

CLASSIFICATION OF COMPETITIVENESS DETERMINANTS IN INFORMATION AND COMMUNICATION TECHNOLOGIES

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Introduction. The ICT sector is the backbone and driving force of today's digital economy, playing a key role in fuelling innovation, increasing productivity and contributing to economic growth. The activities of ICT companies and the ICT sector as a whole are influenced by many factors, ranging from technological progress and regulatory frameworks to market dynamics and human capital.

It is therefore evident that there is a necessity for the advancement and establishment of a comprehensive theoretical concept on the determinants of competitiveness of the ICT sector of the national economy. This will serve to assist stakeholders in remaining informed of technological progress, in the development of appropriate policies and strategies, and in improving the global position of both the national ICT sector and the wider economy. The national economy as a whole, stimulate economic growth and welfare, promote research and innovation, solve problems inherent in both the national ICT sector and national socio-economic systems, and gain an interdisciplinary understanding of the impact of the ICT sector on increasing the nation's global competitiveness. Furthermore, the establishment of categories for the factors influencing the competitiveness of ICT companies and the ICT sector is beneficial for the scientific community. By categorising these factors, researchers can enhance the systematic understanding of their impact on the success of ICT companies and the ICT sector, including their international competitiveness in different countries.

Analysis of recent research and publications. In particular, the authors of the study [1] addressed the issues of competition, competitive advantages and competitiveness in the ICT sector of the national economy. They characterised the essence and features of competition in the ICT sector, indicated the strategic guidelines for competition in ICT, classified the competitive advantages of ICT companies (by three key aspects) and features of competitiveness of the ICT sector (by the criterion of stakeholders).

In their study [2, pp. 4–6], the authors identified the following factors as influencing the development of the ICT sector: human resources, foreign direct investment (FDI), infrastructure (ICT infrastructure and technology parks), government policy, culture (bureaucracy and work ethic), geographic location (in the context of international trade directions), domestic consumption of information and communication technologies (ICT), and so forth.

In their study, the authors [3] undertook a systematic analysis of five key factors influencing the international competitiveness of the ICT sector within the context of the national economy. These factors were: the political and regulatory environment governing information and communication technologies; the extent of ICT sector involvement in international cooperation; the quality of ICT infrastructure; the human capital within the ICT sector; and the level of research and development activity. Furthermore, the study [3] underscored the necessity for a comprehensive national cybersecurity system, delineating its fundamental principles and components.

Finally, the influence of various factors on the development of certain segments of the information and communication technology market was mentioned and considered in their works by Dybach I.L. [4], Konoplenko A. et al. [5], Kopytsia A.O. [6], Sokol K.M. [7], Poita I.O. [8], Poltorak K.A. [9], Stavyska A.V. [10], Sytnyk O.Y. [11], Teryanik E. [12; 14], Vasylytsiv T. [13], Karyy O.I. [15], Ganushchak-Yefimenko L.M. [16], Yanenkova I.G. [17], and others.

Objectives of the article. The purpose of the study is to continue and expand the scientific discussion on the determinants of success in the ICT sector with the subsequent identification and application of features for building classifications. To achieve this goal, the following task was set: to list, briefly describe and classify the determinants of competitiveness at the level of ICT companies and the ICT sector of the national economy.

The **research methods** are analysis and synthesis of scientific literature on the research topic, abstraction and generalisation (for further development of classifications), and the graphical method (to display key ideas and developments in tabular form).

The main material of the study. In general, the determinants of an ICT company's competitiveness (Table 1) can be defined as specific attributes, resources, capabilities, and strategic decisions (related to internal and external processes) that allow individual ICT enterprises to innovate, maintain efficiency and profitability, and increase customer satisfaction, thus achieving higher performance and market advantages.

In applying M.E. Porter's proposals (Table 1) for the classification of the determinants of competitiveness in the context of ICT companies, the following can be stated:

1) The **classification of the determinants of an ICT company's competitiveness in accordance with the 5 forces model methodically** helps to understand the intensity of competition and the factors that affect the company's strategic position:

1.1. The **"threat of new entrants"** refers to the potential for new companies to enter the ICT market and compete with existing companies;

1.2. the **"bargaining power of suppliers"** is the ability of suppliers to influence the price and quality of the goods or services they provide to ICT companies;

1.3. the **"bargaining power of buyers"** is the influence it has over the pricing and terms of procurement in the ICT sector;

1.4. the **"threat of substitute goods or services"** is the likelihood that customers will switch to alternative solutions that meet similar needs;

1.5. the **"industry competition/rivalry between existing competitors"** is the intensity of competition between existing companies in the ICT sector, which is influenced by factors such as the number of competitors, market growth rates, investment needs, capacity utilisation, strategic alliances, price competition, and so forth.

