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Digital Transformation of Communication in the System of International Economic Relations

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Abstract: *The purpose of the article was to determine the essence and characterize the main features of the transformation of international communications within international economic relations in the context of the digital economy. The study is based on general scientific and specific research methods, including the analysis and synthesis of scientific literature to systematize approaches to the concept of international communication and its features under the influence of digitalization. Using statistical analysis methods, the dynamics of the E-Government Development Index, E-Participation Index, Telecommunication Infrastructure Index, and Online Service Index were examined to identify key trends and patterns. The comparative analysis showed that international communication within international economic relations has transformed from*



interstate interaction to a multilevel system encompassing G2G (government-to-government), B2B (business-to-business), and P2P (people-to-people) relations. While international interaction was previously evaluated solely by the existence of communication channels, digitalization has made speed, transparency, and integration the main criteria. A comparative analysis of indices characterizing digitalization processes in the field of international relations of three countries — Ukraine, Poland, and Romania — showed that Ukraine demonstrates the highest dynamics of digitalization of public administration, having reached an absolute maximum in the e-participation index in 2024 and taking leading positions in the level of online services. Poland demonstrated the most developed telecommunication infrastructure, while Romania consistently recorded the lowest index values, despite a rapid growth in its infrastructure index. It was established that a characteristic feature of modern international communication is that security is no longer a technical parameter but acquires the status of a geopolitical priority. The imbalance between the level of digital services and the state of telecommunication infrastructure and cybersecurity systems creates significant risks and obstacles under the influence of external threats.

Keywords: *international economic relations, international communications, digital economy.*

**Цифрова трансформація комунікацій у системі міжнародних
економічних відносин**

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Анотація: Метою статті було визначення сутності та характеристика основних особливостей трансформації міжнародних комунікацій у системі міжнародних економічних відносин в умовах цифрової економіки. Дослідження ґрунтується на загальнонаукових і спеціальних методах, зокрема аналізі та синтезі наукової літератури для систематизації підходів до поняття міжнародної комунікації та визначення її особливостей під впливом цифровізації. За допомогою методів статистичного аналізу досліджено динаміку *E-Government Development Index*, *E-Participation Index*, *Telecommunication Infrastructure Index* та *Online Service Index* трьох країн – України, Польщі, Румунії, з метою виявлення ключових тенденцій і закономірностей. Порівняльний аналіз показав, що міжнародна комунікація в системі міжнародних економічних відносин трансформувалася від міждержавної взаємодії до багаторівневої системи, яка охоплює відносини G2G (уряд-уряд), B2B (бізнес-бізнес) та P2P (люди-люди). Якщо раніше міжнародна взаємодія оцінювалася лише за фактом наявності каналів зв'язку, то в умовах цифровізації головним критерієм стали швидкість, прозорість та інтеграція. Порівняльний аналіз індексів, які характеризують процеси цифровізації у сфері міжнародних відносин трьох країн України, Польщі і Румунії показав, що наша країна демонструє найвищу динаміку цифровізації державного управління, досягнувши абсолютного максимуму за індексом електронної участі у 2024 році та зайнявши найвищі позиції за індексами розвитку електронного урядування та онлайн-послуг. Польща продемонструвала найрозвиненішу



телекомунікаційну інфраструктуру, тоді як Румунія серед досліджуваних країн стабільно мала нижні значення показників, попри стрімке зростання інфраструктурного індексу. Встановлено, що характерною рисою сучасного міжнародного спілкування є те, що безпека перестає бути технічним параметром, а набуває статусу геополітичного пріоритету. Дисбаланс між рівнем цифрових послуг та станом телекомунікаційної інфраструктури й систем кіберзахисту створює значні ризики та перешкоди під впливом зовнішніх загроз.

Ключові слова: міжнародні економічні відносини, міжнародна комунікація, цифрова економіка.

