Glocal Dimensions of the Safe Development of Marketing Communications of Transnational Corporations

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Abstract: The article considers glocal dimensions of the safe development of marketing communications of multinational corporations (TNCs). A comprehensive methodology for identifying and assessing the impact of factors on the safe development of marketing communications of TNCs in the glocal dimension of the attractiveness of investment and innovation environment, taking into account the brand configuration of corporations between countries to model their differences in the food market is developed. It is substantiated that measures for the safe development of global marketing communications of TNCs are aimed at benefiting from the standardization of their goods (or services), focusing on global (non-individual) human values and consumer homogenization, defining a common marketing strategy for TNCs to avoid costs, associated with the unfounded globalization of differentiation of goods (services) or means of their promotion. It is proved that the integrated approach to understanding the nature of the innovation process of TNCs in marketing communications allows the implementation of investment and innovation projects while the corporation has three advantages (existing in relation to the firm as "inside", i.e. benefits of ownership and internationalization, and "outside", i.e. location advantages, the content of which is determined by motives (horizontal, vertical, export platforms or complex).

1. INTRODUCTION

Multiconceptuality of the world order, transnationalization, digitalization and institutionalization determine the development of the modern world economy. At the same time, at the intersection of the processes of integration and disintegration, convergence and divergence, homogenization, a process was formed that combines globalization and localization – glocalization (Appadurai, 1996; Bekh, 2016; Berikbaeva et al., 2020). Therefore, it is important to understand and research the impact of glocalization on the world economy and international economic relations (Brady, 2011;

Dreher, 2006; Azieva et al., 2021). The need for the foundation of economic glocalization is due to the modern development of the marketing environment of multinational corporations (TNCs), which empirically confirms the effectiveness of the global approach in the activities of corporations. These issues are especially relevant for increasing the competitiveness of corporations in foreign markets and for the realization of European integration aspirations of states (Dumitrescu and Vinerean, 2010; Hermeking, 2006; Yu et al., 2022).

The functioning of TNCs as open socio-economic systems is unstable and dynamic and forces them to adapt to new communicative conditions, which requires knowledge of the laws of the development and finding ways of normal, stable and productive activities, taking into account external and internal threats (Hill, 2013; Jian, 2014; Kataeva et al., 2019). The

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Fig. (1). Glocalization Process of the Safe Development of Marketing Communications of TNCs.

Source: built by the authors according to data (2014; 2001).

glocal dimensions of TNC marketing in the field of material production in the face of fierce market competition in the world are always projected for the timely prevention of losses, risks, catastrophes, as well as care for the life and health of staff, their material well-being (Khondker, 2004; Mitchell, 1914). At the same time, optimization measures of the marketing system to improve the quality of process and innovative communication approach of TNC subsidiaries to ensure profitability and business sustainability form an integrated complex within and outside the region, operating in a global market economy, and is usually a complex object pressured by a world competitive environment (Negm, 2016; Sharma, 2013; Kisiołek et al., 2022).

TNCs are the owners of technical and commercial information, intellectual property and trademarks, the unauthorized use of which poses a threat to the development of the company's marketing. This is because the state of the safe development of TNCs is the largest city-forming investment foundation of national security in general (Solomon, 2018; Trends B2B-Marketing, 2020). Theoretical and practical issues of safe marketing development of corporations were studied by such scientists as K. Aswathappa (2010), C. Barlett, S. Ghoshal (1989), D. Brady (2011), Z. Brzezinski (1970), S. Dacko (2008), C. Hill (2013), A. Jones (2006), H. Khondker (2004), R. Wike, B. Parker (2015). General scientific problems of globalization of the world economy and international economic relations were considered in the works of A. Appadurai (1996), K. Bekh (2016), A. Dreher (2006), L. Dumitrescu, S. Vinerean (2010), G. Ferraro, E. Briody (2017), G. Hofstede, G. Hofstede, M. Minkov (2010), M. Jian (2014), H. Khondker (2004), Y. Luo (2007), D. Sharma (2013). Issues of localization and cultural differentiation in the economy were studied by T. Kramer, L. Block (2008), A. Deaton (2011), M. Hermeking (2006), W. Mitchell (1914), M. Solomon (2018). However, theoretical and methodological aspects of the glocal dimension of the safe marketing of TNCs require further study in issues related to the formation of a mechanism for managing and evaluating a

safe level of marketing transnationalization, measuring the performance of corporations, building performance indicators at a cost-effectiveness ratio, determined by the payback period of TNC investments and the costs of its creation (Trusova et al., 2021a; Wind et al., 2013).

The priority of our study is to develop a comprehensive methodology for identifying and assessing the impact of factors on the safe development of marketing communications of TNCs in the glocal dimension of attractiveness of investment and innovation environment, given the brand configuration of corporations between countries to model their differences in the food market.

2. MATERIALS AND METHODS

An integrated approach to the evaluation of global and local measures of investment and innovation environment of marketing communications of TNCs combines methods of analytical support, namely ETON, PEST, SLEPT, PESTLE, STEEPLE. At the same time, the priority of this set of methods is given to STEELE-analysis, as it identifies ethical (cultural) factors influencing the activities and scope of territorial coverage of marketing communications by corporations in the market of goods (services) (Aswathappa, 2010; Miethlich et al., 2022).

Peculiarities of the ethical dimension in the economic sphere have been studied more from the point of view of cross-cultural management (Hollenses, 2014). However, ethical (cultural) and other components of STEELE-analysis are very important for the marketing communications of TNCs, which operate in a heterogeneous investment and innovation environment of the world. This applies to the characteristics related to the needs, tastes and preferences of local consumers (Fig. **1**).

Measures for the safe development of global marketing communications of TNCs are aimed at benefiting from the standardization of their products (or services), focus on glob-

al (non-individual) human values and consumer homogenization, defining a common marketing strategy for TNCs to avoid costs associated with unreasonableness on a global scale of differentiation of goods (services) or means of their promotion. Local marketing communications are more responsive to local changes related to consumers, competitors or other factors influencing TNCs (without waiting for the decision of the parent company), taking into account economic, political, social, cultural and other differences between countries to avoid costs, associated with the mistakes of TNCs due to lack of data on the national characteristics of individual markets (Vignali, 2001; Kisiołek et al., 2021; Ketners and Petersone, 2021). Accordingly, to carry out the STEELE-analysis of the attractiveness of the investment and innovation environment of marketing communications of

TNCs, it is proposed to take into account the system of indicators (indices calculated for the world countries by international organizations) (Table **1**).

Thus, the measurements of the investment and innovation environment of marketing communications of TNCs are qualitative rather than quantitative indicators. Accordingly, the traditional marketing mix "4P" (product, price, place, promotion) builds a platform for marketing communications, global brands which in different countries have a communicative capacity. At the same time, in the international markets of the countries where the respect of corporations for the national characteristics of consumers has a crucial mission, there are clear positions for the safe development of local brands (Zhansagimova et al., 2022).

Table 1. System of Indicators of STEELE-Analysis of Attractive Investment and Innovation Environment of Marketing Communications of TNCs.