2) **The classification based on the Porter Diamond Model** should show how different factors influence the competitive position and performance of an ICT company in the national ICT sector and in the international ICT market:

Table 1

Classification of ICT companies' competitiveness determinants

Classification criterion	Determinants groups
By the formation environment	Internal, external.
By resource type	Physical, financial, technological, human, intangible, knowledge resources.
The Porter's Five Forces Model [18]	Threat of new entrants, bargaining power of suppliers, bargaining power of buyers, threat of substitute goods or services, rivalry between existing competitors.
The Porter Diamond Model [19]	Factor conditions, demand conditions, related and supporting industries, strategy, firm structure and competition, government, chance.
M. Porter's value chain model [20]	Primary activities, support activities.
By duration of impact	Short-term, long-term.
By strategic focus	Market-oriented, innovation-oriented, cost-oriented, customer-oriented, sustainability-oriented.
By technology type	Software technologies, hardware technologies, cloud technologies, data technologies, security technologies, network technologies.
By market factor type	Customer-related factors, competitor-related factors, supplier-related factors, regulatory factors, technology-related factors.

Source: authors' elaboration with partial use of [18–20]

2.1. The **“factor conditions”** refers to a country’s endowment with the resources required for the ICT sector, including skilled labour, infrastructure, capital, technological capabilities, etc;

2.2. the **“demand conditions”** refer to the prevailing nature and size of the demand for ICT products and services in the domestic market (e.g., the presence of tech-savvy consumers, businesses requiring advanced technological solutions, etc.);

2.3. the **“related and supporting industries”** means suppliers and related industries that can enhance the competitiveness of an ICT company (e.g., hardware, software, cybersecurity, cloud computing, etc.);

2.4. the **“firm strategy, structure and competition”** focuses on how companies in the ICT sector are organised, managed and compete with each other (e.g., competitive environment that encourages innovation, R&D investment, strategic partnerships, etc.);

2.5. the **“government”** is the role of state policy in shaping the competitive environment for ICT companies (antitrust laws, tax policy, trade agreements, state support for R&D, etc.);

2.6. the **“chance”** refers to external factors that may affect the competitiveness of an industry but are largely beyond the control of companies or governments (e.g., technological breakthroughs, changes in consumer preferences, economic changes or global events).

3) The **classification by value chain** should provide a detailed view of the internal activities and processes that contribute to the competitive advantage of an ICT company:

3.1. The **“primary activities”** consider **inbound logistics**, i.e., the processes associated with obtaining, storing and distributing the resources required for the operation of an ICT company; **operations** are the processes that transform inbound resources into final products or services; **outbound logistics** are the activities required to deliver finished products or services to customers; **marketing and sales**; **service** (e.g., technical support, training, software updates, etc.);

3.2. the **“support activities”** include **procurement** of goods and services necessary for the operation of an IT company; **technology development** (R&D aimed at innovating and improving products and services); **human resource management** (recruitment, training and retention of qualified employees who contribute to the success of an IT company); **company infrastructure** (e.g., organisational structure, management systems, overall corporate culture, etc.).

Furthermore, in the process of selecting the criteria for the classification of determinants of an ICT company’s competitiveness (Table 1), the following tasks were set:

1. The classification **“by the formation environment”** should demonstrate the manner in which disparate factors influence the competitive position of the company, thus facilitating comprehension of the manner in which internal capabilities and external conditions shape the capacity of an ICT company to compete in the market. Accordingly, to the groups:

1.1. The **“internal”** includes the quality of corporate governance, human resources, financial resources, technological and research capabilities, product/service quality, marketing, branding, etc;

1.2. the **“external”** – market conditions and dynamics, economic environment, political and legal environment, technological environment, socio-cultural factors, competitive environment, and so forth.

