropriate support measures for the sustainability, survival and future of informal sector SMEs cannot be over-emphasised. This conclusion is premised on the importance of informal sector SMEs to the growth of the Nigerian economy. The canon of informality studies must therefore seek to understand the dynamics of the COVID-19 pandemic for a more robust understanding of informal sector SMEs' challenges and prospects. Expanding the discussion through this pathway will possibly afford researchers and analysts the opportunity to carefully dissect the analysis of informality through engendering appropriate measures for the future and relevance of SMEs as an important economic hub of development.

The study concluded that the challenges of informal sector cannot be unconnected from the lack of labour protection for these cohorts of the working people. Therefore, SMEs in a bid to survive requires a reasonable level of labour protection. The study also argued that, while the challenge of the informal sector continues to escalate on the working people, there are obvious consequences for the working people in this sector of the economy. The assumption that the labour law is not tilted in favour of informal sector SMEs, for ensuring appropriate regulation possess important pointers for this conclusion. This conclusion supports that the labour law is value as an important tool required for the protecting the interest of SMEs in the informal sector of the Nigerian economy. The study advocates varying conclusions, on the question of the responsibilities of the Nigerian labour union movement as an organization created for the protection of the working people. While this role is staunchly pursued, the study hopes for an improved protection and welfare of SMEs in the informal sector.

The study further concludes on the challenges of the COVID-19 pandemic on SMEs survival in the informal sector economy. In a sense, it is suggested that the impact of the COVID-19 pandemic should be strategically measured and understood in the interest of SMEs in the informal sector. This is important for understanding the welfare of informal sector SMEs and how varied assistance can be employed in their best interest. As such, the

study anticipates engendering a robust discussion on how events that shape the COVID-19 pandemic can be employed for improving the conditions of work for SMEs in the informal sector. Perhaps, a probe of likely solutions to overcoming informal economy SMEs challenges remain a component part of the issues constraining regulating the work activities of the informal sector. Nonetheless, that more is anticipated from the realm of the Nigerian Federal Government by ensuring meaningful work activities are engaged in the informal sector, and more importantly by advancing for the protection of these categories of the economy for the future and sustained relevance of informal sector SMEs.

The suggestion is the call for a more supportive measure in ameliorating the challenges of informal sector SMEs in this era of COVID-19. Overall, the study recommends a more regulatory function of the operations of the informal sector SMEs in a bid to address the challenges of the COVID-19 pandemic on small businesses. The implication is the goal of ensuring the survival of SMEs in a post-COVID-19 world, particularly for continuous economic growth. The study recommends a realistic solution from the Nigerian government towards reviewing the existing labour law by overhauling the moribund provisions that exclude informal sector coverage in labour protections. This will ensure informal sector SMEs are adequately protected by laws. The government must also show some level of sympathy in the areas of providing loans and palliatives for SMEs affected by the emergence of the COVID-19 pandemic. This gesture will only ensure business continuity of informal sector SMEs but will create a future of business relevance. Further research can be investigated to understand the implications of post COVID-19 on SMEs of the informal sector economy. This is important to be able to situate a comparison analysis of the impact of pre and post COVID-19 on the business performance of SMEs in the informal sector economy for policy action.

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Ewa GWARDZIŃSKA[1]
Małgorzata CHACKIEWICZ[2]

A BAN ON THE EXPORT OF EU GOODS TO RUSSIA

This article analyzes the ban on the export of goods from the EU to Russia, with particular emphasis on dual-use goods and export controls. In the current political situation, these controls pose a serious challenge to EU exporters, who have been placed under an additional obligation to reliably verify recipients, intermediaries, and, above all, the type of goods being shipped, in terms of compliance with the regulations governing exports. The catch-all clause is also discussed. On the one hand, this allows a great deal of discretion within the competence of the Member State when deciding whether a given good, its elements, or its ownership rights should be controlled. On the other, the exchange of information on licensing decisions between the licensing and customs authorities of the Member States and the Commission contributes to further harmonization of the practical application of the law by introducing a new dual-use control enforcement coordination mechanism. This is aimed at improving cooperation between law enforcement agencies, and exchanging best practices.

Keywords: export, export ban, dual-use goods, catch-all clause, security of international trade in goods exports.

1. INTRODUCTION

In the current political environment, exporting goods to Russia and the rules on controlling the export of goods have become a real challenge for EU exporters. Each of them should first of all determine whether a given goods is not on the list of prohibited goods for export and whether the planned export of goods requires obtaining permits or only completing the necessary formalities, for example in the form of a declaration. Otherwise, there is a risk of criminal liability and the risk of serious financial loss. It is necessary here to reliably verify suppliers, recipients, intermediaries and, above all, the type of goods sent, in terms of compliance with the regulations governing exports.

The issue of dual-use goods was and is subject to a general export ban, with a simultaneous tightening of controls on the export of sensitive goods and emerging technologies to destinations so as not to hinder legal trade. This issue has long been widely analyzed in the literature on the subject due to the broadly understood national security and human rights, and Google scholar identifies approx. dual-use export controls (Micara,

[1] Ewa Gwardzińska, Warsaw School of Economics, Poland; e-mail:egwardz@sgh.waw.pl, ORCID: 0000-0003-1656-2078.
[2] Małgorzata Chackiewicz, War Studies Academy, Poland; e-mail:m.chackiewicz@akademia.mil.pl (corresponding author). ORCID: 0000-0002-6255-2789.

2012, Vandenberghe, 2021, Walsh, 2004 etc) and linking controls with sanctions (Meissner, Urbanski, 2022 and Koutrakos, 2001) to linking existing research with practice (Bauer, Brockmann, Bromley and Maletta, 2017) and safety (Rychnovská, 2020). The same is true of klazula catch-all - there are also extensive scientific studies of about 1000 articles (including Gunther, Montero, Linz and Zero, Charpentier, 2017).

As you can see, the issue of the ban on the export of dual-use goods is extensive and accounts for as much as 10% of the exports of goods from the EU market (European Commission, 2011), but the problem of contemporary exports of goods from the EU to Russia has become even more complex and creates new research needs. The authors attempted to analyze this complicated problem from the regulatory side, as it is the one that causes the greatest difficulties for entities involved in international trade in goods, including EU exporters (Gwardzińska, 2018). The work is theoretical. The analysis uses the method of legal analysis in this area.

2. A BAN ON THE EXPORT OF EU GOODS TO RUSSIA

The ban on the export of EU goods to Russia covers not only dual-use goods, but also other goods placed on the prohibition lists. The EU legislator defines dual-use goods and technology as items, including software and technology, that can be used for both civilian and military purposes, and include items that can be used for the design, development, production or use of nuclear, chemical and chemical weapons. or biological or its means of delivery, including all products that can be used both in non-explosive applications and in any way supporting the production of nuclear weapons or other nuclear explosive devices (EU Regulation 833/2014 and EU Regulation 821/2021).

As the above definition shows, dual-use goods are both software, technology, documents and diagrams which are normally used for civilian purposes, but which may be used for military purposes. They may also include raw materials, components and complete systems, such as aluminum alloys, bearings or lasers, or items used in the production or development of military goods, i.e. machine tools, equipment for chemical production and computers, as well as some chemicals used in the production of, among others plastics, dyes or pesticides, and “special materials” such as the Ebola virus (Micara, 2012). The EU regularly updates the list of controlled products in line with decisions made under the export control systems (the Entrepreneur's Guide).

Generally there is a general prohibition on selling, supplying, transferring or exporting, directly or indirectly, dual-use goods and technology - whether or not they originate in the Union - on behalf of any natural or legal person, entity or body in Russia or for use in Russia and the provision of technical assistance, brokerage services or other services in connection with these goods and technologies, as well as the provision of financing or financial assistance related to goods and technologies, dual-use, for any sale, supply, transfer or export of these goods and technologies, or for the provision of related technical assistance, brokerage services or other services , directly or indirectly on behalf of any natural or legal person, entity or body in Russia or for use in Russia. The ban on the export of goods also applies to (Council Regulation (EU) No. 833/2014):

- sale, supply, transfer or export, directly or indirectly, of goods and technology that could contribute to the strengthening of the military and technological potential of Russia or the development of the defense and security sector, as mentioned in Annex VII (applies to ten categories of goods grouped under different groups: category 1 – electronics; category 2 – computers; category 3 includes Part 1 – telecommu-

nications and Part 2 – information security; category 4 – sensors and lasers; category 5 – navigation and avionics; category 6 – marine equipment; category 7 – astronautics, aeronautics and propulsion; category 8 – miscellaneous items; category 9 – special materials and related devices; category 10 – material processing) and the provision of technical assistance, brokerage services or other services in connection with these goods, and the provision of financing or financial assistance in relation to goods and technology (Article 2a),

- sale, delivery, transfer or export, directly or indirectly, of products or technology listed in Annex II (applies to goods with CN / HS codes: 7304 11 00; 7304 19 10; 7304 19 30; 7304 19 90; 7304 22 00; 7304 23 00; 7304 29 10; 7304 29 30; 7304 29 90; 7305 11 00; 7305 12 00; 7305 19 00; 7305 20 00; 7306 11; 7306 19; 7306 21 00; 7306 29 00; 8207 13 00; 8207 19 10; ex 8413 50; ex 8413 60; 8413 82 00; 8430 49 00; ex 8431 39 00; ex 8431 43 00; ex 8431 49; 8705 20 00; 8905 20 00; 8905 90 10) - notwithstanding that, whether they come from the Union – for the benefit of any natural or legal person, entity or body in Russia, including its exclusive economic zone and continental shelf, or for use in Russia, including its exclusive economic zone and continental shelf, and benefits technical assistance, brokerage services or other services related to these goods, and financing or financial assistance related to the goods mi and technology (Article 3),
- sale, supply, transfer or export, directly or indirectly, of goods and technology suitable for use in the refining of crude oil and the liquefaction of natural gas, as listed in Annex X (relating to CN codes: 8414 10 81; 8418 69 00; 8419 40 00; 8419 40 00; 8419 50 20; 8419 50 80; 8419 50 20; 8419 50 80; 8419 60 00; 8419 60 00; 8419 89 98; 8421 39 15; 8421 39 25; 8421 39 35; 8421 39 85; 8419 60 00; 8419 89 98; 8421 39 35; 8421 39 85; 8419 89 10; 8419 89 98 (including equipment for alkylation and isomerization, aromatic hydrocarbon production, catalytic reforming / cracking, flexicoking, naphtha isomerization, polymerization, sulfur production, sulfuric acid alkylation and sulfuric acid regeneration, thermal cracking, pre-cracking, vacuum gas oil hydrocracking, transalkylation [toluene and heavy aromatic compounds], slow coking retorts, hydrocracking reactors, hydrocracking reactor tanks, and hydrogen production technologies and hydrotreatment technologies / equipment) as well as CN code 8479 89 97, whether the goods are of Union origin, and are supplied to any natural or legal person, entity or body in Russia or for use in Russia and for the provision of assistance technical, brokerage or other services related to goods and technology, and the provision of financing or financial assistance (Article 3b),
- the sale, supply, transfer or export, directly or indirectly, of goods and technology suitable for use in the aviation or space industry, listed in Annex XI (Chapter 88), and jet fuels and fuel additives listed in Annex XX (CN code: 2710 12 70; 2710 19 29; 2710 19 21; 2710 20 90; 3811 21 00; 3811 29 00; 3811 90 00; 3811 21 00; 3811 29 00; 3811 90 00; 3811 21 00; 3811 29 00 ; 3811 90 00; 3811 21 00; 3811 29 00; 3811 90 00; 3811 21 00; 3811 29 00; 3811 90 00; 3811 21 00; 3811 29 00; 3811 90 00; 3811 21 00; 3811 29 00; 3811 90 00), whether or not they originate in the Union, and are provided to any natural or legal person, entity or body in Russia or for use in Russia (Article 3c),
- sale, supply, transfer or export, directly or indirectly, of maritime goods and technology as listed in Annex XVI (Ships, marine systems or equipment, and specially designed components, subassemblies and accessories therefor: navigation

and radio-communication equipment), independently whether they originate in the Union, for the benefit of any natural or legal person, entity or body in Russia, for use in Russia or for boarding a Russian-flagged vessel and for the provision of technical assistance, brokering or other goods related services and technology as well as financing or the provision of financial assistance related to goods and technology and the provision of technical assistance, brokerage services or other services related to goods and technology as well as the provision of financing or financial assistance (Article 3 f),

- sale, supply, transfer or export, directly or indirectly, of luxury goods listed in Annex XVIII (this applies to luxury goods, the value of which is, in principle, EUR 300 per head, unless otherwise specified, and applies to purebred horses for breeding and others; caviar and caviar substitutes; truffles and truffle preparations; wine (including sparkling wine), beer, alcohol and spirits; cigars and cigarillos; perfumes, toilet waters and cosmetics, including beauty and make-up products; leather products, saddlery and travel goods, handbags and similar articles; coats or other garments, clothing accessories and footwear (whatever the material from which they are made); carpets, rugs and tapestries, whether or not hand-woven; pearls, precious and semi-precious stones, articles pearls, jewellery, products made of gold and silver; coins and banknotes, other than legal tender; metal cutlery in precious or clad or covered with a layer of precious metal; tableware of porcelain, china, stoneware or earthenware or fine ceramics; lead glass articles; household electronic devices with a value exceeding EUR 750; electrical / electronic or optical sound and image recording or reproducing devices with a value exceeding EUR 1 000; vehicles, with the exception of ambulances, for the transport of persons by land, air or sea, with a value exceeding EUR 50,000 per item, cable cars, chairlifts, ski lifts, power systems for cable cars or motorcycles, a value exceeding EUR 5,000 per item, as well as accessories and spare parts therefor; clocks and watches and parts therefor; musical instruments with a value exceeding EUR 1,500; works of art, collectors' items and antiques; articles and equipment for sports, including skiing, golfing, diving and water sports; optical products and equipment of any value; for the benefit of any natural or legal person, entity or body in Russia or for use in Russia (Article 3h),
- sale, supply, transfer or export, directly or indirectly, of goods that could contribute, in particular, to increasing the industrial potential of Russia, listed in Annex XXIII (applies to 681 HS codes, including prefabricated timber buildings; fire engines, tracked tractors , microwave lamps; galvanic cells and batteries; tapered roller bearings, including bearings without an inner or outer ring; cross planers or slotting machines, for working metals, metal carbides or cermets; dryers; parts and accessories of weaving machines (looms) or their auxiliaries ; devices for heating water; jet engines other than turbojets; knives and cutting blades, for machines or for mechanical devices; sheet metal, sheet metal, strip and foil, of lead; textiles and felt; bulbs, tubers, tuberous roots, underground shoots, crowns and rhizomes; hydrogen; nitrogen; oxygen; synthetic, organic substances in tanning; et c) to any natural or legal person, entity or body in Russia or for use in Russia and the provision of technical assistance, brokerage services or other services related to goods and technology, as well as the provision of financing or financial assistance (Art. 3 k).

It is worth noting here that dual-use goods can be freely traded in the EU, with the exception of some particularly sensitive products, the transfer of which within the EU is subject to prior authorization (see Annex IV to the Regulation) and concerns a list of

approx. 240 natural or legal persons and entities or bodies. The sanctions imposed by the EU on the export of goods to Russia – not only dual-use goods, but also goods that can contribute to economic development or luxury goods, are intended to weaken the Kremlin's ability to finance the war and reduce the economic and political base of the Russian political elite to support invasion of Ukraine.

3.THE EU EXPORT CONTROL SYSTEM AND THE CATCH-ALL CLAUSE

Since 1995, it has been widely accepted that dual-use export control is an exclusive competence of the European Union and an integral part of the EU's common commercial policy (European Commission, 2011). In the case of dual-use goods, since 2009, there is an export control system, initially regulated by Regulation 428/2009, which was later transformed into the EU export control system, which is now based on the provisions of Regulation (EU) 2021/821 and includes (Exporting dual- use goods, 2022):

- common export control rules, including a common set of evaluation criteria and common types of authorizations (individual, global and general authorizations);
- a common EU list of dual-use items;
- common end-use control rules for non-listed items that may be applied, for example, in connection with a weapons of mass destruction program or in cases of human rights violations;
- brokering and technical assistance controls related to dual-use items and their transit through the EU;
- specific control and compliance measures to be introduced by exporters, such as record keeping and records, and; rules establishing a network of competent authorities to support the exchange of information and the consistent implementation and enforcement of controls across the EU.

The EU legislator, despite establishing a closed catalog of the ban on the export of goods to Russia, has left the control authorities a door in the form of a catch-all clause, which gives the EU national authorities the power to control virtually every shipment abroad for dual-use. According to it, these authorities have the right to inspect non-listed goods if there is reasonable suspicion that their export may pose a risk to public security (Tomczyk,2017).

There is no doubt that the catch-all clause provides a large discretionary power for a Member State when deciding whether a given product or its element should be inspected. All this makes S. Bennink and Gonnie van Dam say that the EU's export control system is collapsing under the EU's common commercial policy, as individual member states decide independently how to enforce these rules at the national level and apply the national level of sanctions. This thesis is not entirely in line with the current reality, as the exchange of information between the licensing and customs authorities of the Member States and the Commission on the decisions made on the authorizations issued contributes to further harmonization of the practical application of the law, while introducing a new coordination mechanism for the enforcement of product controls. dual-use that aims to improve cooperation between law enforcement agencies and exchange of best practice.

An additional obligation has been imposed on the exporter to reliably verify recipients, intermediaries and, above all, the type of goods sent, in terms of compliance with the regulations governing export control. Internal Compliance Program “or” ICP” means the existing effective, appropriate and proportionate policies and procedures adopted by exporters to comply with the rules and achieve the objectives of this Regulation and to

meet the conditions of authorizations implemented under this Regulation, including between other due diligence measures assessing the risk related to the export of products for end-users and end-use uses (Article 2 (21) of Regulation 2021/821).

In the daily practice of export control, ICP is a key "protective shield" for companies. Granting export licenses often depended on the proven credibility of the company. Thanks to ICP, the exporter can confirm this reliability. Moreover, violations of export control law are not only punishable under criminal law or lead to negative administrative consequences (including criminal proceedings) – violations of export laws can result in a huge loss of image of the companies concerned. A functioning ICP can at best help eliminate or reduce these risks.

3.1. Relationship between the Customs Classification Codes (HS / CN) and the Export Control Classification Codes

In 2019, the European Commission, in order to meet the expectations of the entities of customs law in the field of dual-use goods, published a correlation table that establishes links between customs classification codes (HS / CN) and export control classification codes (ECCN). ECCNs are five-character alphanumeric designators used in the Trade Control List (CCL) to identify dual-use items for export control purposes. ECCN categorizes items based on the nature of the product, i.e. the type of goods, software or technology, and relevant technical parameters (Correlation table between export control classifications).

However, you should be careful when using this tool as the two systems differ in purpose, content and scope. It is therefore possible that one ECCN number will be associated with dozens of different HS / CN classifications and one HS / CN classification will refer to several ECCNs. Moreover, the HS / CN classification may not automatically correspond to the ECCN classification, as the use (and end-user) of the product will also be a factor in whether the product is inspected or not (Pilarczyk, 2022). On January 7, 2022, the European Commission published an updated edition of the correlation tables between TARIC and dual-use codes (Ross Evans, 2022, (Correlation tables between TARIC).

4. AUTHORIZATION FOR TRADE IN DUAL-USE GOODS

A special type of trade in goods is trade in dual-use goods, which may be subject to export authorizations and concerns four types (Exporting dual-use goods):

- individual export authorizations – an authorization granted to one specific exporter for one end-user or consignee in a third country, covering one or more dual-use items (Article 2(12));
- global export authorizations – an authorization granted to one specific exporter for a type or category of dual-use items which may be valid for export to one or more specified end-users or in at least one specified third country (Article 2(13));
- National General Export Authorizations (NGEAs): – can be issued by EU Member States if they are in line with existing EU General Export Authorizations EUGEA and do not relate to the items listed in Annex IIg of the Regulation. may apply to the products and destinations listed in Sections A to H of Annex II, but exclude from their scope the products listed in Section I of that Annex, and shall be issued after meeting the requirements of Annex III, Section C;
- EU General Export Authorizations (EUGEAs) for the export of certain products to specific destinations under the specific conditions and requirements set out in

sections A-H of Annex II – applies to an authorization to export to all EU countries the goods indicated therein to each entity and relate to: exports to Australia, Canada, Iceland, Japan, New Zealand, Norway, Switzerland, Liechtenstein, Great Britain and the United States of America; exports of certain dual-use items to certain destinations; exports after repair / replacement; temporary exports for exhibitions or fairs; telecommunications; chemicals; intra-group technology transfers and; encryption.

- An application for an individual, global or national general export license in Poland is submitted to the Ministry of Development and Technology, Department of Trade in Sensitive Goods and Technical Safety. The application is free of charge. It should be enclosed with (the Entrepreneur's Guide):
  - a declaration of possession of a license or other permits authorizing the holder of strategic goods or conducting activities related to the proposed trade, if such licenses or permits are required under the provisions of other acts, along with the exact identification features of these documents;
  - a draft agreement or a trading agreement, if such agreement is required for a given trading, or a letter of intent or an inquiry;
  - import certificate or end user declaration in case of export or intra-EU transfer;
  - consent of a competent foreign authority for specific disposal of the goods in the event that the importer or end user undertook to obtain it.

The authorization is issued within one month and is valid for up to two years, unless the customs authority decides otherwise. In the case of a general EU permit, the entity that meets the conditions set out in Annex 2 to Regulation 2021/821 does not have to submit an application for a permit. It is enough for him to submit a declaration on the date of commencement of international trade in dual-use products. Such declaration must be submitted to the customs authority at the latest one month from the date of exportation of the goods. The competent authority of the issuing Member State may refuse to grant an export authorization and may annul, suspend, modify or revoke an export authorization which has already been granted. Where an export authorization is refused, revoked, suspended, substantially limited or revoked by a competent authority, or where a competent authority determines that the intended export should not be authorized, that authority shall notify the competent authorities of the other Member States and the Commission and provide them with the relevant information. In case the competent authority of a Member State suspends an export authorization, the final assessment will be communicated to the competent authorities of other Member States and the Commission at the end of the suspension period (Art. 16 of Regulation 2021/821).

In case of doubts as to whether it is necessary to obtain an authorization for a specific trade in dual-use products, it is possible to submit an application for an explanation to the Minister of Development and Technology. The authority, after reviewing the circumstances of the case, will provide a binding explanation regarding the need to obtain a permit for a given trade within 3 months from the date of submitting the application, and in justified cases the deadline may be extended to 6 months.

5. FINAL REMARKS

The ban on the export of goods to Russia included in the prohibition lists applies not only to dual-use goods, but also to other goods, e.g. luxury goods or other goods that may

contribute to increasing the industrial potential and are the result of sanctions imposed on this country after the invasion of Ukraine.

The use of the catch-all clause allows, on the one hand, a high degree of discretion in the powers of a Member State when deciding whether a given good, its element or ownership rights should be controlled, and on the other hand, the exchange of information between the licensing and customs authorities of the Member States and the Commission on the subject of licensing decisions contributes to further harmonization of the practical application of the law, while introducing a new dual-use control enforcement coordination mechanism aimed at improving cooperation between law enforcement authorities and the exchange of best practices. A helpful tool in the classification of dual-use goods may be the correlation table created by the European Commission, which establishes links between customs classification codes (HS / CN) and export control classification codes (ECCN), categorizing items based on the nature of the product, i.e. the type of goods, software or technology and appropriate technical parameters. However, you should be careful when using this tool as the two systems differ in purpose, content and scope.

The ban on exports of goods to Russia introduced by the EU is one of the effective tools that has significantly weakened the country's economic and military potential. Although it was introduced in order to limit Russia's ability to finance the war and to burden its political elites responsible for the invasion with real economic and political costs, it also became a serious barrier to business activity for EU entrepreneurs and contributed to a decrease in their income and even in some cases led to their bankruptcy.

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Łukasz JUREŃCZYK[1]
Maria Ewa SZATLACH[2]

THE US–KENYA FREE TRADE AGREEMENT: A GATEWAY OF CLOSER COMMERCIAL COOPERATION WITH AFRICA

The subject of this paper is the legitimacy and purpose of concluding a free trade agreement (FTA) between the USA and Kenya. The main research problem lies in whether the US-Kenya FTA can become a template for strengthening trade cooperation between the US and Africa and strengthening the American economic position on the continent. The main hypothesis is that the successful negotiations leading to the conclusion of an FTA, satisfactory for both the US and Kenya, might motivate other African countries to negotiate with the US in this regard. The US-Kenya FTA could become a model document, helping the US and African countries to negotiate free trade cooperation. It may prove to be a milestone on the road to closer economic cooperation between the United States and Africa.

Keywords: The United States, Kenya, Africa, free trade agreement, preferential trade agreement, commercial cooperation.

1. INTRODUCTION

In 2021 Kenya had 49,801 thousand inhabitants who generated a GDP of 109,49 billion dollars, which was just 2199 dollars per capita. For comparison, however, the second largest economy of East Africa – Ethiopia, had a GDP of 92,76 billion dollars generated by 98,729 thousand inhabitants, which means that its GDP per capita was more than half lower than in Kenya (International Monetary Fund 2021). Kenya is East Africa's largest and most important business, financial, and transportation hub, with 80 percent of region's trade flowing through Mombasa Port (Bureau of African Affairs, 2018). As "the gateway to East Africa", Kenya plays a vital role as a transportation hub for much of Sub-Saharan Africa (USAID). In 2014, the World Bank reclassified Kenya from a low-income country to a lower middle-income country (Congressional Research Service, 2015). From the perspective of commercial cooperation with the United States, this was important because it limited Kenya's possibilities to benefit from certain concessions for the poorest countries.

[1] Łukasz Jureńczyk, Kazimierz Wielki University in Bydgoszcz, Poland; e-mail: lukasz jurenczyk@ukw.edu.pl (corresponding author). ORCID: 0000-0003-1149-925X.
[2] Maria Ewa Szatlach, Kazimierz Wielki University in Bydgoszcz, Poland; e-mail: szatlach@ukw.edu.pl. ORCID: 0000-0003-1376-2904.

The United States has several trade agreements with East Africa of which Kenya is a member. Since 2000, Kenya enjoys preferential trade benefits under the African Growth and Opportunity Act (AGOA). The program eliminates import tariffs and quotas on goods from many African countries. In 2001, the USA signed a cooperation agreement with the Common Market for Eastern and Southern Africa. In February 2015, the U.S. – East African Community (EAC) Cooperation Agreement was signed to increase the US investment and trade with the region. In 2018, the United States signed Trade and Investment Framework Agreements (TIFA) with the EAC (Bureau of African Affairs, 2018). Kenya is a member of both organizations. In recent years, bilateral cooperation between the USA and Kenya has been increasing, primarily in the commercial area. In June 2018, the USA and Kenya signed the bilateral commercial Memorandum of Understanding (MoU). In turn, in August 2018 President Donald Trump and President Uhuru Kenyatta established the U.S.-Kenyan Trade and Investment Working Group (TIWG). Under the TIWG the states agreed to work together to: pursue exploratory talks on a future bilateral trade and investment framework; maximize the remaining years of the AGOA; strengthen commercial cooperation; and develop short-term solutions to reduce trade and investment barriers. In April 2019, the inaugural meeting of the Group was held in Washington, and subsequent meetings are held regularly twice a year (Office of the United States Trade Representative, 2020).

The purpose of the paper is to analyze and assess the legitimacy and purposefulness of the US-Kenya free trade agreement in the context of strengthening trade cooperation between the United States and Africa and American economic position on the continent. The first part of the paper presents the economic relations between the United States and Africa in historical terms. The second part deals with trade relations between the United States, Kenya and Africa in the second decade of the 21st century. The third part of the paper outlines the impact of preferential trade agreement (PTAs) on the economic development of countries participating in such agreements. This impact is analyzed in the context of the concepts of economic regionalism. The fourth part is devoted to the discussion on the legitimacy and possibilities of strengthening trade relations between the USA, Kenya and Africa thanks to bilateral and comprehensive free trade agreements. The main research problem lies in the question of whether the US – Kenya FTA can become a template for strengthening trade cooperation between the United States and Africa and help to strengthen its economic position on the continent? The main hypothesis of the paper assumes that the success in negotiations leading to the conclusion of a free trade agreement satisfactory for the US and Kenya might motivate other African countries to negotiate with the United States in this regard. The agreement could become a model document and help the United States and African countries to negotiate free trade cooperation. As the United States and African states have a common interest in concluding agreements regulating future trade relations, the agreement between the USA and Kenya may prove to be a milestone on the road to closer economic cooperation between the United States and Africa. The conclusion of comprehensive bilateral free trade agreements will require significant negotiation efforts and intensive adaptation efforts. In turn, increasing trade cooperation will require active implementation of the provisions of agreements and creation of incentives enabling full use of the opportunities they will provide.

2. US ECONOMIC POLICY TOWARDS AFRICA

Since the end of World War II, the US economic policy toward Africa focused mainly on economic aid to the countries of this continent. During the Cold War, both the United States and the USSR accepted African non-alignment and neutrality (Cohen, 2008). The new international situation after 1989 forced the United States to develop a new foreign economic policy. In the 1996 National Security Strategy (NSS), the African continent found itself in the American area of political and economic interest, although it was not a priority region. The 1997 NSS highlighted threats to American security from Africa: state-backed terrorism; drug trafficking; international crime; environmental degradation; and the spread of diseases. The 2006 NSS identified Africa as a high-priority continent and stated that the US security depended on helping Africa in developing democracy in areas (countries) of struggle and conflict. The George W. Bush administration significantly increased not only humanitarian and development aid, but also military aid and economic and investment support (Fulford, 2009).

In 1997, President Bill Clinton presented the Partnership for Economic Growth and Opportunity in Africa, the aim of which was to further integrate Africa into the world economy as well as increase American trade and direct investment in African continent. The legal aspects of the implementation of the Partnership were included in The African Growth and Opportunity Act – AGOA, adopted in May, in which Africa was recognized as a region with great economic potential. The AGOA was created to ensure the access of Sub-Saharan African countries to the US market by creating favorable relationships with US entrepreneurs and encouraging African countries to reform through both economic and trade measures. According to its provisions, customs duties were removed on a number of goods not covered by the US system of preferences. The AGOA also provided for the creation of free trade area (FTA) as well as technical and financial assistance (Dumała, 2009). The following AGOA included: support for increased investment in the region (AGOA II); extension of preferential access for goods from Africa (AGOA III); and introduction of credit clauses (AGOA IV). AGOA's provisions were considered a selective policy because they were based on the assumption that the USA should focus only on those African countries that introduce elements of the market economy and implement economic reforms, and are ready to break down barriers to US goods and investments (Shinn, 2009).

One of the important institutions influencing the shape of American economic policy towards Africa is the US Trade Representative Office of African World, which negotiates the US trade and investment policy with 48 countries in Sub-Saharan Africa. The Office calls for economic development, the creation of new jobs and the reduction of areas of poverty. The Office works on the most effective delivery systems for African goods - from processed fruit and vegetables to shoes for the US market (Chappell, 2010). In many cases, this means, for example, teaching African trading partners to create business plans from scratch, or to efficiently pack and ship goods to the United States. One example of the Office's successful work is Mauritius, which is transforming from a low-income agricultural country into a diversified middle-income economy with growing industrial, financial and tourism sectors. Mauritius has achieved success in the development of new sectors: diamond processing; the optical industry; and the production of jewelry (Chappell, 2010).

Africa is important for the USA due to several interests:

- geostrategic – from its territory strategic communication routes (Horn of Africa and South Africa) can be controlled (from the military and economic point of view),
- raw material – it is a source of natural resources that are valuable and important for the American economy, mainly energy,
- transnational – global threats are spreading from Africa: migration; diseases; crime; fundamentalism and terrorism,
- political – African states are the most numerous regional group in the United Nations (Lizak, 2005).

Therefore, American institutions dealing with research on strategic areas recommend maintaining a constant and high level of commitment, both bilateral, such as cooperation with Kenya, and multilateral with African oil-producing countries. A good illustration of this commitment is the US support for the Gulf of Guinea Commission (GGC), which is a regional organization founded in 1999 and includes: Angola, Cameroon, Congo Republic, Democratic Republic of Congo, Equatorial Guinea, Gabon, Nigeria, and Sao Tome and Principe. It was created to promote economic cooperation, harmonize the exploitation of natural resources, and support peace and stabilization in the region.

Finally, it should also be underlined, that the United States and China are the two most important bilateral partners of modern Africa. Both powers see the African continent as a growing and significant source of natural resources, especially oil. It should be remembered that, apart from China and the USA, there is a noticeable expansion and interest in Africa of other countries: Russia, Japan, South Korea, India, Brazil, Iran, Turkey and the European Union members (APEC Review, 2007).

3. US TRADE WITH AFRICA AND KENYA IN THE XXI CENTURY

In 2008, US exports to Africa stood at 28.4 billion dollars, while its imports from Africa totaled 113.5 billion dollars (United States Census Bureau, 2022a). Given the Kenyan roots of President Barack Obama, African leaders, the Kenyan authorities, had great hopes for intensifying cooperation with the United States. President Obama made his first visit to Africa in July 2009, which further fueled hopes and expectations of the inhabitants of the continent. In the first year of Obama's office, however, trade with Africa collapsed, which mainly concerned imports into the USA (Kieh, 2014). In 2009, US exports to Africa amounted to 24.3 billion dollars and imports fell to 62.4 billion dollars. This collapse was mainly caused by the global economic crisis. In the next two years of Barack Obama's presidency, the value of trade with Africa increased, which concerned both American exports and imports. In 2010, they stood at 28.3 and 85 billion dollars respectively, and in 2011 at 32.9 and 93 billion dollars. In 2012, exports amounted to 32.7 billion dollars, while imports dropped significantly to 66.8 billion dollars (United States Census Bureau, 2022a).