Measurement of Steele-Analysis	Measurement Indicators	Sub Measures of Calculated Indicators	Indicators of the Impact on the Investment and Innovation Environment of Marketing Communications of TNCs
(S-Social)	Social Progress Index, developed by Social Progress Imperative with the support of Deloitte company	1. Basic human needs. 2. Nutrition and basic medical care. 1.2. Water supply and sanitation. 1.3 Protection. 1.4 Personal security. 2. Fundamentals of well-being. 2.1. Access to basic education. 2.2. Access to information and means of communication. 2.3. Health and well-being. 2.4. Environmental conditions. 3. Opportunities. 3.1. Personal rights. 3.2. Personal freedom and law. 3.3. Tolerance. 3.4. Access to higher education.	Availability of target consumers; social status of consumers, their needs and interests; purchasing power of consumers; prices for complete goods; prices for competitors' products and substitutes; logistics opportunities in the country; consumer access to the corporation's goods in accordance with the existing network of sales of goods; level of consumer education, ability to read and understand advertising appeals in a certain language; access of consumers of certain segments of the population to the mass media; Mass media that provide maximum consumer coverage.
(T-Technological)	Information and Communication Technology Development Index (ICT Development Index) of the International Telecommunication Union	1. Access to information and communication technologies (ICT). 2. Use of ICT. 3. ICT skills.	Consumer requirements for product innovation and packaging; conformity of the goods to the technological standards of the country; willingness of consumers to pay more for more innovative products; conditions of storage and transportation of goods; level of ICT development; technological level of mass media development in the country and its coverage of consumers.
(E-Economic)	The Global Competitiveness Index of the World Economic Forum	1. Institutes. 2. Infrastructure. 3. Use of ICT. 4. Macroeconomic stability. 5. Healthcare. 6. Qualification of labor resources. 7. Commodity market. 8. The labor market. 9. Financial system. 10. Market size. 11. Business activity. 12. Innovative opportunities.	The growth rate of the country's economy; market conditions where the corporation operates; the level of monopolization and market concentration in the sphere of the corporation's activity; market saturation; demand and supply for competitors' products and substitutes; the level of inflation and the exchange rate of the national currency against foreign currencies; raw material prices; level of transport infrastructure development; level of development of marketing services.
(E-Environmental)	The Environmental Performance Index, compiled by special units of Yale and Columbia Universities in collaboration with the World Economic Forum, the Samuel Family Foundation and the McCall McBain Foundation	1. Air quality. 2. Water and sanitation. 3. Heavy metals. 4. Biodiversity and the natural environment. 5. Forests. 6. Fishing. 7. Climate and energy. 8. Air pollution. 9. Water resources. 10. Agriculture.	Conformity of packaging and composition of goods in relation to climate and environmental standards of the country; willingness of consumers to pay more for goods that better meet environmental standards; the impact of climate on the conditions of storage, transportation and sale of goods; corporate social responsibility requirements.
(P-Political)	Worldwide Governance Indicators	1. The right to vote and report. 2. Political stability and absence of	Government influence on business; lobbying and other business influence on government; government policies for the

		terrorist or other acts of violence. 3. Efficiency of public administration. 4. Quality of regulation. 5. Rule of law. 6. Fight against corruption.	development of the internal market, certain industries and certain goods; the attitude of the authorities to certain groups of the population who are the target consumers of the corporation's goods; stability of the political situation; state influence on the distribution channels of goods; dependence of the mass media on the power structures, the level of political involvement and bias of the mass media.
(L-Legal)	The World Justice Project (WJP Rule of Law Index)	1. Limitations of state power. 2. Lack of corruption. 3. Open government. 4. Fundamental rights. 5. Order and security. 6. Regulatory law enforcement. 7. Civil proceedings. 8. Criminal proceedings.	Legal regulation of business issues (in particular, antitrust law), type and composition of goods, their packaging, requirements for certification and labeling of goods; state regulation of prices; the amount of taxes, fees, tariffs, including customs; legal regulation of storage, transportation and sale of goods; legal regulation of advertising activities.
(E-Ethical)	G. Hofstele model	1. Individualism (collectivism). 2. Long (small) distance of power. 3. Strong (weak) avoidance of uncertainty. 4. Masculinity (femininity). 5. Long-term (short-term) orientation. 6. Indulgence (restraint).	Religion, traditions, cultural and linguistic features, tastes and preferences of consumers, superstitions, signs and prejudices; traditional connections between the links of the distribution channels.

Source: compiled by the authors.

A typical example of glocal marketing communications is the consumer goods industry (FMCG), due to common universal needs, consumers in different parts of the world can buy and use the same goods. Brand configuration of goods (services) of TNCs provide the ratio of global and local brands in the investment and innovation portfolio of corporations with their characteristics and product promotion system between the countries of the world (1) (Bekh, 2016):

$$I_{BG} = \frac{GB_1 + GB_2}{AB_1 + AB_2}, \qquad (1)$$

where, I_{BG} – index of globalization of brands of the corporation in two countries – $I_{BG} \in [0; 1]$; GB_1 – the number of global brands of the corporation in the leading country – $GB_1 \in [0; +\infty]$; CB_2 – the number of globalization of brands of the corporation in the two countries under study – $I_{BG} \in [0; 1]$; AB_1 – the total number of global and local brands of the corporation in the leading country – $AB_1 \in [1; +\infty]$; AB_2 – the total number of global and local brands of the corporation in the competitor country – $AB_2 \in [1; +\infty]$.

Since global brands of TNCs in two countries are defined as brands that have common characteristics $GB_1 = GB_2 = GB$, then formula (2) takes the following form (Bekh, 2016):

$$I_{BG} = \frac{2GB}{AB_1 + AB_2}, \qquad (2)$$

where, GB – the total number of global brands of the corporation in one of the two countries under study, $GB \in [0; +\infty]$.

The closer I_{BG} to 0 for a certain pair of countries, the more local brands of the corporation are in these two countries. The closer I_{BG} to 1.00, the more common (global) brands of the corporation are in the two countries. Accordingly, these countries have common features (characteristics) of marketing communications to promote global and local brands of the corporation. In this case, if one of the brands appeared in one country, and is not yet included in their total in the other country and the official website of the corporation, then it is not taken into account in the calculation I_{BG}.

In contrast to I_{BG} the brand localization index is used for the two countries where the corporation sells its products (3) (Cyr, D and Trevor-Smith, 2004; Ferraro and Briody, 2017):

$$I_{BL} = \frac{LB_1 + LB_2}{AB_1 + AB_2}, \qquad (3)$$

where, I_{BL} – index of localization of brands of the corporation in the two countries under study – $I_{BL} \in [0; 1]$; LB_1 – the number of local brands of the corporation in the leading country – $LB_1 \in [0; +\infty]$; LB_2 – the number of local brands of the corporation in the two countries under study – $I_{BG} \in [0; 1]$; AB_1 – the total number of global and local brands ("All Brands") of the corporation in the leading country – $AB_1 \in [1; +\infty]$; AB_2 – the total number of global and local brands of the corporation in the competitor country – $AB_2 \in [1; +\infty]$.

The index I_{BL} is also calculated through other indicators (4) - (5) (Cyr, D and Trevor-Smith, 2004; Ferraro and Briody, 2017):

$$I_{BL} = \frac{AB_1 + AB_2 - 2GB}{AB_1 + AB_2}, \qquad (4)$$

$$I_{BL} = 1 - I_{BG}. \qquad (5)$$

Definition I_{BG} (or also if necessary I_{BL}) for TNC brands is a tool for glocal measurement of marketing communications,
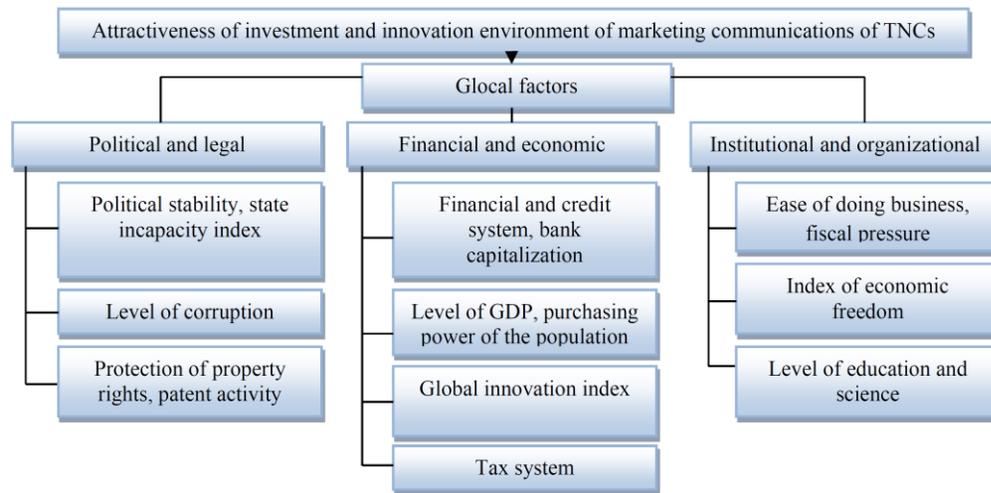
Fig. (2). Glocal Factors Influencing the Level of Attractiveness of Investment and Innovation Environment of Marketing Communications of TNCs.