2. The classification **“by resource type”** should illustrate how different types of resources affect the competitive position of an ICT company. In particular, the groups:

2.1. The **“physical”** includes offices and facilities, data centre efficiency [3], efficient logistics and supply chain management of hardware and physical products;

2.2. the **“financial”** – access to capital, economic efficiency, diversification and stability of income sources;

2.3. the **“technological”** – developed and reliable ICT infrastructure [3], R&D and intellectual property;

2.4. the **“human”** is the availability of qualified IT specialists and management personnel (additionally, their ability to innovate and develop creative solutions), effective leadership and strategic management practices [1];

2.5. the **“intangible”** – brand reputation, loyal customer base and quality customer service, corporate culture;

2.6. the **“knowledge resources”** (“market intelligence” [21]), intellectual capital and technological expertise [1, p. 6], professional development.

3. The classification **“by duration of impact”** should take into account the determinants that affect the competitive position of an ICT company over different time periods, dividing the determinants of impact into:

3.1. The **“short-term”** (market demand fluctuations, technological upgrades, pricing strategies, marketing campaigns, customer service, operational efficiency, supply chain management, and so forth);

3.2. the **“long-term”** (investments in R&D and innovation; long-term strategies for attracting, retaining and developing qualified specialists; creating and maintaining a strong brand image and customer relations; forming and maintaining long-term partnerships and alliances; etc.).

4. The classification **“by strategic focus”** should illustrate how ICT companies align their strategies to gain competitive advantage in the ICT sector, under the approaches below:

4.1. The **“market-oriented”** (market trends research; competitive analysis; development of a strong market presence and unique value proposition; development of effective marketing campaigns; creation of geographic and demographic market expansion; competitive pricing; formation of strategic partnerships);

4.2. the **“innovation-oriented”** (allocation of resources for R&D; introduction and integration of advanced technologies; continuous product innovation; research partnerships; culture of innovation; crowdsourcing of ideas; evaluation of the effectiveness and results of innovation activities, etc.);

4.3. the **“cost-oriented”** (strategies for reducing operating costs; economies of scale [1, p. 6]; financial management; supply chain management; competitive pricing, etc.);

4.4. the **“customer-oriented”** (priority of customer satisfaction and experience; customer understanding; customer feedback; development of loyalty programmes; implementation of a CRM system; proactive customer engagement; offering training resources for customers, etc.);

4.5. the **“sustainability-oriented”** (use of renewable energy sources; reduction of carbon footprint; fair labour practices; inclusiveness; ethical standards and leadership; transparency; regulatory compliance, etc.).

5. The classification **“by technology type”** provides an understanding of how different technological components affect the ability of an ICT company to compete effectively in the market, among other things:

5.1. The **“software technologies”** include software development tools (modern integrated development environments, version control systems, debugging tools, etc.); knowledge of popular programming languages, use of reliable frameworks, implementation of continuous integration/continuous deployment (CI/CD) pipelines, development and integration of APIs, focus on user interface/UI/UX design principles, and so forth;

5.2. the **“hardware technologies”** include access to powerful processors for better computing capabilities, implementation of high-performance storage solutions, use of advanced network equipment, and more;

5.3. the **“cloud technologies”** includes expertise in cloud computing platforms, ensuring the security of cloud resources and data, developing applications using microservices architecture, implementing cloud solutions for disaster recovery, and using cloud load balancing technologies;

5.4. the **“data technologies”** include expertise in developing machine learning models and applications, creating and optimising data management policies and processes, and so on;

5.5. the **“security technologies”** include the implementation of robust cybersecurity practices and tools, the use of data encryption methods, the deployment and management of firewalls, the implementation of IDPs, ensuring compliance with cybersecurity regulations and standards, and so forth;

5.6. the **“network technologies”** include access to high-speed Internet, 5G, WiMax technologies, implementation of SDN, use of network virtualisation methods, ensuring security of the network infrastructure, and implementation of edge computing.