In the face of another collapse in trade between the United States and Africa in July 2013, the Barack Obama administration presented the Trade Africa initiative. It focused on strengthening cooperation with East African countries in order to significantly expand U.S. – African private and public sector collaboration to increase trade with and within Africa. Under the program, one of the ways to increase the profitability of trade was to reduce the time of loading goods and transporting them by sea (USAID, 2017). Africa was seeking to: "double intra-regional trade in the EAC; increasing the EAC exports to the United States by 40 percent; reducing by 15 percent the average time needed to import or export a container from the ports of Mombasa or Dar es Salaam to the land-locked interior; and

decreasing by 30 percent the average time a truck takes to transit selected borders" (USAID, 2016). In 2015, the program was extended to the US partners from other parts of Africa. Despite the initiation of this program, the level of trade between the USA and Africa continued to decline in subsequent years. In 2016, the US exports amounted to 22.3 billion dollars and imports to 26.6 billion dollars. The situation did not change that much in the next years. In 2018, the US exports amounted to 26.1 billion dollars and imports to 35.8, while in 2019 to 26.7 billion and to 30.2 billion dollars respectively. 2020 was the worst year due to the COVID-19 pandemic, when the US exports amounted to 21,9 billion dollars, and imports to 23,7 billion. There was some rebound in 2021 when with 26,7 and 37,6 billion respectively (United States Census Bureau, 2022a). As can be seen, while for more than a decade, the US exports to Africa remained at a relatively similar level, imports dropped significantly.

As for Sub-Saharan Africa, in the sample 2018 goods trade was 40.9 billion dollars in total, of which American exports totaled 15.8 billion dollars (down 14.1% from 2008) and goods imports totaled 25.1 billion dollars (down 70.9% from 2008). This means that US goods trade deficit with Sub-Saharan Africa was 9.3 billion dollars in 2018. The top 5 US export markets in the Sub-Saharan Africa for 2018 were South Africa (5.5 billion dollars), Nigeria (2.7 billion), Ethiopia (1.3 billion), Ghana (769 million), and Togo (642 million). The top 5 US import suppliers from the Sub-Saharan Africa for 2018 were South Africa (8.5 billion dollars), Nigeria (5.6 billion), Angola (2.7 billion), Cote d'Ivoire (1.2 billion), and Madagascar (892 million). Kenya was not among the top American trading partners from Sub-Saharan Africa (Office of the United States Trade Representative).

In the second decade of the 21st century, trade between the USA and Kenya fluctuated significantly. In 2010, the value of goods sold by each country was in the range of 300-400 million dollars with a relatively small US trade surplus of 64.2 million dollars. Until 2013, there was a steady increase in trade between countries, with a growing favorable US trade balance. In 2014, there was a surge in American exports to Kenya, which meant that the USA recorded a huge trade surplus exceeding 1 billion dollars. After a favorable for the United States transition year of 2015, from 2016, American exports fell and remained at a much lower level between 551 million in 2021 and 365.5 million in 2018, with gradually, but systematically growing Kenyan exports from 552.5 million dollars in 2016 to 685,3 million dollars in 2021. For this reason, between 2016 and 2019 Kenya recorded a trade surplus in the range from 118.3 million dollars in 2017 to 277.8 million dollars in 2018 (United States Census Bureau, 2022b). Between 2010 and 2021, the United States exported to Kenya goods worth over 7.16 billion dollars and imported goods worth over 6,38 billion dollars. Over 768 million dollars in the US trade surplus is the consequence of a record-breaking US exports in 2014.

In exemplary year 2018, total bilateral goods trade amounted to 1 billion dollars, of which American exports to Kenya totaled 365.5 million dollars and imports from Kenya totaled 643.3 million dollars. The US goods trade deficit with Kenya was 277.8 million dollars. The top American export categories in 2018 were aircraft (103 million dollars), machinery (41 million), agricultural products (37 million), plastics (37 million), electrical machinery (31 million), and others (16 million). These are relatively high value-added manufactured goods. The top import categories in 2018 were woven apparel (240 million dollars), knit apparel (153 million), edible fruit and nuts (cocoa, brazil, cashew) (74 million), coffee, tea and spice (50 million), and others (55 million) (Office of the United States Trade Representative). The US imports from Kenya was mainly relatively low-value products. In 2018, Kenya was the fourth largest exporter to the United States among the

AGOA member states. Under the agreement, Kenya exported 470 million dollar worth of goods, which accounted for 73% of all its exports to the USA. Only Nigeria (4.36 billion), South Africa (2.36 billion), Angola (2.01 billion) and Chad (601 million dollars) were ahead of Kenya in this respect (Felter, 2020). This is important because products exported to the USA under AGOA were duty-free.

Table 1. US trade in goods with Kenya in 2010–2021 in million US dollars

Year	Exports	Imports	Balance
2010	375.3	311.1	64.2
2011	461.4	381.6	79.9
2012	568.6	389.5	179.1
2013	635.7	452.3	183.4
2014	1,640.8	591.3	1,049.5
2015	943.5	573.1	370.4
2016	397.5	552.5	-155.0
2017	454.0	572.3	-118.3
2018	365.5	643.3	-277.8
2019	401,3	667.1	-276.2
2020	372.2	568.8	-196.7
2021	551.0	685.3	-134.3
Total	**7166.8**	**6388,2**	**768.1**

Source: Own study based on (United States Census Bureau, 2022b).

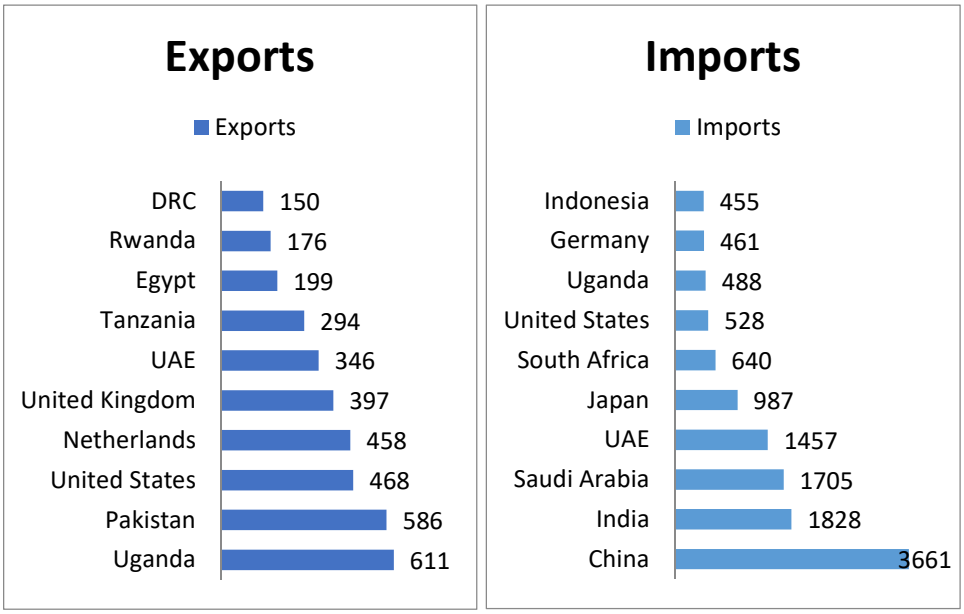

Figure 1. Top 2018 Kenyan trade partners (in millions of dollars).

Source: Own work after (World Integrated Trade Solution; González, 2020).

In 2018, the United States was the most important recipient of goods from Kenya, after Uganda and Pakistan, and before the Netherlands and Great Britain. At the same time, the United States was in seventh place as a supplier of goods to Kenya, after China, India, Saudi Arabia, the United Arab Emirates (UAE), Japan and South Africa, and before Uganda, Germany and Indonesia. It should be emphasized that in this respect, China with export value of 3.67 billion dollars was significantly ahead of India (1.83 billion), Saudi Arabia (1.7 billion) and UAE (1.46) (World Integrated Trade Solution). Due to the difference in economic potential, Kenya was much less important for the United States as a trading partner. In 2018, Kenya was the 98th trading partner of the US, with 110th largest goods export market and 85th largest supplier of goods imports (Bureau of African Affairs, 2018).

In 2019, there was a minor increase in trade between the United States and Kenya reaching almost 1.1 billion dollars. The top US goods exports to Kenya in 2019 were aircraft (59 million), plastics (58 million), machinery (41 million), and cereals (wheat) (27 million dollars). The top US imports from Kenya in 2019 were apparel (454 million), edible fruit and nuts (mostly nuts) (55 million), titanium ores and concentrates (52 million), and coffee (34 million dollars) (Office of the United States Trade Representative, 2020). The United States mainly exported industrial goods to Kenya, and imported agricultural products and, to a lesser extent, natural resources.

Because in 2018 American exports to Kenya decreased by nearly a third compared to 2014, the Donald Trump administration began looking for means to reverse this trend. First of all, the USA tried to reduce trade barriers, connect firms to financing and guide them through bureaucracy (Paquette, 2019). During the meeting in the White House at the end of August 2018, Presidents Trump and Kenyatta decided to establish a Strategic Partnership between two countries. The core of the newfound relations was to enhance trade and investment (Warutere, 2018).

In February 2020, President Kenyatta visited the United States again. During the visit, the Kenyan-US trade and investment pact was sealed. The purpose of the agreement was primarily to strengthen commercial cooperation in the small and medium enterprises (SME) sector and to provide technical assistance and trade capacity building for maximizing Kenya's utilization of trade benefits under the AGOA (Mbabazi, 2020). It turned out that most small-holder farmers and entrepreneurs did not even know about the AGOA's existence or they did not take any actions to maximize the benefits it provides (Muluvi, Odhiambo, Otieno, 2015). Another goal was the adoption of a phytosanitary protocol by Kenya that allowed wheat growers in Washington State, Oregon and Idaho access to Kenya's 470 million dollars wheat market for the first time in over a decade (Shalal, Lawder, 2020). In 2020, trade was temporarily constrained by the COVID-19 pandemic, but there was a rebound in 2021.

4. THE IMPACT OF PREFERENTIAL TRADE AGREEMENTS (PTAS) ON ECONOMIC DEVELOPMENT OF PARTICIPATING COUNTRIES

Before analyzing the impact and purposefulness of the US – Kenya free trade agreement in the context of enhancing trade cooperation between the United States and Africa, we should pay attention to the importance of free trade agreements (FTA) in the concepts of economic regionalism, which could be understood as a preferential economic cooperation of countries located in the region. This cooperation is primarily concerned with the elimination of tariff barriers, but not with their elimination in relation to third countries

(Haliżak, 2004). In the context of the above definition, the main driving force of economic regionalism is the creation of Preferential Trade Agreements (PTAs), which give individual countries preferential access to the market of the member states (or to the market of a given country in a bilateral agreement) (Haggard, 1997). There are several forms of PTAs:

- customs union, which eliminates internal trade barriers and imposes a common external tariff,
- free trade area (created on the basis of Free Trade Agreement), which eliminates internal trade barriers but does not establish a customs union,
- common market, that allows the free movement of goods, services, capital, and people.

PTAs take various forms and sizes - they differ in the level of economic development (GDP), the degree of market openness and the intensity of integration processes. Nowadays, a new type of PTAs are bilateral agreements which cover geographically distant countries without common borders (Nowara, 2008).

Most of the literature on economic regionalism focuses on the analysis of the impact of PTAs on the economic development of countries participating in such agreements. In order to answer the question about the impact of these agreements, it is necessary to briefly characterize PTAs. They are based on two logics: on the one hand, it is the liberalization of trade between the signatory countries, and on the other, it is the discrimination against a third party (de Melo, Panagariya, 1993). Since such an agreement rarely eliminates external trade barriers, neoclassical economists call it the second-best alternative to multilateral trade. Their arguments are largely based on the views of the Canadian economist, Jacob Viner, who analyzed the functioning of trade agreements. Although Viner's concept of trade creation and trade shift effect was created over 70 years ago, it is still widely accepted in international economic relations. According to Viner, preferential trade agreements promote trade creation when more expensive domestic products are replaced by cheaper products imported from a participating country. The greater domestic consumption generates an increase in additional trade and welfare of citizens. In turn, the trade shift effect arises when imports of cheaper industrial goods from a country with no signed agreement is replaced with more expensive imports from the country with which the free trade agreement is signed. As a result, the increase in trade between – in this case – the two countries – comes at the expense of direct imports from other countries, i.e. a trade shift effect does not increase overall welfare (Viner, 1950). In the opinion of economists, even in the event of adverse effects related to the shift in trade, free trade agreements can increase the welfare of countries thanks to the economy of scale and improved terms of trade (Krugman and Obstfeld, 2007).

The decision to establish an FTA depends largely on the preferences and bargaining power of various social groups and politicians, and on the very essence of national institutions. Structuralists – in the context of free trade agreements between two states of unequal economic power – point to the problem of the emergence of hegemony effect. Many strong nations, such as the United States, use free trade agreements as a means of consolidating their political influence over weaker partners (Eichengreen, Frankel, 1995).

Contemporary theories of economic regionalism are related to the third wave of regionalism that began at the turn of the 20th and 21st centuries. It is characterized by an increase in preferential trade agreements, most of which, like the US – Kenya agreement, are bilateral (Żołądkiewicz, 2009). It can even be said that practically every member state of the World Trade Organization (WHO) participates in some kind of agreement, such as

a free trade area or customs union. The wave of the 1930s was a reaction to the global crisis, the wave of the 1960s was an attempt to imitate the European Communities, and now the modern wave is characterized by a large number of agreements establishing free trade areas (FTAs) between highly developed and developing countries, also known as North-South Agreements. These agreements increase mutual benefits, but they can also create tensions between differing economic standards and regimes. Under the new regionalism, highly developed countries have become active participants in a comprehensive network of free trade agreements, the most prominent example of which is the United States (Bouzas, 2007).

Economic analyzes indicate that North-South Agreements can be a powerful force stimulating exports of developing countries thanks to access to the markets of high developed countries. North-South Agreements can also act as a stimulus to attract the inflow of foreign direct investment to poorer countries that have problems with capital and investments. Some researchers point to the fact that they can encourage developing countries to restructure and adapt their institutions to effective cooperation within the framework of the agreement and to adopt some of their partners' solutions. However, the nature and extent of benefits depend on the content of the agreement, the economic structure of partners and the national policies of both parties (Ethier, 1998).

5. DISCUSSIONS ON THE US – KENYA FREE TRADE AGREEMENT

President Kenyatta's visit to the United States in February 2020 primarily gave impetus to strengthening trade relations with Kenya by starting negotiations on a free trade agreement. In the same month, the presidents of the USA and Kenya also met at the African Union Summit in Addis Abeba, in Ethiopia, where they announced the possibility of such an agreement. The US Trade Representative, Robert E. Lighthizer, said at the time: "There is enormous potential for us to deepen our economic and commercial ties" (Bearak, 2020). On March 17, 2020, President Trump formally notified the American Congress about his intention to negotiate on this matter. The FTA agreement was meant to be a turning point in Trump's policy towards Africa, because he did not pay much attention to the continent before. American-African relations have suffered from the 2018 arrogant and reckless statements of President Trump, in which he opposed immigration from African states, calling them "shithole countries" (de Greef, Chan, 2018). The agreement with Kenya is to become a model for subsequent bilateral agreements with other African countries. It is intended to initiate a counterbalance by the United States to China's growing economic engagement in Africa (Felter, 2020). The free trade agreement with Kenya is to be the first of its kind with Sub-Saharan African country and second on the continent, after the 2006 FTA with Morocco.

The free trade agreement with Kenya is to be part of a larger geopolitical strategy towards Africa, which aims to strengthen American position on the continent. The U.S. – Kenia FTA has to set a template for future trade deals on the continent and counteract the dynamically growing influence of China (Rodríguez, 2020). The choice of Kenya as a model country for trade cooperation was the result of a detailed, multi-faceted analysis. It was based not so much on economic factors, but rather a combination of geostrategic significance, Kenya's great willingness to conclude an agreement, and the possession of leverage for negotiations (Caporal, 2020). The United States has important political and military interests in Kenya. This includes, common peace-keeping activities, including in Somalia and South Sudan, and the fight against international terrorism, including mainly

Islamist organization al-Shabab. Nevertheless, Kenya's economic position in the region certainly favored the country as a potential main trading partner.

In economic terms, a factor in favor of Kenya is the growing absorption of the market, caused by the increase in population and the enrichment of its inhabitants. The middle class expects higher quality industrial products, which is why they do not always want to buy less prestigious goods offered by Chinese companies. In addition, Kenya annually imports food valued at around 2.5 billion dollars. There is an upward trend, not only because of the growing population of Kenya, but also due to the changing consumer preferences. They are increasingly moving away from traditional, local food in favor of imported products. Accordingly, the United States wants to increase its share of food exports to Kenya. This gives, among other things, the possibility of expansion of American fast food chains, the sale of basic food products and alcoholic beverages, but also eatables for the more demanding middle class (Foreign Agricultural Service, 2019).

Given the gap in the economic potential of states, Kenya may gain primarily from bilateral relations. Principal Secretary to the Ministry of Foreign Affairs, Macharia Kamau, stated at the end of January 2020 that Kenya could benefit from the FTA in numerous ways. He said: "We hope that it would improve our trade relations with the US and increase job opportunities for Kenyans and increase travel between the two countries for more tourism and impact other sectors of the economy" (Simiyu, 2020). The Kenyan authorities, therefore, see the FTA as a path to greater US economic involvement in the country. Kenya needs the United States and other Western countries as development partners in order not to be at the mercy of China alone.

As mentioned before, significant influence on the will of Americans to conclude a free trade agreement with Kenya, and in future also with other countries of the region and continent, has China's increased economic involvement in Africa. It is worth noting that China tried and failed to secure a FTA with Kenya. Since 2016, China has been negotiating with the EAC to establish a free trade zone. Kenya, which is looking for opportunities to diversify economic cooperation with external partners, is the main impediment in negotiations with China. Currently, Kenya is only in favor of a preferential trade agreement with China. Kenya's actions, are conditioned, among others, by dissatisfaction with the large negative trade balance with China (Office of the United States Trade Representative, 2019). Nevertheless, Kenya signed a number of smaller trade agreements with China, including during a visit to Nairobi in January 2022 of Chinese Foreign Minister Wang Yi. This is worth emphasizing that Kenya does not want to become a party in the global US – China rivalry. According to President Uhuru Kenyatta, Kenya has no interest in being drawn into a „proxy war" between Beijing and Washington. He does not want to choose between these countries, but intends to work with both, because it is in the interest of Kenya (Reuters News Agency, 2020). For the Kenyan authorities, the US administration's argument about the need to oppose China's economic expansion in Africa is frustrating and causes concern. To be credible to Kenya and other African partners, the US must prove that its goals for Africa go far beyond countering China's rise in Africa (Devermont, 2020).

The announcement of the FTA negotiations sparked criticism from members of the African Continental Free Trade Agreement (AfCFTA) formed under the treaty signed on March 21, 2018 in Kigali, Rwanda and the East African Community. They expressed dissatisfaction that the negotiations were to be bilateral rather than multilateral. They argued that bilateral free trade agreements with third countries could weaken AfCFTA, as well as trade between African countries and the continent's economic integration. They also indicated that African countries could obtain better conditions by negotiating together.

However, this argument was not convincing for the Kenyan authorities, which did not change their position. Securing trade relations with the United States proved to be more important to Kenyan Government. The new trade agreement with the USA is particularly important for Kenya because it is not classified by the UN as a Least Developed Country (LDC). LDCs have the right to export duty free to the USA under the Generalized System of Preferences (GSP). The GSP excludes some of Kenya's top exports such as textiles and apparel, which in turn are covered by the AGOA, which expires in 2025. This means that if an agreement replacing AGOA is not signed, Kenya will suffer much greater losses than its neighbors (Caporal, 2020). However, the USA and Kenya will have to make sure that the FTA does not undermine the importance of the AfCFTA, of which Kenya is a founding member. In August 2019, the United States and the African Union signed a joint statement regarding the development of the AfCFTA to achieve its fullest potential and deepen trade relationship (Office of the United States Trade Representative, 2020).

A free-trade deal between the United States and Kenya would replace the AGOA. The parties hoped that an agreement could be concluded within two years, but this deadline quickly became unrealistic. Negotiations are complex and multi-threaded because they must meet the rules, requirements and procedures set out by the US Congress in the demanding 2015 Trade Promotion Authority (TPA) law. Beyond tariffs and quotas issues, the TPA law's objectives include: services; investment; intellectual property; labor; the environment; non-tariff barriers; dispute settlement; digital trade; and state-owned enterprises. For the agreement to become template for other African countries, it must be comprehensive. The biggest negotiation problems can raise issues such as customs and trade facilitation, labor, and environment (Caporal, 2020). During the second meeting of the Trade and Investment Working Group, which took place in early November 2019 in Nairobi, a number of issues related to trade and investment were discussed, including: services; digital trade; intellectual property; agriculture; environment; customs and trade facilitation; technical barriers to trade; labor; and state-owned enterprises. The goal of the talks was to maximize the commercial benefits of the AGOA and the assumptions of the future FTA. In addition, the USA has committed to training Kenyan officials for relevant ministries, departments, and agencies on best practices that could strengthen the trade policy environment (Office of the United States Trade Representative, 2019).

Kenya has to face many challenges before the FTA can be concluded. Detailed issues include, among others: high import tariffs on dairy, corn, and other products; sanitary and phytosanitary barriers, like import bans on genetically modified products or complex requirements on meat, dairy, and poultry; restrictions on government procurement; trade barriers in insurance and telecommunication services; and restrictions on foreign direct investment (FDI) in combination with local requirements (González, 2020). In addition, Kenya must increase the attractiveness of its own exports so that its products are more willingly purchased by a demanding American consumer. Kenya has to diversify and improve marketing of its products. A good solution is to re-brand some of the products to make them more exclusive. In addition, Kenya should invest more in trade-related infrastructure, including logistic and storage infrastructure. It is necessary to build more of high-quality warehouses, cold storage vehicles and rail carriages. Kenya should also focus on expanding international market access through trade preferences and other trade initiatives (Wakaya, 2019). Modernization of the ports in Mombasa and Lamu, in which US construction companies can get involved, is also crucial. This would facilitate trade not only with Kenya, but also with other East and Central African countries, and increase the region's investment attractiveness.

The US Trade Representative for Africa, Constance Hamilton, said the AGOA has not been “a game-changer for many countries”. According to her, the decades-old trade legislation, which provides tariff-free access on 6,500 products to 39 countries does not meet today's expectations of trade cooperation between the USA and Africa. She believes that a more comprehensive agreement is needed for all 49 Sub-Saharan countries. Representatives of the American administration are aware, however, that it is impossible to cover bilateral agreements with the entire continent, especially until 2025. Many African countries may not meet the stringent requirements for specific areas of cooperation (Devermont 2020). Nevertheless, the agreement with Kenya is to set a new standard of cooperation, which is to be gradually achieved in relations with an increasing number of African states.

After President Biden's administration took power, negotiations on the US – Kenya free trade agreement ended in an impasse. The administration also does not say whether or how it wants to reactivate the negotiations. For this reason, on August 20, 2021 seven Republican senators, headed by Senator Jim Inhofe, wrote a letter to the United States Trade Representative, Katherine Tai, on the matter. They highlighted the importance of the FTA and called for priority to be given to this matter (Inhofe, 2021). So far, there has been no firm response from the US government.

6. CONCLUSIONS

Trade between the United States and Africa peaked in 2008, but in the following years import to the United States collapsed from 113.5 billion dollars in 2008 to 25.4 in 2015, which has not yet been rebuilt enough. It has allowed the USA to improve its trade balance with Africa, but at a low level of trade. Volume of trade between the USA and Kenya has been changing differently. In peak 2014, its level exceeded 2.23 billion dollars, with a huge US trade surplus of 1.05 billion dollars. In subsequent years, the level of trade was much lower, and the United States began to record a small trade deficit. This shows that trade between Kenya and the USA does not fit into trends in trade between the United States and Africa.

The main trading partner of both Africa and Kenya for more than a decade has been China, which has been systematically strengthening its economic position on the continent. For countries that are not major exporters of energy resources, such as Kenya, the trade balance with China is very negative. American companies want to increase trade with both Kenya and Africa. These efforts support the American authorities, which want to strengthen the economic position in Africa and reduce the distance to China. Economic cooperation with Africa is of increasing importance due to the increasing population of the continent and the economic development of many African countries, including Kenya.

The free trade agreement is expected to be a way to increase trade cooperation between the USA and Kenya. The FTA is to be a comprehensive and constitute model agreement that the United States wants to transfer in the coming years to cooperate with other African countries. To be able to conclude the FTA, the USA and Kenya must regulate issues not only regarding customs and tariffs, but also a number of specific issues regarding broadly understood economic cooperation. The development disparities between the USA and African countries, including Kenya, mean that negotiations are complicated and encounter many problems. Similarly, deepening trade exchange, including primarily the possibility of Kenya and other African countries exporting to the USA agricultural and manufactured goods will require compliance with high US standards. The conclusion of the free trade

agreement between the United States and Kenya should, however, motivate other African countries to negotiate on this matter. Trade and broader economic cooperation with the USA may translate into an increase in their development opportunities. The FTAs could also make African countries more of the US economic and business partners, rather than recipients of development aid. In addition, strengthening the US economic presence in Africa can help the countries of the continent to reduce their economic dependence on China.

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Justyna LIPIŃSKA[1]

DISINFORMATION CONTENT IN POLISH CYBERSPACE

The war in Ukraine and the risk of it spreading to other countries strongly undermined Poles' sense of security. One recurring phenomenon is attacks in cyberspace. Such attacks are aimed at the critical infrastructure of the state; however, they also target citizens who seek knowledge on the Internet in areas related to defense, but also on ordinary matters that translate into everyday activities and knowledge about the world. The purpose of this article is to present the most important topics that function in cyberspace and are currently the most common targets for hackers. The research problem is, which topics functioning in cyberspace are most often modified so that they become disinformation? The research methods used were literature analysis and a diagnostic survey; the techniques were text analysis and a survey with a questionnaire.

Keywords: disinformation, fake news, cyberspace.

1. INTRODUCTION

A crisis is a phenomenon that can affect any organization, regardless of its mission, areas of activity, its size and recipients. An organization or state that prepares an action plan in advance and manages communication in the event of a crisis is more likely to overcome the crisis than those that are not prepared. This involves identifying a priori crisis scenarios, defining target groups, establishing procedures, assigning roles, conducting exercises, and drawing conclusions.

Crisis preparedness and the ability to anticipate the consequences are the characteristics of an organization that is ready to act and maintain control in the event of a crisis. Crisis communication cannot be self-sufficient. It must be included in the system of global links with risk management and the company's communication strategy. In addition, it requires the cooperation of many entities and must constantly adapt to changes in the environment in which the organization operates.

When a crisis occurs, you need to act effectively, decide quickly, provide information in real time, adapt it to each of its recipients, especially the media.

Thus, crisis management is based on fast communication, consistent and intended for each of the internal and external recipients. Proper analysis of the crisis environment allows you to identify the recipients directly affected by the extreme situation, their positions and

[1] Justyna Lipińska, The War Studies University, Poland; e-mail: j.lipinska@akademia.mil.pl. ORCID: 0000-0001-8233-6971.

interactions. With good communication, you can inform and restore trust while reassuring your target population. Proper communication in a crisis situation makes it possible to limit the impact of a crisis on the operations and reputation of a company or organization in a top-down manner.

Nowadays and with the development of information and communication sciences, it can be noticed that it takes place on faster paths, such as the Internet or social media. The audience is no longer just a spectator, but also a participant in a possible crisis. Crisis communication thus becomes unity by participating in the process of restoring order. A return to normal is therefore a matter for the information society. Therefore, it is necessary to appreciate the role of communication through its involvement in management. The act of communication is based on language, which refers to accuracy, correctness in relation to the social context and its norms.

2. DISINFORMATION

Disinformation is the creation and dissemination of misleading or false information in order to damage the image of the country chosen as the target (Bennett, 2003).

Disinformation activities were mainly associated with the military sphere, the activities of special services, interviews, when attempts were made to mislead the opponent by means of false data. Recently, disinformation has begun to occupy an increasing area of our reality. It appears in the media, marketing and politics. When conducting communication, especially in a crisis, you should be aware that sooner or later you will have to face it. It can appear in the context of any threat, from an epidemic to, for example, disruptions in the power or IT system.

Strategic, long-term disinformation has become the basis for the functioning of totalitarian systems, an element of manipulation, exerting influence on society. Information is a tool of disinformation - treated instrumentally – it is used to consciously distort reality, and thus to influence public opinion, also international (Księga Komunikacji Kryzysowej – RCB – Portal Gov.pl, b. d.).

An example may be a coordinated information campaign, which can be a real tool of the enemy's attack, as a result of which it can lead to mass disinformation, panic and actions that deepen the crisis situation. This is because the modern world is undergoing rapid changes, not only in the sphere of security. What changes are primarily the habits and processes related to the area of media, information and the need to use access to knowledge for individuals, social groups and society. Access to information/news has become easy and widespread. It has become an inseparable part of the social media culture, permanently inscribing itself into the habits of interpersonal communication. Sharing information about events, opinions, emotions more and more often fills the time spent in the virtual world of websites and social media. Especially social media to a large extent replace the need to maintain traditional contacts and begin to constitute a certain rule, a culture of communication.

Internet users move in the area of digital communication looking for and selecting content, guided by their interests. The impact of information on the cognitive area in which a person functions is very complex, and the effects it generates in the cognitive sphere are obvious. Information in cyberspace is subject to the process of continuous creation/processing by various media centers, social media, the blogosphere, and a network of websites. Based on them, a person shapes his worldview. Therefore, the human cognitive process can be relatively easily controlled by skillfully influencing the content of information and its availability. Using precise techniques of using a suggestive rhetorical

layer, propaganda, disinformation, social engineering, a cognitive pattern derived from reflective management techniques, one can influence the assimilation of manipulated information and obtain the result, which is an opinion, decision, action or inaction. Foreign centers initiating the impact (e.g. social groups, states, corporations, etc.) through various forms can achieve their goals - long-term and short-term. Contemporary habits of obtaining information, combined with the possibility of manipulating them through information and psychological interaction, create a distorted information environment in which the recipient, the user, functions. A foreign center initiating the process of manipulation of the infosphere can create long-term plans of impact with a diverse potential of effects and carry out precise information attacks using its own cybernetic potential and tools to take control of centers, information objects (Księga Komunikacji Kryzysowej – RCB – Portal Gov.pl, b. d.).

A possible information attack flow could have the following stages of operation:

1. Recognition of the information environment, vulnerabilities of objects/recipients,
2. Planning,
3. Cyberattack, implementation,
4. Distribution and information impact,
5. Cyberattack (BTS) – SMS distribution,
6. Impact study, correction, information impact.

Cyberspace increasingly affects the everyday life of its users, not only through the availability of many tools facilitating communication, data resources, but also through the information environment shaped in it, which can become an object of intoxication and a tool for achieving kinetic effects, without the use of kinetic methods of interaction (*DigitalPoland*, b. d.).

3. GFK POLONIA RESEARCH

At the beginning of October 2021, a GFK Polonia study was conducted on behalf of the Digital Poland Foundation on a representative sample of 1,000 people, using the CAWI method (*Największa dezinformacja w Polsce dotyczy klimatu i energii. OKO.press liderem fact-checkingu*, 2022), which examined the level of disinformation among Poles and what false statements they believe in (*DigitalPoland*, b. d.).

a. Dieta i fale radiowe

Information that a proper diet replaces oncological treatment was encountered by 15%. Every fourth respondent believed that the radio waves used by 5G networks are dangerous to humans, and slightly less (22%) that 5G networks are launched to spy on their users. As many as 40% of respondents admitted that they use the so-called alternative sources of information.