Source: built by the authors.

as the model is responsible for expanding the range of goods (services) of the corporation. Given the presence of a brand configuration in the food industry, it is possible to calculate the volume of promotion of TNCs in the world. This allows identifying the leading countries with the most common brands in the market of goods (services), their competitiveness and conditions for their safe operation in the investment and innovation environment, taking into account the resource conditions of the innovation process in the marketing system to meet consumer needs through communications in a world trade network (Bekh, 2016; Cyr and Trevor-Smith, 2004; Ferraro and Briody, 2017).

An integrated approach to understanding the nature of the innovation process of TNCs in marketing communications allows the implementation of investment and innovation projects while the corporation has three advantages (existing in relation to the firm as "inside", i.e. benefits of ownership and internationalization, and "outside", i.e. benefits locations, the content of which is determined by motives (horizontal, vertical, export platforms or complex).

At the same time, for the effective functioning of the marketing system and its resources, secure marketing communications, allows TNCs to use innovations to develop global and local brands at the national level. This contributes to the implementation of programs aimed at ensuring the attractiveness of the investment and innovation environment of the corporation for the host country. The relationship of glocal factors that affect the level of attractiveness of the investment and innovation environment of marketing communications of TNCs is shown in Fig. (2).

Authors are should note that ensuring the level of attractiveness of investment and innovation environment of marketing communications of TNCs is a complex, multifactor, weakly structured process, characterized by a high degree of uncertainty, the presence of a large number of direct and indirect relationships between factors measured in different scales, both qualitative and quantitative. One of the promising approaches to the analysis of weakly structured problems, in our opinion, is the analysis of cognitive maps – cognitive

modeling, which is a model of interconnected ideas of experts on the laws of the safe development of marketing communications and the manifestation of elementary semantic uncertainty on direct and indirect connections of glocal factors in different qualitative and quantitative scales (Goudreau, 2013).

The cognitive map is represented by a functionally oriented graph, in which concepts (vertices) are the basic glocal factors of the safe development of marketing communications of TNCs, and arcs – functional dependence between them (Vengerova et al., 1993; Jakubik et al., 2017):

$$G = (V_i, E_i),\qquad(6)$$

where, $V_i, i = 1, 2, \ldots, k$ – vertices (concepts) – elements of the studied system, which mutually unambiguously correspond to the basic glocal factors of the safe development of marketing communications of TNCs in terms of real investment and innovation process (many factors of the system or process under study); $E_i, i = 1, 2, \ldots, k$ – arcs that reflect the relationship between concepts (V_i), which are determined through the identification of causal chains and characterize the influence of any factor on others (many causal relationships).

The influence of factors (V_i) on the safe development of marketing communications of TNCs can be positive, when the increase (decrease) of one glocal factor leads to an increase (decrease) of another, or vice versa, negative or absent (0).

The cognitive map, in addition to the graphical configuration in the form of a graph, can be represented by an incidence matrix A_G. In this case, the relationship a_{ij} may have a sign «+1» or «-1» (Vengerova et al., 1993):

$$A_G = |a_{ij}|_{k \times k}, a_{ij} = \begin{cases} 1, if\ V_i\ affects\ to\ V_j \\ 0, if\ V_i\ doesn't\ affect\ to\ V_j, \end{cases}\qquad(7)$$

Table 2. Aggregate Cognitive Model of the Basis of Glocal Factors Influencing the Level of Attractiveness of Investment and Innovation Environment of Marketing Communications of Multinational Corporations to Introduce a Brand of Goods (Services).

The name of the Glocal Factor	Glocal Factor Type	The Name of the Glocal Factor	Glocal Factor Type
V 1. Economic growth rates	basic	V 8. Human Development Index	basic
V 2. Index of political stability	basic	V 9. Fiscal pressure	danger factor
V 3. Index of incapacity of the state	basic	V10. GDP / people	basic
V 4. Property protection index	danger factor	V 11. Growth rate of FDI in the world economy	external
V 5. Corruption index	danger factor	V 12. Index of innovative attractiveness	target
V 6. Ease of doing business	danger factor	V 13. The amount of investment costs for innovation	danger factor
V 7. Economic freedoms	basic	V 14. Direct foreign investment	target

Source: generated by the authors according to data (2016; 2006; 2009; 2002).

Table 3. Matrix of Cognitive Incidents (Relationships) Between Glocal Factors Influencing the Level of Attractiveness of Investment and Innovation Environment of Marketing Communications of TNCs.

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14
V1	fx	f·	f·	f·	f·	f·	f·	f+	f·	f·	f·	f·	f+	f·
V2	f+	fx	f+	f+	f+	f·	f+	f·	f·	f·	f·	f+	f.	f+
V3	f+	f+	fx	f+	f+	f+	f+	f·	f·	f·	f·	h+	=+	h+
V4	h+	h·	h·	hx	h·	h+	h+	h·	h·	h·	h·	h+	h+	++
V5	g+	f+	f+	f+	fx	f+	f+	f+	f+	f+	f+	f+	f+	f+
V6	f+	f·	f·	f·	f·	fx	f+	f·	f·	f+	f·	f·	f+	++
V7	f+	f·	f·	f·	f·	f+	fx	f+	f·	f·	f·	f·	f+	f+
V8	f+	f+	f·	f·	f·	f·	f·	fx	f·	f·	f·	f+	f+	f·
V9	f+	f+	f·	f·	f+	f+	f+	f·	fx	f+	f·	f+	f·	f·
V10	f·	f·	f·	f·	f·	f·	f·	f+	f·	fx	f·	f+	f·	f·
V11	f+	f·	f·	f·	f·	f·	f·	f·	f·	f+	fx	f·	f·	f+
V12	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+	fx	f+	f+
V13	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+
V14	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+	f+

Note: "+" – the presence of the influence of factors; "•" – no influence of factors.

Source: built by the authors.

Cognitive modeling of the attractiveness of investment and innovation environment of marketing communications of TNCs involves the use of tools that allow to determine the amount of investment to finance innovative projects of TNCs; to identify implicit relationships in the system of investment innovations of TNCs; to structure and formalize the processes taking place in the society of the separate country – the recipient; to study the development trends of the environment in which the system of investment innovations of TNCs should exist; to predict the directions of the safe development of marketing communications and their interaction in the investment mechanisms of innovation activities of TNCs and in the host country (Krugman, 2009; Svensson, 2002; Konurbayeva et al., 2015). The aggregated cognitive model, which gives an idea of the structure of interrelated glocal factors influencing the level of attractiveness of the investment and innovation environment of marketing communications of TNCs in attracting investment in innovative projects, is presented in Table **2**.

At the preliminary stage of the analysis to study the degree of interaction between glocal factors based on the developed aggregate model a cognitive map is built that reflects the links and influences between these factors (Table **2**), which form the investment and innovation environment of marketing communications of the host country with the aim of introduction of a brand of goods (services) (Table **3**). Further analysis is to build a functional cognitive model in which each relationship between the factors of the cognitive map is revealed through the corresponding equations, which may

Table 4. Non-Financial TNCs in the World with the Highest Index of Transnationalization in 2010-2020.