6. The classification **“by market factor type”** is intended to provide insight into the different areas that ICT companies need to monitor and manage in order to maintain or enhance their competitive position, and groups the determinants according to certain characteristics:

6.1. The **“customer-related factors”** include customer needs (market demand, customer preferences, new trends), customer segments, brand loyalty, repeat purchases, loyalty programmes, customer satisfaction, customer behaviour, response time, and customer relationship management;

6.2. the **“competitor-related factors”** include market position, competitive strategy, product offer, market dynamics (intensity of competition, barriers to entry and exit, competitive landscape), level of adaptation to changes in the competitive environment, specifics of pricing, and so forth;

6.3. the **“supplier-related factors”** include supplier quality (product quality, reliability, compliance with standards, service level, performance indicators), supplier relationships (long-term partnership, supplier loyalty, cooperation, communication, trust), supply chain management, cost management;

6.4. the **“regulatory factors”** take into account compliance with industry regulations, security and data protection standards, certification requirements, regulatory changes, regulatory risks, government support (benefits and subsidies, grants and funding), and so forth;

6.5.the **“technology-related factors”** [1] include technological trends (emergence of new technologies and their life cycle), research funding, technological infrastructure, technological capabilities (technical expertise, innovation potential), etc.

At the same time, the determinants of ICT sector competitiveness refer to broader systemic elements (e.g., institutional structure, economic conditions, regulatory environment, etc.) that affect its overall efficiency, growth potential, innovation potential, and global position in the ICT market as a whole (Table 2).

Thus, when selecting the criteria for classifying the determinants of competitiveness of the ICT sector (Table 2), the following tasks were set:

1. The **“by economic environment”** classification should reflect how different external economic conditions affect the ability of the ICT sector to compete effectively internationally and globally by grouping determinants into groups:

1.1.The **“macroeconomic stability”**, namely a stable and growing economy, low and stable inflation, interest rates, stable exchange rates, high employment in information and communications technologies, high consumer confidence in ICT products and services; public debt levels; public spending on infrastructure, education and technology; predictable and transparent fiscal, monetary and economic policies;

1.2.the **“trade policy”** – tariff rates, non-tariff barriers, bilateral and multilateral free trade agreements, foreign trade facilitation, export promotion (export subsidies, trade missions, market access programmes, export credit, trade exhibitions);

1.3.the **“investment climate”** – FDI inflows, FDI policy, investment incentives, ease of doing business (regulatory environment, business licensing, property rights, contract enforcement, bankruptcy procedures), tax policy, political stability, perception of corruption;

1.4.the **“physical and ICT infrastructure”** – reliable telecommunications and digital infrastructure, availability and capacity of data centres; reliable and affordable electricity supply; availability of technology clusters and innovation hubs; urban infrastructure (Smart City, public services, urban planning, infrastructure projects);

1.5.the **“labour market conditions”** – quality of the workforce can be assessed in terms of educational attainment, technical skills, ICT skills, vocational training and language skills. The cost of labour encompasses wages, compensation packages, productivity, the cost of living, benefits and incentives. Labour regulation includes labour laws, unionisation, safety and working time regulation. The availability of talent is determined by the presence of a skilled workforce, recruitment channels, talent retention and labour mobility. Workforce diversity encompasses gender and cultural diversity, inclusion policies, equal opportunities and diverse views.

2. The classification **“by technological environment”** considers groups of determinants that reflect how various technological factors and processes affect the ability of the ICT sector to compete effectively in the global ICT market:

2.1.the **“research and development”** – R&D expenditures (public funding, private sector investment, R&D tax incentives, R&D grants, innovation subsidies), innovation hubs and R&D facilities, R&D talent, R&D results (patent applications, technological improvements, etc.);

Table 2

Classifications of ICT sector international competitiveness determinants

Classification criterion	Determinants groups
By economic environment	Macroeconomic stability, trade policy, investment climate, physical and ICT infrastructure, labour market conditions.
By technological environment	Research and development, technology implementation, digital infrastructure, innovation ecosystem, intellectual property protection, technology transfer.
By social environment	Human capital, demographic trends and quality of life, cultural factors, social infrastructure, public awareness.
By regulatory environment	Legal framework, government policies in the field of ICT, stability of the political environment, international relations, data protection and privacy, intellectual property, telecommunications regulation, cybersecurity regulation.
By market dynamics	Market demand, market structure, market competition, consumer preferences, market trends, market access.