In Poland, conspiracy theories and false theses are usually believed by about 20-25%. society. This level is similar in other countries and is confirmed by other studies, presented by, for example, the international analytics platform YouGov. Scandinavian countries are among the countries where the percentage of believers in false theories is lower. Poland is at the forefront when it comes to believing in untrue information. Research for the Digital Poland Foundation has additionally shown that in some areas the beliefs of Poles are going in a disturbing direction (*DigitalPoland,* b. d.).

b. Climate and energy

In the area of „climate and energy", more than half of the respondents agreed with the misconceptions. In the area of health – over 40%. What is dangerous is that these beliefs

translate into the decisions and behavior of Poles. More than half of the respondents believe that the nuclear power plant is a threat to the inhabitants, which is crucial in the current energy situation. Climate change as a „conspiracy" targeting certain countries was heard and believed by 27% of Polish society, and 25% do not believe that the increase in the average annual temperature in the world has an impact on the occurrence of extreme weather phenomena, which may be important obstacle in the process of energy transformation. It is not known to what extent the belief in the information encountered is the result of misinformation, and to what extent - simple educational deficiencies. Climate change is a new phenomenon and many people only know what they hear about it in the media (*DigitalPoland*, b. d.).

c. Lack of general knowledge

The probable lack of knowledge, which translates into belief in false information encountered on the Internet, is indicated by detailed statements prepared by GFK Polonia, which show that the largest number of people agreeing with false theses had primary education and lived in the countryside or in the smallest towns . This is confirmed by another study conducted by the EU Eurostat in September 2021, which examined the level of knowledge and attitude to science and technology of citizens of European countries. The result of the Poles was shockingly low – only 10% of the respondents answered 8 and more questions correctly (there were eleven in total), which put us in 5th place from the end. 28% of Poles said that humans lived at the same time as dinosaurs (this is not true), 43% that lasers work by focusing sound waves (actually they are light waves). And 36% disagreed with the statement that humans developed from earlier animal species (*DigitalPoland*, b. d.).

d. Politics and social affairs

Educational deficiencies are one of the reasons, the other is the influence of the media. Their influence was evident in GFK Polonia's questions on politics and social issues. 31% of respondents agreed with the statement that feminism and LGBT are ideologies aimed at imposing a different lifestyle on the majority of Poles. And 25% that the plane crash in Smolensk is an attack, not a catastrophe. Interestingly, this result is almost identical to those obtained in the Ipsos polls, commissioned by OKO.press, carried out in 2016, 2017 and 2020. The question about the crash of the presidential plane was regularly indicated by about a quarter of respondents to the assassination attempt, most of whom belonged to the electorate of the PiS party (*DigitalPoland*, b. d.).

e. Trap of the Internet search engine

The majority of those surveyed by GFK Polonia confirmed that they had come across disinformation (81%) and 67% with false information. This is a higher level than in the research of the NASK Institute from 2019, when 56% of Poles said they had encountered fake news in the last 6 months. The source of fake news was most often friends or family members, only in second place was social media. 69% of respondents declared that they check the credibility of news, and only 12% of them use fact-checking portals for this purpose. On the other hand, as many as 44% of Poles use Internet search engines in such a situation. And that turns out to be a trap. Internet search engines display answers to the questions asked, based on their own algorithms. This makes them more likely to show users results that are similar to websites that a given user has previously used. If someone regularly visits alternative Internet portals (and according to other answers, as many as 40% of Poles do so), the probability that they will see such alternative sources in the first

places in their results increases. A lot depends on how the search engine works. For example, Google does not display links to some websites that are considered the least reliable or typically propaganda. The high trust of Poles in search engines also shows how important Google's decision on coronavirus vaccination information was, for example, when access to websites containing scientifically confirmed data on this subject was facilitated. Thanks to this, materials from alternative media, with false conspiracy theories and manipulated messages reached fewer people (*DigitalPoland*, b. d.).

f. Reaction to blocking fake news spreaders

In the GFK Polonia study, as many as 84% of respondents said that an important problem for Poland is the impact of false information on the Internet on social divisions and democratic elections. Independent journalists (50% of responses) and experts (49%) are most involved in activities aimed at limiting this impact. The actions of the government in this regard were indicated by 33% of the respondents, slightly less the European Union – 31% of Poles were also asked what ways of counteracting disinformation they would agree to. It turned out that there is a huge social acceptance for blocking and deleting the accounts of people or organizations that most often publish fake news in social media. The answers: „I definitely agree" and „I rather agree" with regard to such a solution were indicated by as many as 71% of respondents. The same number accepts the introduction of media education into schools, teaching how to recognize false information on the web and in the media. Only the idea that the media should be obliged to correct fake news gained more indications (75% of respondents were in favor). It turns out that blocking accounts can be accepted by the majority of socjety (*DigitalPoland*, b. d.).

g. Other actions to reduce disinformation

Over 60% of Poles also support other ideas listed in the GFK Polonia survey that can help reduce disinformation:

- 69% are in favor of fake news being automatically deleted by social media platforms,
- 67% agree to flagging false information in web browsers,
- 63% support the imposition of financial penalties on the owners of social platforms and search engines in the event of failure to take action to limit the reach of fake news,
- 43% support the idea that a government body should be established in Poland to determine what is untrue information and to publish a rectification. The so-called Freedom of Speech Council was directly pointed out here. This is a solution enshrined in the draft act on „protection of freedom of speech on the Internet" prepared by the Ministry of Justice. The project was submitted in 2021. However, it was returned to it and the Freedom of Speech Council, whose members are to be elected by the Sejm, is to function within the structures of the National Broadcasting Council. It will consider appeals against decisions by social networking sites to block content and accounts. The fines imposed by it are to range from 50,000 to PLN to even PLN 50 million. This idea is the least liked of all ten proposals presented in the study. This is not the only case where the response shows a low level of trust in the current authorities, official institutions and public media (*DigitalPoland*, b. d.).

h. Sources of current information

They were also asked from which sources Poles get current information. OKO.press was ranked first among the listed fact-checking portals, with indications at the level of 37%, ahead of, among others, the TVN24 Konkret 24 portal (35%), fakenews.pl (33%) or

the website of the Demagog Association (23%). Generally, however, the majority of respondents (over 60%) decided that television was the main source of current information. At the same time, as many as 61% get their information from TVN and TVN24, 58% from Polsat, and only 32% from TVP1, even less, because 28%, from TVP Info. The low rating of public and pro-government media is also visible in other categories. Among radio stations, the first of the public radio stations – Jedynka Polskiego Radia – was ranked only fifth. Among the pro-government weeklies, „Do Rzeczy" ranked highest – also in fifth place (6% of responses) and its online edition landed one spot higher. However, in the list of the most popular Internet portals, there was only one pro-government medium – niezalezna.pl, with indications at the level of only 1%, while onet.pl, the leader in the ranking, scored 74%, and the second portal wp.pl – 66% (*DigitalPoland*, b. d.).

4. CONCLUSION

Poles know that disinformation is a significant threat affecting the reality in which we live. They expect real actions to limit the spread of false information, but they do not see that such actions are taken by state authorities. In this respect, they can count on independent journalists and experts more often than on the systemic activity of state authorities.

The research presented in the article proves that over 80% of Poles have encountered disinformation and false information about Poland and the world. According to 84% of Poles, too much false information on the Internet divides society and influences democratic elections. The most susceptible to fake news are young people who trust social media, who are unable to independently distinguish what is true and what is false (*DigitalPoland*, b. d.).

Actions taken by social media to counter disinformation give hope for increasing the credibility of information distributed on the web. The activities of information portals are also needed. Those who introduce appropriate systems verifying the reliability of information as soon as possible will have the best chance of winning in the fight to rebuild the credibility of online media.

Market experts agree that the key in the fight against „fake news" is to support high-quality journalism and pluralistic information media, as well as education, developing critical thinking skills and digital competences, in particular by young people.

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Aldona MIGAŁA-WARCHOŁ[1]
Bożydar ZIÓŁKOWSKI[2]
Patryk BABIARZ[3]

THE CIRCULAR ECONOMY VS THE SUSTAINABLE DEVELOPMENT APPROACH TO PRODUCTION AND CONSUMPTION: THE CASE OF THE EUROPEAN UNION COUNTRIES

Production and consumption are both monitored in the context of progress toward a circular economy and sustainable development. In each case, the number and types of the implemented indicators are different. Thus, it is reasonable to ask about the comparability of information produced by two composite measures for equivalent research subjects: production and consumption. This is a thematic area of the EU Action Plan for the Circular Economy, as well as for responsible consumption and production, which is the 12th goal of the UN Agenda 2030. To scrutinize this problem in the European Union, this research aims to test statistically the similarity between the production and consumption composite indicators (based on Circular Economy Action Plan measures), and the responsible consumption and production composite indicators (based on the UN Agenda 2030 measures). The thesis that the application of the composite indicators generates significantly different results is not proved.

Keywords: circular economy, sustainable development, production and consumption, hierarchical linear modeling, SDG, management, European Union.

1. INTRODUCTION

Sustainable development (SD) and circular economy (CE) are related concepts. One of their common goals is concentration on production and consumption systems. For monitoring them, the United Nations' Agenda for sustainable development (in short: Agenda 2030) implemented goal 12 – Ensure sustainable consumption and production patterns. Similarly, the European Union's Action Plan for the Circular Economy (in short: CEAP) included a thematic area called production and consumption. Both goal 12 of the

[1] Aldona Migała-Warchoł, Rzeszow University of Technology, Poland; e-mail: amigala@prz.edu.pl (corresponding author). ORCID: 0000-0002-9756-3402.
[2] Bożydar Ziółkowski, Rzeszow University of Technology, Poland; e-mail: bozydarz@prz.edu.pl. ORCID: 0000-0002-7866-3694.
[3] Patryk Babiarz, University of Georgia, US; e-mail: pbabiarz@uga.edu. ORCID: 0000-0003-2506--381X.

Agenda 2030 and the mentioned thematic area of the CEAP are used in the assessment of the EU's countries' progress towards CE and SD goals. It is interesting, however, that these two approaches to production and consumption are based on different sets of indicators. Thus, the question of *how different are the results after measuring production and consumption according to Agenda 2030 and CEAP* is reasonable. Understanding this problem is crucial for decision-makers in creating development policy. Their conclusions determine managing the challenges of SD and CE, so the more robust and harmonized indicators the more effective the decision-making process. It is worth mentioning the earlier research arguing that at the EU level, the absence of a full harmonization between the policy on CE and sustainable consumption and production (Marrucci et al., 2019) causes also low integration between their tools. To scrutinize the integration of CE and SD indicators in the sphere of production and consumption of the European Union, this study aims to the identification of comparability of outcomes produced by the two mentioned approaches. The thesis of this paper assumes that *measuring production and consumption according to the methodology of the Agenda 2030 and CEAP generates significantly different results*. For the research purpose of this study, the following synthetic indicators were designed: production and consumption composite indicator (based on the Eurostat sub-indicators for Circular Economy Action Plan of the EU) as well as responsible consumption and production composite indicator (calculated upon the basis of the Eurostat sub-indicators for the UN Agenda 2030). We present the data regarding the hierarchical linear modelling (HLM) methodology. In the section Research results, we analyze and interpret the statistical results. Finally, we discuss our findings and the possibilities of future research.

2. CIRCULAR ECONOMY TOWARDS PRODUCTION AND CONSUMPTION

The long-lasting anthropopressure of the traditional consumption and production models put under discussion the paradigm of industrial civilization (Ziółkowski, 2021). The growing acceleration of the environmental burden ignited reflection on the depletion of natural resources which are required to support the social, economic and demographic existence of humans (Sariatli, 2017). Due to the fact that natural resources are only partially renewable, they should be saved by extending their usage in supply chains. This is the core of the circular economy concept which assumes closing the production and consumption loops (Szczygieł, 2021). A circular economy is defined as an economic system which replaces the linear model of the economy with a circular one (Szczygiel, Kowalska, 2021). From its beginnings, the essential part of this circularity is based on the implementation of the 3R's concept (Manickam & Duraisamy, 2019) which assumes reusing, recycling and recovering materials in production, distribution and consumption processes (Kirchherr et al., 2017). R-imperatives create the circular economy system (Ziolkowski, 2021) and their number is still evolving.

The circular economy is defined also as an industrial system which "replaces the end-of-life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models" (Ellen MacArthur Foundation, 2013). Among the broad spectrum of CE strategies, the most prominent ones are focused on waste management and innovations (Bartoszczuk, 2021).

The progress towards the circular economy is assessed by different types of indicators, regarding various typologies. In one approach, life cycle thinking is used to measure the

environmental impact of materials, products and services, defined as environmental problems (Moraga et al., 2019; Ziółkowski, Wyrwa, 2021). The assessment of their impact embraces the sphere of resource consumption and the sphere of pollution generated in production (Kayo et al., 2014). For monitoring CE progress in the European Union, the set of main and sub-indicators is used, as presented in Table 1.

Table 1. Indicators measuring the progress towards the circular economy in the European Union

Circular economy indicators	Circular economy sub-indicators
Production and consumption (cei_pc)	• EU self-sufficiency for raw materials (cei_pc010) • Material footprint (cei_pc020) • Resource productivity (cei_pc030) • Generation of municipal waste per capita (cei_pc031) • Generation of waste excluding major mineral wastes per GDP unit (cei_pc032) • Generation of waste excluding major mineral wastes per domestic material consumption (cei_pc033) • Waste generation per capita (cei_pc034) • Generation of packaging waste per capita (cei_pc040) • Generation of plastic packaging waste per capita (cei_pc050)
Waste management (cei_wm)	• Recycling rate of municipal waste (cei_wm011) • Recycling rate of all waste excluding major mineral waste (cei_wm010) • Recycling rate of packaging waste by type of packaging (cei_wm020) • Recycling rate of e-waste (cei_wm050) • Recycling of biowaste (cei_wm030) • Recovery rate of construction and demolition waste (cei_wm040)
Secondary raw materials (cei_srm)	• Contribution of recycled materials to raw materials demand - end-of-life recycling input rates (EOL-RIR) (cei_srm010) • Circular material use rate (cei_srm030) • Trade in recyclable raw materials (cei_srm020)
Competitiveness and innovation (cei_cie)	• Private investments, jobs and gross value added related to circular economy sectors (cei_cie010) • Patents related to recycling and secondary raw materials (cei_cie020)

Source: Own presentation based on the: Eurostat, Database [Access: 28.01.2023]. Access on the internet: https://ec.europa.eu/eurostat/web/main/data/database.

The production and consumption indicators in the EU methodology are considered essential to understanding progress towards the CE (European Commission, 2018). When reporting some aspects of waste generation and resource efficiency of the economy these indicators support acquiring economic and environmental benefits, which are the chief determinants of CE adoption (Yazan et al., 2018).

The circular economy addresses many sustainability challenges (Markard et al., 2012) in various sectors (e.g. agriculture, construction and tourism[4]) therefore it is considered in the European Union as a pathway for sustainable development (Marrucci et al., 2019; Ziółkowski, Wyrwa, 2021).

3. ASSUMPTIONS OF THE SUSTAINABLE DEVELOPMENT

Circular economy strategies respond to selected challenges of sustainable development on three dimensions: economic, environmental and social. All dimensions of sustainability have been defined by 17 factors named the Sustainable Development Goals (SDGs) and introduced by the United Nations' Agenda 2030 (Fidlerova et al., 2022). The Sustainable Development Goals of Agenda 2030 embrace (United Nations, General Assembly, 2015):

- "Goal 1. End poverty in all its forms everywhere,
- Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture,
- Goal 3. Ensure healthy lives and promote well-being for all at all ages,
- Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all,
- Goal 5. Achieve gender equality and empower all women and girls,
- Goal 6. Ensure availability and sustainable management of water and sanitation for all,
- Goal 7 Ensure access to affordable, reliable, sustainable and modern energy for all,
- Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all,
- Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation,
- Goal 10. Reduce inequality within and among countries,
- Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable,
- Goal 12. Ensure sustainable consumption and production patterns,
- Goal 13. Take urgent action to combat climate change and its impacts,
- Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development,
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss,
- Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels,
- Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development".

The global interest in sustainability was actively shaped during the last 36 years. According to the first contemporary definition of sustainable development, from the year 1987, this concept describes such a new model of development "that meets the needs of

[4] You can read more about solutions in this field of circular economy on TOUCAN websites (ERASMUS+, The future of tOUrism without a CArbon footprint (TOUCAN), 2021-1-PL01-KA220-VET-000025053, 2022-2023): https://www.linkedin.com/company/toucan-erasmus-project/, https://toucan.erasmus.site/pl/.

the present without compromising the ability of future generations to meet their own needs" (United Nations, General Assembly, 1987). Many international institutions and scholars developed their interpretations of that notion (Tsalis et al., 2020), although, the most prevailing one is three-dimensional approach. Next to the basic components of sustainable development (social, economic and ecological/environmental) the technical and institutional-political (Banse, 2014) as well as spatial ones are also mentioned in the scientific debate (Borys, 2005, 2011; Burchard-Dziubińska, 2010; Ziółkowski, 2014) – both as separate and included into the basic components. Despite the long dissemination of this issue, its diversity caused the understanding of sustainable development is often different within equal sectors of the economy (Ziółkowski, 2013). This can create problems in unambiguous assessment of progress towards sustainability in some areas (Matusiak et al., 2020).

The search for sustainability stems from the goal of humanity to develop an environment that enhances individual freedom, but also improves the range of choices associated with having a longer and healthier life (Boozer et al., 2004; Le Caous, Huarng, 2020; Mustafa et al., 2017). This is nevertheless the first principle of the Rio Declaration on Environment and Development from the year 1992 (Ziółkowski, 2012), which stated that "Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature" (United Nations, General Assembly, 1992). In this context, sustainability is one of the essential backbones of human development, assessed by the human development index in the five domains: equity, productivity, empowerment, cooperation, and security (Shah, 2016). The use in production companies of various instruments supporting comprehensive decision-making allowed to increase the level of product quality and strengthen the pro-ecological impact of products on the natural environment (Hajduk-Stelmachowicz et al., 2022).

The European Union implemented the goal of sustainable development of Europe in its establishing document, i.e., the Treaty on European Union (aka the Maastricht Treaty from 1992). The resulting strategies and regulations of the EU focused on fulfilling the internationally promoted by United Nations sustainable development goals, first of all by the Agenda 21 from 1992, Millennium Declaration from 2000 and Agenda 2030 from 2015. The United Nations Resolution called "Transforming our world: the 2030 Agenda for Sustainable Development" (i.e., Agenda 2030) comprises 17 Sustainable Development Goals and 169 targets.

One of the prominent goals of the Agenda 2030 is *SDG 12. Ensure sustainable consumption and production patterns*, which embrace 11 targets (United Nations, General Assembly, 2015):

- "12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries,
- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources,
- 12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses,
- 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international

frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment,

- 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse,
- 12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle,
- 12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities,
- 12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature,
- 12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production,
- 12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products,
- 12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities".

Production and consumption patterns are the key issues in discussion on "resource productivity as a key element of sustainable development and especially for reducing environmental impact" (Lebel, Lorek, 2010; Liedtke et al., 2014). SDG 12 is considered also a major contributor to the protection and enhancement of natural resources, although its measures are assessed as relatively weak when considering the four decades of lasting international policy discourse (Schröder et al., 2019). Employing the target 12.5 ("by 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse") SDG 12 includes also the circular economy approach "that combines both the technical-managerial efficiency aspect of recycling and the systemic approach to reduce overall consumption and waste generation" (Schröder et al., 2019).

The pursuit of sustainability is a never-ending story (Lebel & Lorek, 2010), however, the better the measurement system in this sphere the easier identification of SDGs achievements and the more accurate harmonization of policy plans.

4. RESEARCH METHOD

To describe the contribution to the SDGs and CEAP, different sets of indicators were developed by independent organisations. Similarly, in the EU evolved the Eurostat measures too. The research aim of this study is the identification of similarity between the outcomes of production and consumption indicator (used by the Circular Economy Action Plan) as well as responsible consumption and production indicator (used by the UN Agenda 2030). To investigate the problem, the hierarchical linear modelling (HLM) methodology was introduced. For this purpose, the destimulants were replaced with stimulants. The arithmetic mean was then used to calculate the synthetic meter values for the two rankings

separately. Based on data taken from Eurostat databases, two rankings were created, as presented in Tables 3 and 4. The first one concerns the variables from goal 12 of the Agenda 2030. The second one was created of the variables from consumption and production taken from the Eurostat database for circular economy indicators. The set of variables used for the analysis included:

A. Responsible production and consumption (variables measuring goal 12 of UN Agenda 2030):
   1. Circular material use rate (cei_srm030)
   2. Energy productivity (sdg_07_30)
   3. Raw material consumption 2019 (RMC) (sdg_12_21)
   4. Consumption of chemicals by hazardousness - EU aggregate (sdg_12_10) there is no data available
   5. Average CO_2 emissions per km from new passenger cars (source: EEA, DG CLIMA) (sdg_12_30)
   6. Gross value added in environmental goods and services sector (sdg_12_61) there is no data available
   7. Generation of waste excluding major mineral wastes by hazardousness (sdg_12_50)

B. Production and consumption (variables for monitoring CE Action Plan):
   1. EU self-sufficiency for raw materials (cei_pc010) - there is no data available
   2. Material footprint 2019 (cei_pc020)
   3. Resource productivity (cei_pc030)
   4. Generation of municipal waste per capita (cei_pc031)
   5. Generation of waste excluding major mineral wastes per GDP unit (cei_pc032)
   6. Generation of waste excluding major mineral wastes per domestic material consumption (cei_pc033)
   7. Waste generation per capita (cei_pc034)
   8. Generation of packaging waste per capita (cei_pc040)
   9. Generation of plastic packaging waste per capita 2019 (cei_pc050)

To identify the similarity between the two sets of measures, two composite/ synthetic indicators were developed.

The year of analysis was 2020, but for some variables, values from 2019 have been used, as they were not yet available for 2020.

5. RESEARCH RESULTS

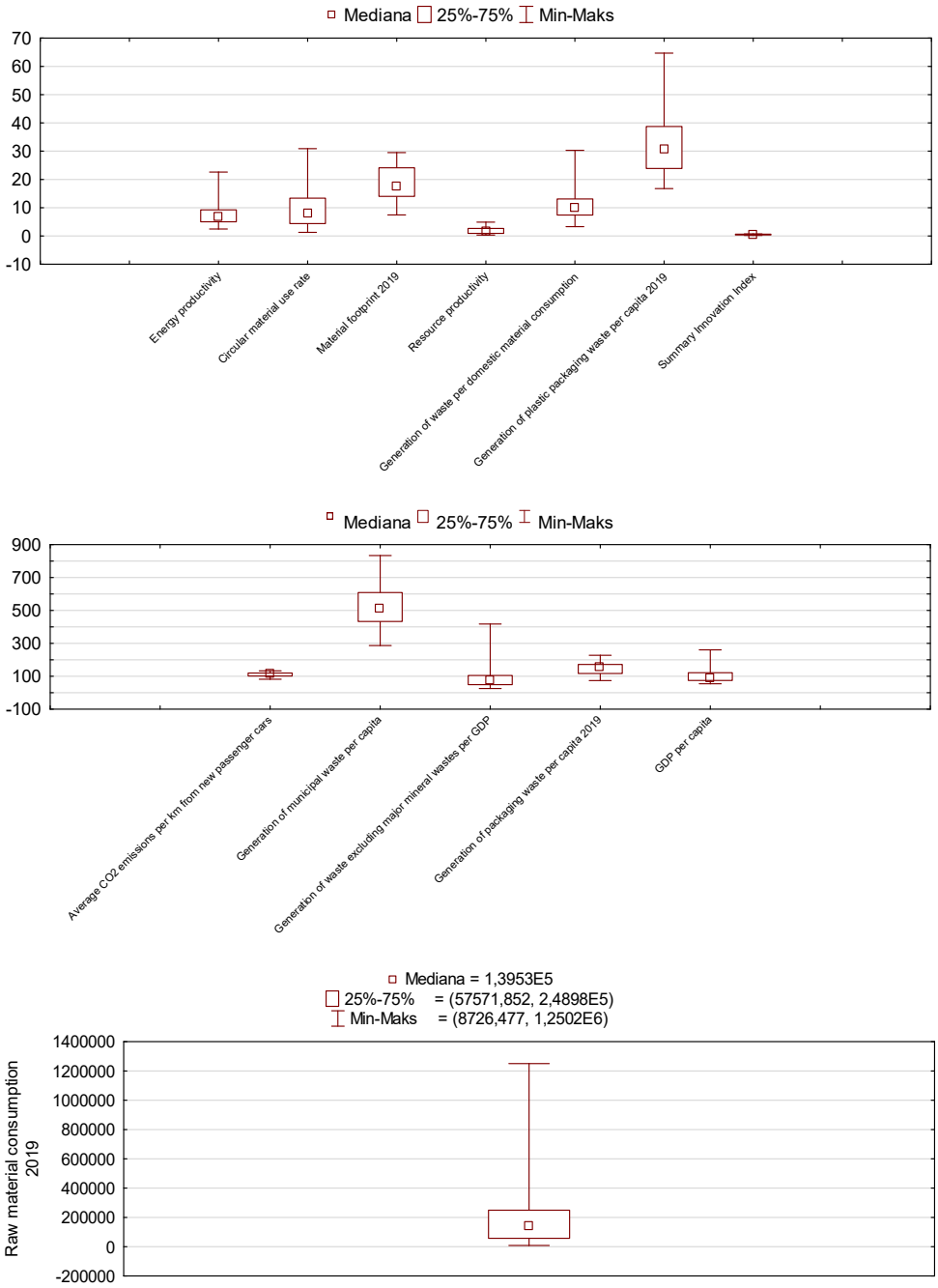
One could expect that the application of similar thematic measures should deliver comparable information. Thus, when measuring the production and consumption area there is a question about the similarity of outcomes after the application of two different composite indicators of production and consumption area. Every synthetic indicator consists of different numbers and types of sub-indicators, so the final result of their application is an intriguing issue.

Table 2 presents statistical measures for selected variables. Figures 1–4 show the analyzed variables in box charts.

Table 2. Descriptive statistics of analyzed variables

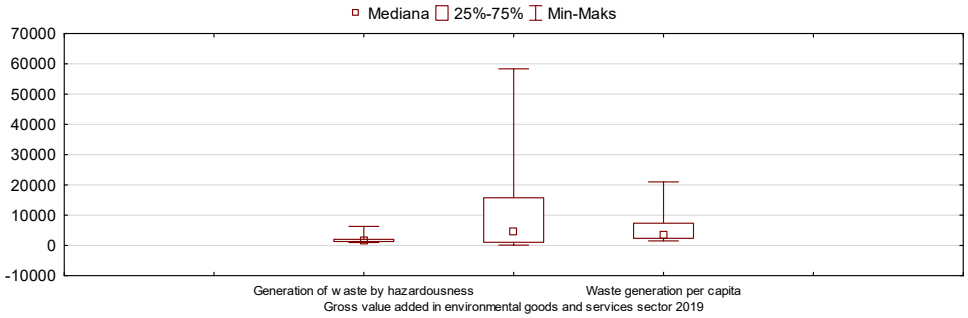
Variable	Descriptive statistics								
	Mean	Median	Min	Max	Q1	Q3	s	V	Asymmetry
Energy productivity	7,87	6,77	2,47	22,61	5,02	9,24	4,30	54,71	1,91
Raw material consumption 2019	252902,68	139526,51	8726,48	1250158,3	57571,85	248982,2	307195,9	121,47	1,96
Average CO_2 emissions per km from new passenger cars	111,14	113,00	82,30	133,00	101,40	119,80	11,53	10,38	-0,53
Circular material use rate	10,19	7,90	1,30	30,90	4,40	13,40	7,46	73,21	1,13
Generation of waste excluding major mineral wastes by hazardousness	1846,48	1517,00	962,00	6291,00	1311,00	2003,00	1070,20	57,96	3,06
Gross value added in environmental goods and services sector 2019	9923,72	4457,17	101,00	58358,8	704,76	14245,1	14476,1	145,87	2,07
Material footprint 2019	18,72	17,55	7,45	29,50	14,02	24,13	6,19	33,06	0,11
Resource productivity	1,85	1,58	0,34	4,92	0,94	2,68	1,19	64,09	1,00
Generation of municipal waste per capita	533,37	513,00	287,00	834,00	433,00	609,00	139,40	26,13	0,71
Generation of waste excluding major mineral wastes per GDP	96,93	74,00	26,00	418,00	49,00	105,00	95,92	98,97	2,95
Generation of waste excluding major mineral wastes per domestic material consumption	11,98	9,80	3,30	30,30	7,40	13,10	6,71	56,05	1,51
Waste generation per capita	5985,52	3598,00	1483,00	20993,00	2340,00	7338,00	5272,88	88,09	1,55
Generation of packaging waste per capita 2019	148,92	153,70	74,03	227,98	117,44	172,19	44,07	29,59	0,11
Generation of plastic packaging waste per capita 2019	31,65	30,57	16,76	64,67	23,90	38,75	9,97	31,51	1,31

Source: own calculations.



Figures 1–3. Box-plot of analyzed variables

Source: own calculations.



Figures 4. Box-plot of analyzed variables (cont.)

Source: own calculations.

The results obtained should help the authorities of the countries belonging to the European Union to make appropriate decisions regarding the objectives of the 2030 Agenda. According to the first ranking (Table 3), the best-performing countries are: the Netherlands, Denmark, Malta, France and Slovenia. The following countries are the worst performers: Poland, Slovakia, Hungary, Cyprus and Greece.

Table 3. Ranking of the European Union countries concerning variables from Goal 12 (Agenda 2030)

Country	Energy productivity	Raw material consumption 2019	Average CO_2 emissions per km from new passenger cars	Circular material use rate	Generation of waste excluding major mineral wastes by hazardousness	Synthetic measure	Ranking
Netherlands	10	12	1	1	24	9,47	1
Denmark	2	14	3	15	16	10	2
Malta	26	1	7	14	1	10,17	3
France	7	26	5	3	14	10,75	4
Slovenia	15	4	16	9	9	10,89	5
Luxembourg	3	2	21	6	22	10,94	6
Croatia	17	7	12	20	3	12,03	7
Ireland	1	10	8	26	15	12,08	8
Italy	4	24	11	4	19	12,14	9
Spain	9	22	13	11	11	12,94	10
Belgium	14	13	10	2	26	12,97	11
Sweden	8	21	2	16	21	13,39	12,5
Portugal	12	18	4	25	8	13,39	12,5
Austria	6	20	14	10	18	13,42	14

Table 3 (cont.). Ranking of the European Union countries concerning variables from Goal 12 (Agenda 2030)

Country	Energy productivity	Raw material consumption 2019	Average CO_2 emissions per km from new passenger cars	Circular material use rate	Generation of waste excluding major mineral wastes by hazardousness	Synthetic measure	Ranking
Germany	5	27	15	7,5	17	13,93	15
Latvia	19	5	19	22	7	14,61	16
Finland	16	17	6	18	23	15,81	17
Lithuania	21	8	20	21	13	16,64	18
Czechia	24	19	22	7,5	12	16,82	19
Romania	18	23	17	27	2	17,22	20
Estonia	25	6	23	5	27	17,25	21
Bulgaria	27	15	27	24	25	18,02	22
Greece	13	11	9	19	6	18,41	23
Cyprus	11	3	25,5	23	5	18,80	24
Hungary	22	16	18	13	4	19,19	25
Slovakia	20	9	24	17	10	19,58	26
Poland	23	25	25,5	12	20	20,74	27

Source: own calculations.

According to the second ranking (Table 4), the highest positions were obtained by the following countries: Croatia, Cyprus, Greece, Slovakia and Slovenia. The worst performers were: Germany, Austria, Poland, Luxembourg and Estonia. In this division, it can be seen that the more industrialized countries fared worse. It turns out that they should allocate more resources to fight for environmental issues (analyzing data related to production and consumption).

The comparison of national results after the calculation of composite indicators for Agenda 2030 and CEAP presents Figure 5.

The statistical analysis of the correlation coefficient between the two analysed composite indicators is p=0,56 (at the significance level of 5%). This delivers evidence which does not prove the thesis of this paper that *measuring production and consumption according to the methodology of the Agenda 2030 and CEAP generates significantly different results.* Finally, the informative power of two analysed composite indicators can be assessed as similar. This indicates that if decision-makers tend to build their conclusions regarding the progress towards CE in the field of production and consumption, by means of calculated composite indicators, they can rely equally on the methodology of Agenda 2030 and CEAP.

Table 4. Ranking of the European Union countries concerning variables from production and consumption (CEAP)

Country	Material footprint 2019	Resource productivity	Generation of municipal waste per capita	Generation of waste excluding major mineral wastes per GDP	Generation of waste excluding major mineral wastes per domestic material consumption	Waste generation per capita	Generation of packaging waste per capita 2019	Generation of plastic packaging waste per capita 2019	Synthetic measure	Ranking
Croatia	8	19	5	19	12,5	1	1	1	8,31	1
Cyprus	19	16	21	4	2	9	4	2	9,63	2
Greece	4	13	15	15,5	19	6	3	3	9,81	3
Slovakia	7	15	7	20	18	7	6	9	11,13	4
Slovenia	10	14	13	13	16	13	7	6	11,44	5
Hungary	11	22	4	17	6	4	13	18	11,88	6
Sweden	22	11	6	5,5	9,5	25	10	7	12	7
Spain	2	8	9	11,5	23	5	19	20	12,19	8,5
Latvia	15	21	10	22,5	11	2	12	4	12,19	8,5
Malta	13	12	23	5,5	8	18	14	15	13,56	10
Netherlands	1	1	16	11,5	27	20	20	13	13,69	11
Lithuania	17	24	11	21	7	8	11	12	13,88	12
Ireland	21	4	19	2	3	10	27	27	14,13	13
Italy	3	3	13	14	25	11	24	21	14,19	14
Czechia	14	18	18	18	14	14	8	10	14,25	15
France	6	5	17	7	22	16	23	19	14,38	16
Denmark	20	9	26	3	5	12	18	23	14,5	17,5
Romania	26	27	1	24	1	21	5	11	14,5	17,5
Portugal	12	20	14	15,5	9,5	3	22	24	15	19
Finland	27	17	20	10	4	27	9	8	15,25	20
Belgium	5	6	24	22,5	26	19	16	14	16,56	22
Bulgaria	18	26	8	27	20,5	26	2	5	16,56	22
Germany	9	7	22	9	20,5	17	26	22	16,56	22
Austria	23	10	27	8	12,5	22	17	16	16,94	24
Poland	16	23	2	25	17	15	21	17	17	25
Luxembourg	24	2	25	1	15	24	25	25	17,63	26
Estonia	25	25	3	26	24	23	15	26	20,88	27

Source: own calculations.

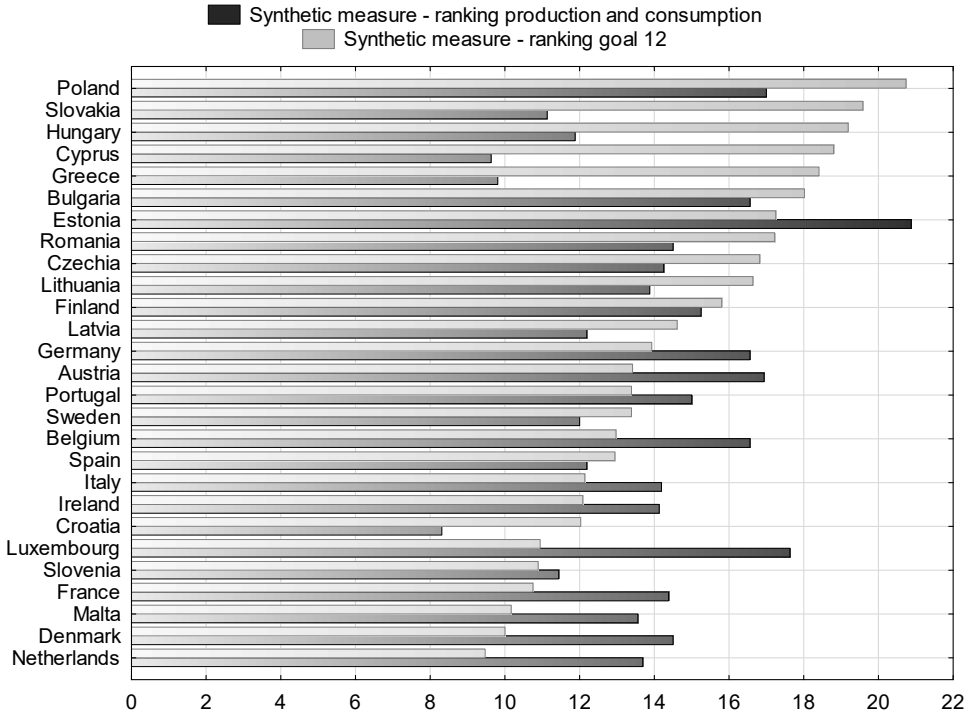


Figure 5. Composite indicators for Agenda 2030 and CEAP

Source: own calculations.