Corporation	Year of Rating	Country of Origin	Industry	Transnationalization Index,%
Xstrata plc	2010	Great Britain	Mining	94.1
Linde AG		Germany	Chemical	89.5
ArcelorMittal		Luxembourg	Mining and metalworking	89.4
Pernod Ricard SA		France	Food	88.8
WPP Group plc		Great Britain	Advertising, media communications	88.1
Vodafone Group plc		Great Britain	Telecommunications	87.0
Nestle SA		Switzerland	Food	86.6
AkzoNobel		Netherlands	Pharmaceutical	85.2
Nokia		Finland	Telecommunications	84.2
Thomson Reuters Corporation		Canada	Publishing, consulting, software, media communications	83.8
Rio Tinto plc	2020	Great Britain	Mining	99.4
John Swire & Sons Limited		Great Britain	Logistics	98.6
Broadcom Limited		Singapore	Radio electronic	96.2
Anglo American plc		Great Britain	Mining	96.1
British American Tobacco plc		Great Britain	Tobacco	94.8
Altice NV		Netherlands	Telecommunications	94.8
Nestle SA		Switzerland	Food	91.3
Schneider Electric SA		France	Energetics	91.3
Nokia OYJ		Finland	Communication equipment	91.1
Medtronic plc		Ireland	Medical equipment	89.8

contain both quantitative and qualitative variables. The quantitative values of the variables in the model are displayed in absolute numerical values. Each qualitative variable is associated with a set of linguistic variables that reflect the different states of this variable; and each linguistic variable corresponds to a certain numerical equivalent on a scale from -1 to +1 (Gygli et al., 2018).

Source: calculated by the authors according to data (2020). Accordingly, the use of such a factor as "corruption" in the matrix model affects all the studied indicators. In the future, using the constructed cognitive map and matrix model, provided the calculation of correlations between indicators, we can investigate in detail how much influence a factor has on the attractiveness of investment and innovation environment of marketing communications of TNCs when deciding to invest in brand innovation.

The matrix model shown in Table **3** allows imagining the presence or absence of influence between factors. For example, such an indicator as "ease of doing business" affects the rate of economic growth, economic freedom, GDP per capita, the index of innovation attractiveness, the cost of innovation and foreign direct investment. In turn, the indicator itself ("ease of doing business") is influenced by the following indicators: index of state incapacity, index of property rights protection, index of corruption, economic freedom, index of innovation attractiveness, the cost of innovation, foreign direct investment. Thus, there are separate factors that directly and indirectly affect the indicator, and vice versa. At the same time, certain factors affect each other: so the ease of doing business affects the level of economic freedoms, the factor of economic freedoms affects the level of ease of doing business (Kerimkulov et al., 2015; Kubiczek and Derej, 2021). At the same time, even a simplified approach to the analysis of the sign cognitive map gives an idea of the global impact of such a negative factor as the "level of corruption", which leads to a significant outflow of investment even according to official statistics (Bekh, 2016; Svensson, 2002; Cherunova et al., 2018).

3. RESULTS AND DISCUSSION

The world economy is being transformed under the influence of transnationalization processes not only quantitatively but also qualitatively. A comparison of TNC ratings for 2010 and 2020 (Table **4**) allowed us to identify those corporations that have the highest index of transnationalization.

Thus, among the corporations with the highest index of transnationalization in 2010, corporations with TV and media communications prevailed, and in 2020 – high-tech in-

Table 5. Ratings of Countries with the Highest Globalization Index (Calculated By Different Methods).

Globalization Index	Globalization Index "KOF" (Calculated by the Swiss Institute of Economics)	Globalization Index (Calculation of Organizations "Bertelsmann Stiftung" and "Prognos"	Global Connectivity Index (Company Calculation) "DHL"	Global Connectivity Index (Company Calculation) "Huawei"
Measurements of globalization, which are included in the calculation of the index	1. Economic 2. Social 3. Political	1. Economic 2. Social 3. Political	1. Trade 2. Capital 3. Information 4. People	1. Proposal (ICT) 2. Demand (for ICT) 3. Experience (in the field of ICT) 4. Potential (development of digital economy)
10 countries with the highest rates	1. Belgium 2. The Netherlands 3. Switzerland 4. Sweden 5. Austria 6. Denmark 7. France. 8.Great Britain 9. Germany 10. Finland	1. Ireland 2. The Netherlands 3. Belgium 4. Switzerland 5. Denmark 6. Sweden 7. Austria. 8. Great Britain 9. Finland 10. Hungary	1.The Netherlands 2. Singapore 3. Ireland 4. Switzerland 5. Luxembourg 6. Belgium 7. Germany 8. Great Britain 9. Denmark 10. UAE	1. USA 2. Singapore 3. Sweden 4. Switzerland 5. Great Britain 6. Finland 7. Denmark 8. The Netherlands 9. Norway 10. Japan
Ukraine's position number in the ranking	49	-	63	50
The total number of countries to calculate the index	185	42	140	79
The ratio of the number of Ukraine's position in the ranking to the total number of countries	0.26	-	0.45	0.63

Source: compiled by the author according to data (1970; 2004; 2010; 2014; 2020; 2020).

dustries of various directions. At the same time, despite the fact that TNC "Nestle" belongs to the food industry, it maintains high rates of transnationalization. It is also worth noting the increase in the number of TNCs in the UK.

The choice of tools for marketing communications of TNCs depends on the capabilities of technological development of each country. Quantitative indicators of the level of technological development of countries are determined by the index of the development of information and communication technologies (ICT). In 2020, the highest positions in this index were received by such countries as Iceland, South Korea, Switzerland, Denmark, Great Britain, Hong Kong, the Netherlands, Norway, Luxembourg, and Japan. Ukraine ranked 79th out of 176 countries in the world. According to the global innovation index in 2020, the countries with the highest rates were Switzerland, Sweden, the Netherlands, the United States, the United Kingdom, Denmark, Singapore, Finland, Germany and Ireland. Ukraine took 50 place among 127 countries. During the period 2017-2020, the share of Internet advertising in the total advertising costs in the world increased from 37.6% to 44.6%, which amounted to about 295 billion USD per year (Soumitra Dutta et al., 2020). New

methods of Internet advertising have appeared. In particular, it is advertising with the use of face and object recognition technologies, which the company "Alphabet" ("Google") bought 100% "Viewdle" in 2012 – a startup based in Ukraine (Orudzhaliev, 2012). Among the newest tools of marketing communications in real time are: services for searching in the mass media and social media ("Google", "Yahoo!"), tools for graphical analysis ("Google Trends", "BlogPulse"), services for searching blogs ("Google Blog Search", "Technorati", "Twingly", "IceRocket"), information services ("Google Alerts"), search tools in "Twitter" ("TweetDeck", "Twiner search", "Hootsuite") (Trends B2B-Marketing, 2020). The newest tool of marketing communications is "Search As Signal" (SAS), ((developed by the company "Google" and advertising agency "Mindshare WPP"), which helps brands to quickly track new trends and adjust the cost of media advertising. The tool gives marketers access to search query trends that are differentiated by country and region. With this tool, sales of goods increased by 40% (The world's top 100 non-financial…, 2020).