Source: authors' elaboration

2.2. the **“technology implementation”** – use of ICT (internet penetration, smartphone use, digital literacy, e-commerce, cloud computing), Industry 4.0, e-government, cybersecurity (awareness of cyber threats, security measures, data protection, cybersecurity policy, incident response);

2.3. the **“digital infrastructure”** – broadband (high-speed Internet, rural connectivity, fibre-optic networks, Internet service providers, broadband development initiatives), mobile networks (4G/5G, WiMax deployment, mobile data services, network coverage, mobile infrastructure, wireless communications), data centres, equipment, digital platforms;

2.4. the **“innovation ecosystem”** means the ecosystem of start-ups, public-private partnerships, innovation policies (national innovation strategies, innovation incentives, R&D tax breaks, etc.), educational institutions, and innovation culture (risk tolerance, creative thinking, collaborative culture, knowledge sharing, continuous learning);

2.5. the **“intellectual property protection”** – protection of intellectual property rights, the patent application process, patent disputes, patent offices, digital rights management, licensing agreements, trademark protection, trade secret protection, intellectual property awareness (training, management and strategies);

2.6. the **“technology transfer”** – forms of knowledge transfer, transfer mechanisms, technology implementation and adaptation, international cooperation, government support (technology transfer policy, innovation grants, tax incentives, etc.).

3. The classification **“by social environment”** should take into account which social factors influence the productivity, innovation and growth of the ICT sector:

3.1. the **“human capital”** [3] – quality and accessibility of relevant education and training, workforce diversity, talent retention, employee engagement, and workforce mobility in the ICT sector;

3.2. the **“demographic trends and quality of life”** – population growth rates, urbanisation, population ageing, the share of young people in the total population, migration processes, life expectancy, household consumption, and more;

3.3. the **“cultural factors”** include innovation culture (risk-taking, collaborative culture, knowledge sharing, entrepreneurial thinking), consumer behaviour, social values (technology acceptance, trust in digital technologies, ethical considerations), communication norms in the digital and business environment, and work ethics;

3.4. the **“social infrastructure”** – in particular, the demand for and the degree of use of ICT achievements in such sectors of the economy as healthcare, energy, education, the military-industrial complex, public services, public security, and so forth;

3.5. the **“public awareness”** [3] – digital literacy, technology adoption, use of social media, public engagement, information campaigns (cybersecurity, cyber hygiene, data protection, etc.);

4. The classification **“by regulatory environment”** [3] takes into account the main regulatory conditions and rules that affect the functioning of the ICT sector of the national economy, its development and competitiveness:

4.1. The **“legal framework”** (business rules, contract law, labour law, antitrust and competition policy, environmental legislation, etc.);

4.2. the **“government policies in the field of ICT”** includes national ICT development strategies, digital economy policies, R&D incentives, subsidies to the ICT sector, e-government initiatives, PPPs (public-private partnerships) in the ICT sector, trade policies affecting ICT, investments in ICT infrastructure, tax policies in the ICT sector, and so forth;

4.3. the **“stability of the political environment”** (stability and transparency of the government, predictability of political decisions, risk of political unrest, nature and extent of the impact of political events on the ICT sector, government commitment to ICT development);

4.4. the **“international relations”** (diplomatic relations with key technological countries, participation in international ICT organisations, bilateral and multilateral agreements in the field of ICT, international cooperation, cyber diplomacy, cross-border data transfer agreements, international financing of ICT projects, presence/absence of sanctions against ICT products/companies, etc.);

4.5. the **“data protection and privacy”** – data protection laws, privacy policies, data security standards, compliance audits and audit reports, consumer rights (right of access to data, right to change/correct, delete, transfer, object to data processing, and so forth);

4.6. the **“intellectual property”** means patent law, copyright, trademark laws, trade secrets, intellectual property protection (legal remedies, intellectual property litigation, law enforcement, etc.);

4.7. the *“telecommunications regulation”* – spectrum allocation (frequency licensing, spectrum auctions, bandwidth allocation, interference management, spectrum trading), standardisation of services, rules and requirements for market entry, and pricing regulation;

4.8. the *“cybersecurity regulation”* [3] includes cybersecurity standards (national cybersecurity frameworks, risk management standards, incident response guidelines, cyber hygiene requirements), cyber incident reporting requirements, rules and principles for the protection of critical and ICT infrastructure, legal frameworks (anti-hacking laws, cyber fraud penalties, cyber espionage laws, online stalking policies, digital fraud laws, etc.);

5. The classification *“by market dynamics”* draws attention to the determinants of the ICT sector’s ability to compete effectively in the national and international market environment:

5.1. The *“market demand”* means individual consumer demand, business demand, government demand, global demand, and industry demand;

5.2. the *“market structure”* – market potential and size, barriers to entry, sales channels, types and degree of market segmentation;

5.3. the *“market competition”* means the competitive landscape, emergence of new competitors (start-up activity, innovation challenges), competitive advantages, share in the global ICT market and pricing strategies;

5.4. the *“consumer preferences”* – attitudes towards technology adoption, consumer loyalty, user experience, product/service/solution characteristics, consumer expectations and requirements;

5.5. the *“market trends”* means technological trends, industry trends, consumer trends, economic trends and social trends;

5.6. the *“market access”* – export opportunities, import restrictions, trade agreements, foreign market entry strategies, local market rules, distribution networks, international marketing strategies, localisation of goods/services/ICT solutions, etc.