6. CONCLUSIONS

The shift to the circular economy is determined by the need to reduce reliance on non-renewable natural resources by decoupling economic growth from the environment. For assessing the achievements of such policy, different sets of indicators evolved globally. Because of the knowledge gap on their informative power, this paper aimed to explore the comparability of two composite measures for production and consumption area. The first one was production and consumption indicator - used for measuring progress in EU Action Plan for the Circular Economy. The second one was responsible consumption and production indicator – used for monitoring advances in the realization of sustainable development goals of the UN Agenda 2030. The hierarchical linear modelling (HLM) methodology highlighted some differences between these two composite indicators. Nevertheless, the correlation coefficient between the two composite indicators was not statistically significant. Thus, the presented results did not support the conclusion formulated by the earlier study on the low level of integration between CE and sustainable consumption and production tools "caused by the absence of a full harmonisation between the two policies at EU level" (Marrucci et al., 2019).

The results of this study might be useful for scientists and practitioners under certain conditions. The assessments based on synthetic indicators orients on similar conclusions. For this reason, one could recommend using the composite indicators interchangeably when describing the advancement in production and consumption policy. The calculated

results should help the authorities of the countries belonging to the European Union to make appropriate decisions regarding the objectives of the 2030 Agenda. From the results of the rankings, the evidence shows that the following countries are doing the best: the Netherlands, Denmark, Malta, France and Slovenia. The worst performers in the analysed issue are the following countries: Poland, Slovakia, Hungary, Cyprus and Greece. This aspect demonstrates the division into 'old EU' countries and countries that joined the EU after the year 2004. The revealed gap should be addressed by the European Commission when creating appropriate policy instruments to support countries that do not meet the conditions for achieving the goals of the 2030 Agenda.

It is important noticing some limitations resulting from the lack of data on the CE indicator *EU self-sufficiency for raw materials (cei_pc010)* for the year of analysis 2019. This could determine to some extent the final results of the analysis, therefore the updating of results in the time of data availability is a justified recommendation for future research. Investigation of the correlation between the synthetic indicators of CE and Agenda 2030 indicators could be also the recommended subject of future research.

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Angelika NIGBOR-DROŻDŻ[1]
Wiesław ŁUKASIŃSKI[2]

CHALLENGES DETERMINING THE SUCCESS AND FAILURE OF A STARTUP IN THE OPINION OF REPRESENTATIVES OF GENERATION Z IN POLAND

The aim of this article is to identify the challenges faced by startups and determine their impact on the possibility of success or failure. It achieves its goal by reviewing the literature on the subject, conducting a survey, and employing statistical methods. The paper presents research conducted among Generation Z. From the results, it can be concluded that key factors in the success of a startup include the ability to take risks, obtain financing for development, gain a competitive advantage, find a scalable and repeatable business model, and implement effective marketing and promotion activities. According to the respondents, the biggest factor in the failure of a startup is lack of knowledge about the market and customer needs, as well as legal, accounting, and tax issues.

Keywords: startup, success, failure, challenges, Generation Z.

1. INTRODUCTION

The new reality brings many possibilities. Effective use of emerging opportunities and effective avoidance of threats requires the ability to take risks, use the competences of the organization, which determine gaining a competitive advantage. This is possible thanks to the optimal use of the potential, including intellectual capital (Kutela et al., 2020). According to the rationality model, making changes in the organization makes sense when the benefits exceed the costs (Mączyńska, Okoń-Horodyńska, 2020). Only intelligent organizations, able to flexibly adapt to changes, can meet the emerging challenges. In the era of globalization, digitization of processes, which is a consequence of Industry 4.0, it is difficult for traditional organizations that cannot accept the real and virtual plane to function and develop (Adamik, Nowicki, 2017). Traditional organizations that have fixed structures and processes of operation may be much worse at adapting to the rapid changes that occur in their environment or react to them with a considerable delay. This may be due

[1] Angelika Nigbor-Drożdż, Cracow University of Economics, Poland; e-mail: angelika.nigbor@gmail.com (corresponding author). ORCID: 0000-0001-5796-0385.
[2] Wiesław Łukasiński, Cracow University of Economics, Poland; e-mail: lukasinw@uek.krakow.pl. ORCID: 0000-0002-8757-0190.

to the complexity and lack of flexibility of their structure, which results in difficulties in quickly adapting to changes, especially those of strategic importance. It seems that an organization that meets the above requirements is a startup open to innovation, capable of delivering an innovative product. Startups can develop thanks to the development of niches that enable them to achieve international success, such as Facebook, Uber and Spotify. It is worth considering what challenges they have to face and how they can affect their success or failure.

In the world, most often people start startups at the age of 25–35 (https://incredibleinspirations.com), while in Poland it is people aged 20–40 (Polish Startup Report 2020). So we are dealing here with, among others, representatives of generation Z. The age of people starting business in this model is decreasing, which makes it interesting how the challenges related to the functioning and development of a startup are perceived by representatives of generation Z. An additional argument in favor of conducting research in this group of people is the fact that generation Z constitutes an increasing group on the labor market, and in 2025 it will constitute approx. 20.7% of people on the Polish labor market. It has therefore become interesting how they perceive the challenges that determine the success or failure of startups, which may not only be their potential workplace, but also a chance for creative development of their ideas (https://startup.pfr.pl). It is important to try to identify whether the challenges related to startups are perceived differently by women and men. In the literature, we do not find research in this area, which is why this topic seems to be interesting in the context of the predisposition of women and men to start-ups, and it may be an inspiration for further research.

The aim of the article is to identify the challenges faced by startups and determine their impact on the possibility of their success or failure. The work sought to verify the following research hypotheses:

H1: Generation Z women and men have different perceptions of startup success challenges.

H2: Generation Z women and men have different perceptions of the challenges that make a startup fail.

H3: The ability to take risks and obtain financing for development are factors that significantly affect the success and failure of startups.

The achievement of the goal and the verification of the hypotheses was possible thanks to the review of the literature and the conducted survey.

2. STARTUP IN ECONOMY 4.0

A contemporary organization operates in a turbulent environment. This requires the development of competences that condition its flexible adaptation to changes. Its competitiveness is determined not so much by financial and material resources as by intellectual capital. Employees, their knowledge, skills and experience play an important role in developing a competitive advantage (Tomaszczuk, 2014). Significant importance should be attached to the flexibility and effectiveness of reactions to changes taking place in the environment, including the behavior of competition or customer requirements (Szmitka, 2019). Global competitiveness requires the reduction of operating costs, which results in lower product prices, while meeting customer expectations. Therefore, one should strive to build an innovative strategy that determines the functioning and development of the organization. Meeting the challenges requires the implementation of innovations, including new technologies, or management approaches. This results in the

creation of structures conditioning the growth of the organization's intelligence, necessary for the effective use of knowledge, in order to improve existing solutions, use new tools to meet emerging challenges, and be able to effectively eliminate conflicts resulting from the introduced changes. Modern managers must be creative and enterprising in order to shape the potential of the organization.

Globalization, technical and technological progress (e.g. digitization of processes) or socio-cultural progress generate a number of changes. Organizations must function in a specific and hitherto unknown environment, in which there are real and virtual activities that determine their competitiveness (Adamik,& Nowicki, 2017). New technological solutions (e.g. CPS systems, Big Data, Internet of Things, or Services) gave rise to the fourth industrial revolution generating changes in the functioning of the organization. Therefore, their ability to achieve lasting success, understood as the ability to develop in the long term, depends on (https://rada.wib.org.pl/):

- investments in technologies (the need to incur costs related to the adaptation of the organization to their implementation),
- acceptance of the new business model (development of the competences of the organization conditioning flexible adaptation to changes),
- the ability to improve employees' competences (the possibility of their continuous development).

Nowadays, digitization applies not only to industrial processes, but also to everyday human life. This requires the transfer of decision-making processes from the real world to the virtual world (https://innovatingautomation.pl). The concept of industry 4.0 promotes an intelligent organization (smart factory), based on the Internet of Things and cyber-physical systems, whose task is to monitor physical processes and make decisions using self-organization mechanisms. The Internet of Things determines effective communication and effective cooperation of systems with each other and with people. The Internet of Services is also of great importance. In practice, it enables the implementation of internal and external services and the operation of websites used by users of the value network. The fourth industrial revolution takes place in three stages. They are (Hawksworth, Berriman, Goel, 2018):

- the algorithm stage (analysis of computational tasks, structural data),
- expansion stage (interaction with office support technology, automation of repetitive activities and tasks),
- the stage of autonomy (work automation, problem solving).

In today's world, we should strive to create intelligent organizations capable of meeting the individual needs of stakeholders, primarily customers. The dynamics of business and engineering processes allows us to introduce changes in production to ensure flexibility in response to failures or new expectations of stakeholders, primarily customers (Schneider, 2018).

Industry 4.0 from a strategic point of view generates a digital transformation of business models based on (Mülle & Buliga, 2018): qualified employees capable of using new digital opportunities (managing them in a multifunctional way), cooperation, ability to make alliances, strategic partnership, community involvement, or data management and ensuring their security. The development of digitization, integration and the increase in the complexity of systems lead to the emergence of digitized market models, increasing their competitiveness by eliminating barriers between information and physical structures. Product innovation, their new features and capabilities contribute to changing customer

expectations (Ilic, Markovic, Milosevic, 2017). This is the result of the integration of production, organizational and social systems, the transformation of activities, their optimal organization and automation through the use of IT systems (Adamik, 2018). This requires a change in the perception of customers or employees. It is necessary to review the competences of the organization, update the existing processes and the evolution of culture (Schwab, 2017). It is connected with the necessity of changes: employees' skills, leadership mechanisms, or the created organizational structure. This means that success depends on the competences of the leaders in the field of talent management (Wyrwicka, Mrugalska, 2017).

However, when implementing the concept in question, one should take into account potential threats that may arise during this process. One of the requirements facing the organization is the increase in productivity, taking into account the reduction of resource consumption (McKinsey Global Institute). In addition, it is necessary to ensure harmonization of the implemented innovations with the created system in order to improve the course of identified processes, from design, programming through use, to product maintenance (Tilley, 2017).

The response to the turbulent environment should be the willingness to create conditions conducive to the emergence and functioning of organizations that gain their competitive advantage thanks to knowledge. Organizations should be characterized by such features as (Makulska, 2012):

- the ability to produce products, the value of which is more than 50% of knowledge, which is an advantage over manual work,
- employing high-class specialists,
- significant influence of intellectual capital on the market value, which means its higher relation to the book value of the organization.

Organizations based on knowledge also face challenges such as the ability to continuously learn or effectively manage knowledge in order to be able to remain competitive (Chodorek, 2016). In the new economy, there is space for the emergence of modern organizational forms, such as a learning or an intelligent organization. A startup that fits this concept can be considered such a form of organization. Startup is a concept ambiguously defined by scientists. It is still a relatively new form of organization. In the literature on the subject, you can most often find a startup defined as a project implemented to produce new products under conditions of uncertainty (Ries, 2011), an organization created to search for a repeatable and scalable business model (Blank, Dorf, 2013). It is a company in the first stage of development, which uses modern technological and innovative solutions (Kariv, 2013). Therefore, it is an organization with high uncertainty in terms of the market and technology being introduced (Giardino, Unterkalmsteiner, Paternoster, Gorschek, Abrahamsson, 2014), in the phase of growth and market research related to technologically advanced projects with high growth potential (Čalopa, Horvat, Lalić, 2014).

The startup's operation is based on identifying the problem faced by users, creating a way to solve it, and developing a business model (Chan Kim & Mauborgne, 2004). Startups are better at agility and risk taking (compared to traditional organizations) and are known for their culture of experimentation and the founders' vision (Baloutsos, Karagiannaki, Pramatari, 2022). The startup is also characterized by (Kühnapfel, 2015):

- innovation of a product, technology, method of operation or seeking financing,
- competitive advantage based on innovation,

- acquiring funds for development from external investors,
- growth and reacting to market changes, which is facilitated by a flat organizational structure,
- uncertainty, high risk associated with every aspect of its operation,

Startups are organizations worth creating because of (https://startup.pfr.pl/):

- low costs of running a business,
- delivering an innovative product to the market that solves the problem or need of a selected group of recipients,
- the possibility of testing your business idea in safe conditions, obtaining funding for innovative projects,
- substantive support in many areas (law, accounting, marketing, etc.), gaining experience by the founders.
- the possibility of creating a company that can be a leader, obtaining a high return on investment,
- cooperation of startups with other organizations, which positively influences business transformation of companies (Steiber, Alänge, 2021).

No wonder that young people more and more often decide to set up startups, giving them the opportunity to develop and implement innovative ideas. However, before a startup is successful, it has to face many challenges. A startup must have the ability to learn effectively, which allows it to flexibly respond to changes, implementing appropriate solutions, using employee commitment.

This means that it is a learning organization that should be characterized by intelligence (Penc 2012; Łukasiński, Bieńczycki, Dorocki, 2021):

- innovative, necessary in the process of creating and shaping new solutions, better than those known and implemented so far, are created by startups a powerful driving force for innovation processes, innovative, necessary in the process of creating and shaping new solutions, better than those known and implemented so far (...),
- information, allowing agile acquiring, processing and using information in the decision-making process in order to effectively generate solutions,
- technological conditioning of the optimal use of the opportunities resulting from technical and technological progress in order to effectively adapt the product to the market needs,
- socio-cultural necessary to meet the needs of stakeholders, including customers and employees of the organization,
- marketing ensuring identification of market changes, adapting the offer to the needs of the recipient
- financial conditioning the rationality of investing funds in various projects,
- organizational, enabling flexible adaptation of the organizational structure to implemented action strategies, conditioning the effectiveness of self-improvement of the organization,
- environmental (ecological) conducive to the creation of solutions aimed at eliminating the harmful effects on the natural environment.

The development of a startup is possible thanks to the growth of intelligence, which facilitates meeting emerging challenges (Table 1).

Table 1. Challenges affecting the creation, operation and development of a startup

Specification	Description
Startup notion	One of the most important challenges resulting from the startup definition is finding a scalable and repeatable business model (Łopusiewicz, 2013). In order to receive support for development from external funds, it is necessary to show how and how quickly potential investors will get a return on the invested money, therefore showing a business model scaling plan is extremely important (https://ichi.pro/pl/). However, it is not easy because the startup has a very high risk of failure (Ries, 2011).
Startup functioning	Another challenge for startup founders is gaining knowledge about the market and customer needs. Although a startup creates its market by creating customer needs, it must have a lot of knowledge about similar ones that operate alongside it. Not only for startups, but also for classic organizations, gaining a competitive advantage is one of the most important challenges that constantly accompany their founders (Tomaszewski, 2018). Startups must face the challenge of commercializing the product in the extremely uncertain environment we are currently dealing with (Ries, 2011). It may be helpful to establish cooperation with corporations and constantly broaden your horizons. For a product to develop, it is necessary to find a group of loyal customers to the product. In order to achieve this, it is necessary at the very beginning to characterize the product, its purpose and the need it satisfies (Bierzyńska-Sudoł, 2019). We should strive to achieve synergy of human competences and modern technologies.
Startup development	It is important to prevent critical errors, i.e. errors preventing the user from accessing the product for a specified period of time. Critical errors, especially at the beginning of the operation, may discourage customers from using the product (http://startuplife.pl/). Working on product recognition and building a customer base is a difficult task that requires effective marketing activities. In order to be able to undertake more and more new activities and develop the product and organization, it is necessary to obtain financing (https://www.technologpark.pl). Currently, organizations, mainly startups, have to deal with a complex legal, accounting and tax system. The excess of bureaucracy and formalities is a heavy burden on the founders (Polish Startup Report 2019).

Source: Own elaboration based on the literature provided in the table.

Thanks to the effective coping with challenges, a startup has a chance to achieve success and development, the lack of the required competences leads to failure. Therefore, it seems reasonable to identify the challenges that may affect the success or failure of a startup.

3. METHODOLOGY OF THE RESEARCH

Based on the analysis of the literature on the subject, an attempt was made to identify the challenges that determine the success or failure of startups. On this basis, a questionnaire was created, which was used in the process of collecting information. The study was conducted in May 2021 through May 2022 via the Internet.

The questionnaire was completed by 500 representatives of Generation Z, i.e. people up to 27 years of age. Among them, there were 62% of women and 39% of men. In order to interpret the obtained results, the arithmetic mean and the coefficient of variation conditioning the determination of the degree of differentiation of the variable value were used. Its high value means high differentiation of the feature and proves the heterogeneity

of the studied population, while its low value means low variability of the feature and homogeneity of the studied population. The value of the coefficient is expressed as a percentage, and its interpretation depends on the size of the coefficient, where: below 25% there is low volatility, between 25% and 45% - average volatility, between 45% and 100% - strong volatility, and above 100% - very strong volatility.

The Student's t-test is a statistical method used to compare two means with each other if we know the number of people tested, the arithmetic mean and the value of the standard deviation or variance. This is one of the most frequently used statistical tests used to verify hypotheses. Thanks to it, you can find out whether two different means are different as a result of chance or are statistically significantly different.

Cluster analysis was also carried out in the work, which aims to group the tested elements into similar groups. The idea of cluster analysis is to group the examined factors in such a way that, according to the established criteria, similar entities are separated into separate groups.

4. SURVEY RESULTS

In order to identify the perception of challenges by the representatives of Generation Z in Poland, a questionnaire survey was carried out. It is important to identify which of them has a key impact on the success or failure of the startup. Based on the literature review, a questionnaire was prepared and made available to the respondents. The study was conducted in May 2021 through March 2022 via the Internet. The questionnaire was completed by 500 representatives of Generation Z, i.e. people up to 27 years of age. Among them, there were 62% of women and 38% of men, of which 7.6% were people employed in managerial positions. The respondents were asked to indicate up to 7 key challenges for startups (Table 2).

Table 2. Challenges for startups in the opinion of respondents

Specification	Number of responses	Structure in % (allowing for the number of responses)	Structure in % (allowing for the number of respondents)
The ability to take risks	335	9.5%	67.0%
Acquiring financing for development	329	9.4%	65.8%
Gaining a competitive advantage	296	8.4%	59.2%
Scalable and repeatable business model	278	7.9%	55.6%
Effectiveness of marketing activities	276	7.8%	55.2%
Finding competent employees	268	7.6%	53.6%
Gaining knowledge about the market and customer needs	267	7.5%	53.4%
Avoiding fatal errors (no user access to the product)	227	6.4%	45.4%
Achieving synergy of human competences and modern technologies	226	6.4%	45.2%
Ability to deal with legal, accounting and tax issues	200	5.6%	40.0%

Table 2 (cont.). Challenges for startups in the opinion of respondents

Specification	Number of responses	Structure in % (allowing for the number of responses)	Structure in % (allowing for the number of respondents)
Shaping the company's potential	196	5.5%	39.2%
Commercialization of a product in an uncertain environment	189	5.3%	37.8%
Cooperation with corporations	188	5.3%	37.6%
Constant broadening of horizons	170	4.8%	34.0%
Product characteristics	76	2.1%	15.2%

Source: Own study based on the survey conducted.

The respondents considered the ability to take risks, obtain financing for development, gain a competitive advantage, find a scalable and repeatable business model and effective marketing activities as the greatest challenges. The challenges identified mostly by the respondents result from the definition of a startup and constitute its core. Such choices of the respondents testify to a good understanding of the concept and essence of a startup. It cannot be denied that these challenges are key to the startup's existence, success or failure. Meeting them effectively can shape a stable and developing organization. It turns out that the continuous broadening of horizons and the characteristics of the product are not a big challenge for the respondents. Perhaps they are something natural for young people, which may inspire optimism about the future in which generation Z will play an increasingly important role in the labor market. Such an attitude will certainly be conducive to the development of the organization in the future.

Then, the respondents were asked to determine, on a scale of 1 (low impact) to 5 (key impact), the impact of the identified challenges on the startup's success (Table 3).

Table 3. The impact of challenges on the success of startups in the opinion of the respondents

Sym-bol	Specification	Average			Coefficient of variation			Student's t-test
		A	M	W	A	M	W	CA[3]
a	Scalable and repeatable business model	3.99	4.03	3.97	23.8%	23.8%	23.7%	0.8595466816
b	Avoiding fatal errors (no user access to the product)	4.01	4.00	4.01	22.3%	23.3%	21.7%	-0.224154501
c	Effectiveness of marketing activities	4.20	4.03	4.30	22.2%	25.0%	20.2%	-4.573249142
d	Acquiring financing for development	4.26	4.12	4.35	20.2%	22.7%	18.4%	-4.146827487
e	Ability to deal with legal, accounting and tax issues	3.68	3.50	3.79	27.4%	30.7%	25.1%	-4.52652449

[3] Critical area (with a confidence factor of 0.05); $(-\infty; -1.9647> \cup <1.9647; +\infty)$

Table 3 (cd.). The impact of challenges on the success of startups in the opinion of the respondents

Sym-bol	Specification	Average			Coefficient of variation			Student's t-test
		A	M	W	A	M	W	CA
f	Gaining knowledge about the market and customer needs	4.14	3.99	4.23	21.2%	22.5%	20.2%	-4.340309261
g	The ability to take risks	4.23	4.05	4.35	20.9%	23.5%	18.9%	-5.360200374
h	Gaining a competitive advantage	4.17	4.03	4.26	21.3%	23.1%	20.0%	-4.075113502
i	Commercialization of a product in an uncertain environment	3.72	3.66	3.75	24.7%	25.9%	23.9%	-1.597711445
j	Cooperation with corporations	3.61	3.35	3.77	27.2%	31.6%	23.8%	-6.779495289
k	Constant broadening of horizons	3.79	3.63	3.89	25.0%	27.1%	23.5%	-4.41292993
l	Finding competent employees	4.10	3.93	4.21	22.6%	25.2%	20.6%	-4.819400012
m	Shaping the company's potential	4.01	3.87	4.09	22.3%	25.8%	20.0%	-3.871160362
n	Product characteristics	3.62	3.46	3.71	27.7%	32.1%	24.8%	-3.877013565
o	Achieving synergy of human competences and modern technologies	3.90	3.74	3.99	24.1%	27.3%	21.9%	-4.096871323
Legend – W (women), M (men), A (all)								

Source: Own study based on the survey conducted.

The respondents indicated that the success of a startup is influenced by such challenges as: obtaining financing, the ability to take risks and the effectiveness of marketing activities. Both women and men pointed to the significant impact of these challenges on the success of startups. There is little variation in responses (<25%) among the respondents, which proves their compliance with the main challenges affecting the startup's success. Generation Z, therefore, notices that in every organization where continuous development is most important, funds are needed for continuous product improvement and its expansion, and marketing activities undertaken in order to promote it are an inseparable element influencing its development. A new and innovative product generates a high risk of failure in the era of enormous market competition. According to the respondents, the characteristics of the product and establishing cooperation with corporations have a smaller impact on the startup's success. Gen Z does not see the significant impact of corporate support. This may result from a lack of understanding of the principles of cooperation of

such organizations with a startup, or identifying it with being absorbed by corporations. Women rate the impact of particular challenges on a startup's success higher than men. This may be due to the greater optimism of the female gender. The coefficient of variation indicates that the values of variables in individual groups remain at a low level (<25%). The only exception are the responses to establishing cooperation with corporations, where a greater diversity of responses can be observed among men.

Student's t-test showed that there are statistically significant differences between the answers of women and men when it comes to as many as 12 out of 15 challenges (c, d, e, f, g, h, j, k, l, m, n, o) affecting startup success. This means that women and men have significantly different opinions on this topic. Therefore, the hypothesis that women and men from Generation Z perceive the challenges affecting the success of a startup differently has been positively verified.

Challenges affecting the success of a startup were grouped using cluster analysis (Fig. 1).

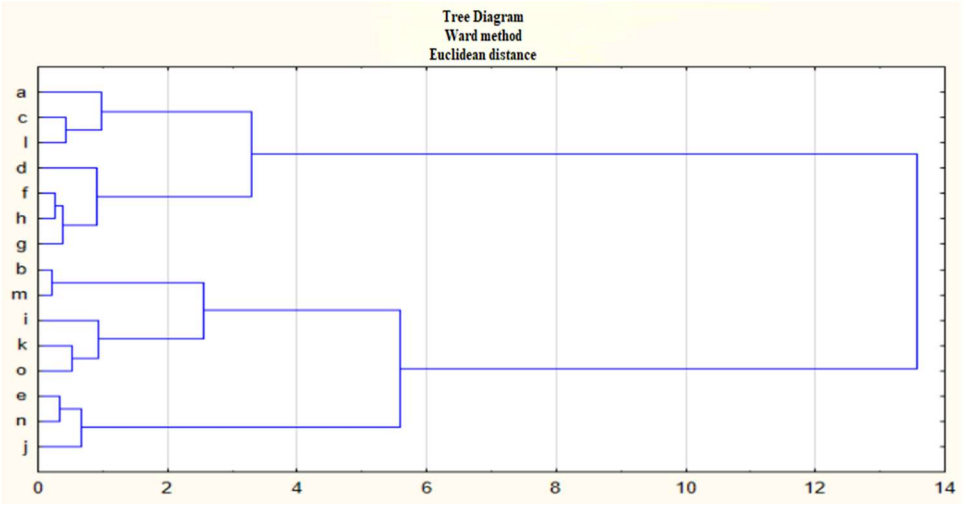

Figure 1. Dendrogram of challenges affecting the success of startups

Source: Own elaboration based on research results.

The analysis shows that the challenges affecting the success of a startup can be divided into two main groups. The first of them are the challenges: a, c, l, d, f, h, g, which seem to result from the specificity of the startup organization. The second group of challenges: b, m, i, k, o, e, n, j is to a greater extent related to the functioning and development of startups. In this context, it is clear that there are two areas that pose a challenge on the way to success for a startup.

Then, the respondents were asked to rate, on a scale of 1 (low impact) to 5 (key impact), the impact of the identified challenges on the startup's failure (Table 4).

Table 4. The impact of challenges on the failure of startups in the opinion of the respondents

Sym-bol	Specification	Average			Coefficient of variation			Student's t-test
		A	M	W	A	M	W	CA[4]
a	Scalable and repeatable business model	3.46	3.49	3.44	33.2%	33.7%	33.0%	0.7680267842
b	Avoiding fatal errors (no user access to the product)	3.54	3.57	3.53	34.6%	33.9%	35.1%	0.5129789112
c	Effectiveness of marketing activities	3.38	3.39	3.38	38.5%	36.5%	39.7%	0.1768182723
d	Acquiring financing for development	3.52	3.52	3.52	34.0%	31.4%	35.5%	0.05781253355
e	Ability to deal with legal, accounting and tax issues	3.36	3.18	3.47	33.4%	37.0%	31.0%	-4.067624536
f	Gaining knowledge about the market and customer needs	3.55	3.55	3.55	33.7%	34.2%	33.4%	-0.02027724329
g	The ability to take risks	3.61	3.65	3.59	32.5%	31.9%	32.9%	0.8003012157
h	Gaining a competitive advantage	3.43	3.49	3.39	34.7%	31.8%	36.5%	1.287413933
i	Commercialization of a product in an uncertain environment	3.42	3.34	3.46	31.0%	31.7%	30.6%	-1.931300716
j	Cooperation with corporations	3.24	3.21	3.26	33.6%	33.9%	33.4%	-0.6509294123
k	Constant broadening of horizons	3.25	3.11	3.33	34.8%	35.1%	34.5%	-3.146110181
l	Finding competent employees	3.44	3.48	3.41	35.2%	33.6%	36.3%	0.8678802526
m	Shaping the company's potential	3.37	3.36	3.37	35.5%	34.8%	36.3%	-0.2089862495
n	Product characteristics	3.13	3.03	3.19	36.9%	37.9%	36.6%	-2.23255345
o	Achieving synergy of human competences and modern technologies	3.36	3.34	3.37	34.4%	34.2%	34.5%	-0.3432817081
Legend – W (women), M (men), A (all)								

Source: Own study based on the survey conducted

[4] Critical area (with a confidence factor of 0.05); (-∞; -1.9647> ∪ <1.9647; +∞)

On the basis of the obtained results, it can be concluded that the respondents did not clearly indicate the challenges that affect the failure of this type of organization. Perhaps this is due to their little experience and knowledge of the reasons for the failure of the organization beyond standard bankruptcy. In their opinion, the lack of knowledge about the market and customer needs as well as legal, accounting and tax issues have the greatest impact on the failure of a startup. These challenges are also important for traditional organizations and do not distinguish a startup in this respect. The characteristics of the product and establishing cooperation with corporations have the smallest impact on the failure of a startup, according to the respondents. When analyzing the information obtained, there are no clear differences in the answers given by men and women. On the other hand, a higher rate of response variability can be observed (> 25% – moderate variability). This means that the respondents responded less unanimously than in the case of the impact of challenges on the success of startups, their responses were more varied. This indicates that there is no clear perception of the impact of challenges on startup failure. It can be argued that this is the result of failing to meet several challenges at once, and not one that should be given key importance. Student's t-test test showed that there are statistically significant differences between the answers of women and men only in the case of 2 out of 15 challenges (e, k) that affect the failure of startups. This means that women and men do not have a significant difference of opinion on this topic. It can be said that hypothesis 2 has not been positively verified, because both women and men similarly perceive the impact of challenges on the failure of the startup. Challenges that could generate a startup failure were grouped using cluster analysis (Fig. 2).

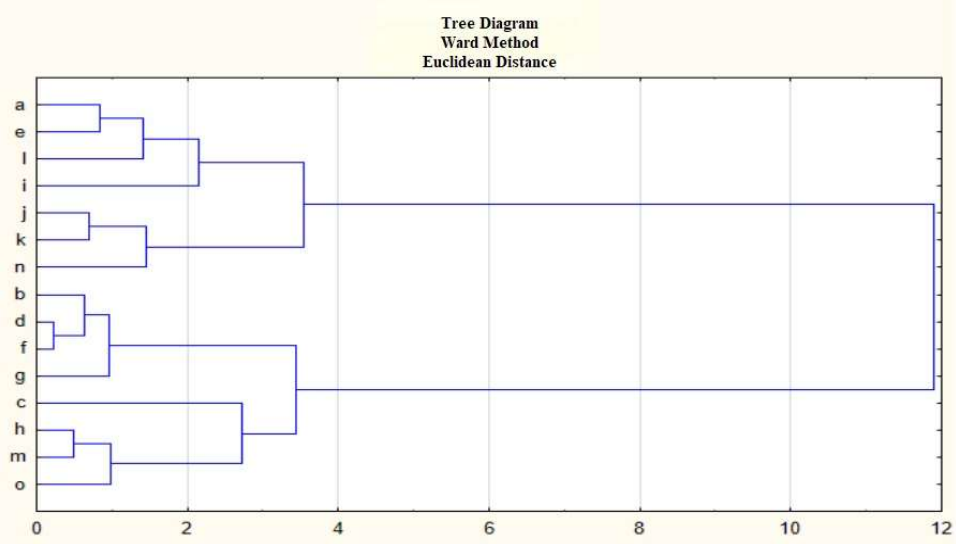

Figure 2. Dendrogram of challenges affecting the failure of startups

Source: Own elaboration based on research results.

The first group of challenges affecting the failure of startups (a, e, l, i, j, k, n) is a group of factors related to the growth of the organization and its scaling. The second group of

challenges affecting the failure of startups (b, d, f, g, c, h, m, o) included challenges related to competitive advantage, uncertainty or high risk of operation.

Based on the results obtained, it can be concluded that there are several areas within which challenges affecting the success or failure of a startup can be distinguished.

5. DISCUSSION

The research shows that the challenges faced by startups can be the source of both their success and failure, it depends on the competencies of the organizations that condition them to meet them. Nevertheless, in the opinion of Generation Z, it is the ability to meet the challenges related to the functioning and development of a startup that leads them to success more often. The success of a start-up depends on the ability to raise funds, willingness to take risks, or finding competent employees. Failure is influenced by the lack of risk-taking ability or improper recognition of the market and customer needs. Most often, these are challenges related to the organization's lack of competence that determines scaling or the ability to function in a situation of uncertainty, which is associated with failures.

There are many references in the literature to the challenges faced by startups. Thavorn and Chandrachai (2020) see the important role of team members, i.e. the potential of employees (intellectual capital), which affects the creation and then the development of startups. For the main development factor among startups Pramono et al. (2021) recognize the technology that startups will use in virtually every aspect of their operation. Bańka et al. (2022) draw attention to the benefits of cooperation between startups and corporations. They showed that cooperation affects the development of both startups and corporations. Mai et al. (2022) emphasize the important role of employee and managerial competences in the process of organizational learning and its impact on development. Thanks to this, they can react to the dynamic environment and develop in a sustainable and sustainable way. Keogh and Johnson (2021) draw attention to the network of contacts that must be created when building a new organization. It is important that the founders have the ability to establish contacts, a large number of which can have a positive impact on the development of the organization, while a small number is a limitation. Kuester (2018), in turn, draws attention to the challenge of risk management in organizations aimed at reducing (minimizing) threats. This skill in startups can definitely make the difference between success and failure. In this context, team relationship management becomes important as it is positively related to the ability of startups to cope with crises (Mai et al., 2022).

The limitation of the study is the fact that the determinant that was not included in the study is political stability, which has now been shaken by the war in Ukraine. The question can be asked what impact it will have on the Polish startup market. However, it certainly has an impact on Ukrainian startups, which have huge problems with obtaining foreign funds. Poland as a frontier country may also turn out to be an unattractive and too risky investment destination for many investors and lead to failure (https://www.rp.pl/).

6. SUMMARY

Startups develop in a dynamically changing and turbulent environment that presents them with new challenges. These, in turn, may affect their functioning in a positive or negative way, depending on the involvement in the development of competences. Based on the study, it can be concluded that:

- the ability to take risk, obtain financing for development, obtain a competitive advantage, find a scalable and repeatable business model and implement effective marketing activities, have a key impact on the ability to achieve success by a startup,
- respondents understand the essence of a startup, and broadening their horizons is something natural for them and they do not perceive it as a challenge, because such action is part of the process of their development,
- the development of the stream requires raising funds for product improvement and the implementation of marketing and promotion activities,
- the respondents do not see a significant impact of the corporation's support and the characteristics of the product on both the achieved success and possible failure,
- there is no key challenge that determines the success or failure of a startup, it is the lack of competences of the organization to face several at the same time that determines its fate,
- there are challenges that may contribute to a startup's success as well as failure, the result depends on the organization's competences conditioning adaptation to the situation.