One of the biggest dangers faced by corporations entering other countries' markets is the danger of not being aware of

the specifics of other cultures. Introduction of business in another culture requires adaptation to the system of values and norms of this culture, i.e. (Brzezinski, 1970; Cyr, D and Trevor-Smith, 2004; Hofstede et al., 2010; Hollenses, 2014; Orudzhaliev, 2012; Vengerova et al., 1993): preparedness for unusual behavior of foreign partners in negotiations, anticipation of their behavior and gaining commitment; avoiding the contradictions of the advertising company with the cultural traditions of a particular country; determining the type of goods that have advantages in a particular country; adaptation of consumer goods to the cultural and religious traditions of a country; taking into account the specific tastes and preferences of consumers in a particular market; anticipation of the emergence of major competitors; avoiding the negative influence of language and religious groups when choosing a country to locate production facilities and do business. That is, world-class multiconceptuality, transnationalization, digitalization and development of new technologies, global institutionalization are the newest determinants of the safe development of glocal marketing communications of TNCs through social, technological, economic, environmental, po-

litical, legal and ethnic dimensions. To highlight the impact of global trends in the world on marketing communications of TNCs in 2017-2020, a comparative analysis of four globalization indices is carried out: the "KOF" Globalization index (Gygli et al., 2018), (calculated by the Swiss Economic Institute and organizations "Bertelsmann Stiftung" and "Prognos"), Global index connectivity (company "DHL" and "Huawei"), (Table **5**).

Based on the results of Table **5**, we note that TNCs take into account global trends in the world, which are more important than local. These countries in comparison with others are similar to each other in the level of attractiveness of investment and innovation environment of marketing communications (Trusova et al., 2021a). According to STEEPLE-analysis, marketing communications of TNCs in different countries have their own characteristics and are different. The theory of cultural differentiation allowed to deepen the STEEPLE-analysis and to study 10 countries of the world with the highest indicators according to the rating of the globalization index (Table **5**), with the separation of this indicator in Ukraine (Table **6**).

Table 6. Quantitative Values for the Countries of the World on Six Measures of Research.

Country	Research Measure					
	Individualism	Distance of Power	Avoidance of Uncertainty	Masculinity	Long-term Orientation	Indulgence
Great Britain	89	35	35	66	51	69
Denmark	74	18	23	16	35	70
The Netherlands	80	38	53	14	67	68
Ukraine	25	92	95	27	55	18
Switzerland	68	34	58	70	74	66

Source: compiled by the author according to data (2020; 2020).

Table 7. The Distribution of Respondents' Answers to the Questions "How Important is Religion in Your Life? How Does It Affect the Choice of Product Brand From the Company?".

Country	Sample Size	Specific Weight of Respondents, %				
		Very Important	Quite Important	Not Very Important	It doesn't Matter at all	No Answer
Azerbaijan	1002	35.9	33.3	20.5	10.2	0.1
Belarus	1535	15.9	32.1	33.4	17.4	1.2
Armenia	1100	57.5	31.8	7.1	3.5	0.1
Georgia	1202	84.9	12.1	2.1	0.8	0.1
Estonia	1533	7.6	17.7	37.4	35.7	1.6
Spain	1189	10.7	21.3	31.2	35.9	0.9
Kazakhstan	1502	21.5	33.5	33.6	11.4	0.0
Cyprus	1000	51.1	28.8	13.2	6.6	0.3
Netherlands	1902	10.7	14.5	28.9	43.8	2.1
Germany	2046	13.1	24.9	36.1	25.6	0.3
Poland	966	45.7	3.9	15.1	4.8	0.5
Romania	1503	50.5	33.3	12.7	3.2	0.3

Slovenia	1069	11.2	21.7	40.5	25.9	0.7
Turkey	1605	68.1	24.6	4.0	3.0	0.3
Ukraine	1500	26.3	34.5	26.5	12.7	0.0
Sweden	1206	7.9	18.3	38.5	34.3	1.0

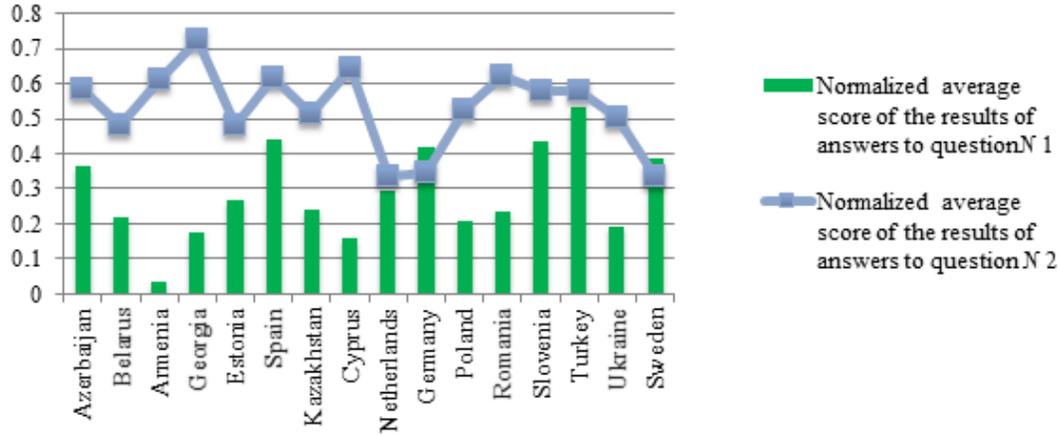Source: compiled by the author according to data (2020; 2020).

Fig. (**3**). Normalized Average Scores of the Answers of Respondents From Around the World to Two Questions From the World Values Survey.

Source: calculated by the authors.

In addition, for local measurement of the investment and innovation environment of TNC marketing communications and brand promotion, the authors identified the influence of religion in countries that are geopolitically fully or partially related to Europe (in blue color is the percentage of respondents that is highest for the country), and advertising preferences (values) of citizens of these countries regarding the choice of goods in the consumer market (Table **7**).

Using cluster analysis, the answer options were grouped according to the importance of the result for each country (Fig. **3**) and reduced to a normalized mean score (8) (Vengerova et al., 1993).

$$\overline{K} = \frac{\overline{x} - \frac{R}{2}}{x'}, \qquad (8)$$

where, x – rank of the sign; $\overline{x}$ – average weighted rating – $(\overline{x} = \frac{\Sigma x f}{\Sigma f})$; R – the span of the rank scale $(R = xmin_{max})$; x' –

the middle of the scale of ranks $(x' = \frac{x_{max} + x_{min}}{2})$. The correlation coefficient between these two values is 0.22.

According to the results of calculations, five clusters were obtained: cluster No. 1: Azerbaijan, Spain, Slovenia, Turkey; cluster No. 2: Belarus, Estonia, Kazakhstan, Poland, Ukraine; cluster No. 3: Armenia; cluster No. 4: Georgia, Cyprus, Romania; cluster No. 5: Netherlands, Germany, Sweden.

The relationship between clusters of countries according to the normalized average scores of the results of answers to questions No. 1 and No. 2 is shown in Table **8**.

Table 8. Relationship between Clusters of Countries According to the Normalized Average Scores of the Results of Answers to Questions No. 1 and No. 2.

		Normalized Average Score of the Results of Answers to Question No. 1		
		High	Average	Low
Normalized average score of the results of answers to question No. 2	High	Cluster No.1	Cluster No.4	Cluster No.3
	Average		Cluster No.2	
	Low	Cluster No.5		

Source: calculated by the authors.