In conclusion, it can be stated that the determinants of competitiveness at the level of an ICT company and the ICT sector of the national economy are inextricably interconnected, forming a symbiotic dynamic that affects both the success of an individual ICT company and the global position of the ICT sector as a whole. In other words, the specific elements pertaining to ICT companies (Table 1) collectively contribute to the formation of a robust foundation for competitive success, thereby stimulating growth and competitiveness in the ICT sector. Consequently, the competitiveness of the ICT sector at the national and international levels (Table 2) exerts an influence on individual ICT companies, providing a favourable ecosystem for entrepreneurship and digital innovation. This is achieved through the provision of enhanced access to advanced technologies, capital, skilled labour, augmented opportunities for collaboration and a more dynamic market environment.

Conclusions. The study represents the author’s contribution to the scientific discourse on the factors influencing the evolution and competitiveness of the information and communication technologies sector. In particular, it addresses the grouping and classification of these factors for further utilisation in research and education.

In order to provide a concise characterisation and classification of the factors influencing the competitiveness of an ICT company, this study employs the analytical frameworks proposed by M.E. Porter, namely the Five Forces Model, the Diamond Model and the Value Chain Model. These frameworks have been adapted to develop classifications based on the conceptual tasks. In accordance with the aforementioned conceptual criteria, the following classifications have been established: based on the environment of formation, the types of resources, the duration of influence (which encompasses the categories “short-term” and “long-term”), strategic focus, technology, and type of market drivers.

In order to compose a brief description and develop a classification of the determinants influencing the competitiveness of the ICT sector, the following conceptual criteria have been employed: economic environment, technological environment, social environment, regulatory environment and market dynamics.

In light of the interconnection and interdependence of the determinants of competitiveness at the level of ICT companies and the ICT sector of the national economy, it can be posited that the main prospects for further research in this area may include the formation and definition of forms and methods of interaction of these determinants at both the national ICT sector level and the international/global level. In this context, it would be beneficial to consider and characterise the interaction of countries in the field of information and communication technologies.

REFERENCES:

1. Zavhorodnya E., & Melnyk T. (2023) Theoretical Concept of Competition and Competitiveness in IT Sector. *Economy and Society*, no. (52). DOI: <https://doi.org/10.32782/2524-0072/2023-52-30>
2. Rai D., & Kurnia S. (2017) Factors Affecting the Growth of the ICT Industry: The Case of Bhutan. Information and Communication Technologies for Development. Springer International Publishing, pp. 728–739. DOI: https://doi.org/10.1007/978-3-319-59111-7_59
3. Zavhorodnya E., & Melnyk T. (2024) Factors affecting international competitiveness of ICT sector of the national economy. *International scientific journal "Internauka". Series: "Economic Sciences"*, no. (8). DOI: <https://doi.org/10.25313/2520-2294-2024-8-10179>
4. Dybach I. L. (2022) Chynnyky mizhnarodnoi konkurentospromozhnosti IT-pidpriemstv [Factors of international competitiveness of IT enterprises]. Chynnyky mizhnarodnoi konkurentospromozhnosti IT-pidpriemstv. Pp. 764–767. Available at: http://repository.hneu.edu.ua/bitstream/123456789/29224/1/Дибач_Тези_25.11.22.pdf
5. Konoplenko A., Kovalov B., Tsapkovatyi R., & Wenyang L. (2024) Factors of the economic competitiveness of the IT outsourcing market in Ukraine. *Digital Economy and Economic Security*, no. (3) (12), pp. 126–132. DOI: <https://doi.org/10.32782/dees.12-23>
6. Kopytsia A. O. (2024) Faktory rozvytku rynku informatsiinykh posluh [Factors of development of the information services market]. Aktualni problemy suchasnoi nauky: teoretychni ta praktychni doslidzhennia molodykh uchenykh. Pp. 328–329. Available at: <https://repository.kpi.kharkov.ua/server/api/core/bitstreams/819528ba-8dcc-4960-87a8-9574e4520f4e/content>
7. Sokol K. M. (2015) The World Market of Information Technology in the Context of Globalization of the World Economy. *Global and National Problems of Economy*, no. (3), pp. 78–83. Available at: <http://global-national.in.ua/archive/3-2015/16.pdf>
8. Poita I. O. (2013) Key Factors of Influence on the Development of Market. *Business Inform*, no. (1), pp. 170–173. Available at: https://www.business-inform.net/export_pdf/business-inform-2013-1_0-pages-170_173.pdf
9. Poltorak K. A., & Zozulov O. V. (2015) Current State Market Internet Technologies: Determinants of Market Development and New Approaches to Marketing Activity. *Economic Bulletin of National Technical University of Ukraine "Kyiv Polytechnical Institute"*, no. (12). DOI: <https://doi.org/10.20535/2307-5651.12.2015.45716>
10. Stavycka A. V. (2018) Potential of information technologies of Ukraine in the world IT market. *Economic scope*, no. (136), pp. 66–76. DOI: <https://doi.org/10.30838/p.es.2224.290818.74.210>
11. Sytnyk O. Y., & Dubrovskiy S. S. (2022) Features of Information Technologies Market's Development in Ukraine. *Economies' Horizons*, no. (3) (21), pp. 72–82. DOI: [https://doi.org/10.31499/2616-5236.3\(21\).2022.263688](https://doi.org/10.31499/2616-5236.3(21).2022.263688)
12. Teryanik E. (2015) Features of Formation and Study of Regional Market Information Services. *Investytsiyni: praktyka ta dosvid*, no. (7), pp. 66–69. Available at: http://www.investplan.com.ua/pdf/7_2015/15.pdf
13. Vasyltsiv T., Lupak R., & Vasyltsiv V. (2017) Analysis Of Macroeconomic, Industrial, Financial, Intellectual and Human Resources Component of Ukraine Information and Communication Technologies Sector Security. *The Economic Discourse*, no. (1), pp. 161–172. Available at: <http://ed.pdatu.edu.ua/article/view/127714>
14. Teryanik E., & Stec A. (2014) Formation of statistical indicators of the market information services. *State and regions. Series: Economics and Business*, no. (3), pp. 30–36. Available at: http://www.econom.stateandregions.zp.ua/journal/2014/3_2014/7.pdf
15. Karyy O., Halkiv L., & Tsapulych A. (2021) Development of the IT-Sphere of Ukraine: Factors and Directions of Activation. *Journal of Lviv Polytechnic National University. Series of Economics and Management*, issues 5(1), pp. 42–55. DOI: <https://doi.org/10.23939/semi2021.01.042>
16. Ganushchak-Yefimenko L. M. (2016) Key Features of IT Entrepreneurship Development in Ukraine. *Actual Problems Of Economics*, no. (10), pp. 55–67. Available at: https://er.knutd.edu.ua/bitstream/123456789/3396/1/20161216_301.pdf
17. Yanenkova I. (2022) Factors And Ways of Development of Digitalization in Ukraine. *Economy of Ukraine*, no. (3) 724, pp. 4–22. DOI: <https://doi.org/10.15407/economyukr.2022.03.004>
18. Porter M. E. (March 1979) How Competitive Forces Shape Strategy. *Harvard Business Review*. Available at: <https://hbr.org/1979/03/how-competitive-forces-shape-strategy>
19. Porter M. E. (March–April 1990) The Competitive Advantage of Nations. *Harvard Business Review*. Available at: <https://hbr.org/1990/03/the-competitive-advantage-of-nations>
20. Porter M. E. (1985) *Competitive advantage: Creating and sustaining superior performance*. Free Press.
21. Muzhylyvskiy V. V. (2015) Definition of Market Intelligence and its Role in the Strategic Decision-Making. *Business Inform*, no. (5). Available at: https://www.business-inform.net/export_pdf/business-inform-2015-5_0-pages-255_259.pdf

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Elizaveta Zavhorodnya, Postgraduate Student at the Department of International Management, State University of Trade and Economics. **Tetyana Melnyk**, Doctor of Economic Sciences, Professor at the Department of International Management, Head of the Department of International Management, State University of Trade and Economics. **Classification of competitiveness determinants in information and communication technologies.**