Thanks to the results obtained from the conducted research, 2 out of 3 hypotheses were positively verified. It has been shown that women and men from generation Z differently perceive the impact of challenges on the success of startups and the ability to take risks and obtain financing for development are factors that significantly affect the success of startups. However, it has not been confirmed that women and men from Generation Z perceive the challenges that affect the failure of a startup differently.

The research hypothesis presented in the article was confirmed. There is no single challenge that alone affects the success or failure of a startup.

It is optimistic that for the surveyed representatives of the generation, broadening horizons and developing competences are something natural, which is equated with running a modern organization. This research is one of the first conducted in Poland and may inspire others.

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Bartosz PASTERSKI[1]

THE BEGINNINGS OF OCCUPATIONAL MEDICINE IN INTERWAR POLAND – AN INTRODUCTION TO RESEARCH

This article presents the circumstances of the birth of occupational medicine in the interwar period in Poland. The first regulations concerning preventive examinations of young employees were created on the basis of the Act of July 2, 1924, concerning the work of minors and women. This act imposed an obligation on business entities to carry out free medical examinations for minors as ordered by the labor inspector. The first examination of underage employees was carried out in 1926. However, compliance with the laws and orders of the labor inspectorate during the interwar period left much to be desired. There was a shortage of doctors in the labor inspectorate, and a shortage of specialized medics to carry out the examinations. Despite the difficulties, the period in question saw the successful introduction of compulsory medical examinations for young workers. In 1930, 16,121 underage employees were diagnosed in this way. The interwar years also saw the first initiatives resulting from an increased awareness of preventive care for adult workers.

Keywords: history of occupational medicine in Poland, socio-economic history of Poland, history of social welfare in Poland, history of industrial medicine.

1. INTRODUCTION

The aim of this article is to present the conditions related to the emergence of occupational medicine in Poland during the interwar period. According to the contemporary definition of the term, occupational medicine is:

> the theoretical and practical branch of medicine, the object of which is the study of the influence of the work environment and the way in which work is performed on the health of the working population, and the minimisation of the negative health effects of work through appropriate prevention (translation mine) (*Medycyna pracy*, https://stat.gov.pl/metainformacje/slownik-pojec/pojecia-stosowane-w-statystyce-publicznej/1448,pojecie.html).

However, the origins of this branch of medicine date back to ancient times. Notes on the subject were already present in the works of Hippocrates, Aristotle or Galen. However,

[1] Bartosz Pasterski, University of Rzeszów, Poland; e-mail: bpasterski@ur.edu.pl. ORCiD: 0000--0003-4727-890X.

the field itself was born in the 18th century. It was pioneered by Bernardo Ramazzini, called for this reason the father of occupational medicine (Szymczykiewicz, Sobocki [scientific ed.], 1979; Rabenda, 2004; Szozda, 2007). It was he who published in Milan in 1700 the first ever work describing occupational diseases *De morbis artificum diatribe* (Brown, 1962; Hooper-Gottlieb, 1999; Rabenda, 2004a). In contrast, the world's first health law appeared in 1802 in the United Kingdom, i.e. the Health and Morals of Apprentices Act, which regulated the work of minors in the textile industry. In the second half of the 19th century, the institution of factory doctors was established in the Russian Empire and they were employed by large industrial plants. At the end of the 19th century, the Polish lands belonging to the Russian Empire were also covered by the operation of factory doctors. Between 1891 and 1892, regulations were published for the establishment of medical assistance in factories. The situation was similar in the Prussian partition, where the act of 1839 covered the issue of women, children and young people working in industry. As Jolanta Sadowska points out, the Prussian laws of 1833, 1839 and 1853 concerning the financing of health care by employers for hired workers were "pioneering in relation to similar solutions in the Austrian and Russian partitions" (translation mine). With the establishment of Healthcare Funds and the introduction of social insurance, doctors were divided into two groups: therapeutic specialists and appraisal experts (Brzezinski, Brzezinski [scientific ed.], 2016; Sadowska, 2000; Szymczykiewicz, Sobocki [scientific ed.], 1979; Szozda, 2004).

Franz Anton Leopold Lafontaine, who was active as a doctor at the turn of the 18th and 19th centuries in the partitioned countries, is also worth mentioning in this context. In the journal "Dziennik zdrowia dla wszystkich stanów" ["Journal of Health for All Social Estates"], he published an article entitled "On the Diseases of All Artists and Craftsmen", in which he explained the causes of health complaints in various groups of craftsmen. He also outlined the harmful effects of certain professions on human health, and described the safeguards to be taken to protect health at work (Leszczyński 1983; Ostrowska, 1971).

2. STATE OF THE RESEARCH

Seemingly, the state of research on occupational medicine in the interwar period is not extensive. This issue was addressed primarily by Paweł Grata in his monograph *Polityka Społeczna Drugiej Rzeczypospolitej* [*Social Policy of the Second Republic*] (Grata, 2013). The period of the People's Republic of Poland saw the publication of Jan Jończyk's work *Ochrona pracy kobiet i młodocianych w polskim przemyśle w latach 1918–1939* [*Protection of Work of Women and Young Workers in Polish Industry in the Years 1918–1939*] (Jończyk, 1961). In a subsection the author presented the legal conditions of occupational medicine, the difficulties regarding their implementation and the number of examined workers. The above authors focused on the study of underage employees. In the pages of the journal "Atest", the section "From the history of occupational medicine" also dealt with the origins of occupational medicine, the conditions of its practice, safety and hygiene over the years (Szozda, 2007).

On the other hand, the periodical "Praca i Opieka Społeczna" ["Labour and Social Care"], published from 1921 onwards by the Ministry of Labour and Social Welfare, presented, among other things, the subject of medical examinations of working adolescents, the state of health or the observance of regulations concerning the protection of young employees and women. Similar issues were covered in the journal "Przegląd Ubezpieczeń Społecznych" ["Social Insurance Review"], published by the Nationwide

Association of Health Insurance Funds. In the case of adult occupational medicine, on the other hand, the publication "Medical service in workplaces. Papers delivered at the conference of factory doctors convened by the Institute of Social Affairs on 2 and 3 March 1935", published by the Institute of Social Affairs in 1935, is worthy of attention; in particular Emil Paluch's article "The contemporary state of organisation of the Medical Service in Polish industry". The article presents the functioning of factory outpatient clinics and the work of inspection physicians in lead and zinc smelters in Upper Silesia (Paluch, 1935).

3. THE EMERGENCE AND DEVELOPMENT OF OCCUPATIONAL MEDICINE IN THE INTERWAR PERIOD

There were no occupational physician positions in any of the partitions and regulations in force focused only on the implementation of examinations among young employees. The first regulations concerning young workers did not appear until after independence: on 18 December 1919, the Act on Working Time in Industry and Commerce was passed. (Journal of Laws, 1920, No. 2, item 7; Szozda, 2007a). Of greatest significance in the area of medical examinations of employees was the enactment of the Act of 2 July 1924 concerning the protection of the work of minors and women. It made it compulsory for a company to carry out free medical examinations for underage employees as ordered by the labour inspector. The outcome of the examination was to indicate whether "the work in question is not beyond the strength of a minor" (translation mine), and the admission to work was determined by a document issued by the medical officer. After reviewing the medical certificate, the labour inspector had the right to prohibit the work of a minor. He also had the possibility to indicate what duties the young worker could undertake. On the order of the inspector, the employer was obliged to have a young worker examined free of charge by a doctor recommended by the official. The procedure was supposed to determine whether the work performed by a young worker was harmful to their health. Night work was prohibited for those under 16 years of age. The act also defined the time range for work and rest. In 1933, as a result of an agreement between the Ministry of Social Welfare and the Association of Health Insurance Funds, young employee examinations were introduced nationwide (Journal of Laws, 1924, No. 65, item 636; Odrzywolski, 1937; Zawadowska, 1938: Jończyk, 1961).

The first examination of underage workers was carried out in 1926 in the Second Labour Inspectorate District. With regard to employed adults, on 13 September 1930, a regulation was published on the performance of periodic examinations for workers performing hazardous work, such as in the production of paints, pastes and varnishes. It is worth pointing out that regulations from the Prussian era concerning the duties of the company doctor were still in force in Upper Silesia. These regulations imposed an obligation to carry out inspection visits in the company. Special medical care was given to people at risk of lead poisoning. Until 1939, however, the detailed scope of the factory doctor's activities had not been defined, nor were compulsory examinations for all workers introduced; there were only some requests for doctors to undertake preventive measures for workers (Odrzywolski, 1937; Zawadowska, 1938; Szoda, 2007).

Compliance with labour inspection laws and orders during the interwar period left much to be desired. The legislator did not specify which doctors were assigned to carry out the required examinations. As Brunon Nowakowski points out, the dispersion of industry was also an obstacle to the enforcement of the laws. In smaller centres, young workers could

not count on medical supervision. Above all, however, there was a shortage of doctors in the labour inspectorate, as well as medics who "could undertake this work when called upon by the inspection" (translation mine). Often, examinations were performed by private doctors who treated them as a formality, without really assessing the patient's condition. Some doctors even refused to carry out examinations to allow admission to work. County (poviat) doctors, who were ordered by the labour inspector to carry out the examinations, were also not very willing to do so, which was due to their excessive workload and the lack of obligation to carry out these examinations. It should be noted that, above all, these were not specialists who could determine the impact of the work performed on the health of the young person. What is more, there were not enough specialist centres. No separate working hours were allocated for examinations intended for young people. All this resulted in a lack of opportunity to make a proper diagnosis and to administer the treatment. At the same time, employers were not very keen to agree to examinations during working hours (Kubiak, 1928; Leśniewska 1929; Zawadowska, 1938; Herman, 1953; Nowakowski, 1935; Jończyk, 1961).

As Pawel Grata points out, "in the first decade of independence, the issue of respecting workers' rights was treated rather as a battlefield for interests between the owners of enterprises and the workers employed in them as well as the trade unions representing them" (translation mine). Owners of industrial plants displayed no respect for the new, innovative labour laws. Another reason was the low level of awareness of the new laws among factory workers, which is why some employees did not appear for examinations at all despite having a referral (Grata, 2013; Kubiak, 1928; Leśniewska, 1929; Nowakowski, 1935).

Referrals for the first examinations were made by labour inspectors. In some districts, this work was also carried out by the Health Insurance Funds. The tasks of the inspectors were limited to keeping records of copies of the examinations. In 1934, the insurance treatment system was reformed. As a result, examinations from outpatient clinics were transferred to the offices of general practitioners. Referrals for examinations were issued by the social insurance companies and not, as before, by the labour inspector. After the examination, the doctor or the social insurance company would send a ruling to the labour inspectorate. On the basis of this document, the officials issued a work permit or a work ban. They verified the number of received medical certificates against the total number of insured persons. The district inspector, in turn, supervised the conduct of repeat examinations (Zawadowska, 1938).

Doctors performing examinations in special centres were also able to carry out analyses of the causes of young people's health problems during workplace inspections. It should also be emphasised that the diagnosis of adolescents included not only the examination itself, but also entailed medical treatment (Zawadowska, 1938).

Despite the above mentioned difficulties, the period under review succeeded in introducing compulsory medical examinations for young workers. The examinations were intended "to exclude negative effects of the performed work on health and to make it easier to direct young people to activities compatible with their abilities in this respect" (translation mine). In the first years, however, the results of the law introduced in 1924 were negligible. On a larger scale, research began to be carried out in the late 1920s, which resulted form the operation of the Health Insurance Fund that started to conduct examinations in 1929. It was at that time that this institution set up 10 special facilities to carry out examinations. In 1931, these health insurance funds increased the number of special centres for carrying out examinations for employees up to 23. As a result, the

number of people examined steadily increased. In 1930, 16 121 adolescents were diagnosed. In the following years, due to the economic crisis, the number of centres was reduced to 17. The performed surveys indicated "a general lack of health of young employees" (translation mine). It should also be emphasised that the surveys did not only focus on general health assessment, but also analysed dental status, housing and lifestyle. In 1928, a total of 4 528 medical examinations of minors were carried out. The volume of examinations performed varied from year to year. From April 1932 onwards, medical examinations of underage employees covered the entire country. From 1933, there was a renewed increase in the number of examinations carried out. In 1936, 32 631 of them were performed. Despite this, no uniform results were compiled for the whole country until 1939 (Grata, 2013; Miedzińska, 1933; Zawadowska, 1938; Jończyk, 1961).

4. WORK SAFETY INITIATIVES IN THE INTER-WAR PERIOD

Proper prevention of accidents at work entailed undertaking significant actions in this area. In 1922, occupational health physicians organised the First Industrial Hygiene Congress in Warsaw, which subsequently became a regular event. In 1926, an Occupational Health Unit was established at the National Institute of Hygiene in Warsaw, headed by the director Brunon Nowakowski. One of the duties of the institute was to prepare services to conduct and develop occupational medicine. In 1927, the establishment of the Central Institute of Labour and the unification of regulations on the protection of occupational safety were postulated in Łódź. In 1925, at the behest of the Chief Labour Inspector, the State Higher School of Hygiene in Warsaw conducted a series of training courses in order to improve the competence of officials inspecting workplaces. The Institute of Social Affairs was established in 1931 (an institution actively involved in radio, press and publishing activities, addressing the issue of labour safety). The organisation produced a "Work Safety Calendar", published posters and leaflets, and produced films promoting occupational health and safety. In 1935, the first conference of industrial doctors in the country was organised in Warsaw on the initiative of the institute. It addressed, among other things, the issue of inadequate medical care for workers and called for an expansion of the scope of activities of the Health Inspectorate. In the 1930s, also industrial organisations began to form factory health and safety circles. One of their aims was to promote occupational safety among workers (Nowakowski, 1935; Supady, 1997).

The origins of company medical care can be traced back to the factory outpatient clinics of the Social Insurance Companies. In part, these facilities were remnants of the centres previously operating in the territory of partitions. However, these institutions were exclusively doctors' surgeries and they did not differ from the facilities operating outside industrial sites. Their main purpose was to help working people and their families suffering from health problems. In 1934, on the basis of a census carried out by the Health Insurance Institution in the country, the operation of 115 factory outpatient clinics was confirmed. The clinics employed approximately 160 doctors as well as some feldshers and nurses. Interestingly, some of them already hired specialist doctors. In contrast, two facilities in the country were completely devoid of doctors, who were replaced on a permanent basis by auxiliary staff, mainly engaged to help with accidents. The doctors' work took place during fixed working time (ranging from one to three hours a day). On the other hand, auxiliary staff were available at all times for emergencies. In some establishments, the doctor pre-qualified workers for certain tasks, for example in coal mines or for the completion of rescue teams. However, the control of the workplace and its conditions was

no longer the responsibility of the doctor. It mainly depended on the good will of the owner of the economic entity. Although preventive medical institutions were active in state-owned enterprises, their number was negligible. They dealt with the overall medical care in a given factory and carried out preventive activities. They operated, for example, on the premises of the Tobacco Monopoly factories in Kraków and Winnica (Paluch, 1935).

In 1938, Witold Zahorski established the Research and Treatment Centre for Internal Occupational Diseases at the Internal Medicine Clinic in Warsaw, which was to deal with the treatment of occupational diseases in a planned and systematic way (Szymczykiewicz, Sobocki [scientific ed.], 1979; Supady, 1997).

5. CONCLUSIONS

The emergence of occupational medicine in the inter-war period was the result of a gradual increase in the importance of preventive health care. However, the beginnings of this activity faced many obstacles due to, among other things, imprecise legislative acts defining the specialities of doctors to carry out examinations of underage workers. The shortage of specialist doctors and their reluctance to take on new responsibilities, as well as the ambivalent attitude of entrepreneurs towards the new regulations, were also important constraints. As a result, the new idea achieved only a partial success, which can be attested by the slow growth in the number of examined employees. There was also a lack of systemic legal solutions to the issue of adult testing. Only certain occupational groups at risk of being adversely affected by their duties were obliged to be tested (e.g. in Upper Silesia there were already modern regulations in force in this respect). The lack of a strict definition of the scope of the factory doctor's duties was also a major impediment. What is noteworthy, however, is the emergence of the first initiatives resulting from an increased awareness of preventive health care. Factory outpatient clinics were the origins of industrial medical care, but they did not fully fulfil their role due to e.g. the short working hours of doctors.

Undoubtedly, the subject of occupational medicine in the interwar period requires further research and analysis. The current state of research on this subject does not exhaust all the problems (e.g. organisation of employee health care in private and state enterprises, care for adults and their families). A lot of research material can be provided in this respect, Modern Records in Warsaw.

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Dariusz PAUCH[1]

RANSOMWARE ATTACKS AS A CYBERSECURITY INSURANCE COVERAGE THREAT

The main purpose of this article is to analyze ransomware risk and its impact on the loss ratio in cyber insurance. To achieve this goal, the article indicates the scale of the threat of ransomware attacks and the prospects for change in the field of cyber insurance protection. Methodologically, the focus is on analysis and literature studies in order to properly describe and classify cyber threats, including ransomware risk. Statistical data were analyzed to find the scale of ransomware threats. Through the analysis, attention was drawn to the need for changes in the approach to cyber risk by both entrepreneurs and insurance companies. The originality of the study lies in its attempt to capture the necessity of changes in the field of cyber insurance, and justify their introduction. A research gap was identified, as the problem of ransomware attacks became particularly acute during the COVID-19 pandemic.

Keywords: hacker attack, ransomware attack, cyber risk, insurance, cybersecurity insurance coverage, COVID-19.

1. INTRODUCTION

Cyber attacks have a serious impact on both individual companies and the wider economy. Cyber risk (cyber risk) can be understood as the economic risk related to the possession, operation, use, and impact of IT devices and technologies in the enterprise (Marsh, 2015). Cyber risk is usually mistaken only for hackers infecting a computer with malware. Although this is a common manifestation of cyber risk, one should not forget other equally dangerous incidents. One such example is ransomware − a form of malware designed to encrypt a victim's files and make them unusable without payment (Oosthoek et al., 2022). Ransomware belongs to the class of malicious software that is designed specifically for financial gain (Liska, Gallo, 2016). The ciphers used by malware, when properly used, guarantee that the encrypted data cannot be decrypted without the decryption key, which is in the possession of criminals. While the first documented ransomware attack dates back to 1989, ransomware remained relatively uncommon until the mid 2000s (Kharraz et al., 2015). There are thousands of different ransomware strains in existence today, varying in design and sophistication (Bajpai et al., 2018).

[1] Dariusz Pauch, University of Szczecin, Poland; e-mail: dariusz.pauch@usz.edu.pl. ORCID: 0000--0002-0179-4784.

The most common source of malware attack of this type are (Cert, 2021):

- Vulnerability to attacks in publicly available services – VPN, RDP, mail server, etc. Often, vulnerabilities are exploited within hours or days after the public information about their existence becomes available.
- Insufficiently secured (usually a weak password) remote access channels to infrastructure and public services – RDP, VNC, FTP, databases, etc.
- E-mails urging you to download and run an attached or linked file

Additionally, during the COVID-19 crisis, another outbreak has happened in cyber space: a digital pandemic driven by ransomware. Malware attacks that encrypt company data and systems and demand a ransom payment for release are surging globally.

During the COVID-19 pandemic, an increase in cyber attacks on the information systems of large companies and banks was observed. Another aspect that increased the risk of cyber attacks, among others energy infrastructure is Russia's invasion of Ukraine. According to the World Economic Forum (World Economic Forum, 2023) in 2022, one of the main targets of cyberattacks were elements of critical infrastructure, such as hospitals, airports or power plants. This is caused by the increased number of attacks by Russian hackers on the infrastructure of countries helping Ukraine. An example is Poland, which has become the target of increased attacks by Russian hackers since the beginning of the war in Ukraine. This is confirmed by the Check Point Research data published in the Cyber Security Report (Check Point Research, 2022). The data shows that the number of attacks on critical infrastructure in the first few months of the war almost doubled. Hackers target criminal activity at entities with significant financial surpluses or persons responsible for making financial decisions. Successful blocking of key functions of Internet applications or internal IT systems of this type of entities means a high probability of extorting a ransom for removing the blockade. Cybercriminals are constantly improving the above-mentioned BEC e-mail method by sending infected spam directly to people making decisions in companies regarding payments for provided services (Leopando, 2016). According to data, in 2020 ransomware attacks on a global scale increased by 62% year-on-year (https://www.blackfog.com/the-state-of-ransomware-in-2020/). Therefore, a fundamental shift is occurring in the management of cyber risk. The idea that cyberattacks are increasingly likely – and perhaps inevitable – is beginning to take hold among executives and boards (Deloitte, 2016). Therefore, businesses are increasingly using cyber insurance.

The aim of this article is to analyze the risk of ransomware and its impact on the loss ratio in cyber insurance. To achieve the set goal, the scale of threats from ransomware attacks and the prospects for changes in the field of cyber insurance protection were indicated.

2. RANSOMWARE – THE SCALE OF THE THREAT TO INSURANCE COMPANIES

Cyber insurance increases awareness of risk and scale of threat, especially the need to implement tools to improve security in cyberspace (Malinowska, 2018). Increasing awareness and creating technical measures for companies against cyber related risks will significantly reduce the risks encountered, but will never be able to guarantee full protection. Moreover, small organizations usually do not have enough budget to invest in high-cost security measures such as next-generation firewalls; intrusion detection and prevention systems, and email security solutions. Through this point of view, the importance of cyber risk insurance for small organizations only increases. These are

a particular reasons cyber risk insurance is significant for business (Gavėnaitė-Sirvydienė, 2019):

1. Data are among our most important assets and result in financial losses if they are stolen or lost.
2. Information and communication technologies are critical in daily operations. The interruption of the system will cause many financial losses.
3. The obligation to protect data of third parties is stipulated in laws and if they are lost or stolen, they are exposed to serious penal and punitive sanctions.
4. All of these cyber-attacks that occur lead to material losses as well as the loss of reputation of the organization in the sector (Sloan, 2017).

According to the National Association of Insurance Commissioners (NAIC), the insurance market for cybersecurity policies recorded an increase in gross written premium by 29.1% year on year in 2020 (National Association of Insurance Commissioners, 2021). The above data were also confirmed by Allianz Global Corporate & Specialty (AGCS). Since 2016, the number of claims has been steadily growing (Fig. 1).

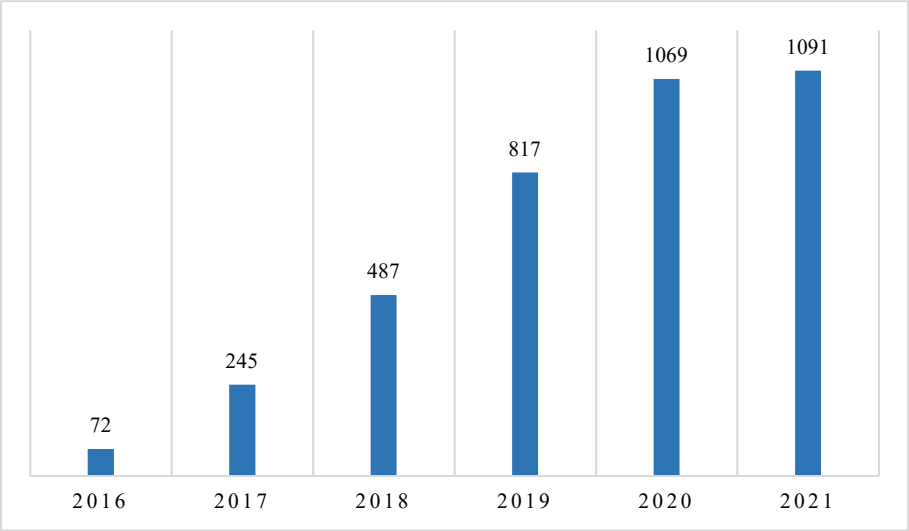

Fig. 1. Number of cyber-related claims against Allianz Global Corporate & Specialty (AGCS)

Source: *Ransomware trends: Risks and Resilience*, Allianz Global Corporate & Specialty, Munich 2021.

Among the 20 largest insurers in the USA offering cyber policies, loss ratios in the years 2017–2020 were in the range of 24.6% – 114.1%. The chart below presents the average loss ratio over the last four years (Fig. 2) (National Association of Insurance Commissioners, 2021).

It should be noted that the shaping of the cyber-cyber loss ratio is influenced only by individual attacks. In this insurance group, so far, no catastrophic claims have occurred. Table 1 presents the cybersecurity claims ratios for the five largest US insurance companies.

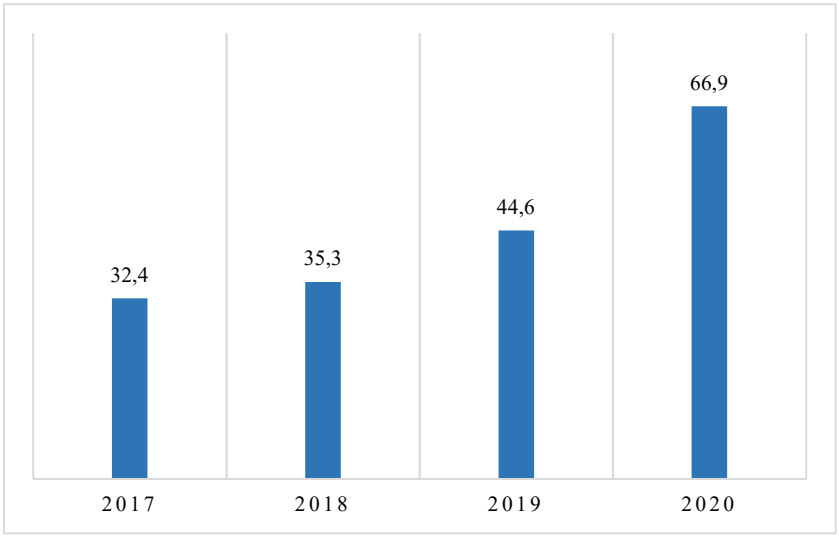

Fig. 2. Average value of the loss ratio for cyber policies (in percent)

Source: *Report on the Cybersecurity Insurance Market* (National Association of Insurance Commissioners (NAIC), 2021).

Table 1. The loss ratio among the five largest insurers selling cyber-policy in the US

	GROUP NAME	LOSS RATIO W/DCC (in %)	MARKET SHARE (in %)
1.	CHUBB LTD GRP	61	14,7
2.	AXA INS GRP	98,2	10,6
3.	AMERICAN INTRNL GRP	100,6	8,3
4.	ST PAUL TRAVELERS GRP	85,5	7,5
5.	BEAZLEY GRP	47,9	6,5

Source: *Report on the Cybersecurity Insurance Market*, National Association of Insurance Commissioners (NAIC), USA 2021.

You should also note some of the biggest examples of ransomware attacks in 2021 (Table 2). Every sector of the economy is exposed to attacks: financial, health, refining, oil, and IT.

The fact that cyber insurance is becoming an increasing risk for insurance companies is confirmed by media reports:

- Business Insurance: Ransomware losses disrupt the cyber liability market (Businessinsurance, 2022).
- Insurance Bussines Mag: Current cyber insurance model is ripe for change – cyber advisor (Insurancebusinessmag, 2022).
- Reuters: Insurers run from ransomware cover as losses mount (Reuters, 2022).
- Financial Times: Cyber Insurers recoil as ransomware attacks "skyrocket" (Financial Times, 2022).

Table 2. Ransomware: some of the largest single cases 2021

COMPANY	THE AMOUNT OF THE RANSOM
Colonial Pipeline	**$ 4.5m** (Ransom paid): Attack affected oil supply by halting the pipelines operations.
JBS USA	**$ 11m** (Ransom paid): Attack reduced the ability to package meat products.
CAN Financial	**$ 40m** (Ransom paid): The US Insurance company becam victim of a ransome group called "Phoenix".
Kaseya	**$ 70m** (Ransom demand): The software vendor was hit by a supply chain cyberattack spreading to around 1.500 business worldwide.
Health Service Executive (HSE) Ireland	**$ 600m** overall damage to Ireland's publicly funded healthcare system after a ransomware attack.

Source: Own elaboration based on Munich Re, 2022 [Access: 12.10.2022]. Access on the internet: https://www.munichre.com/topics-online/en/digitalisation/cyber/cyber-insurance-risks-and-trends-2022.html.

In addition to the increased loss ratio, ransomware attacks pose four main threats to insurance companies and the entire insurance market:

1. Financing the development of criminal groups – funds obtained by criminal organizations make them even larger and more difficult to fight. The development of 'ransomware as a service' has made it easier for criminals to carry out attacks. Run like a commercial business, hacker groups such as REvil and Darkside sell or rent their hacking tools to others. They also provide a range of support services. As a result, many more malicious threat actors are operating.
2. Legal and political conditions – there are countries that prohibit paying the ransom for a ransomware attack. Examples are: USA – The Department of the Treasury's Office of Foreign Assets Control (OFAC), UK – The National Cyber Security Center (NCSC), and Netherlands – The Dutch Ministry of Justice and Security. However, there are no laws that prohibit paying an insurance company ransom.
3. The effectiveness of ransom payment law enforcement agencies typically advise against paying extortion demands to not further incentivize attacks. Even when a company decides to pay a ransom, the damage may already have been done. Restoring systems and enabling the recovery of the business is a huge undertaking, even when a company has the decryption key. As reported by Sophos in 2021 on average, organizations that paid got back only 61% of their data, down from 65% in 2020. Similarly, only 4% of those that paid the ransom got ALL their data back in 2021, down from 8% in 2020 (Sophos, 2022). There is no guarantee that your data will be unlocked after the ransom has been paid. Even if they do, the company will still be exposed to further attacks.
4. Possible loss of image – loss of reputation among customers and suppliers is as important a threat as production interruptions or complete paralysis of the company's operations.

In addition to the above, Allianz Global Corporate & Security (AGCS) identifies other trends related to attacks in the ransomware space (Allianz Global Corporate & Specialty, 2021):

- From single to double to triple extortion: 'Double extortion' tactics are on the rise. Criminals combine the initial encryption of data or systems, or increasingly even their back-ups, with a secondary form of extortion, such as the threat to release sensitive or personal data. In such a scenario, affected companies have to manage the possibility of both a major business interruption and a data breach event, which can significantly increase the final cost of the incident. 'Triple extortion' incidents can combine DDoS attacks, file encryption and data theft – and don't just target one company, but potentially also its customers and business partners. A notable case was a psychotherapy clinic in Finland – a ransom was demanded from the hospital. At the same time, smaller sums were also demanded from patients in return for not disclosing their personal information.
- Supply chain attacks the next big thing: There are two main types – those that target software/IT services providers and use them to spread the malware (for example, the Kaseya or Solarwinds attacks). Or those that target physical supply chains or critical infrastructure, such as the one which impacted Colonial Pipeline. Service providers are likely to become prime targets as they often supply hundreds or thousands of businesses with software solutions and therefore offer criminals the chance of a higher payout.
- Ransom dynamics: Ransom demands have rocketed over the past 18 months. According to Palo Alto Networks, the average extortion demand in the US was $5.3mn in the first half of 2021, a 518% increase on the 2020 average; the highest demand was $50mn, up from $30mn the previous year. The average amount paid to hackers is around 10 times lower than the average demand, but this general upward trend is alarming.

In connection with the above, insurance companies will strive to introduce changes in the field of cyber insurance.

3. PROSPECTS FOR CHANGES IN CYBER INSURANCE RELATED TO RANSOMWARE ATTACKS

Cyber insurance costs are rising in response to increasing cyber security breaches, data breaches and ransomware. In response, cyber insurers are encouraging companies to strengthen and invest in cybersecurity. However, the above actions turn out to be insufficient, therefore market insurers should focus on the following actions:

1. Restrictive insurance risk assessment – insurance companies should and will strive for a more restrictive insurance risk assessment. Before concluding the insurance contract, they will force the clients to verify their collaterals. An example is testing applications and websites against ransomware attacks.
2. Changes in sums, increased franchises, higher insurance premiums – along with loss ratio, the insurance company will lower sums and increase insurance premiums. The own share of the insured in the event will also be increased (up to 50%). The insurer will limit the ransom amount paid so that the customer also pays the cost.
3. Additional clauses in the content of the general terms and conditions of insurance contracts − insurance companies will introduce additional clauses, e.g., ransom payment will take place upon obtaining the consent of the police or other services

responsible for prosecuting such crimes. There may also be limitations in the form of ransomware attack protection only in the event of a cyber war. The concept of cyberwar has not been clearly defined so far. Steve Winterfeld and Jason Andress indicate that the definition of cyberwar is not easy to establish and that is why it is still the subject of scientific debate (Winterfeld, Andress, 2013). However, despite the many difficulties in trying to build a scientific description of it, they appear. By the concept of cyberwar, James A. Green understands the extension of policy through actions taken in cyberspace by state entities or by nonstate actors with significant state orientation or support that pose a serious threat to the security of another state, or an action of the same nature taken in response to a serious threat for state security (actual or perceived) (Green, 2015).

4. Non-payment of the ransom – in 2021, the French insurer AXA excluded the liability of paying the ransom in cyber insurance. Sometime later, Reuters reported that cyber criminals using ransomware called Avaddon had hacked the group's Asia operations and stolen three terabytes of data.
5. If the ransom is not paid, what can the insurer offer in return? Insurance companies will have to offer their clients something in return. In this case, the cyber policy should contain the following elements:
   - access to the response team in the event of an incident detection (in the form of assistance, hotline);
   - financial assistance in the event of business interruption (return of loss of profit, coverage of operating costs);
   - protection of the entrepreneur's reputation (financing the costs of an advertising campaign in order to regain customer trust).

The key challenges facing the cybersecurity market are data limitations, companies' limited awareness of cybersecurity risks, and the risk of high losses from a cyberattack by insurers, brokers, and other industry members.

4. CONCLUSIONS

In recent years, there has been a noticeable increase in the demand for cyber insurance. This was favored by low risk assessment requirements on the part of insurers, low price levels, and the growing number of insurance companies that wanted to build portfolios based on this product line.

The COVID-19 pandemic and the relocation of many online business activities resulted in an unprecedented scale of cyber attacks on corporate infrastructures. The number of reported cyber-crimes keeps growing because these criminals are expanding their networks, discovering new vulnerabilities to achieve their targets. Due to these causes, the cyber risk insurance market will continue to play a very significant role in the future to support companies in managing their exposure to possible cyber threats.