Thus, the results of the cluster analysis show that there are countries the consumers of which spend their free time well and "pamper" themselves, it is more important than to follow the generally accepted rules of conduct and avoid actions that may be condemned by other people. There are countries where it is equally important for residents to spend their free time well and to avoid acts that can be condemned by other people. This information is useful for corporations whose operations are concentrated in other countries. Thus, slogans and advertising companies of the same product (service) in different countries may change depending on the preferences and values of residents. Moreover, depending on the identified priorities of consumers in different regions of the country, corporations can change marketing activities in different
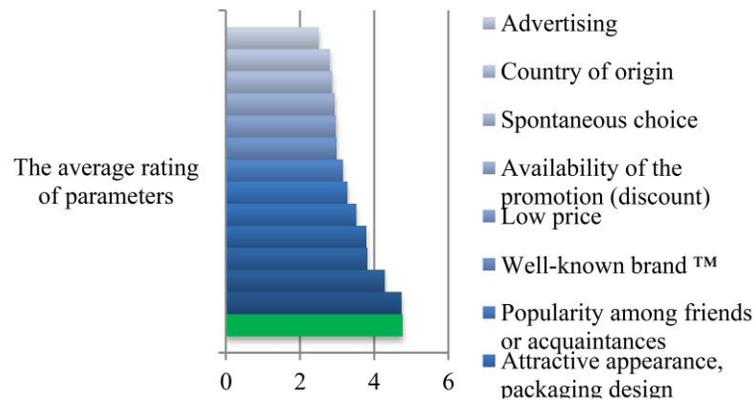
Fig. (4). Priority Parameters of Goods for Ukrainian Food Consumers.
Note: 5 – "very important", 1 – "not important".
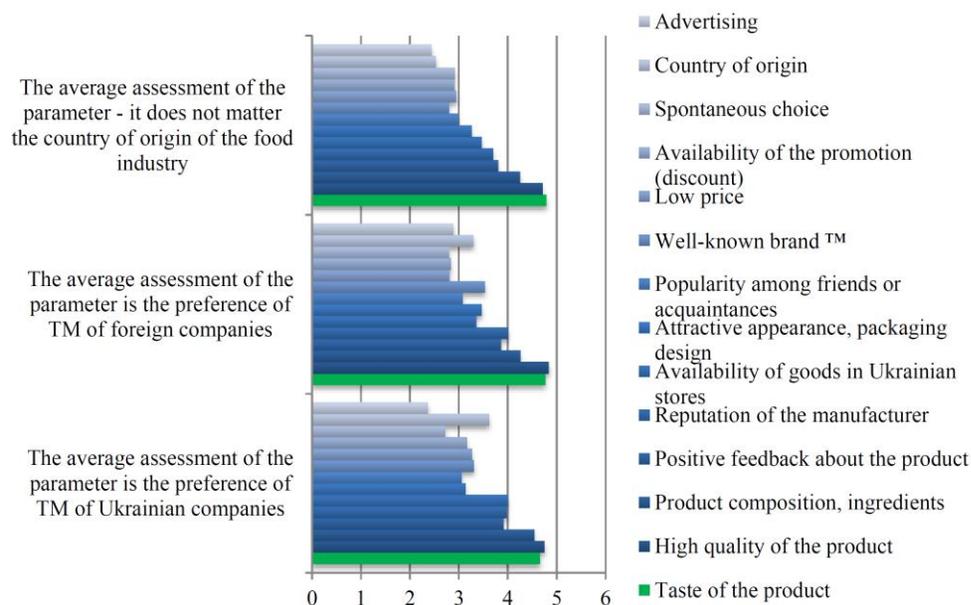Source: calculated by the authors.

Fig. (5). Priority Parameters of Trademarks (TM) of Ukrainian and Foreign Companies for Ukrainian Food Buyers.
Note: 5 – "very important", 1 – "not important".
Source: calculated by the authors.

markets in order to increase sales and maximize profits (Ganiyeva et al., 2015).

Ukrainians are part of the world community and are therefore affected by modern globalization. At the same time, there are localization processes, including the development of the Ukrainian nation, its historical consciousness, traditions and culture, as well as the development of ethnic, cultural, linguistic and religious identity of all indigenous peoples and national minorities of Ukraine (Trusova et al., 2021b). A quantitative field empirical study was conducted – a one-time non-continuous questionnaire survey, the purpose of which was to determine the purchasing behavior of Ukrainian consumers when choosing food. The sample consisted 1049 respondents by the following consumer segments: young students aged 10-25; working persons, aged 25-29; elderly people over the age of 60. That is, the generation of "baby boomers" is covered, X, Y, Z by professional activity, level of income and expenditure on food. It is de-

termined that some buyers of food products prefer the trademarks (TM) of Ukrainian companies – 13.2% respondents and the trademarks (TM) of foreign corporations – 17.4% respondents. For most buyers (69.5%) it does not matter the country of origin of the company whose food is sold in supermarkets.

For Ukrainian consumers, the most important parameters are "Taste of the product", "High product quality", "Product composition, ingredients", "Positive product reviews" and "Reputation of the manufacturer". Their average score is 4.8, 4.7; 4.3; 3.8 points and 3.8 points according to 5 possible points respectively. The least important are "Advertising", "Country of origin", "Spontaneous choice of buyer", "Availability of the promotion (discount)" and "Low price", with average scores ranging from 2.5 points to 3.0 points (Fig. **4**).

The priority of product parameters differs depending on the preferences (values) of consumers of the trademark (TM) of Ukrainian and foreign companies (Fig. **5**). An empirical

Table 9. Belonging of TM to Ukrainian or Foreign Companies in the Ukrainian Market of Food Industry.

Trade Mark	Company that Owns the Trademark (TM)	Country of Origin	Average Assessment Parameters,%
"7 Up" (beverage)	"PepsiCo, Inc."	USA	78.6
"Biola" (juice and other beverages)	PJSC "Erlan"	Ukraine	67.3
"Coca-Cola" (beverage)	"The Coca-Cola Company"	USA	97.2
"Dove" (chocolate)	"Mars, Inc."	USA	66.9
"Fanta" (beverage)	"The Coca-Cola Company"	USA	95.6
"Lion" (chocolate bars)	"Nestle S.A."	Switzerland	82.3
"Mars" (chocolate bars)	"Mars, Inc."	USA	93.7
"Milka" (chocolate)	"Mondelez International, Inc."	USA	88.4
"Picnic" (chocolate bars)	"Mondelez International, Inc."	USA	66.9
"Rich" (juice)	"The Coca-Cola Company"	USA	58.0
"Sandora" (juice)	"PersiCo, Inc."	USA	43.6
"Активія" (dairy products)	"Danone S.A."	France	46.1
"Корона" (chocolate)	"Mondelez International, Inc."	USA	10.4
"Лукавиця" (dairy products)	PJSC "Obukhiv Dairy Plant"	Ukraine	75.4
"Мівіна" (vermicelli, seasonings)	"Nestle S.A."	Switzerland	20.3
"Олейна" (vegetable oil)	"Bunge Limited"	USA	4.0
"Простоквашино" (dairy products)	"Danone S.A."	France	19.6
"Садочок" (juice)	"PepsiCo, Inc."	USA	4.9
"Світоч" (confectionery)	"Nestle S.A."	Switzerland	9.1
"Слов'яночка" (dairy products)	"PepsiCo, Inc."	USA	4.3
"Торчин" (ketchup, mayonnaise)	"Nestle S.A."	Switzerland	14.0
"Чудо" (dairy products)	"PepsiCo, Inc."	USA	26.1
"Щедрий Дар" (vegetable oil)	"Kernel Holding S.A."	Ukraine	94.4
"Щедрик" (dairy products)	LLC VTP "Agropererobka"	Ukraine	84.7
"Щедро" (ketchup, mayonnaise)	LLC "Shchedro» Trading House"	Ukraine	89.5

Source: calculated by the authors to data (2020; 2020).

study on the affiliation of a trademark (TM) to Ukrainian or foreign companies in the Ukrainian market of food industry is presented in Table **9**.

Thus, the trademarks (TM) in a foreign language are perceived by the consumers as those belonging to foreign companies. At the same time, TMs in the Ukrainian language also belong to foreign TNCs, even if the goods under these TMs are produced on the territory of Ukraine. Such TMs are adapted to the segment of the Ukrainian market. In the Ukrainian food market there are a couple of TMs that belong to one company and are focused on different consumer segments – these are juices and nectars "Sandora" and "Sadochok", which belong to TNC "PepsiCo"; chocolate products of TM "Milka" and "Korona", which belong to TNC "Mondelez International, Inc.".