In the current era, the influence of the ICT sector on the national economy is greater than ever before. Consequently, it is vital to gain a deeper understanding of the various factors that affect ICT companies and the ICT sector in order to

ensure the continued growth and competitive advantage of the national economy. It is therefore necessary to consider, summarise, group and classify the principal determinants of influence on the development and competitiveness of information and communication technologies (at the level of ICT companies and the ICT sector as a whole) for subsequent use by the main stakeholders. The objective of this study is to identify the distinctive characteristics and classify the factors that influence the development and competitiveness of information and communication technologies (ICT) at the level of individual ICT companies and at the level of the broader ICT sector within a national economy. It is proposed that the determinants of the development and competitiveness of ICT companies be classified according to the following criteria: the Five Competitive Forces Model, the Diamond Model, the Value Chain Model, the formation environment (to take into account the internal environment of the ICT company, its external industry environment or in the national/global context), types of resources (to reflect the impact of resources on the ICT company's competitive position), impact duration (to help ICT companies prioritise their corporate strategies), strategic focus (to align corporate activities with selected competitive advantages), types of technology (to understand the specific challenges and opportunities of different technologies), and types of market factors (to understand the challenges and opportunities of target markets). Concurrently, the categorisation of determinants of development and competitiveness within the ICT sector of the national economy is constituted by a set of elements pertaining to the economic environment (for the purpose of identifying the particular economic circumstances that impact upon the ICT sector), the technological environment (for the purpose of understanding the specific technological factors and innovations that contribute to its growth and competitiveness), the social environment (for the purpose of characterising the influence of social factors on the implementation and utilisation of ICT), the regulatory environment (for the purpose of considering the impact of legislation, regulations and policies on the ICT sector) and market dynamics (for the purpose of reflecting the impact of market conditions on the ICT sector).

Keywords: ICT sector, ICT companies, competitiveness, determinants of competitiveness, classification.

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В епоху, коли ІТ-сектор впливає на національну економіку з безпрецедентною силою, розуміння різних детермінант, що впливають на ІТ-компанії та ІТ-сектор в цілому, стає вирішальним для підтримки зростання та збереження конкурентних переваг національної економіки. Таким чином, постає потреба в розгляді, узагальненні, групуванні та класифікації основних детермінант впливу на розвиток та конкурентоспроможність в інформаційно-комунікаційних технологіях (на рівні ІТ-компаній та ІТ-сектора в цілому) для подальшого використання основними зацікавленими сторонами. Відповідно, метою дослідження є виділення характерних ознак та формування класифікацій детермінант розвитку та конкурентоспроможності в інформаційно-комунікаційних технологіях на рівні ІТ-компаній та на рівні ІТ-сектору національної економіки. Запропоновано класифікувати детермінанти розвитку та конкурентоспроможності ІТ-компаній за наступними критеріями: моделлю п'яти конкурентних сил, діамантовою моделлю, моделлю ланцюга вартості, середовищем формування (для врахування внутрішнього середовища ІТ-компанії, її зовнішнього галузевого середовища або національного/глобального контексту), типами ресурсів (для відображення впливу ресурсів на конкурентну позицію ІТ-компанії), тривалістю впливу (для подальшого визначення ІТ-компаніями пріоритетів для корпоративних стратегій), стратегічним фокусом (для узгодження корпоративної діяльності з обраними конкурентними перевагами), видами технологій (для розуміння специфічних викликів та можливостей різних технологій) та типами ринкових факторів (для розуміння викликів та можливостей цільових ринків). Водночас, класифікації детермінант розвитку та конкурентоспроможності на рівні ІТ-сектору національної економіки були сформовані з урахуванням груп елементів економічного середовища (для визначення конкретних економічних умов, що впливають на ІТ-сектор), технологічного середовища (для розуміння конкретних технологічних факторів та інновацій, які сприяють його зростанню та конкурентоспроможності), соціального середовища (для характеристики соціальних факторів впливу на впровадження та використання ІКТ), регуляторного середовища (для врахування впливу законів, нормативно-правових актів та політик на ІТ-сектор) та ринкової динаміки (для відображення впливу ринкових умов на ІТ-сектор).

Ключові слова: ІТ-сектор, ІТ-компанії, конкурентоспроможність, детермінанти конкурентоспроможності, класифікація.