Introduction. The rapid development of the digital economy is fundamentally reshaping the nature and tools of international communications, which necessitates a comprehensive study to ensure the competitiveness of states and businesses at the global level. Under conditions of digitalization, new challenges and opportunities for international economic relations, requiring a rethinking of traditional communication models.

Literature review. Many scholars study the issue of communication in international economic relations. Peng D. [10] studies the international communication strategies of radio and television networks and their influence on the transformation of international dialogue, specifying their effect on China. Madikiza, L. & Bornman, E. [7] examine shifting theories of international communication, with a particular focus on interstate interactions at the level of government representatives. International communication as an exchange of information under the circumstances of process of globalization is considered by researches Asema, E. S., Nkwam-Uwaoma, A. O., Kente, J. S., Amah, F. O. [2]. Purba A. R. & Siahaan C. [11] study international communication as a result of interaction at three levels: between governments, business and individuals.



Ukrainian researchers [14] also emphasize the need for new skills in the labor market amid the rise of the digital economy. However, the specific features of international communications in the digital economy remain unexplored. Analysis of the sources indicates a theoretical discrepancy: some scientists (e.g., Madikiza and Bornman) prioritize the study of international communication through diplomatic channels, while modern researchers (e.g., Asemah) focus on technical tools or cultural barriers, allowing a gap in the study of the integration of factors into a single digital ecosystem of international economic relations. Current academic discourse does not cover the comprehensive interpretation of international communication as a multi-level ecosystem that reveal the interaction of G2G, B2B, and P2P levels. Moreover, the observing imbalance between the high indicator of the dynamism of the development of online services and the state of physical infrastructure, which determines the level of national economic security in the conditions of geopolitical threats, remains insufficiently explored.

Aim of the study is to identify and characterize the main directions of the transformation of international communications within international economic relations in the context of the digital economy.

Methodology. The methodological basis of the study comprises general scientific and specific research methods. The analysis and synthesis of scientific literature were used to systematize existing approaches to defining the concept of international communication. The dynamics of E-Government Development Index, E-Participation Index, Telecommunication Infrastructure Index, Online Service Index were examined using statistical analysis. Dynamic analysis was employed to identify trends and patterns in the changes of the indicators.

Results and Discussion. Analysis of contemporary definitions reveals both conceptual convergence and theoretical divergence in international communication scholarship (Table 1). All definitions universally acknowledge the transnational character of the phenomenon, emphasizing communication that transcends national



boundaries between different countries or peoples. The majority conceptualize international communication as a bidirectional information exchange process involving the transmission of ideas, messages, and symbolic interactions rather than unidirectional dissemination.

Table 1**Definitions of international communication**

Definition	Author(s)
International communication includes different communication forms and communication patterns. It can be defined in two complementary ways: narrow and broad. Narrow refers to media like newspapers, radio, TV, films and the Internet, while broad refers to interpersonal, organizational and mass communication. In the narrow sense, international communication is dependent on individual countries.	Peng, D. [10]
...analyses of international communication have traditionally been associated with inter-state and inter-governmental interactions such as diplomacy and government propaganda, in which powerful states dictate the communication agenda (ibid).	Madikiza, L. & Bornman, E. [7]
Global communication refers to the exchange of information, ideas, and cultural expressions across national borders and cultural boundaries on a worldwide scale. It encompasses various forms of communication, including traditional media such as television, radio, and print, as well as digital platforms such as the internet, social media, and mobile technologies.	Grzegorzek, J. [12]
International communication is the type of communication that takes place between or among countries of the globe. It implies that countries of the globe exchange media programmes, ideas and information through information and communication technologies. [...]. International communication refers to the exchange of information, ideas and messages between individuals, organizations or nations across national borders.	Asemah, E. S. et al. [2]
International communication (also referred to as the study of global communication or transnational communication) is the communication practice that occurs across international borders.	Purba, A. R. & Siahaan, C. [11]