According to its starting indicators, Ukraine is a recipient country of TNC investments in marketing communications innovations and is not in last place in the world (Fig. 6). This indicator shows a fairly constant trend, even in conditions of geopolitical imbalances caused by the military conflict in the east of the country and is from35.0 to 36 units (the level of this index is determined in the range from 1 to 100 and includes a number of influencing factors). Moreover, Ukraine in 2020 took 63 place among 143 countries on this indicator, which is even higher than in 2019 (71 respectively).

Changes in the fluctuations of the index of investment attractiveness of the Ukrainian market for innovations in marketing communications of TNCs are shown in Fig. (**7**).

The dynamics of the investment attractiveness index varies from 2.5 in the IV quarter of 2016 to 1.8 in the IV quarter of
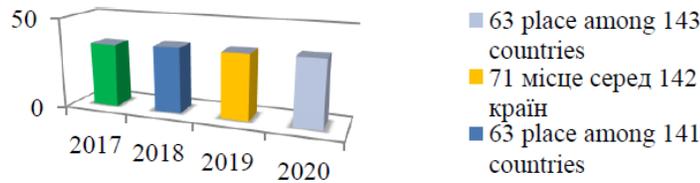
Fig. (6). Dynamics of the TNC Innovation Index in the Marketing Environment of Ukraine for 2017-2020.
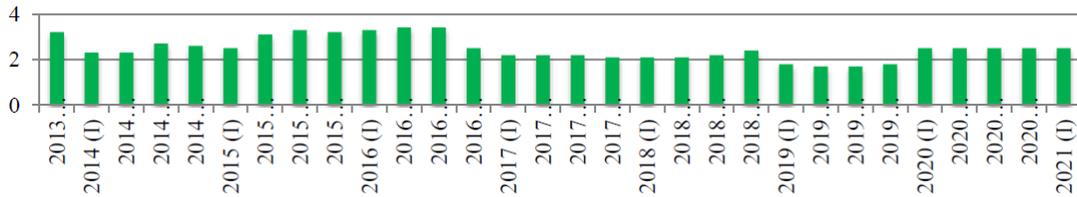Source: calculated by the authors to data (2020; 2020).

Fig. (7). Dynamics of the Index of Investment Attractiveness of the Ukrainian Market for Innovations in Marketing Communications of TNCs for 2013-2021.
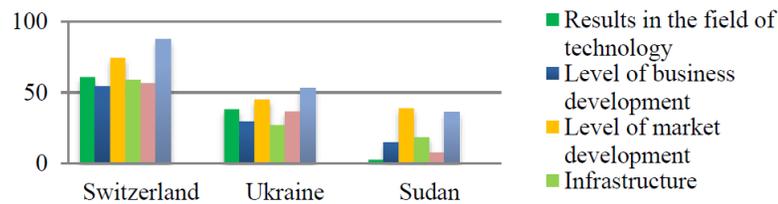Source: calculated by the authors to data (2020; 2020).

Fig. (8). Components of the Global Index of Innovations in Marketing Communications of TNCs in Ukraine, Switzerland and Sudan for 2020.
Source: calculated by the authors according to data (2020; 2020).

2019. Also, as in Fig. 6 (innovation index) there is the largest decline in 2019 and a steady growth trend in 2020 and in the I quarter of 2021. Confirmation of such optimistic conclusions is the comparative characteristics of the components of the global index of innovation in marketing communications of TNCs in 2020 when comparing Ukraine with the more innovative country of the world – Switzerland and the country of the outsider in the field of innovations – Sudan (Fig. 8).

The study of the attractiveness of investment and innovation environment of marketing communications of TNCs requires cognitive modeling of glocal development scenarios, which plays a crucial role in choosing and making decisions on the formation of investment strategies and innovative development of states. To study the factors that shape the investment and innovation environment of marketing communications of TNCs in Ukraine on the basis of a sign cognitive map, we build a cognitive model for innovation-oriented TNCs (Prakash and Singh, 2011).

In order to determine the density or degree of mutual influence between the factors of the model, the parameterization of the cognitive map is carried out, i.e. the current numerical values of the factors and the scale of their measurement are determined. The factors that were included in the model are measured in different scales, both absolute – quantitative (for example, the amount of investment in billions of dollars) and relative – qualitative (for example, the level of corruption). To build the model it is necessary to determine indicators which quantitatively characterize the state of factors (con-

cepts) and bring them to a comparable form, for which the values of all factors were translated into a normalized scale in the range from 0 to 1, and each numerical assessment was matched to the linguistic value of Table **10**.

Table 10. The Scale of Transition of Linguistic Assessments of the State of Concepts into a Normalized Numerical Scale.

The range of Numerical Assessment of the State of the Concept	Linguistic Assessment
0 ÷ 0.15	"very low"
0.16 ÷ 0.3	"low"
0.31 ÷ 0.45	"below average"
0.46 ÷ 0.6	"average"
0.61 ÷ 0.75	"above average"
0.76 ÷ 0.9	"high"
091 ÷ 1.0	"very high"

Source: developed by the authors.

To analyze the dynamics of the behavior of cognitive maps, a mathematical apparatus of impulse processes (Negm, 2016) is used, which allows to predict the values of factors (concepts) at discrete moments of time (Bairbekova et al., 2016; Tashpulatov et al., 2018). It should be noted that in the general case, the state of each concept at a certain point in time could be characterized by a vector of parameters. How-

ever, in our model, the state of each concept is characterized by one parameter. To analyze the propagation of impulses in the model, it is necessary to set the initial state of concepts and make certain assumptions about the nature of the influence of changes in the values of some concept on the parameters of others (concept values, factors, vertices).

The impulse in cognitive models is the increase in the value of a certain (i-th) factor at discrete moments of time, in particular, the initial impulse for the i-th vertex will be (Hofstede et al., 2010):

$$p_i(0) = v_i(1) - v(0) = \Delta v_i(1), \tag{9}$$

where, $v(0), v_i(1)$ – is the value (or state) of the i-th factor in the linguistic or absolute scale at the initial and subsequent moments of time, respectively.

The autonomous impulse process in the cognitive model is determined by rule (1) with the vector of values of concepts at the initial moment of time $v(0) = (v_1(0), v_2(0),…,v_n(0))$ and the vector of increments $P(0) = (p_1(0), p_2(0),…,p_n(0))$, which sets the external impulse $P_i(t)$ in each vertex v_j at time t (Hofstede et al., 2010):

$$v_i(t+1) = v_i(t) + \sum_{j=1}^{n} w(e_{ji})\Delta v_j(t) = v_i(t) +$$
$$\sum_{j=1}^{n} w(e_{ji})p_j(t) \tag{10}$$

Accordingly $w_{ij} = w(e_{ji})$ – the degree (strength, weight, probability) of the influence of the concept v_j on v_i, n – the number of concepts in the model.

Scenario analysis in cognitive models is based on modeling the development of the situation with different combinations of impulses $q_j(t)$, coming from the vertices selected as control and further comparative analysis of forecasts of target

factors, their quantitative and qualitative assessment, which allows to choose the most optimal management strategy.

Therefore, formula (10) taking into account a given vector will look like (Hofstede et al., 2010):

$$v_i(t+1) = v_i(t) + \sum_{j=1}^{n} w(e_{ji})p_j(t) + q_j(t), \tag{11}$$

The best strategy is chosen by visually comparing the values (states) of target factors in different scenarios. To do this, it is necessary to form probable scenarios depending on the chosen policy of TNCs on the attractiveness of investment and innovation environment of marketing communications of the host country. From the formal-mathematical point of view it is necessary to set impulses (perturbations) in the corresponding tops of cognitive model (acting as parameters of attractiveness of investment and innovation environment of marketing communications) which, spreading on model, cause change of states of other tops depending on existence of direct and indirect communications between them and the degree of density of this effect (Niyazbekova et al., 2022). Three probable scenarios for the development of investment and innovation environment of marketing communications of TNCs are considered: inertial (scenario 1), extensive (scenario 2), and innovative (scenario 3). Combinations of impulses $Q = \{q_{i,i=1,2,…,k}\}$, coming to certain concepts of the model depending on the scenario are given in Table **11**. All three scenarios assume an improvement in the world economic situation (impulse to the top) of modeling (5-7 years).