Due to the intensification of ransomware attacks in the last two years, insurers will have to react and introduce changes to their policies. The most important changes that will be introduced on the insurance services market include:

- Increase in insurance premiums.
- Restrictive insurance risk analysis.
- The insured's share of the ransom costs incurred.

- Extending the insurance cover with additional aspects, such as, for example, covering the costs of business interruptions, or extending the entrepreneur's civil liability due to lost sensitive data.

Additionally, insurance companies will have to start working with technology companies. The cooperation will be aimed at assessing the IT security of companies before concluding an insurance contract.

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Adrian SADŁOWSKI[1]
Jacek BRDULAK[2]
Anna BUDZYŃSKA[3]

THE TRANSPORT OF UKRAINIAN GRAIN THROUGH POLAND AND THE DOMESTIC GRAIN MARKET

The aim of this paper is to identify the potential of the Ukrainian grain transport route through Poland, and to predict the effects of using this route for the domestic grain market. Analytical methods are used in the research, including SWOT analysis and variant analysis. It is found that, even with a certain organizational and investment effort, the route through Poland may be, at most, a significant supplement to other export routes. The available transport, reloading, and storage reserves are small when set against the scale of needs related to the replacement of traditional export routes through Ukrainian ports on the Black Sea and the Sea of Azov. Conclusions are also formulated about the impact of Ukrainian grain transport on the domestic grain market in various scenario options (direct transit, indirect transit, and "penetration" of goods into the Polish market).

Keywords: food security, grain exports, grain market, grain production, grain transport.

1. INTRODUCTION

The military operations in Ukraine strongly reduced the volume of grain production in this country and the volume of its exports abroad (Oxford Analytica, 2022; Nasir, Nugroho, Lakner, 2022). Looting of agricultural equipment and harvest as well as deliberate arson of crops by the occupiers have a negative impact on Ukraine's production and export capabilities. The destruction of the storage and transport infrastructure, blockades of ports and laying mines make exports of Ukrainian grain much more difficult or even impossible (Kurzeja, 2022).

Ukraine is a potentate in grain production, therefore, the problem of Ukrainian grain deficit is growing in the global economy, and Ukraine is painfully affected by the decline in foreign exchange revenues from the export of this raw material. The war in Ukraine disrupted international trade in agricultural products and strengthened the upward trend in

[1] Adrian Sadłowski, WSB Merito Universities, Poland; e-mail: adrian.sadlowski@wsb.warszawa.pl. (corresponding author). ORCID: 0000-0003-2969-4926.
[2] Jacek Brdulak, Warsaw School of Economics, Poland; e-mail: jbrdul@sgh.waw.pl. ORCID: 0000--0002-6746-8770.
[3] Anna Budzyńska, Maria Curie-Skłodowska University in Lublin, Poland; e-mail: anna. budzynska@mail.umcs.pl. ORCID: 0000-0002-6959-0585.

global food prices with negative consequences for food security in many countries (FAO, 2022). The crisis caused by the disruption of supply continuity covered, among others, countries of North Africa and the Middle East (Tárik, 2022; M. Dykha, V. Dykha, 2022). In order to mitigate the effects of the crisis, alternative ways of exporting Ukrainian grain are sought, including those via Polish seaports.

The aim of the study is to identify the potential of the Ukrainian grain transport route through Poland, including the analysis of the possibility of using various modes of transport for transit of the Ukrainian grain through Poland, and to foresee the consequences of using this route for the domestic grain market. Analytical methods were used in the research, e.g. SWOT analysis and scenario analysis, supplemented with the presentation of results in tabular form. An infographic was used for the graphical visualization of the data and the information.

2. RUSSIA'S INVASION OF UKRAINE AND GRAIN PRODUCTION AND EXPORT

The largest contribution to the production of three types of grain, which account for almost 100% of Ukraine's grain exports (i.e. corn, wheat and barley), is made by oblasts where intensive warfare has been or is being carried out (Dylewski, 2022). It is estimated that the decrease in cereal production, in 2022, compared to the previous year, was from several to several dozen percent, depending on the type of cereal. The data published by the European Commission (2022) in September 2022 show that the harvest of the three most important types of cereals amounted to 65 million tonnes, including 32.0 million tonnes of maize (a decrease of 24%), 26.2 million tonnes of wheat (a decrease of 18%) and 6.8 million tonnes of barley (a decrease of 28%). Predictions of a decline in export vary quite significantly. The strongest, reaching 80%, is expected to be a drop in barley export. The decrease in the volume of grain export will result from a decrease in their production and a deterioration in the efficiency of logistics channels as a result of warfare (Zolotnytska, Kowalczyk, 2022).

The main corn growing regions are Northern and Central Ukraine. Chernihiv, Vinnytsia, Poltava, Khmelnitsky, Sumy and Cherkasy oblasts are of the greatest importance. Wheat production is concentrated, in particular, in the Odessa region and in the belt of oblasts north of Crimea (Kharkiv, Dnipropetrovsk, Zaporizhia and Kherson). The same is true for barley, for which a very large share in national production is also attributed to the Mykolaiv Oblast (International Grains Council, 2022). The five largest Ukrainian river ports essential for grain transport are: Dnepropetrovsk, Zaporozhye, Nikopol, Kherson and Mykolaiv (Cherevko, Kolodiichuk, 2017). So far, grains from the main growing regions, as well as other oblasts, have been exported mostly by sea from ports in the Black Sea and the Sea of Azov (Jagtap et al., 2022). Up to 5 million tons of cereals were transported in this way every month. Ukrainian grain is price-competitive on the world markets (A. Dibrova, L. Dibrova, M Dibrova, 2018; Dylewski, 2022).

Due to the destruction, blockades or occupation of Ukrainian ports, as well as the deployment of anti-landing mines in the Black Sea, the existing export channels have been blocked. Therefore, grain is being exported via alternative routes, these are in particular:

- route through the Romanian Black Sea port of Constanta,
- route through Polish Baltic ports,
- route through Belarus and the ports of the Baltic States (in particular, the Lithuanian Klaipeda).

The importance of alternative routes depends, among others, on the continuity of agreements on unblocking Ukrainian grain exports through Black Sea ports (Matuszak, 2022).

3. CHARACTERISTICS AND POTENTIAL OF THE ROUTE THROUGH POLAND

Land transport of Ukrainian grain to Polish Baltic ports is carried out in two stages: to the Polish-Ukrainian border and from the border to the ports. In land transport on the territory of Ukraine, railways definitely dominate. In the case of rail transport, due to the different track gauge in Ukraine than in Poland, it is necessary to reload from broad-gauge wagons to standard-gauge ones or to use variable-gauge trolleys at the border. Polish seaports are very far from traditional Ukrainian grain transport routes. Compared to the route from Odessa or Czarnomorsk, the route running through Poland is characterized by a much longer land section, and – taking into account the geographical location of recipients of Ukrainian grain – also a sea section is often many times longer.

Grain is an important cargo handled by PKP Cargo S.A. and other railway carriers. According to the Railway Transport Office (Urząd Transportu Kolejowego, 2022, after Farmer.pl), in the second quarter of 2022, the transport of this raw material amounted to over 1 million tons, i.e. 600,000 tons more than in the first quarter, which has been a record result since the publication of quarterly data broken down by commodity groups.

In 2020, in this respect a record-breaking year, the main Polish seaports (Gdańsk, Gdynia and Szczecin-Świnoujście) handled 8.8 million tonnes of cereals and feeds, with the Port of Gdynia having 62% of the share (4 million tonnes). Transshipment in this cargo group at the Port of Szczecin-Świnoujście and at the Port of Gdańsk amounted to 1.9 million tonnes (21%) and 1.5 million tonnes (17%), respectively (Ziajka, Rozmarynowska-Mrozek, 2021). The average monthly transshipment amounted to 734 thousand tons. In 2021, the total transshipment of cereals and fodder in these ports amounted to 8.2 million tonnes (Ziajka, Rozmarynowska-Mrozek, 2022). The monthly average was therefore 680,000. In turn, transshipment of an additional 1.5 million tons of Ukrainian grain monthly, as declared by government representatives (Solska, 2022), would mean an increase in the transshipment volume of Polish Baltic ports in the grain and feed group by more than twice the monthly average from the record year 2020.

In view of the need for the transit of Ukrainian grain from the border to Polish seaports, the following main problems of the rail transport in Poland should be pointed out:

- despite the implementation of very significant investments co-financed by the European Union (Rabe, 2019; Massel, 2021), the problem of decades of neglected investments in most railway lines (except for some main lines, mainly between metropolitan cities) and means of transport (locomotives and wagons) is still not resolved,
- insufficient design facilities (except for the Railway Institute, which is relatively active in this field (Barcikowska, 2019), industry institutes and design offices were mostly liquidated during the system transformation due to the decision-makers' belief that there were no development prospects for this branch of transport),
- low railway construction potential (execution of only restitution works and small infrastructural investments without assistance of foreign specialist companies),
- problems with ensuring satisfactory quality of passenger transport (despite the priority of passenger traffic over freight traffic).

No less significant is the fact that hard coal is given a transport priority. After the embargo on coal imports from Russia was imposed in April 2022 (Ustawa…, 2022), alternative foreign suppliers were hastily sought. An abrupt increase in imports in order to compensate for the resulting deficit before the heating season caused difficulties with the successive delivery of this fuel to end users due to the inefficiency of the transport system. These conditions significantly reduced the possibilities for releasing the additional potential of railways transport to handle large streams of grain cargo.

Ukrainian grain can reach the Baltic ports by rail having been reloaded from the wide gauge to the standard gauge European network. The replacement of bogies of wagons crossing borders concerns mainly passenger traffic. On the Polish-Ukrainian border, the key "dry" border port is Żurawica-Medyka. Another important transport point is Sławków in Upper Silesia, which is the final station of the so-called Hrubieszów broad-gauge line, previously used for mass transport of iron ore and hard coal to Upper Silesia iron and steel works, as well as sulphur and chemical products. Recently, the Hrubieszów line has been poorly utilised. In the case of transport on this line, no transshipment of goods at the border is carried out. Trains cross the border in Gródek-Uściług. The war in Ukraine intensified transport to Sławków to a few couples of trains a day. However, directing streams of millions grain tons to Sławków for further transit to seaports and importers from Western Europe would require the construction of a large, modern transshipment terminal.

The transport of Ukrainian grain to Polish seaports by main railway lines is possible on a larger scale only in relations with the port of Gdynia, the port complex of Gdańsk (mainly to the Northern Port) and to the port of Świnoujście. The port in Szczecin is incapable of handling larger bulk carriers and, in terms of geography of Ukrainian grain trade, it may be a European port at best. The port in Kołobrzeg may be used to transport relatively small batches of goods over short distances – to Scandinavian countries and to German ports. The use of the port in Elbląg, which has been most successful in transshipment in recent years thanks to the handling of hard coal imports from Kaliningrad, is not possible, as this port does not have appropriate transshipment equipment or a deepened fairway through the Vistula Lagoon, and the parameters of the cutting of the Vistula Spit do not meet the requirements of the sea merchant shipping.

The underdevelopment of the railway and port infrastructure, the shortage of specialists at border crossings, transshipment terminals and ports, as well as the insufficient capacity of railway routes (long stretches with no passing loops are the bottlenecks) impede the efficient transport of Ukrainian grain. Freight trains are held up for days at border crossings (16 days on average in May 2022) and in Polish ports (Polski Instytut Ekonomiczny, 2022). Nevertheless, rail transport might transport 0.5–0.6 million tons of Ukrainian grain per month from the Polish-Ukrainian border to Polish seaports, provided that certain conditions are met, and in particular:

- giving priority to these transports,
- 24-hour operation of state services (border, phytosanitary) handling the transit of Ukrainian grain,
- adequate remuneration of employees of railway transport and seaports as well as of the state services involved,
- cooperation with domestic and foreign private entities on market, mercantile terms, rationalizing the undertaking.

An increase in the volume of rail transport of Ukrainian grain to Polish seaports would be boosted not only by setting up a Polish-Ukrainian logistics company, but also by agreeing on a list of infrastructural investments to be realized with the EU financial assistance for cross-border projects (Bezpartochnyi, Britchenko, 2022).

Private car carriers in Poland have a modern truck fleet, and thanks to infrastructural investments co-financed by the European Union (Banak et al., 2014; Brdulak et al., 2017), they work on a road network with systematically improving technical parameters. Polish road transport of cargo is able to handle as much as ¼ of international transport of this transport branch in Europe. Nevertheless, road transport may only be complementary in handling a large stream of Ukrainian grain from the border to Polish seaports (not to mention ports of Western Europe) Observing the transport of Ukrainian grain by road transport, it can be noted that:

- truck trips scattered across Poland and further across Western Europe are predominant,
- high freight rates make foreign carriers more active, especially Romanian ones;
- a significant increase in truck traffic was a consequence of the abolition in mid-July 2022 of the requirement to obtain a permit to enter the European Union,
- the situation at all border car terminals is very difficult (the waiting time for trucks to enter Poland is up to 6 days; elementary sanitary facilities for drivers stuck in traffic jams are not always provided; unreliability of the border IT system on the Ukrainian side).

Road border crossings are poorly equipped and – apart from the Korczowa-Krakowiec terminal – they lack sufficient manoeuvring space for large road trains. The X-ray machine and scales are usually not located in one line, so drivers have to make difficult manoeuvrers in the crowded area. Truck scales are not automated, which means laborious manual handling.

A wider inclusion of road transport in the transit of Ukrainian grain through the territory of Poland requires, above all, clearing the border crossings on the territory of both countries. The capacity of Polish road border crossings with Ukraine may be increased through organizational and management changes as well as infrastructural investments. In this context, a desirable action, though in another area, would be the abolition of restrictions on weekend truck traffic.

A simplified diagram of the Ukrainian grain transit route through Poland is shown in Fig. 1. It takes into account the structure of Ukrainian grain exports and the transport conditions indicated above. The thickness of the arrows in the diagram reflects the proportions of the size of the streams of goods that could possibly ensure the effective use of the transport system for the carriage of Ukrainian grain.

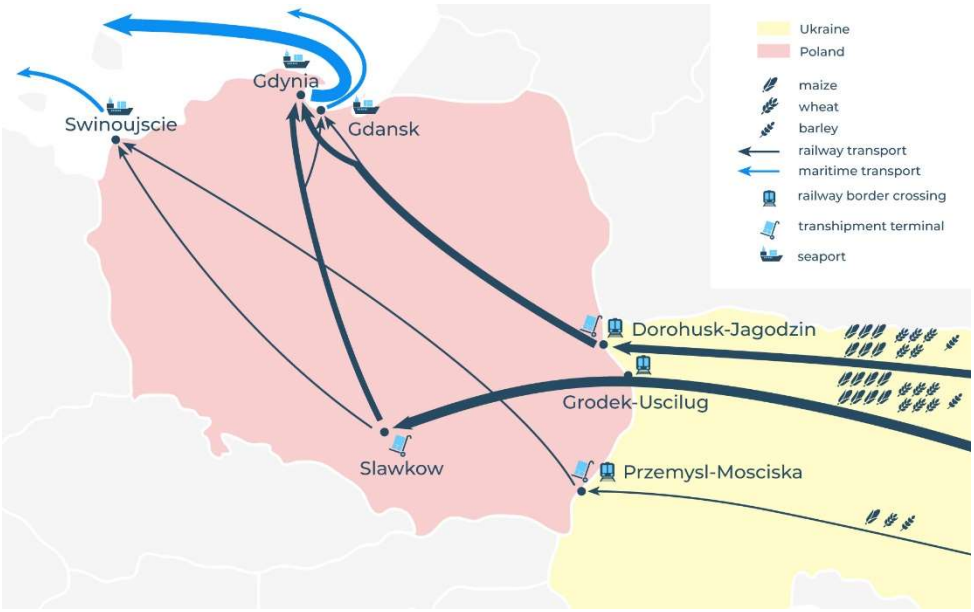

Fig. 1. Schematic diagram of Ukrainian grain transit through Poland

Source: Own study.

4. SWOT ANALYSIS OF THE DEVELOPMENT OF THE TRANSIT ROUTE THROUGH POLAND AND IMPACT ON THE DOMESTIC GRAIN MARKET

The SWOT analysis, including strengths and weaknesses as well as opportunities and threats for the development of the Ukrainian grain transit route to Polish Baltic ports from the point of view of Poland, is presented in Table 1. The effects on the domestic grain market will depend on how the proportions of individual scenarios described in Table 2 are distributed.

As for the impact on the Polish grain market, it is particularly important to know to what extent such a large increase in the volume of transported goods will increase transport prices and reloading services, thus increasing transport costs of Polish grain, and consequently, reducing its competitiveness on international markets. This will depend on the extent to which the companies providing these services will respond to an increase in demand with increasing supply, and to what extent – with increasing prices. This, in turn, depends on the extent to which the transport and transshipment potential is used, and on the ratio of increased demand to unused potential. If Polish grain was to compete for transport under the conditions of full use of "production capacity", then its price on international markets is likely to be higher.

Another issue is the question of how much Ukrainian grain will be covered by indirect transit, i.e. temporarily stored in Poland. This issue would only be irrelevant if additional, new warehouses were built for these needs. If the existing storage infrastructure is used, the question arises as to how long the Ukrainian grain transported through Poland will be stored in the country. Indirect transit, absorbing warehouses built for domestic production, to some extent hinders the efficient organization of purchase and export of Polish grain.

On the other hand, indirect transit makes it possible to regulate the degree of loading of means of transport and reloading terminals with Ukrainian grain.

Table 1. SWOT analysis of the Ukrainian grain export route through Poland

Strengths	**Weaknesses**
• increasing the degree of utilization of the transport potential of Polish railways • increasing the level of utilization of the reloading capacity of Polish ports • advantage over the route to the ports of the Baltic states as it is independent of Belarus	• low competitiveness with the traditional route (transport to existing recipients via a round-about route) • very limited competitiveness with other alternative routes (especially in relation to the route leading through Romania) • significant extension of delivery time • technical barriers to rail transport due to different track widths, which would require costly and time-consuming investments to bring them down • absorption of storage space for indirect transit • increased truck traffic on Polish roads
Opportunities	**Threats**
• increasing the profitability of Polish logistics, forwarding and transport companies involved in the transit of Ukrainian grain • increase in the international importance of Poland due to active participation in mitigating the effects of the global food crisis caused by the war in Ukraine • the possibility of using the route to transport other goods, including those needed to rebuild Ukraine after the war • the potential for developing trade with Ukraine due to the integration of transport infrastructure, railway infrastructure in particular (announced construction of a standard-gauge network in Ukraine) • an opportunity to expand the border, railway, port and warehouse infrastructure with the use of external financing (American or EU)	• the risk of deterioration of the situation of Polish grain producers as a result of "leakage" of Ukrainian grain onto the Polish market • the risk of only temporary usability of the hastily developed infrastructure • possible increase in the cost of transporting goods due to the rapid, unprecedented increase in the volume of cargo transport • possible increase in the cost of reloading services • possible increase in the cost of storage services for indirect transit

Source: Own study.

Table 2. Potential effects of developing the Ukrainian grain export route

Scenario	Impact on cereal prices on the domestic market			Who gains?	Who loses?
	direction of impact	impact force	cause		
Direct transit	Increase, especially in the price of grain transported to more distant processing plants or dedicated to exports.	Rather moderate, proportional to the scale of the transit.	Increase in transport and handling costs.	Forwarding, transport and reloading companies (increase in demand for services).	To a limited extent, domestic producers and exporters of cereals.
Indirect transit	Increase, especially in the price of grain transported to more distant processing plants or intended for exports	Rather moderate, proportional to the scale of the transit.	Increase in transport, handling and storage costs.	Forwarding, transport, reloading and storage companies (increase in demand for services).	To a limited extent, domestic producers and exporters of cereals.
"Leakage" of goods onto the Polish market	Decrease.	Potentially very large.	Increase in the quantity offered.	Processing enterprises (cheaper raw material supply), consumers (lower food prices).	Domestic grain producers.

Source: Own study.

At the same time, one may assume that intermediaries will seek to "pass" higher costs (transport, handling and storage) onto grain producers (by lowering purchase prices) in order to be able to offer grain on foreign markets at the current price without lowering their margins.

Indirect transit is also associated with a greater risk of "penetration" of goods into the Polish market. The "leakage" of Ukrainian grain onto the Polish market means that, at least in part, it is not grain transit through Poland, but rather its export to Poland, which has been facilitated since June 4, 2022 due to the introduction of measures of temporary trade--liberalization (until June 5, 2023) between the European Union and Ukraine (Regulation (EU) 2022/870).

Ukraine's grain export in terms of volume is over 1.5 times greater than the total grain production in Poland. Transit of 1.5 million t of cereals per month would mean an annual transport volume of 18 million t, which is 65% of the average annual volume of cereal production in Poland in the period 2016-2020. Therefore, the "penetration" of even a relatively small part of the planned transit volume has a very large potential to affect

grain prices on the domestic market. An increase in the quantity offered for a given level of demand results in a decrease in prices.

5. CONCLUSIONS

Poland's participation in the flows of redirected grain streams in the new geopolitical situation requires an appropriate qualitative adaptation of the branch of the Polish transport system. In the current situation, there are real opportunities to transport approx. 0.6 million tons of Ukrainian grain per month by rail to the Baltic ports, and further on by ships. This, however, requires considerable organizational effort and some investments. Geographically, these transport routes are much more expensive compared to transport from Ukrainian seaports on the Black Sea and the Sea of Azov and may be taken into account when the political situation worsens. Additionally, it is possible to export about 0.2 million tons of Ukrainian grain per month by road transport (iwith scattered European truck trips), provided the service of trucks at the Polish-Ukrainian border crossings is improved.

The available transport, reloading and storage reserves are small when set against the scale of needs for the replacement of traditional export routes leading through Ukrainian ports. Taking into account the accumulated problems resulting from months of delays in the export of Ukrainian grain, it can be concluded that the route through Poland may at most be a significant supplement to other alternative export routes.

The impact of Ukrainian grain transit through Poland on the domestic grain market is due to the fact that the transport of this commodity requires the involvement of infrastructure for transport, reloading and storage. The strength of this influence is proportional to the transit volume. If the transit of Ukrainian grain were to be carried out with no effect on Polish foreign trade in grains, its quantitative limits would be determined by the unused railway transport capacity (possibly supported by road transport) and the unused potential for transshipment of bulk materials in Polish ports. Indirect transit absorbs storage space in Poland, and means hindering the efficient purchase and export of Polish grain. Including the increased costs of transport, handling and storage in the price of cereals reduces its competitiveness on the world markets, which may result in a decrease in the export volume of Polish cereals. Another issue is the risk of the penetration of Ukrainian grain into the Polish market. This process is facilitated by the characteristics of the goods (homogeneity) and circumstances (handling, unloading, storage). The potential of grain inflow for prices reduction on the domestic market (even taking into account the very strong decline in production due to the war and looting by Russians) is very large – particularly, in the case of corn, wheat and barley.

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Bogusław ŚLUSARCZYK[1]
Małgorzata A. KOZŁOWSKA[2]

LEVELS OF ROAD SAFETY IN THE EUROPEAN UNION AND ITS SPATIAL DIVERSITY

Road safety is one of the most important global social issues. According to data from the United Nations, every year, around 1.2 million people worldwide die as a result of road accidents; that is, on average, one person dies every 30 seconds. Children and teenagers make up 40% of the fatalities. An additional 30–50 million people are injured as a result of these accidents; some of them become permanently disabled. The main types of accident risks are well documented; they concern a large range of factors, most often related to the behavior of drivers, especially in terms of speed. This article ranks the European Union countries in 2004 and 2018 by their levels of road safety. Four groups of countries are distinguished: very high, moderate, low, and very low levels of road safety.

KEYWORDS: road transport, road accident, sustainable development, safety, Hellwig's method.

1. INTRODUCTION

Transport is one of the main pillars of the modern economy, it also plays an important social function. An efficient transport system ensures the implementation of basic freedoms, including freedom of movement, freedom to work and study, or the free movement of goods and services. Besides the great opportunities, transport involves serious risks, for example: high risk of traffic accidents which generate huge economic, personal, and material costs. These costs are mostly related to the need to engage of: paramedic services, police, fire brigade, and other ones like helping the injured, treatment costs, rehabilitation and psychological help, temporary or permanent inability to generate GDP, costs of court proceedings or payment of compensation and social benefits (Dyr, Jaździk-Osmólska, Kozłowska, 2017).

Road transport is the greatest threat to safe mobility. It is the cause of almost all deaths related to the movement of persons and loads. Every day, there are many deaths and serious injuries on the roads. Human mistakes are the biggest source of risk in road traffic, they

[1] Bogusław Ślusarczyk, Carpathian State College in Krosno, Poland; e-mail: boguslaw.slusarczyk@gmail.com. ORCID: 0000-0003-0567-8470.
[2] Małgorzata A. Kozłowska, Radom Academy of Economics, Poland; e-mail: mkozlowska@ahns.pl (corresponding author). ORCID: 0000-0003-3300-2419.

are most often committed by road users who ignore applicable road laws and use roads in an irresponsible way, posing a threat to themselves and others (www.ec.europa.eu).

The most important task of the road safety system is to protect the health and life of its participants. This importance is reflected in various aspects of transport policy aimed at ensuring sustainable mobility. Improving the quality of transport services, including personal safety, and reducing the number of accidents and health risks are priorities for the European Union (Biała Kięga, 2011) as transport is of great importance for social cohesion in a more environmentally friendly economy, education and innovation for Europe. Reducing the number of road user casualties is a key factor in improving the overall performance of the transport system and in meeting the needs and expectations of citizens and businesses. The European Commission is very active in promoting legislation, technical standards and awareness campaigns aimed at reducing road deaths. It took the "Vision Zero" approach and a safe system, aiming to eliminate fatalities and serious injuries. EU actions are complemented by national, regional and local actions.

The purpose of this study is to present the level of road safety in individual European Union countries in 2013–2018 and its spatial diversity. The year 2004 adopted as the base year results from the fact that this year saw the greatest enlargement of the European Union with the accession of ten countries, including Poland.

2. EUROPEAN AND NATIONAL CONDITIONS OF ROAD SAFETY

Activities related to ensuring road safety began in the 1980s, before the entry into force of the Treaty on European Union in 1993. Initially, these activities focused on harmonization of regulations in terms of working time of drivers carrying passengers and loads and standards for the construction of engines in operation vehicles, and then directly related to the safety of people in individual means of transport, related to e.g. the introduction obligation to fasten seat belts and safe transportation of children in vehicles. The then European Economic Community also undertook commitment to develop a joint traffic safety program road, covered by the active policy of the European Union (Allsop, 2010).

First action program for road safety was introduced in 1993, which was the basis for the creation of the joint the database of information on road accidents (Com(93)246 final). Moreover, it constituted a basis for discussing the topics of future activities that gave rise to develop another program for 1997–2001, this time relying mainly on: exchange of information on best practices in European information system, road safety and the application of measures preventing accidents, and in the event of their occurrence – mitigating the consequences.

In 2003, the European Commission published the third European Action Program for road safety for the period 2003–2010 (COM(93)246 final), assumed halving the fatalities of road accidents until the end of 2010. This document stresses the necessity of monitoring not only the number of road incidents, but also failure to respect regulations of road users, applicable regulations, and any behaviors that may be the cause of these events.

In 2010, the European Union renewed its commitment to improvement road safety, also targeting the reduction of mortality on roads by 50%, but this time by 2020 compared to 2010. In order to achieve this goal, activities were identified in the following areas: education and training of road users, enforcement of traffic regulations road, safer road infrastructure, safer vehicles, modern technologies, taking action in emergency situations and after injuries, protection of particularly vulnerable road users accidents

(COM(2010)389 final). The document also stated that "reducing the number of victims among road users is a key factor in overall improvement transport system parameters and meeting the needs and expectations citizens and businesses". The need to ensure safety in traffic road has become a key component of the unified creation plan European Transport Area - white paper from 2011. In this document 2050 was set as the deadline for moving closer to the 'zero fatalities' target. Seven goals were identified: improving user education and training roads, as well as monitoring the application of the traffic safety regulation road; improving the safety of road infrastructure and vehicles; popularization of the use of intelligent transport systems, including implementing the automatic emergency call system "eCall" in vehicles; improving the operation of rescue services and providing assistance to the injured; protection unprotected road users, such as pedestrians and cyclists (Biała Księga, 2011).

In 2018, the European Commission published a communication entitled Europe in motion (COM(2018)293 final). This announcement complements the enabling process people in the European Union to benefit from mobility (COM(2017)479 final). It was found that safety in the transport system must always constitute the highest priority. The Europe on the Move communication is characterized by a new one approach to road safety. First, it was underlined the need to change the thinking provided for in the "zero vision" not only among decision makers, but also among society as a whole, road accidents, unlike, for example, air crashes, they are often unnoticeable by public sphere. Second, a "secure system" should be implemented at the Union level, and the most important elements of this system should be ensuring safe vehicles and safe infrastructure and safety road users by enforcing compliance with regulations, e.g. control sobriety of drivers, vehicle speed control, seat belt control safety, as well as much better care after an accident. Third, we must face the dangers of distracting road users by mobile devices and the technical solutions that are currently available in a transitional phase and may only contribute in the future reducing the role of human mistakes.

In addition, this Communication extends "vision zero" to serious injuries. It was indicated that the approach based on the "safe system" death and serious injuries must not become "the unavoidable price for mobility". It was emphasized that accidents would still happen, albeit fatal and serious `injuries can largely be prevented by, inter alia, better construction vehicles, better infrastructure or lower speed standards. In conjunction with above, as part of this package, the European Commission adopted the conclusions legislative: the first to transform EU standards in the field vehicle safety components combining new prevention systems accidents with updated active and passive safety measures, the second aimed at improving the management of infrastructure safety road traffic so as to reduce both the number of accidents and their consequences. This approach is the basis for the definition of the Union's road safety framework European Union for the period 2021-2030 (SWD(2019)283 final).

3. DIAGNOSIS OF THE LEVEL OF ROAD SAFETY IN THE EUROPEAN UNION

Analyzing the effects of road accidents in 2004–2018 in the European Union, we can see a clear downward trend in both the number of victims fatal and serious injuries (see Fig. 1) and the average size of the victims fatalities per number of inhabitants, number of vehicles, and transport work performed (see Fig. 2).

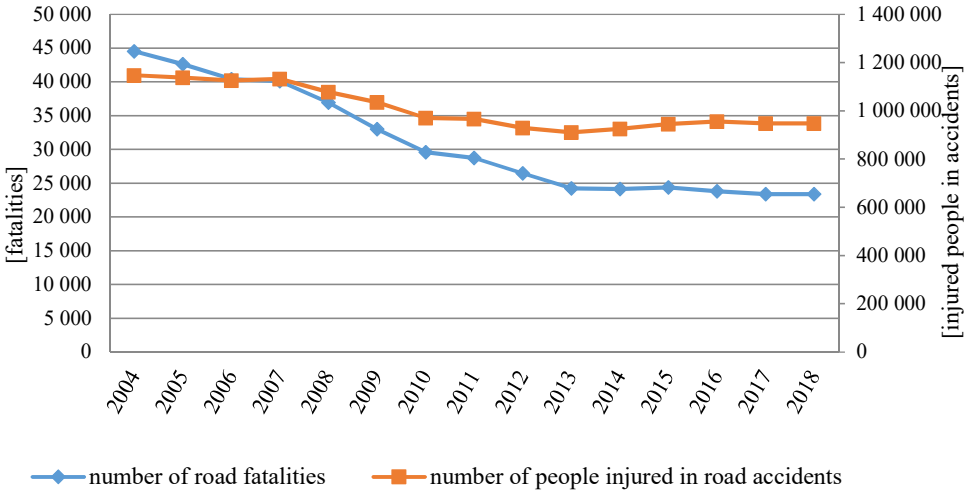

Fig. 1. Change in the number of fatalities and injuries as a result of road accidents in the EU in, years 2004–2018

Source: Own elaboration based on the Statistical pocketbook 2020 (https://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2020_en [access: 06.01.2021]).

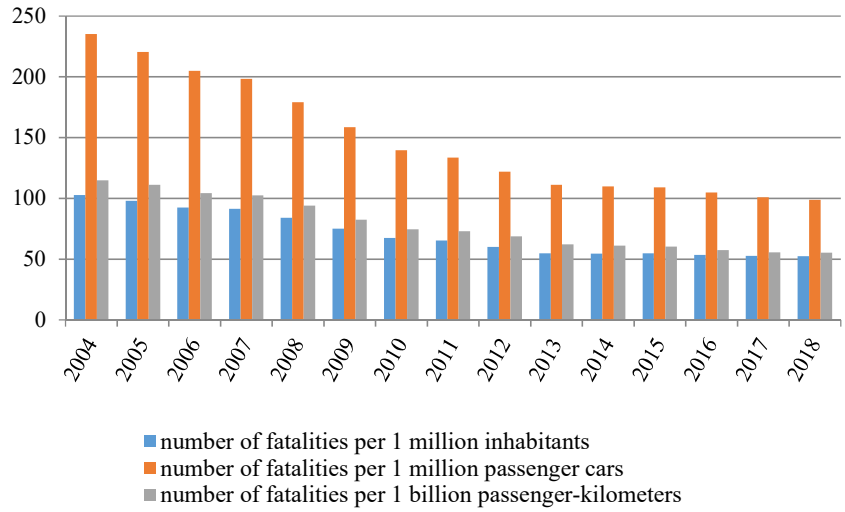

Fig. 2. Change in the number of road fatalities in the EU in relation to population, number of vehicles and mobility from 2004 to 2018.

Source: Own elaboration based on the Statistical pocketbook 2020 (https://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2020_en [access: 06.01.2021]).

Fatalities in all EU member states in 2004, amounted to 44 530 people, representing 103 victims per 1 billion inhabitants, 235 victims for every million cars registered in the European Union, and 115 victims for every billion kilometers traveled by European Union

citizens. In 2018, despite the increase in the population, a larger one number of vehicles and carrying out more transport work, the death toll fell by 48% to 23,394 fatalities. This value is 52 casualties per 1 million inhabitants, 99 people killed in accidents per 1 billion passenger cars used, and 55 fatalities for each billion km performed by road passenger transport. In the analyzed period, there was also a significant decrease in people suffering from injuries in road accidents - from 1,147,470 people in 2004 to 948,511 people. This means that almost 200,000 people are less exposed to suffering and financial hardship, and in so many cases the economic costs are reduced.