As a field of study, international communication is a branch of communication studies, concerned with the scope of “government-to-government”, “business-to-business”, and “people-to-people” interactions at a global level.	
Intercultural business communication is an applied form of ethnography in which a speaker closely perceives and evaluates components of another culture.	Adanlawo, E. F. & Chaka, M. [1]

Summarizing the definitions provided in Table 1, it follows that the concept of international communication is evolving from a linear information transfer to a complex broadcasting system. Contemporary scholarship demonstrates recognition of international communication as a multi-layered phenomenon encompassing government-to-government, business-to-business, and people-to-people interactions. However, significant divergences emerge regarding definitional scope, ranging from narrow approaches focusing on traditional media channels to broad conceptualizations including interpersonal, organizational, and mass communication forms.

The analyzed definitions reveal four primary theoretical orientations: state-centric paradigms emphasizing inter-governmental interactions and diplomacy; technological determinism prioritizing media systems and ICT infrastructure; market-oriented perspectives framing communication within commercial and business contexts; and academic disciplinary approaches positioning international communication as a scholarly field. Definitions also vary significantly in identifying primary actors, from traditional state-centered approaches to contemporary perspectives recognizing non-state actors including private organizations and individuals. Therefore, international communication in the international economic relations is a process of long-term exchange of information between states and companies on a global scale, characterized by the absence of a



common background (cultural, language, etc.), which leads to different perceptions in the context of sharing ideas.

Mentioned quotations lead us to defining the most common effects on the process of communication (Table 2). Thus, the process of international communication is mostly influenced by a set of cultural factors, which are determined by the features and differences of verbal and non-verbal perception of both the information that is disseminated and the direct process of communication.

Table 2**Factors affecting international communication**

Factor(s)	Author(s)
Language is probably the most important element in the communication chain. In a multiethnic world, ethnicity is as important as language.	Bhattacharjee, S. [3]
Cultural sensitivity and adaptability emerged as key factors in successful international communication, underscoring the importance of understanding and respecting cultural differences in communication styles, norms, and values... Effective diplomacy, strategic communication, and public diplomacy initiatives play a crucial role in managing international relations and promoting crosscultural understanding.	Khan, A. [6]
The results show that language, differences in the communication style, business etiquette and stereotyping are the main hampering factors...	Devjak, I., Sabidussi, A., Bezicioğlu- Göktolga, I., Smeets, R. [4]
One of the primary challenges is cultural diversity, wherein differences in language, customs, values, and business practices can impede effective communication, collaboration, and negotiation. Cultural sensitivity and cross-cultural competence are imperative for building trust, fostering relationships, and mitigating misunderstandings in multicultural environments.	Idris, M., Nurhadi, N., Sakinah, S. [5]
Cultural factors were found to significantly impact communication practices in international business. Differences in communication styles, power distance, and attitudes towards hierarchy and authority were observed across	Oland, J. [9]



cultures, influencing how messages were conveyed, received, and interpreted...

Technology was recognized as both a facilitator and a barrier to cross-cultural communication...The organizational culture of multinational corporations was found to play a significant role in shaping communication norms and practices.

Considering that digital transformation is a key lever of modern communication processes, there is a need to analyze indices that include the main indicators of its development. The analysis of the dynamics of international indices (Table 3) made it possible to compare the dynamics of the development of the digital environment of Ukraine and the countries of the European Union (Poland, Romania). EDGI reflects the capacity of national administrations to implement the use of information and communication technologies (ICT) for the provision of services (in particular administrative). Until 2022, Poland held the championship of the indicator, but in 2024, it lost to Ukraine in terms of the pace of digitalization of state processes. Romania is the last country in terms of the level of development of the e-government system.

Analyzing the dynamics of the indicator for Ukraine, it is worth noting that Ukraine showed the fastest growth dynamics among the selected countries. 2018 was marked by a noticeable acceleration in the growth of indicators, and in 2020, the mobile application «Diia» was launched, through which the idea of electronic documents (passport, diploma, child birth and marriage certificate, etc.) was implemented. All three analyzed countries successfully passed the milestone of 0.75, the fact of which allows them to be classified as states with a «very high» level of e-government development.