The results of impulse modeling of the attractiveness of the investment and innovation environment of marketing communications of TNCs in Ukraine using the Intelligent Generator of Best Alternatives (IGBA) according to the scenario conditions of Table **11** are shown in Fig. (**9-11**).
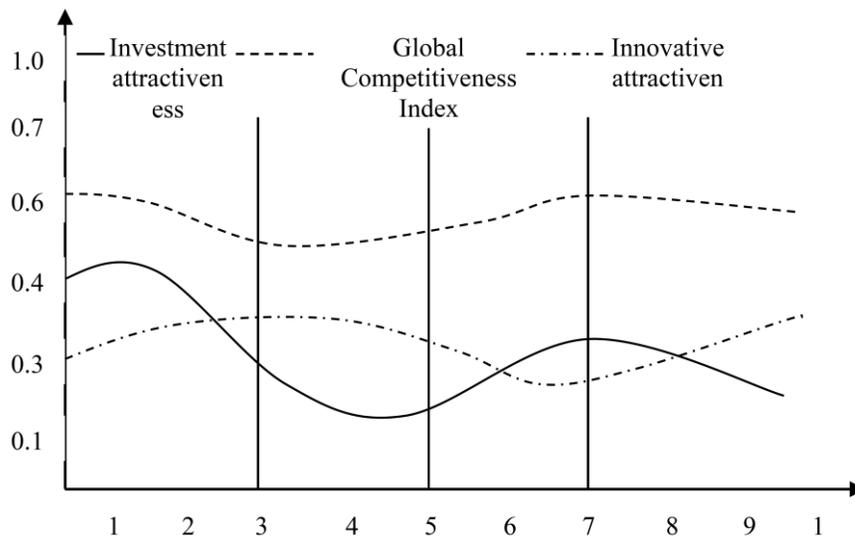

Fig. (9). The Results of Modeling According to the Inertial Development Scenario.
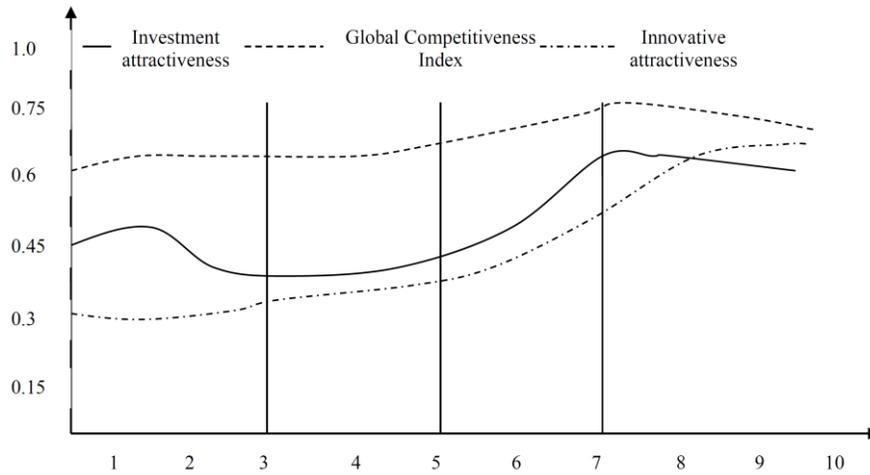
Source: built by the authors.

Fig. (10). The Results of Modeling According to the Extensive Development Scenario.
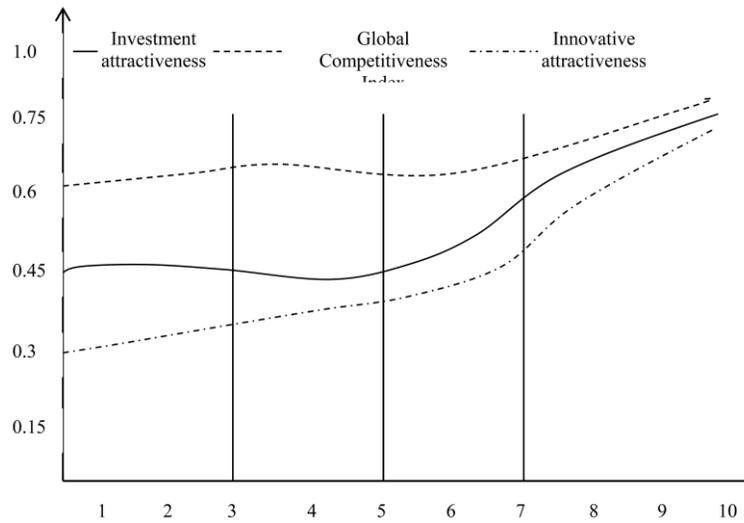
Source: built by the authors.

Fig. (11). The Results of Modeling According to the Intensive Development Scenario.

Source: built by the authors.

Thus, according to the first scenario, Ukraine will have some stabilization of the investment and innovation process associated with the safe development of marketing communications of TNCs in the country, which will take place in the third step of modeling to ensure political stability. However, in the case of freezing reforms in accordance with the results obtained in the seventh step of modeling, there is a further stagnation of the economy and because of falling investment and innovation attractiveness and global competitiveness of the country as a whole (Kaparov et al., 2020; Miethlich et al., 2021).

According to the second scenario, if the existing level of corruption is maintained, the effectiveness of the implemented reforms will be undermined, which will lead to a decline in global investor confidence and, as a result, all target factors will fall (starting from the seventh modeling step), however, not as rapid as in the case of the inertial scenario. In this case, even the growth of the level of economic freedoms and innovation potential of the country will not increase the investment and innovation attractiveness of the country in

the context of the safe development of marketing communications of TNCs and the level of global competitiveness of Ukraine.

According to the simulation results of the third scenario, starting from the third step, the dynamics of all target factors will gradually improve. This can be explained by the fact that due to the growing confidence in the implemented reforms and the real fight against corruption, there will be a significant increase in the flow of TNC investments in the country, primarily in innovation industries and clusters, which as "locomotives" will bring the economy out of stagnation and provide impetus to the growth of marketing communications in the basic branches of the food industry of Ukraine.

4. CONCLUSIONS

Thus, the implementation of the principles of glocalization of marketing communications and the use of tools to implement a model of consumer behavior in the world community

will form a local process of promoting brands in the food market. The processes of glocalization can have different directions of action: the direction of global determination of glocalization, when global trends affect local development; the direction of local determination of glocalization, when local factors are the cause of global change; direction of biglocal determination of glocalization, when glocalization of some dimensions causes corresponding changes in other glocal dimensions. The relationship between these determinants, measurements and indicators proves the need for a glocal approach to marketing communications. After all, even if TNCs produce a standardized product (service) for all countries, marketing communications may require certain changes in accordance with the conditions of specific markets and the latest determinants.

The specifics of forming a strategy for the safe development of marketing communications of TNCs in the context of glocalization of world economic processes should be based on traditional marketing strategies and their intersection with the latest marketing communications strategies. At the same time, the implementation of the principles of glocal marketing communications in the food market should take place in accordance with the model of consumer behavior, which should be formed under the influence of numerical factors influencing the marketing decision-making process. TNCs, which intend to create food brands specifically for national markets, are able to determine based on benchmarking, what relationship between global and local communications should combine the promotion of new brands.

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