Despite a significant improvement in road safety in the European Union, in some countries the mortality rate is still very high. In 2018, the greatest number of fatalities as a result of a road transport accident occurred in Italy (3 334 people), Germany (3 275 people), France (3 249 people) - so in countries with the largest population and additionally in Poland, where the number of people killed in road accidents amounted to 2,900. The risk of losing life on Polish roads is twice as high as the European average, and more than three times higher than in the leaders in road safety, for example in Sweden. In 2018, 2,177 people died in 27,556 accidents caused by drivers, and 348 people died in 2,119 accidents caused by pedestrians. Based on the data collected by the National Road Safety Council, it can be stated that out of 100 accidents in Poland, there are approximately: 9 fatalities, 35 seriously injured and 118 moderately and slightly injured. The high accident severity rate proves that it is still the basic factor of road accidents vehicle speeding (Raport, 2018).

The participation of the above-mentioned countries account for as much as 54.6% of the total number of road fatalities in the entire European Union. The number of fatalities on the European roads of the associated countries in comparison with the population, mobility and number of vehicles compared to the European Union average is presented in Fig. 3.

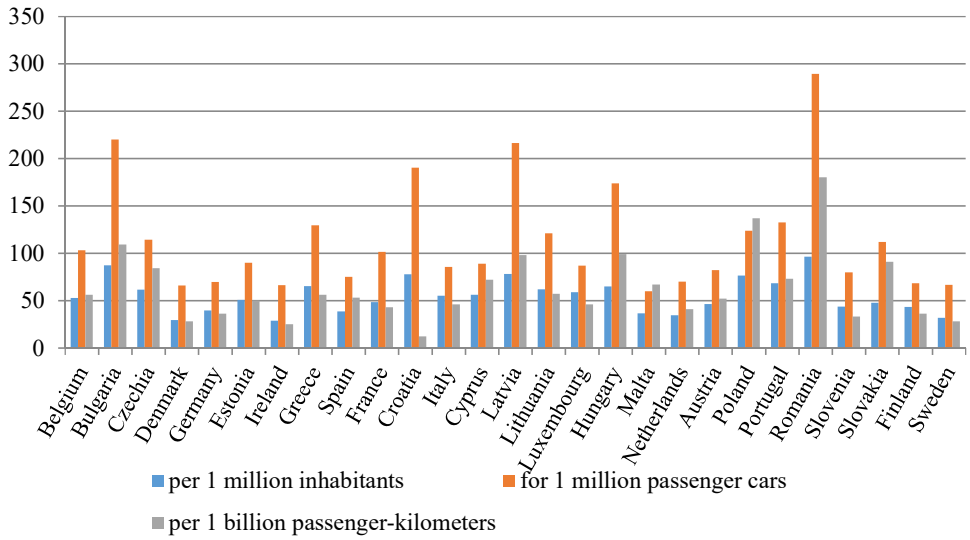

Fig. 3. Number of fatalities due to road accidents in EU countries in relation to population, number of vehicles and mobility in 2018.

Source: Own elaboration based on the Statistical pocketbook 2020 (https://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2020_en [access: 06.01.2021]).

In the classification measured by the number of fatalities per year per 1 million inhabitants in 2018, the best results belong to the Scandinavian countries. In Denmark, this indicator was 29 people, and in Sweden 32 people. Poland, with a result of 76 victims per million inhabitants, was in the fifth place from the end, just behind Romania, Bulgaria, Lithuania, and Croatia (it is among the economically less developed countries). The situation of Poland is even worse in the ranking the number of fatalities per 1 billion passenger-kilometers, it is in the penultimate place with 137 people, with the European average being 63 people. Poland presents a bit better, though still far from the European average, according to the death toll rate per million passenger cars, which amounted to 124 people, with the European average amounting to 114 people. This result is mainly related to the rapid increase in the number of cars in recent years, often different in age from cars in other European Union countries (Jamroz, 2019). In 2018, the average age of cars in Poland was over 13 years, which means that it is in the 17th position out of 25 classified countries (www.acea.be).

4. SPATIAL DIFFERENTIATION OF THE LEVEL OF ROAD SAFETY IN EUROPEAN UNION

In the study of the spatial differentiation of the level of road transport safety in the European Union, a multidimensional comparative analysis was used to assess objects whose condition and behavior are simultaneously affected by many features and factors (Hellwig, 1981). This method allowed for a broad and objective view of the studied phenomenon.

The first stage of the study involved selecting a set of statistical features determining the level of road safety. The study used risk indicators monitored by the European Statistical Office, which express the ratio of the number of fatalities and injuries in a given area to the number of inhabitants of that area, to the number of cars, and the amount of transport work performed by individual means of transport, i.e.:

- X_1 – the number of fatalities from road accidents in relation to the population (number of fatalities per million people);
- X_2 – the number of fatalities from road accidents in relation to the number of vehicles (number of fatalities per number of vehicles);
- X_3 – the number of fatalities from road accidents in relation to passenger-kilometers (number of fatalities per billion passenger-kilometers);
- X_4 – the number of injuries in road accidents in relation to the population (number of injuries per million people);
- X_5 – the number of injuries in road accidents in relation to the number of vehicles (number of injuries per number of vehicles);
- X_6 – the number of injuries in road accidents in relation to passenger-kilometers (number of injuries per billion passenger-kilometers).

The next step was to build synthetic measures of road safety level. From the economic point of view, all the variables accepted for the analysis were considered destimulants.

The use of the Hellwig's method required the construction of an observation X matrix consisting of n rows (EU countries) and m columns (diagnostic features):

$$X = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1m} \\ x_{21} & x_{22} & \cdots & x_{2m} \\ \vdots & \vdots & \vdots & \vdots \\ x_{n1} & x_{n2} & \cdots & x_{nm} \end{bmatrix} \tag{1}$$

In order to obtain the comparability of variables, the observation matrix was transformed into a matrix of standardized variables according to the formula:

$$Z_{ij} = -\frac{x_{ij} - \bar{x}_j}{s_j} \tag{2}$$

Z_{ij} – standardizing the value of a variable in an EU country
j – variable number
i – EU country number
x_{ij} – the value of the variable in the EU country
$\bar{x}_j$ – arithmetic mean of the variable determined according to the formula

$$\bar{\mathrm{x}}_{\mathrm{j}} = n^{-1} \sum_{i=1}^{n} \mathrm{x}_{\mathrm{ij}} \tag{3}$$

s_j – standard deviation of the variable was determined according to the formula

$$S_j = \sqrt{n^{-1} \sum_{i=1}^{n} (x_{ij} - \bar{x}_j)^2} \tag{4}$$

In order to determine the diversity of the group of observations, and thus to check whether the given feature is statistically significant, the coefficient of variation was calculated according to the formula:

$$V_j = \frac{S_j}{\bar{x}_j} \tag{5}$$

V_j – coefficient of variation of the variable
S_j – standard deviation of the variable
$\bar{x}_j$ – arithmetic mean of the variable.

Based on the variables after standardization, a pattern was established, which is an "idealized" state with the best possible coordinates:

$$Z_{0j} = \max Z_{ij} \tag{5}$$

After transforming the variables, the reference method assuming the existence of a model object – a reference one – was used, in relation to which the taxonomic distances of the studied objects are determined using the Euclidean metric. The synthetic measure of the level of road safety in the European Union was calculated as a synthetic indicator of the taxonomic <distance> of a given country from the theoretical pattern. A distance is specified for each site (EU country) from the pattern (value of the synthetic measure, the so-called measure of development), according to the following formula:

$$M_i = 1 - \frac{d_{i0}}{d_0} \ (I = 1, 2, \ldots, n) \tag{7}$$

where:

$$d_{i0} = \sqrt{\sum_{j=1}^{m} (z_{ij} - z_{0j})^2} \; (i = 1, 2, \ldots, n; j = 1, 2, \ldots m) \tag{8}$$

where:

$$\begin{gathered} d_0 = \bar{d}_0 + 2S_0 \\ \bar{d}_0 = n^{-1} \sum_{i=1}^{n} d_{i0} \\ S_0 = \sqrt{n^{-1} \sum_{i=1}^{n} (d_{ij} - d_0)^2} \end{gathered} \tag{9}$$

M_i – synthetic meter
d_{i0} – Euclidean distance of each pattern to build
m – number of variables
n – number of countries
z_{ij} – standardized value of output features (variable for regions)
z_{0j} – normalized value of the pattern for the variable
z_{0j} – arithmetic mean of the taxometric distances
z_{0j} – standard deviations of the taxonomic distances.

In the final stage, a ranking of countries was made and grouped using the k means method, dividing the set into two subsets, i.e. according to objects larger and smaller than the mean, and in subsequent stages – according to intermediate means for each group. Such a division made it possible to distinguish the following groups:

- group I – very high level of road safety: when $z_i \geq \bar{Z}_{1l}$
- group II – moderate level of road safety: when $\bar{Z}_1 < z_i \leq \bar{Z}_{1l}$
- group III – low level of road safety: when $\bar{Z}_{2l} < z_i \leq \bar{Z}_l$
- group IV – very low level of road safety: when $z_i \leq \bar{Z}_{2l}$

where:

- $\bar{Z}_l$ – the average of the meter
- $\bar{Z}_l$, $\bar{Z}_{2l}$ – intermediate means of the meter values

On the basis of the obtained research results, it was determined which of the European Union Member States is characterized by the highest and the lowest level of safety in transport. The values of synthetic measures, in turn, provided the basis for assessing this differentiation in the studied area and for developing a ranking of countries in terms of the

development of the factor in question. The level of safety differentiation in transport and its changes in the years 2004–2018 are presented in Fig. 4 and Fig. 5.

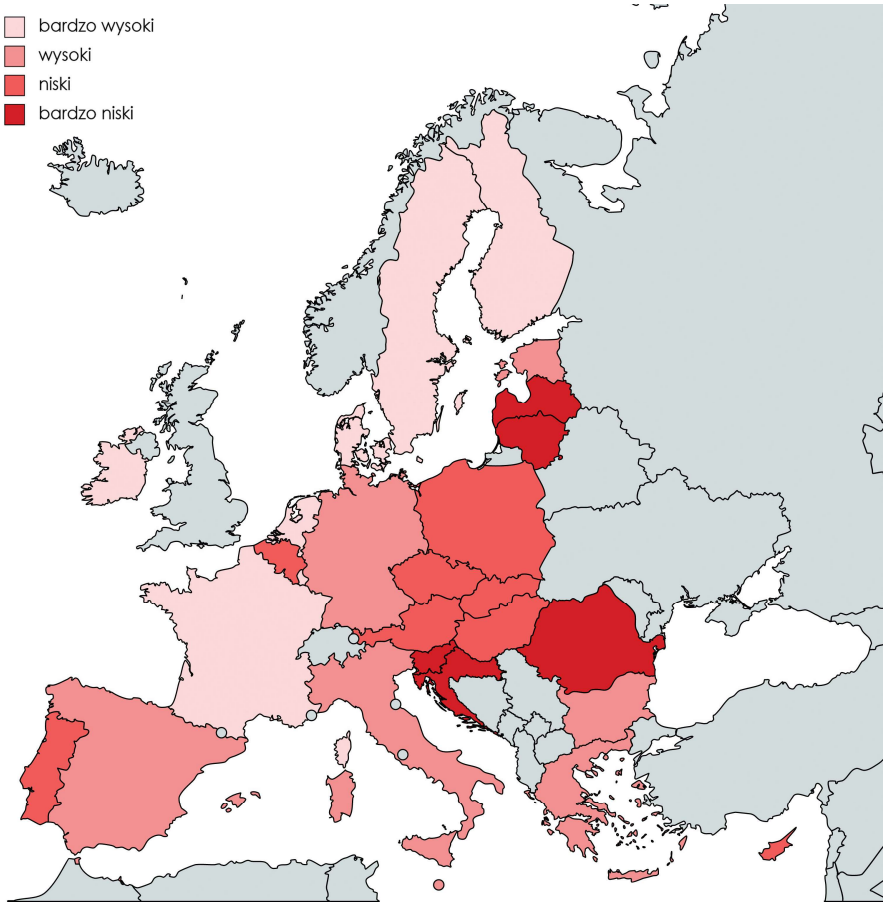

Fig. 4. Spatial differentiation in the level of safety in EU transport in 2004

Source: own study.

A very high level of sustainable transport development in terms of transport safety in 2004 was characteristic of the Netherlands, Finland and Denmark, followed by Sweden, France, Ireland and Luxembourg. In 2018, Estonia and Cyprus joined this group, while Luxembourg fell in the ranking from the group with a very high level of transport safety to the group with a high level. The countries with a very low level of safety in transport, both in 2004 and 2018, were: Romania, Croatia and Lithuania. Moreover, in 2004, Slovenia and Latvia belonged to this group, which in 2018 changed the group from "very low" to "low" and "high", respectively. Portugal and Austria, on the other hand, fell from the low-safety group to the very low group. In both analyzed years, Poland was in the group with a low level of road transport safety.

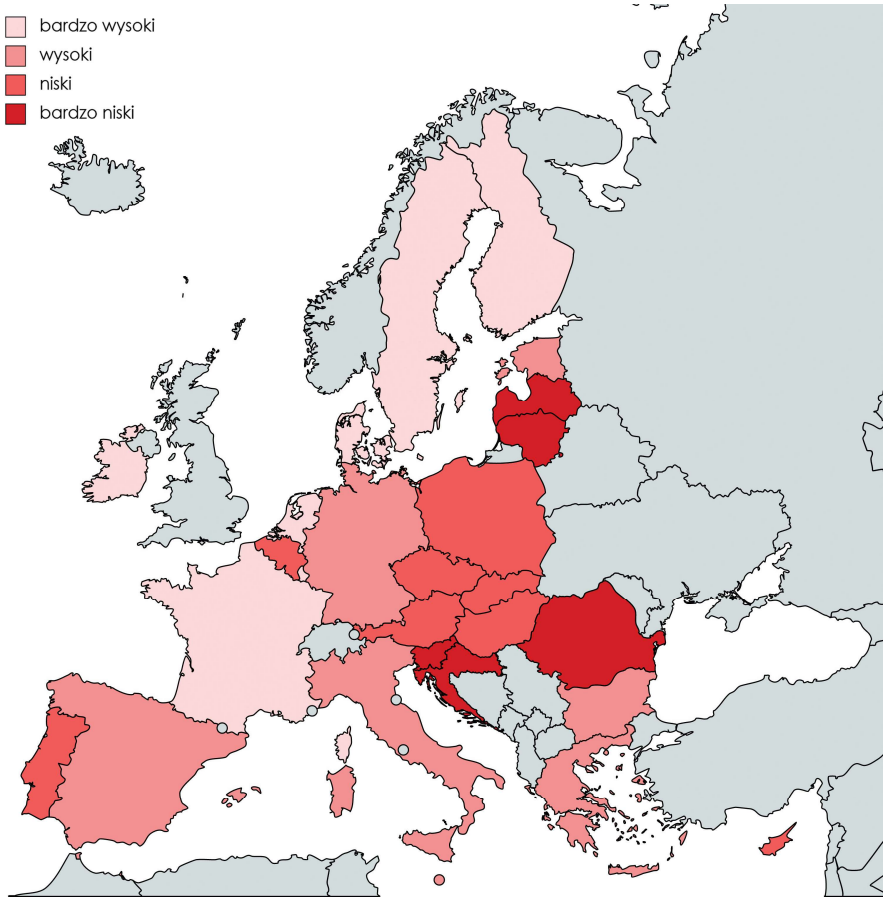

Fig. 5. Spatial differentiation in the level of safety in EU transport in 2018

Source: own study.

Based on the spatial distribution, a level ranking was developed transport safety and its changes, which are shown in Fig. 6.

Based on changes in the ranking of European Union countries in terms of the level of safety development in transport, a significant decrease was observed in Bulgaria, Germany and Malta. It should be emphasized that the analysis was used statistical data on the effects of road accidents, compiled with the size of the population, the number of vehicles and the transport work performed, therefore, insufficient development in the analyzed category should be seen in the weakening actions by the governments of individual Member States and an insufficient change in the model of social behavior.

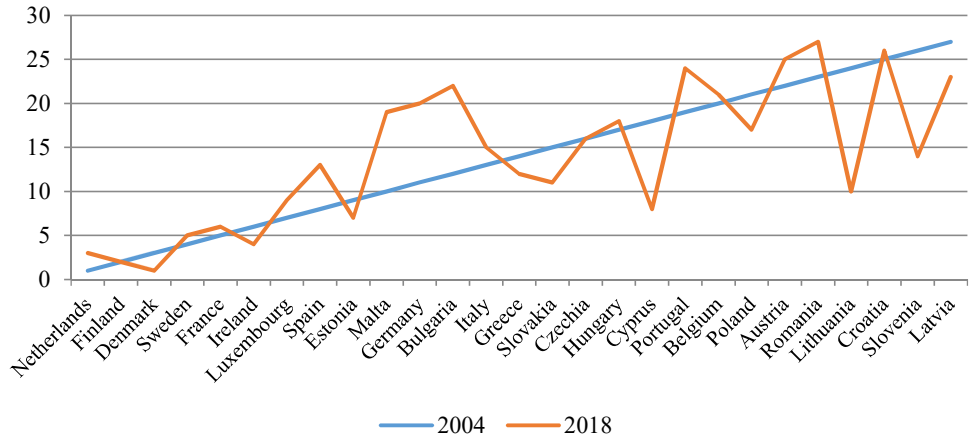

Fig. 6. Change in the ranking of EU countries with regard to the development of the level of safety in transport in 2004 and 2018

Source: own study.

5. CONCLUSIONS

Based on the analysis, it can be concluded that the transport policy in the 21st century in the field of safety improvement is effective. Thanks to the analysis of the effects of road accidents in the years 2004–2018 in the European Union, there is a clear downward trend in both the number of fatalities and the number of serious injuries.

Despite a significant increase in the improvement of road safety in the European Union, the death rate in some Member States is still very high – in 2018 it was 23 374 people. In Poland, this number was as high as 2,900 people, which proves insufficient measures to ensure safe mobility, e.g. activities related to the enforcement of the permitted speed of vehicles, improvement of the quality of infrastructure and increase in vehicle safety.

The role of the road transport system is to provide people with the right to move, but it should be done safely. Death or injury cannot be seen as the inevitable cost of mobility (Narodowy Program BRD, 2013). As road users are the first link in the road safety system, education and enforcement are indispensable factors affecting road safety, as human mistakes are the biggest source of road traffic risk. These errors are most often committed by road users who ignore the applicable road law and use roads in an irresponsible way, posing a threat to themselves and others (www.ec.europa.eu). The road safety system should therefore take into account these mistakes and misbehavior and correct these factors as far as possible. All elements, in particular vehicles and infrastructure, should enable error correction to prevent the dire consequences of road accidents.

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Xolani THUSI[1]
Victor H. MLAMBO[2]

THE GRASS SUFFERS WHEN ELEPHANTS FIGHT: LESSONS FOR AFRICA FROM THE RUSSIA-UKRAINE CONFLICT

Hunger, poverty, malnutrition, and unstable food systems are among the societal challenges facing the African continent. These difficulties result from Africa's inability to address external shocks such as poor economic growth and widespread conflict. Furthermore, the continent is still recovering from the Covid-19 pandemic, which devastated its developmental prospects. Increased dependence on Russia and Ukraine for vital supplies such as wheat and sunflower oil has exacerbated Africa's food insecurity crisis. This paper examines how the Russia-Ukraine conflict has affected Africa's food supply and how, in the future, the continent can secure food supply in times of uncertainty. The authors submit that Africa must improve its agricultural production systems to reduce reliance on other countries and promote long-term food supply.

Keywords: conflict, food insecurity, hunger, imports, poverty.

1. INTRODUCTION

Africa in a postcolonial era has struggled to consolidate inclusive development. When Africa gained independence, there was increased hope that African leaders would consolidate and promote continental development. To support such, African countries immediately after independence forged new relations with numerous countries, some of which became important suppliers of agricultural products. Human Rights Watch (2022) notes that Russia's invasion of Ukraine has worsened the food security crisis in many African countries. Russia and Ukraine are among the top five global exporters of barley, sunflowers and maize, and account for about a third of world wheat exports. Nigeria, the world's fourth largest wheat importer, receives a fourth of its imports from Russia and Ukraine. Cameroon, Tanzania, Uganda and Sudan source more than 40% of their wheat imports from Russia and Ukraine (Human Rights Watch, 2022). The UN World Food Programme (WFP) buys half of the wheat it distributes around the world from Ukraine. With the war, supplies are squeezed, and prices rise, including for fuel, increasing the cost

[1] Xolani Thusi, University of Limpopo, Republic of South Africa; e-mail: xolani.thusi@ul.ac.za (corresponding author). ORCID: 0000-0001-7316-6165.
[2] Victor H. Mlambo, University of Johannesburg, Republic of South Africa; e-mail: victorml@uj.ac.za. ORCID: 0000-0002-7705-8863.

for transporting food in and to the region (Human Rights Watch, 2022). The end of events such as the World War I & II, the fall of the Berlin wall and the fall of the Soviet Union did not mean the end of Great-Power rivalries driven by the need to spread their power and influence beyond their borders. Ever since the periods of decolonization, inclusive socioeconomic development in Africa has been elusive (de Arimatéia da Cruz, 2011). Decolonization was meant to ensure that Africa can pursue its own independent developmental agenda; however, Africa continues to depend on the former colonizer for socioeconomic and political support (Ocheni, Nwankwo, 2012).

The African Development Bank argues that the sudden shortage of wheat, maize and other grains imported from Russia and Ukraine could spark civil unrest in Africa as food supply chains are tested again on the heels of a global pandemic (Human Rights Watch, 2022). Russia's exports to Africa are approximately $4 billion a year, 90% of that is wheat. Furthermore, Ukraine alone accounts for 31% of maize imports from African countries (Human Rights Watch, 20202). Therefore, the conflict has devastated Africa's food security. Africa is characterized by poverty, inequality and conflict and the inability of the continent to grow food becomes very challenged. Furthermore, issues related to climate change have become more prevalent and have caused conflict between cattle herders and farmers as the competition for resources intensifies. One cannot deny that before the conflict, Russia and Ukraine have been important partners in terms of supplying important necessities such as fertilizer, wheat and other imported grains. By 2050, the population of Africa is projected to triple to 2.48 billion people. The increasing population presents a significant challenge in terms of growing food supply to meet future demand (Onyutha, 2019). This article seeks to understand how the conflict between Russia and Ukraine has affected African countries in the context of food provision. The effective measures that Africa can utilize to ensure that Africa becomes self-sustainable to ensure food security in the continent will also be examined by this paper.

2. METHODOLOGY

To answer the main research question underpinning this paper, a qualitative research approach was used to obtain information. This approach was undertaken to ensure that data can be collected from an international, regional, and local perspective. Ever since the Russia and Ukraine conflict began, there have been different narratives and debates which should explain the reasons behind the conflict and the implications for Africa regarding food security. Therefore, a literature review approach was necessary to capture these arguments, debates, and narratives. For collecting the data needed for this paper, there was an inclusion and exclusion criteria for the sources of information such as selecting effective search terms, types of sources, and evaluating sources for relevance. These essential search criteria were used to select the most relevant sources: Terms such as Russia/Ukraine conflict, Food security in Africa, Africa and food insecurity, and implication for Africa concerning Russia and Ukraine conflict were used to gather the literature data. A preliminary list of research was compiled; then, its applicability was determined; and finally, data extraction and analysis were conducted. United Nations Publications, Journal Articles, Online Credible Websites, Ebscohost, Google Scholar, Scopus, and the African Union were vital sources of information.

Table 1 shows the initial inventory of sources used in this document. After thorough review of the titles, keywords, abstracts, and full texts, relevant sources were selected from the initial list, while irrelevant sources were disregarded.

Table 1. Procedure for sources of literature

Database	Type of source	Number of articles	Filtered by keywords/concept	Total No. used in this article
United Nations Publication	Institutional periodic/technical report	10	Conflict between Russia and Ukraine	8
Journal Articles	Journal/scholarly article	15	Food supply and the Russia and Ukraine conflict	10
Online credible Websites	Online news sources reporting in the conflicts	25	Africa and the conflict between Russia and Ukraine	16
Ebscohost, Google Scholar and Scopus	Online databases	10	Africa's food insecurity	7
African Union	Organizational periodic reports	8	Russia and Ukraine conflict: Implications for Africa	5
Total	**-**	**68**	**-**	**46**

Source: Research own constructions.

There are many reasons for conflict; regardless of the type, we cannot deny that it has widespread geopolitical implications. Therefore, the Russia-Ukraine conflict is not different. Even before the conflict broke out, scholars, political commentators, and journalists were already predicting conflict between the two countries. Many reasons were given for this, for example, NATO's expansion eastwards and the lack of Russian interests being considered. Literature was available that was relevant and spoke to the context of this paper. This article sought to understand the implications of the conflict within the context of developing regions. Africa is highly dependent on Russia and Ukraine for supplies such as wheat and fertilizer. However, the conflict has reduced the inflow of such goods to the African continent, further hindering social and economic development, hence the adage that grass suffers when elephant fights. The need to reflect and understand the different debates, arguments, and narratives within the literature on the current conflict between these two countries was at the core of using a literature review for this paper. This was vital in helping the paper critique and compare these to an African point of reflection. Considering that there is previous literature that has been published warning about the possibility of conflict, using a literature review as a research approach was vital in combining all these assertions and helping the article understand how its continuation will affect developing countries that are significant trade partners of Russia and Ukraine.

3. RESULTS AND DISCUSSION

Africa's current food security status

According to the Food and Agriculture Organisation (FAO), the pandemic has resulted in 40 million undernourished people in Africa, as well as a 30% increase in the number of Africans who are food stressed and 35% in the food crisis. Furthermore, in 2019, a desert locust outbreak in many East African nations threatened approximately 13 million people

in the Horn of Africa with serious food shortages (Abu Hatab, 2022). The Sustainable Development Goals (SDG) objectives of eliminating hunger, ensuring that everyone has access to safe, nourishing and enough food throughout the year, and eradicating all forms of malnutrition are not being met by Africa. The most recent estimates indicate that 281.6 million people on the continent, or more than one fifth of the population, would experience hunger in 2020, an increase of 46.3 million from 2019. Africa's existing food security and widespread malnutrition are not as good as Africans would want. Many African countries are currently food insecure and in deficit. This is due to food instability and widespread malnutrition. Many African countries find it challenging to achieve food security (Dodo, 2020). According to Ojo et al. (2022), more than 100 million people in Africa did not have enough access to food in 2020 and this number is expected to increase by 60% in 2021. Trudell et al. (2021) indicated that in 2018 676.1 million Africans (52.5 percent of the population) experienced moderate to severe food insecurity. This very high incidence is expected to increase further as Africa undergoes conflict, climate change, and economic degradation. Wegren (2020) indicated that between 2000 and 2015, the number and proportion of undernourished people only rose across the African continent.

In 2016, 26% of people in Africa had acute food insecurity, while 19% of people were underweight. The most severe cases occurred in East Africa, where 32% of the people were underweight and 32% had severe food insecurity. Middle Africa had a similar situation, 25% underweight and 33% with severe food insecurity, while Sub-Saharan Africa had 21% underweight and 29% with severe food insecurity. Adeyeye et al. (2021) alluded that food insecurity is a concern in many African nations due to inadequate distribution, climate change, ineffective agricultural policy and practice, and pest and disease issues. The COVID-19 epidemic, unstable economies of African nations, the inadequate international response to food scarcity, and the poor agricultural production and storage practices in African nations have complicated the situation. According to Otekunrin et al. (2020), the prevalence of undernourishment (POU) is the main indicator used to assess the progress made in ending hunger worldwide. Hunger is a problem in most African sub-regions. From 192.6 million in 2005 to 250.3 million in 2019 and 433.2 million by 2030, the POU in Africa has increased. East and West Africa experienced a higher growth in the number of undernourished people between 2005 and 2019 – from 95 million to 117.9 million and 36.9 million to 117.9 million, respectively.

Food exports from Russia and Ukraine to the African continent

In 2020, wheat represented 90% of Russia's $4 billion in African exports, while Ukraine came second with $3 billion in exports, with wheat accounting for 48% and maize accounting for 31% (Oluigbo, 2022). Russia stated its intention to considerably increase agricultural cooperation with Africa in 2019. To strengthen its position as a significant contributor to global food security, Russia has increased its exports of wheat to sub-Saharan Africa, agreed to produce vegetable oil with Egypt, pursued meat export deals with Ghana and Morocco, and gave crucial agricultural technology to Lake Tana, Ethiopia (Ramani, 2021). According to Uhl (2021), in the period 2006 to 2014, around 92% of Russian wheat exports were sent to African or Asian nations. For their nutritional needs, some Sub-Saharan African nations are becoming increasingly dependent on Russian wheat imports. Therefore, Russian pricing practices could influence food supply in these developing nations that rely heavily on imports. Zyukin et al. (2020) indicated that Russia has recently become one of the world's top wheat exporters, vigorously pushing its goods in the rapidly rising Asian and African markets. Central and South Africa is a relatively

new and extremely promising sector for Russian exports, with several countries experiencing food insecurity. The insolvency of the poorest nations in need of food limits the increase in export supply. The Republic of South Africa, Nigeria, Kenya, and Tanzania are the top consumers (Rau, 2017). Russia primarily sells to developing and rising nations whose diets are historically dependent on wheat. West Asia consumes 147 kg of wheat per person per year, while northern Africa consumes 136 kg (Uhl, 2021).

The proportions of Ukrainian cereal exports to Europe, Asia and Africa are 32.4%, 43.4% and 23.8%, respectively, of total Ukrainian grain sales abroad. When it comes to wheat, the comparable percentages are 8.9%, 53.6%, and 36.3 percent. The latter indicate that European importers prefer Ukrainian coarse crops, but purchasers from Asia and Africa choose wheat. It seems rational since, on average, poorer and overpopulated Asian and African nations must adapt to low food supplies (Yatsenko et al., 2017). Vasylieva (2020) mentioned that Morocco, Tunisia, and Egypt were the top African consumers of Ukrainian wheat. The latter was the long-term dominant importer, purchasing an average of 41.8% of the wheat exported from Ukraine to Africa. With a share of 65,7%, Egypt was the leading African buyer of Ukrainian maize. These export connections again attest to the significant contribution of Ukraine to global food security. It is accurate since Egypt is the first country in Africa to import the wheat and maize needed to meet the problems of feeding the world's 14th most populated nation. The largest portion of Ukrainian barley sent to Africa, or on average 56%, was sold in Libya. As previously, this Ukrainian contribution to global food security gave the continent's largest importer the desired harvest of coarse grains. According to Turchina, Dashutina & Nechyporenko (2019), Ukraine is a significant grain exporter to Africa, providing both food (wheat) and feed (barley). Egypt, which accounts for 33.6 percent of all Ukrainian exports to Africa, Algeria (19.47 percent), Morocco (8.44 percent), and Tunisia are the biggest buyers of Ukrainian goods (5.08 percent). In 2018–19, countries in Asia, Europe and Africa were the top destinations for Ukrainian grain exports (Shyshkin, Onyshchenko, 2020).

Russia-Ukraine Conflict: Food Insecurity in Africa

Due to its heavy dependence on food imports from Russia and Ukraine, Africa is already experiencing price shocks and disruptions in the supply of basic goods. Turbulence will have an impact on food security in Africa (Union Development Agency, 2022). In addition to these existing problems, the conflict between Russia and Ukraine, two of the world's leading producers of agricultural products, may severely worsen the situation in many African countries. Despite being geographically far from Africa, several African countries depend on imported grains from Russia and Ukraine to meet their consumption demands. Russia and Ukraine produce and export more than 10% of the world's wheat (Balma et al., 20220). Many African countries suffer from food insecurity and rely on food imports to meet their domestic consumption needs. For example, Africa is a net importer of wheat and sunflower oil, and the widespread severe drought of the continent threatens food availability. Most of the poor in these countries spend a large percentage of their income on food, making them vulnerable to changes in food prices. Several African countries rely heavily on imports of goods from Russia and Ukraine, including wheat, maize, and vegetable oil (Alliance for a Green Revolution in Africa, 2022). Food supply in Africa is jeopardized because of the invasion by Russia of Ukraine. Disruption in energy markets and shipping routes; a scarcity of fertilizers and inputs; and the unfavourable "third-party" consequences of sanctions placed on and by Russia all add to the invasion's negative effects and anticipate further food insecurity concerns in Africa (Abu Hatab,

2022). The grain shortage severely limits the capacity of several vulnerable food-importing nations to meet the demands of their customers, particularly in the Middle East, North Africa, and the Sahel. African nations rely entirely on wheat imports from Ukraine and Russia. Egypt, Lebanon and Tunisia all import a significant amount of wheat from Ukraine, accounting for 85 percent, 81% and 50% of their total wheat imports, respectively (Behnassi, El Haiba, 2022).

North African nations are among the most vulnerable to the impact of the invasion on food prices and even more so to supply interruptions, since they purchase more than 25% of their grains from Ukraine and Russia (Mengoub et al., 2022). Existing sanctions on Russia impede commerce in vital goods, such as grain and manure, to Tanzania and Rwanda. This has serious implications for food security in Tanzania, Kenya, Uganda, and Rwanda (Duho et al., 2022). The World Food Programme (WFP) expects considerable interruption in shipments from Odesa to West Africa, especially Nigeria, where 8.7 million people are food insecure, beginning in May 2022, sourcing materials from other locations will result in both time delays and cost increases: the agency's procurement bill is estimated to rise by $23 million per month due to the conflict's influence on supply and costs (Benton et al., 2022). Despite having 60% of the world's fertile land, Africa is a significant importer of food, and the conflict in Ukraine threatens to cut off supply to most of the continent. Millions are now at risk of falling into poverty and starvation, and peace and security may be jeopardized if food insecurity endures. Fourteen African nations rely on Russia and Ukraine for more than half of their wheat imports, while almost half of the continent relies on imports for more than a third of their wheat (World Economic Forum, 2022). Since most African nations fall under the category of Least Developed Countries (LLCs), the poorer nations in Africa will be particularly severely hit by the fallout from Putin's conflict in Ukraine.