**Table 3**

Comparative characteristics of digital development indices of Ukraine and EU countries during 2016-2024 [13; 15]

Indicator	Country	2016	2018	2020	2022	2024
E-Government Development Index (EDGI)	Ukraine	0,60756	0,61656	0,71190	0,80290	0,88407
	Poland	0,72108	0,79260	0,85310	0,84370	0,86480
	Romania	0,56114	0,66710	0,76050	0,76190	0,76364
E-Participation Index (EPI)	Ukraine	0,74576	0,68540	0,80950	0,60230	1,00000
	Poland	0,88136	0,89330	0,96430	0,64770	0,75340
	Romania	0,62712	0,70790	0,80950	0,62500	0,68490
Telecommunication Infrastructure Index (TII)	Ukraine	0,39680	0,43640	0,59420	0,72700	0,84280
	Poland	0,58570	0,58050	0,80050	0,83480	0,96030
	Romania	0,45330	0,54710	0,75860	0,79540	0,89220
Online Service Index (OSI)	Ukraine	0,58700	0,56940	0,68240	0,81480	0,98540
	Poland	0,70290	0,93060	0,85880	0,79290	0,80370
	Romania	0,45650	0,65970	0,72350	0,68140	0,65480

EPI shows the quality and effectiveness of online tools to involve citizens in public decision-making. In 2024, Ukraine reached an absolute maximum of – 1.0. A high rating according to the indicator indicates a high level of integration of e-democracy tools. It is worth noting that Ukraine is successfully implementing tools for submitting and signing national petitions through the service of the Official Internet Representation of the President of Ukraine, or locally through the services of territorial communities (for example, the application «Kyiv Digital» operates in the capital). In addition to the specified functionality, other tools are supported (public budgets, online consultations, and others). Analyzing the other countries from the sample, we note the volatility of the indicator of Poland (demonstrated a downward trend in 2024 after reaching a peak in 2020, indicating potential saturation or reprioritization of digital interaction).



TII allows for assessing the physical readiness of countries to introduce digital tools in different fields of activity (Internet penetration, mobile communications, and quality of networks are the index base). Poland tops the list of countries analyzed in 2024, with a more developed technical and accessible base for further development. Instead, Ukraine demonstrates a stable upward trend in development in this area. Romania showed the steepest increase, rising during 2016-2024 period.

OSI provides an assessment of the quality and scope of the public online services provided. According to the results, Ukraine dominates among the analyzed countries in 2024, which confirms the success of «states in smartphones». Romania consistently showed the lowest values of the index: in 2024, it reached the mark of 0.65480. Among the analyzed countries, only Ukraine increased the indicator, which indicates an improvement in the quality of public services provided via the Internet.

Conclusion. The concept of international communication has undergone a transformation from purely interstate interaction to a multi-level system that covers G2G (government-to-government), B2B (business-to-business), and P2P (people-to-people) relations. Digitalization has undergone a shift in focus from the effectiveness of the functioning of information channels to their efficiency. Digital transformation, which is actively implemented by modern states, greatly simplifies the processes of exchange of information and ideas at the global level. The successful implementation of the “state in a smartphone” concept brought Ukraine to the leading positions in the EDGI, EPI, and OSI indices, allowing it to overtake EU countries such as Poland and Romania in terms of the pace of development of digitalization of public services.

The scientific novelty of the obtained results is as follows: theoretically, the concept of “international communication” has been improved through the interpretation as a multi-level ecosystem that covers the interaction of G2G, B2B,



and P2P levels, which made it possible to shift the focus from traditional interstate interaction to inclusive exchange of information between all subjects of the global market; empirically, based on the comparative analysis of indices (EDGI, EPI, TII, OSI), the regularity of the “digital gap” between the high indicator of the dynamism of the development of online services and the state of physical infrastructure, which determines the level of national economic security in the conditions of geopolitical threats, was revealed.

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