The effects of drought, the corona epidemic and Islamic terrorism have already been felt there. The knock-on consequences of Russian aggression in Ukraine, which will worsen famine and poverty in Africa, will aggravate their already precarious condition (Kohnert, 2022). Overall, even in countries that are not significant trading partners of Russia and Ukraine, the war between the two is driving inflationary tendencies to grow. Many fragile countries, including those in Africa, are suffering the consequences of the shock due to the interwoven nature of the world's food markets. The escalation of the Russia-Ukraine war will significantly affect the food and nutrition security of several African countries, as the effects are passed to local markets via the global food supply chain. The increase in food prices caused by the war is disproportionately affecting the weak and disadvantaged groups that spend a substantial portion of their income on food. Africa has an opportunity to develop its food production and commerce networks due to the Ukrainian crisis (Alliance for a Green Revolution in Africa,2022).

Africa's Lessons from the Russia-Ukraine Conflict

Africa now has a historic opportunity to build its enormous, geopolitically secure regional market under the African Continental Free Trade Area (AfCFTA). Supply disruptions have grown because of this multifaceted crisis: pandemic, war, drought, and locusts. Africa should expedite Africa-wide infrastructure and institutional investments, as well as internal changes at the nation level, to achieve the AfCFTA's promise (Mengoub et al., 2022). Longer-term solutions may include increasing food self-sufficiency in African nations and expanding commerce across the continent. The surplus output in well-suited growing sites in Southern Africa could then be transferred to significant net importers such

as Egypt. Increasing productivity will be a key component in this. This automation will require the development of appropriate new types and associated infrastructure (Balma et al., 2022). According to Abu Hatab (2022) to improve food and nutrition security and enhance food systems, African governments and development partners must act promptly and aggressively on short-term challenges while also addressing long-term issues. In the medium term, efforts should be directed towards improving social protection services to improve food availability and the purchasing power of disadvantaged people. Long-term international cooperation is required to strengthen the productive capacity of African food systems, as well as their resilience and preparation to cope with future shocks.

According to Otekunrin et al., the 2020 roadmap for African countries to enhance efforts toward the execution of the nutrition objectives put out includes the following practices:

1. African leaders must prioritize food and nutrition security as the main policy goal.
2. To achieve nutrition-sensitive results, policymakers must collaborate with other important stakeholders (national, commercial, and development partners).
3. African governments must integrate nutrition into agricultural policy, rural development plans, social protection, and education to ensure that nutrition-sensitive content is a component of new policies and significant interventions/programs.
4. African countries are being pressured to adopt climate-Smart Agriculture (CSA) to ensure long-term food security through crop diversification. A cost-benefit analysis (B/C) should be used to support the adoption of climate-tolerant agricultural types.
5. Clearly addressing the problem of hostilities, wars, and terrorist attacks, which are now driving hunger and malnutrition in several African areas.
6. Building resilient food systems in Africa to combat the effects of harsh weather and variability, which impede nutrition progress and other nutrition-related interventions.
7. Provision of up-to-date and appropriate data for more effective and efficient activities in Africa.
8. More has to be done by African governments have to do more to support women's groups. Women must have the opportunity to own or control resources, especially those related to dietary needs, health care, and nutrition.
9. Investing in agriculture and nutrition research to increase nutrient-rich food production

African governments, including the African Union (AU), should remain steadfastly committed to and invest in deepening regional trade relations to realize a very robust African market – by making the African Continental Free Trade Agreement (AfCFTA) the preferred trade bloc – and thus aiding in the promotion of domestic interdependence. This will contribute to reducing the continent's massive reliance on imported commodities. The governments of the region must invest heavily in the infrastructure required to refine their crude oil supply to the local market in the medium to long term. This would allow Africa to reinvest billions of dollars generated by oil refinery products such as gasoline, jet fuel, petrochemical feedstock, waxes and distillates (including diesel fuel, heating oil, and lubricating oils) to protect the African economy from such global shocks. Fertilizer, a by-product of petroleum processing, may also help decrease dependence on foreign fertilizer imports. (Duho et al., 2022). According to Balma et al. (2022), Africa must increase local grain production to prevent challenges to global supply. There is proof that small-scale farmers in Africa can meet their own needs, as well as the metropolitan inhabitants of their

nations. These initiatives often function best when the corporate sector, international NGOs, national and international research institutions, and governments are involved. According to the Union Development Agency (2022), African countries must employ their 60% global share of arable land to produce more food for domestic use and export to other countries. Consequently, fewer people would experience food and nutrition insecurity because of external shocks. Rapid improvement in agricultural and food production and production has been cited as one of the game changing options.

Producers of these commodities must improve their ability to produce and provide to other countries through intra-African trade to prevent future interruptions in the supply chain for wheat and sunflowers throughout Africa. Dodo et al. (2002) argue that regardless of how divisive their actions may seem to the international community and economic specialists, African political leaders and decision-makers should prioritize agriculture and support African farmers. Every country in sub-Saharan Africa should have a strategy and plan in place for its economic growth that includes loan and insurance programs for farmers. Farmers would be protected from market instability and shocks and kept focused on food production with the help of efficient loan and insurance programs. Cooperation between the producers, commercial and civil society sectors should be a part of any policy approach to increase food production, reduce food insecurity, and close nutrition disparities.

Russia and Ukraine conflict: Where is Africa?

A resolution denouncing Russian aggression against Ukraine was put to a vote at the United Nations General Assembly (UNGA) on February 2, 2022. (General Assembly resolution demands an end to Russian offensive in Ukraine, 2022). The only African nation to vote in favour of Moscow was Eritrea. Six countries did not participate to avoid taking a position, while 17 African nations, including South Africa, abstained**.** The resolution was approved with 141 votes in favor, 5 against, and 35 abstentions, with 181 of the 193 nations present. Of the 35 governments that did not participate, 17 were African nations (Blanchard et al., 2022). Nagy & Beng (2022) indicated that for a variety of reasons, emerging nations have mostly remained mute on Russia's invasion of Ukraine. Others believe they have no stake in the battle (much of Africa, Southeast Asia, and the Pacific Islands).

The great majority of nations around the world denounced Russia's conduct. However, several nations with strong political links to Russia elected to abstain from voting despite virtually universal agreement. China, India, South Africa, and Cuba are some of the most significant nations. It is obvious that the justification for those governments' decision to abstain from this specific vote has very little to do with the context of the action and everything to do with their relationship to Russia (Williams, 2022). The fact that Russia never attempted to colonize the African continent and that the Soviet Union backed the anticolonial movement in Africa lends legitimacy to Russia today as a trusted partner. In fact, Russia's investment in oil and gas infrastructure on the African continent frames it as an investor and a strategic partner rather than an extortionist (Babi, 2022). According to a report of the German intelligence agency issued by the Foreign Ministry and a German tabloid, Russia was granted contract permission to develop military bases in Mozambique, Sudan, Madagascar, Egypt, Eritrea, and the Central African Republic. In exchange, Moscow could depend on the backing of African leaders in foreign policy (Ersozoglu, 2021).

One of the key tasks of Russian participation in African governments is to provide protection to African leaders, advise them on political and military concerns, and train local

forces. Russia gains access to natural resources and direct payments from the different countries in return (Voytovych, 2022). Oguine (2022) indicated that Russia and African nations have prospered economically. Both economies implemented regional diversification in the spectrum of items exchanged in terms of rail material, fertilizer, pipelines, and high-tech equipment to strengthen bilateral trade partnerships and economic activity. Russia gave humanitarian help to nations such as Ethiopia, Mali, and Somalia in exchange for a $20 billion debt forgiveness from the Soviet period (Fituni, Abramova, 2020). South Africa should be understood, considering its "desire to see the balance of forces change to reflect the rise of emerging powers", which can be seen in its lack of outright condemnation of Russia's annexation of the Crimea, opposition to western sanctions, and criticism of Russia's exclusion from the Australian G20 Summit (Ambrosetti, 2022).

4. CONCLUDING REMARKS

To achieve food security in Africa, African governments must invest in infrastructure and agriculture. The Africa Union must encourage regional integration in Africa; however, most of the difficulties that African nations face are dealt with alone by African countries; nevertheless, the AU exists to promote collaboration between African countries. African authorities must boost agricultural education to provide agricultural advantages to the population. Africa has the territory and potential to enhance food production on the continent; therefore, food imports can be reduced to increase food security in Africa. The African Continental Free Trade Agreement (AfCFTA) is a strategy in place to promote trade within African countries. This approach can be successful if African leaders can promote regional integration and infrastructure development in Africa to promote self--reliance in the African region. The conflict between Russia and Ukraine has once again shown how important it is to make choices about policy and investment to protect and develop the continent's sustainable, resilient, and inclusive food systems. The African Common Position on Food Systems outlines a strategy for Africa to increase domestic agri-food production while ensuring equitable access to sustainable and nutrient-dense food sources. This strategy also addresses structural weaknesses and vulnerabilities, including poverty and inequality. The long-term transformation of African food systems will depend heavily on how eagerly African countries are to embrace continental and regional solutions to build and maintain better resilience in the face of external shocks.

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Anna WIECZOREK-SZYMAŃSKA[1]

GENDER INEQUALITIES IN THE LIGHT OF EU GENDER MAINSTREAMING ACTIVITIES

This article aims to analyze the scope of equal access to various spheres of socio-economic life among men and women in the 27 EU member states. The theoretical part of this paper is based on a literature review; the empirical part is based on the data collected from secondary data analysis. Secondary data were gathered mainly from related research articles and websites, and Global Gender Gap Reports for 2018–2022. The research shows that both gender equality and women's rights are fundamental principles in the European Union, and many initiatives have been implemented to reduce gender inequalities. Nevertheless, it has been demonstrated that gender inequality is still present in many aspects of life in EU countries: in the labor market, education, health, and political empowerment.

Keywords: The European Union, gender equality.

1. INTRODUCTION

According to Oxford Dictionary of Sports Science and Medicine (Kent, 2007) gender inequality is defined as "Social process by which people are treated differently and disadvantageously, under similar circumstances, on the basis of gender". Therefore, gender inequality affects all areas of life, both public and private, and causes imbalance in access to the labour market, political career, education and training or decision-making processes. Undoubtedly, the issue is important as for example, worldwide, nearly 1 in 4 girls between the ages of 15 and 19 are neither employed nor in education or training – compared to 1 in 10 boys (UNICEF, 2022). Hence this article aims to analyze the scope of equal access to various spheres of the socio-economic life among men and women in the 27 European Union (EU) member states.

The question for the purpose of the research is as follows: What is the present state of gender equality in the access to various spheres of socio-economic life within the EU member states?

The main hypothesis of the paper is: Despite the various gender mainstreaming activities implemented in the EU, gender inequalities in the access to various spheres of the socio-economic life still exist in all of the EU member states.

[1] Anna Wieczorek-Szymańska, University of Szczecin, Poland; e-mail: anna wieczorek--szymanska@usz.edu.pl. ORCID: 0000-0002-2923-2302.

The theoretical part of this paper is based on literature review (the Web of Science Core Collection, EBESCO and SpringerLink databases were used as the main sources of data). The aim of the topic search (that the author carried out in the period of July-September 2022) was to identify publications for the phrases "gender diversity", "gender equality" and "gender inequalities". The empirical part is based on the data collected from the secondary data analysis. The sources of the data were mainly: Global Gender Gap Reports from the years 2018-2022, Eurobarometer surveys, EU legal acts and regulations, EU gender equality strategies, EU publications, studies and reports on gender equality, other documents and reports on gender equality issue available on-line, and web sites of the EU institutions. The data was used to overview actions undertaken in the EU member states to reduce gender inequalities in the access to various spheres of socio-economic lives. It also was used to overview the socio-economic situation of women in the EU member states and to analyze gender gap across EU member states by comparing Global Gender Gap Index of countries that are the most and the least advanced in reducing gender inequalities.

2. GENDER INEQUALITIES IN SOCIO-ECONOMIC LSPHERES OF LIFE

Gender inequality in the labour is widely discussed in literature. C.T. Begeny, M.K. Ryan, C.A. Moss-Racusin and G. Ravetz (2020) state that women are becoming more present in the labour market but at the same time they prove that women who work inside men's dominant professions are more likely to experience discrimination. What is more, Frankiewicz (2020) observed that women fall behind in promotions from the very first step on promotion leader. In consequence, in Western Europe only 17 percent of executive--committee members are women, and women comprise just 32 percent of members of corporate boards for companies listed in Western Europe's major market indexes (exhibit) (Devillard, Sancier-Sultan, de Zelicourt, Kossoff, 2016). Also in the political sphere, women less frequently than men occupy the highest positions (Uwa, John, Dauda, Oyindamola, 2018). According to the United Nations, "women in every part of the world continue to be largely marginalized from the political sphere, often as a result of discriminatory laws, practices, attitudes and gender stereotypes, low levels of education, lack of access to healthcare and the disproportionate effect of poverty on women" (United Nations, 2011). Hence, national, local and public service organizations have much responsibility in encouraging the empowerment of women in their social, political, and economic progress and towards the achievement of gender equality (Narayan-Parker [sic. ed.] 2005). Another significant problem is the wage gap, as across the globe women earn less than men (International Trade Union Confederation 2018). Eurostat publishes regularly updated information on the gender pay gap (GPG) situation in the EU and recent findings by J.M. Landmesser, A.J. Orłowski and M.A. Rusek (2020) show that the gender income gap in each EU country is present. Furthermore, women's situation in the labour market is closely related to inequality in the education sphere. One of the biggest problems is that the inequality, especially in primary education, has a significant impact on the future income and is transferred to the next education levels (Kara, Coskun, 2020). Additionally, gender inequality can be caused by specific educational orientation of women, as they often present gender-stereotypical preferences when choosing fields of study. In consequence, women graduate from fields of study with lower economic returns (Gokulsing, Tandrayen-Ragoobur, 2014; Barone, Schizzerotto, Assirelli, Abbiati, 2019). Therefore, the literature shows that gender inequality still exists and women are still underrepresented worldwide

in various socio-economic spheres of life. For that reason, the author of the article has decided to join the discussion on the issue of gender equality in the EU. The novel aspect of the study is that the author collates the EU most important initiatives for the gender equality with the information about the level of Global Gender Gap Index in the EU member states. Consequently, it is possible to discuss whether the EU gender mainstreaming policy is efficient.

3. EU POLICIES FOR GENDER EQUALITY

The European Union is considered one of the most advanced with regard to the promotion of the issue of gender equality, as for many years the EU has imposed on member states various norms and values to create gender parity in socio-economic life (Jacquot, 2020). Selected diversity and inclusion initiatives of the EU are listed in Table 1.

Table 1. Examples of the EU activities promoting gender equality

Type of the activity	Example of activities
Research framework	1. European Parliamentary Research Service (EPRS) – research conducted in 2018, aimed to assess the cost of gender inequalities in the EU economy (van Ballegooij, Maxom, 2018). 2. European Institute for Gender Equality – research that aims to gather the gender-disaggregated statistics and indicators like Gender Equality Index (monitors and compares gender equality progress across various groups of women and men in the EU over time) (European Institute for Gender Equality, 2022). 3. Eurobarometer – a survey on citizens' perceptions and expectations regarding gender equality policies, conducted for the European Parliament in 2022 (European Parliament, 2021), a survey on women in times of COVID-19 (Ipsos European Public Affairs, 2022).
Legal framework	1. European Convention of Human Rights – adopted in 1950, protects citizens in the European states against human rights violations (European Court of Human Rights, Council of Europe, 2013). 2. The European Social Charter – is a Council of Europe treaty that guarantees a broad range of everyday human rights related to employment, housing, health, education, social protection and welfare (Council of Europe, 1961). 3. Council of Europe Convention on preventing and combating violence against women and domestic violence (Council of Europe, 2011). 4. Directive 2006/54/EC of the European Parliament and of the Council of 5 July 2006 on the implementation of the principle of equal opportunities and equal treatment of men and women in matters of employment and occupation (European Parliament, Council of the European Union, 2006). 5. Council Directive 2004/113/EC of 13 December 2004 implementing the principle of equal treatment between men and women in the access to and supply of goods and services (Council of the European Union, 2004).

Table 1 (cont.). Examples of the EU activities promoting gender equality

Type of the activity	Example of activities
Legal framework	6. Directive 2010/41/Eu of the European Parliament and of the Council of 7 July 2010 on the application of the principle of equal treatment between men and women engaged in an activity in a self-employed capacity and repealing Council Directive 86/613/EEC (European Parliament, Council of the European Union, 2010). 7. Recommendation Rec(98)14 on gender mainstreaming – calls on member states to create an enabling environment to facilitate conditions for: the implementation of gender streamlining in public sector and balanced participation of woman and men in political and public decision making (Council of Europe, 1998). 8. Recommendation CM/Rec(2019)1 of the Committee of Ministers of the Council of Europe on preventing and combating sexism (Council of Europe, 2019). 9. Recommendation Rec (2003) 3 adopted by the Committee of Ministers of the Council of Europe on 12 March 2003 and Explanatory Memorandum on Balanced Participation of Women and Men in Political and Public Decision-Making - calls on the balanced participation of men and women in decision-making bodies in political and public life Council of Europe, 2003). 10. Recommendation CM/Rec (2007)17 of the Committee of Ministers to member States on gender equality standards and mechanisms – provide an extensive list of measures to achieve gender equality in practice (Council of Europe, 2007).
Policy framework	1. Gender Equality Strategy 2020–2025 – the new strategy outlines the goals and priorities of the Council of Europe on gender equality, identifying working methods and main partners, as well as measures required to increase the visibility of the results. The main strategic areas of the strategy are: prevent and combat gender stereotypes and sexism, prevent and combat violence against women and domestic violence, ensure the equal access for women to justice, achieve a balanced participation of women and men in political and public decision-making, protect the rights of migrant, refugee and asylum-seeking women and girls, achieve gender mainstreaming in all policies and measures (Council of Europe, 2020). 2. 2030 Agenda for Sustainable Development – launched in New York in 2015 put a strong emphasis on the empowerment of women – goal 5 of the Agenda (United Nations, 2015).
Financial framework	1. European Social Fund Plus will support the implementation of the European Pillar of Social Rights through supporting actions in the areas of employment, education & skills and social inclusion. The budget is 98,5 billion EUR (Regulation EU 2021/1057). 2. Horizon Europe - the goal is to improve the European research and innovation system, create gender-equal working environments where all talents can thrive and better integrate the gender dimension in projects to improve research quality. The budget is 95,5 billion EUR (Komisja Europejska, 2021). 3. European Regional Development Fund – the main goal is to contribute more, from investment and services in support of female entrepreneurship, to narrowing the gender gap in research and innovation, and improving access to physical, ICT and social infrastructure (European Union, 2022).

Table 1 (cont.). Examples of the EU activities promoting gender equality

Type of the activity	Example of activities
Financial framework	4. Creative Europe – provides EU Funding Opportunities for the Cultural and Creative Sectors in years 2021–2027. The budget is 2,44 billion EUR (European Commission, 2021). 5. The dedicated Commission funding – under the budget for the 'Equality and Rights' and 'Daphne' strands, EUR 261 million is allocated to activities that include the promotion of gender equality, and prevention and combating gender-based violence (European Institute for Gender Equality, 2022). 6. The Invest EU Program - it places an emphasis on measures promoting gender equality across its all four policy windows: the Sustainable Infrastructure Window; the Research, Innovation and Digitization Window; the Small and Medium-sized Enterprises; and the Social Investment and Skills Window (European Institute for Gender Equality, 2022).
Institutional framework	1. European Institute for Gender Equality – was established in 2007 and is a European Union agency that supports the member states' governments and EU's institutions in promoting equality between men and women (European Institute for Gender Equality, 2022). 2. Gender Equality Commission (GEC) – helps to ensure the mainstreaming of gender equality into all Council of Europe policies and to reduce the gap between commitments and the reality of women in Europe. Members of the commission represent each member states and provide advice, guidance and support to other Council of Europe bodies and to member states (Council of Europe, 2022). 3. The European Court of Human Rights – was established in 1959 and the main object is to ensure the observance of the European Convention on Human Rights (The European Court of Human rights, 2022). 4. The European Union Agency for Fundamental Rights – advises the EU and its Member States on fundamental human rights and their implementation in national legislation (FRA, 2022).

Source: Own study.

The research shows that the EU is committed to ensuring gender impartiality in socio-economic life by implementing different types of actions that refer to: the research needed to design effective EU and national gender policies, the legislative mechanisms and policies that help to combat unfair discrimination, the funding opportunities for projects enhancing gender equality and the equality bodies that promote equal treatment of men and women. Furthermore, there are various initiatives carried out in the EU to promote diversity and inclusion. One of the well-known initiatives is the Diversity Charter, which is a written commitment (an initiative promoted by the European Commission) voluntary signed by organizations to promote diversity and equal opportunities in workplace, regardless of age, disability, gender, race or ethnic origin, religion or sexual orientation. It was established in 2011 in France, and has been signed by over 12 000 entities in 26 European countries so far (Forum Odpowiedzialnego Biznesu). Another example is the European Capitals of Inclusion and Diversity Award which is opened to all local authorities in the EU who are making an effort to build fairer societies by promoting diversity and inclusion idea. The award was launched by the European Commission in February 2022 (European Commission, 2022b). Additionally, the European Commission organizes the EU Diversity

Month during which various activities and events (like conferences, mentoring projects, webinars, workshops) take places during the month of May, across the EU member countries. The main goal is to explore how organizations from different sectors can work together to build inclusive workplaces (European Commission, 2022a).

It is clear that the EU policies aim to encourage women to be more involved in socio-economic life. However, the question is whether mainstreaming activities implemented by the EU result in the equal access of men and women to the labour market, the political career, the education system and healthcare. For this reason, it is crucial to analyze gender equality across the EU countries.

4. COUNTRY-LEVEL GENDER GAP

The socio-economic situation of women is well illustrated by the so-called Global Gender Gap Index (GGGI)[2]. The index was created and first used in 2006 by the World Economic Forum. Its methodology has not changed since then, and the index itself is used to measure gender equality (women and men) in a given country. Theoretically, the index can take on values between zero and one, where 0 means a complete lack of gender equality (complete exclusion of women from socio-economic life), and value 1 means complete gender equality (complete lack of discrimination against women in socio-economic life). The Global Gender Gap Index benchmarks the current state and the evolution of gender parity across four key dimensions (World Economic Forum, 2022):

1. Economic Participation and Opportunity. This subindex examines three spheres: the participation gap (that measures the difference between women and men in labour-force participation rates), the remuneration gap (which presents the ratio of estimated female-to-male earned income and wage equality for similar work) and the advancement gap (that is captured using hard data statistics which refer to the ratio of women to men among legislators, senior officials and managers, and to the ratio of women to men among technical and professional workers).
2. Educational Attainment. This subindex is used to present the gap between women's and men's access to education, as well as the country's ability to provide an equal number of men and women in primary-, secondary- and tertiary-level education.
3. Health and Survival. This subindex provides an overview of sex ratio at birth, as well as the rate of life expectancy for both sexes in order to present the differences in health between women and men in a given country
4. Political Empowerment. This subindex measures the gender gap at the highest level of political decision-making. It presents the ratio of women to men in parliamentary positions and in terms of years in an executive office (prime minister or president).

In 2022 the "Global Gender Gap Report" covered 146 countries and benchmarked gender equality among them. The Table 2. presents the GGGI for 27 EU member states in years 2018-2021.

[2] Another well-known index is Gender Equality index published by the European Institute for Gender Equality. It presents the scores and ranks of all the EU member states in six domains – work, money, knowledge, time, power and health and enables the comparison of all 27 countries. Nevertheless, the author did not decide to use the mentioned index, as the latest data for all of the EU member states is from the year 2020.

Table 2. Gender gap in the EU member states

	2018		2019		2020		2021	
The country	The global rank	The score	The global rank	The score	The global rank	The score	The global rank	The score
Austria	53	0.718	34	0.744	21	0.777	21	0.781
Belgium	32	0.738	27	0.750	13	0.789	14	0.793
Bulgaria	18	0.756	49	0.727	38	0.746	42	0.740
Croatia	59	0.712	60	0.720	45	0.733	n.d.	n.d.
Cyprus	92	0.684	91	0.692	83	0.707	93	0.696
Czech Republic	82	0.693	78	0.706	78	0.711	76	0.710
Denmark	13	0.778	14	0.782	29	0.768	32	0.764
Estonia	33	0.734	26	0.751	46	0.733	52	0.733
Finland	4	0.821	3	0.832	2	0.861	2	0.860
France	12	0.779	15	0.781	16	0.784	15	0.791
Germany	14	0.776	10	0.787	11	0.798	10	0.801
Greece	78	0.696	84	0.701	98	0.689	100	0.689
Hungary	102	0.674	105	0.677	99	0.688	88	0.699
Ireland	9	0.796	7	0.798	9	0.800	9	0.804
Italy	70	0.684	76	0.707	63	0.721	63	0.720
Latvia	17	0.758	11	0.785	20	0.778	26	0.771
Lithuania	24	0.749	33	0.745	8	0.804	11	0.799
Luxemburg	61	0.712	51	0.725	55	0.726	46	0.736
Malta	91	0.686	90	0.693	84	0.703	85	0.703
Netherlands	27	0.747	38	0.736	31	0.762	28	0.767
Poland	42	0.728	40	0.736	75	0.713	77	0.709
Portugal	37	0.732	35	0.744	20	0.775	29	0.766
Romania	63	0.711	55	0.724	88	0.700	90	0.698
Slovak Republic	83	0.693	63	0.718	77	0.712	67	0.717
Slovenia	11	0.784	36	0.743	41	0.741	39	0.744
Spain	29	0.746	8	0.795	14	0.788	17	0.788
Sweden	3	0.822	4	0.830	5	0.823	5	0.822

Source: Own study based on World Economic Forum, 2019, 2020, 2021, 2022.

It is interesting to observe that in the pooled sample of the 27 EU member states the gender gap is present in all of the countries. At the same time, the level of gender inequality differs across countries. In some countries, for example Finland, Sweden, Ireland and Germany, the gender gap is the lowest, as all of the four countries are ranked in top ten world economies which closed at least 80% of their gender gaps (the indicator is over 0,8 in the case of those four countries). On the other hand, Cyprus, Romania, Hungary, and Greece are ranked as countries which have not reached the level of 70% in closing the gender gap.

An interesting phenomena is that during the whole observed period only 3 EU countries have constantly improved their ranking (Austria, Czech Republic, Finland). Comparing the

year 2021 against 2018, 13 EU countries improved their ranking (Austria, Belgium, Czech Republic, Finland, Germany, Hungary, Italy, Lithuania, Luxemburg, Malta, Portugal, Spain, Slovak Republic) and 11 countries declined while one (Ireland) kept the same position in ranking. What is worth noticing, 18 EU countries improved in closing their gender gap (the level of GGGI increased) but only 13 of them improved their ranking. This means that the gender gap decreased globally, and despite better GGGI result in 2021 the country is ranked lower. Add to this, Austria and Belgium exhibited the highest improvement in the gender parity score, while Poland has declined the most over years.

Summing up, Europe presents the second-highest level of closing the gender gap with the score of the index 0.766, while North America is the most advanced region with the score of the index 0.769. Consequently, it will take at least sixty years to close the gender gap in EU countries (World Economic Forum 2022).

In order to illustrate cross-country differences in the socio-economic situation of women in the EU the author has decided to compare Finland (with an overall score of 0.860), which tops the index, with Greece, which is ranked the lowest among the EU countries. The table 3. presents detailed data about the two mentioned countries.

Table 3. Gender gap in Finland and Greece

	Finland	**Greece**
Rank (out of 146 countries)	2	100
Global Gender Gap Index	0.860	0.689
Economic Participation and Opportunity	0.789	0.672
Educational Attainment	1.00	0.986
Health and Survival	0.970	0.966
Political Empowerment	0.682	0.130
Year that women received the right to vote	1917	1952
Population sex ratio female/male	1.03	1.04
Labour-force participation rate %	0.882	0.745
Gender pay gap %	17.16	8.91
Estimated earned income	0.724	0.650
Legislators, senior officials and managers	0.599	0.417
Women in parliament	0.835	0.266
Women in ministerial positions	1	0.118
Unemployed adults % of labour force (15-64)	6.21F 7.26 M	19.08F 11.36 M
Workers employed part-time % of employed people	0.50F 0.38M	0.41 F 0.27M
Firms with female majority ownership % firms	9.50	16.50
Share of women's membership in boards %	35.2	19.60
Firms with female top managers % firms	12.9	17.20

Source: own study based on (World Economic Forum 2022).

With regard to the data published by World Economic forum (2022) Finland is ranked as the second best country in achieving gender parity. Thus Finland closed its gender gap in 86%, while Greece is ranked as the country with the least gender parity among all EU

member states, as it closed the gender gap in 68.9%. When it comes to the level of the subindex, both countries (Finland and Greece) report the highest parity on Educational Attainment. In the case of Finland there is a full parity in enrolment in primary, secondary and tertiary education for women and men. In turn, Greece offers equal access to primary and tertiary education both for men and women, but there is still an inequality in enrolment in secondary education, as over 5% more men than women are enrolled in secondary education. The second highest subindex for both countries is Health and Survival, where the gender gap has been closed in over 96%. As a result, in both countries women's healthy life expectancy is comparable to the global average level, as well as sex ratio at birth. Moreover, the maternal mortality is low (3 maternal deaths per 100 000 live births) and almost all of the births are attended by skilled personnel. On the contrary, political empowerment is the sphere where the gender gap remains the widest in both countries, as Finland exhibits a gap of 31.8% and Greece 87%. In practice, those numbers reflect low representation of women in political life. Consequently, in Greece only 21% of all parliamentarians are women (45.5% in the case of Finland), and there is a big disproportion in holding ministerial position, as only 10,53% are women (in comparison there is a full parity in Finland). It is also worth-noticing that women in Greece received the right to vote much later than women in Finland. The second subindex where the gender gap remains large is Economic Participation and Opportunity. Finland and Greece differ from each other according to the mentioned subindex. When it comes to the issue of economic participation, 56.46% of Finnish women are engaged actively in the labour market, either by working or looking for a job. In comparison, only 43.4% of Greek women participate in labour-force. Consequently, in both cases the gender gap is observed. What is more, the estimated earned income is lower for women than for men in both countries. Hence, the wage gap is present in Finland (where women earn 8.91% less than men for similar work), and in Greece (where women earn 17.16% less than men for similar work). In addition, women more often are employed as part-time workers, or are unemployed in both countries. The data presented in the table 3 also shows that in Finland only 37.47% of decision-making positions (legislators, senior officials and managers) are held by women, while in Greece the ratio is even lower and remains at the level of 29.41%. Unfortunately, the same inequalities can be observed in the case of the share of women's membership in boards (only 35.2% of board members are women in Finland and in Greece even less – 19.6%). However, an interesting phenomenon is that Greek women are more often top managers than Finnish ones, as well as there are more Greek firms than Finnish enterprises with female majority ownership.

Regarding to the presented data, it has been demonstrated that gender inequality is still present in many aspects of life: in the labour market, education, health and political empowerment in the EU countries.

5. CONCLUSION

The aim of the study was to analyze the scope of equal access to various spheres of socio-economic life among men and women in the 27 EU member states. To discuss and conclude the most important findings the SWOT analysis can be introduced. Firstly, the most important strengths of the EU gender mainstreaming activities is that equality between women and men still remains one of the major priority in the EU. The EU is committed to eliminating gender imbalance by taking the following types of actions:

1. Conducting research to gather statistics and indicators that illustrate the gender gap,

2. Ensuring legal protection against discrimination: conventions, directives, recommendations,
3. Presenting the policies that promote equality – non-legislative acts and programs that advance equality between men and women,
4. Funding the programs and initiatives that ensure equal access to education, labour market, healthcare etc.,
5. Institutional support: institutions and agencies that monitor, promote and support diversity and inclusion policy,
6. Organizing a variety of initiatives that promote gender awareness-rising.

In consequence, that thanks to different EU initiatives, one can observe the greater participation of women in the European labour market and political life. The life expectancy is longer and European women are better educated. Finally, the strength of EU mainstreaming initiatives is that the gender gap decreases constantly.

On the other hand, empirical analysis of the data drawn from GGGI proves that there are some weaknesses of the EU gender mainstreaming activities. First of all the gender imbalance is still persistent in many aspects of life in the EU. Even though different activities have been implemented, there is no EU country with full parity. However, the EU countries differ from each other by the level of the gender gap. Finland is the most advanced in reducing gender inequalities while Greece presents the lowest level of the GGGI among all EU countries. Moreover, the gender gap has changed during the observed period of 2018–2021. In addition, while in most of the EU countries gender inequality has decreased, in others gender imbalance has widened. At the same time, it is worth noticing that the level of gender inequalities vary depending on the sphere of socio-economic life As mentioned earlier, the lowest women's participation is observed in political empowerment, while the highest parity is on Educational attainment in all the 27 EU member states.

There are some opportunities in the socio-economic environment that favor the introduction of EU gender mainstreaming initiatives. The most important one is the great social support for gender equality in Europe. According to Eurobarometer (2017) 9 out of 10 respondents consider that promoting gender equality is important for the society, economy, and for them personally. On the other hand there are many threats that hinder the implementation of gender equality policies. The most important are as follow:

- gender stereotypes are still present in societies,
- conservative politicians and governments in some of the EU member states that promote traditional roles for women to play in the society,
- economic crisis that means less money spent on gender equality programs,
- unstable geopolitical situation which results in less attention paid on the issue of human capital development programs (while more money is spent on for example defense and armament).

The conclusion that comes from the SWOT analysis is that although there are many strengths of the EU gender mainstreaming policy it still needs to be improved. It is worth noticing the socio-political environment is difficult and unstable. For this reason EU activities for promoting gender equality need to be reinforced but also they need better implementation. Nevertheless, the situation differs across EU countries, and in recent times progress towards gender equality has slowed, stalled or even regressed in some areas (Prpic, Shreeves, Dobreva, 2019). Thus, the gender mainstreaming goal still needs to be achieved at all levels of the EU action. Moreover, it will require a political will and

cooperation at all levels (the EU level and the national level) to eliminate gender stereotyping, gender-based violence and uneven access to labour market and political career. Further research should examine how the gender gap will change in the next few years and what will be the impact of gender-oriented national activities on women's situation.

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