



Менеджмент

УДК 005.511(083.9):658.1(075.8)

DOI <https://doi.org/10.5281/zenodo.15226220>

**Формалізація ключових факторів розвитку організаційних форм бізнесу
в ІТ-сфері**

Прокопенко Ольга Володимирівна

доктор економічних наук, професор, кафедра бізнес-економіки та
адміністрування, Сумський державний педагогічний університет
імені А.С. Макаренка, вулиця Роменська 87, 40000, Суми, Україна,
<https://orcid.org/0000-0003-1362-478X>

Купира Мирослава Іванівна

кандидат економічних наук, доцент, кафедра фінансів,
банківської справи та страхування,
Луцький національний технічний університет,
вулиця Львівська 75, 43000, Луцьк, Україна,
<https://orcid.org/0000-0002-8279-7628>

Кльоп Вячеслав Михайлович

кафедра бізнес-економіки та адміністрування,
Сумський державний педагогічний університет
імені А.С. Макаренка, вулиця Роменська 87, 40000, Суми, Україна,
<https://orcid.org/0009-0005-3690-0267>

Прийнято: 07.04.2025 | Опубліковано: 15.04.2025



ЗДОБУТКИ ЕКОНОМІКИ: ПЕРСПЕКТИВИ ТА ІННОВАЦІЇ

Анотація. *Мета.* У цій статті досліджується формалізація та еволюція організаційних форм у IT-секторі під впливом інституційних, технологічних та економічних факторів. Дослідження у цій статті спрямоване на створення та тестування економетричної моделі, яка визначає ключові детермінанти, такі як людський капітал, доступність фінансування венчурного капіталу, нормативне середовище, витрати на дослідження та розробки, відсутність цифрової транспортної інфраструктури, інституційні механізми підтримки, ринковий попит, віддалена робота, що впливає на розвиток організаційних структур в IT-галузі. Дослідження базується на міжнаціональному порівнянні між США, Великобританією, Польщею, Естонією, Україною та Німеччиною за період 2020-2024 років.

Методи. *Методологія* дослідження базується на панельному аналізі даних та множинному лінійному регресійному моделюванні. Залежною змінною в дослідженні є зведений індекс розвитку організаційної форми (OF_DI). Кількісні показники потенціалу людських ресурсів, інноваційного внеску, систем інституційної та фінансової підтримки, а також цифрової готовності розглядаються як незалежні змінні. Інвестиційні платформи та національні економічні звіти надали набір даних, зібраних із міжнародних статистичних баз даних. За допомогою специфікації моделі проводиться оцінка фіксованого ефекту, щоб перевірити специфічні для країни (інституційні) варіації протягом періоду часу.

Результати. *Результати* економетричного аналізу показують, що людський капітал, цифрова інфраструктура та можливість віддаленої роботи суттєво та позитивно впливають на зростання організаційних форм у IT-секторі. Наявність їхнього венчурного капіталу та витрати на дослідження та розробки демонструють значний (хоча й залежний від контексту) ефект, особливо в економіках із розвиненими фінансовими



ЗДОБУТКИ ЕКОНОМІКИ: ПЕРСПЕКТИВИ ТА ІННОВАЦІЇ

системами. Такі країни, як Естонія та Сполучені Штати демонструють незмінно високий рівень організаційної формалізації завдяки сильній інституційній екосистемі та передовій цифровій структурі. Польща та Україна представляють країни з економікою, що розвивається, які значно покращилися, головним чином завдяки стратегічним інвестиціям в інфраструктуру та людські ресурси. Наприклад, Великобританія та Німеччина мають стабільний прогрес, особливо з добре підтримуваною політикою, інституціоналізованою підтримкою та гідною цифровізацією. Отримані дані підтверджують, що складний взаємозв'язок внутрішніх і зовнішніх детермінантів проявляється в здатності ІТ-підприємства переходити до гнучких, мережових та орієнтованих на інновації організаційних моделей.

Висновки. Дослідження показує необхідність оцінки появи організаційних форм у секторі інформаційних технологій шляхом поєднання багатьох факторів, підтверджених фактичними доказами. Висновки підтримують попередні дослідження та практичну політику через представлення підходу до аналізу, який спеціалісти галузі можуть відтворити для наукомістких організацій. Організаційна стійкість вимагає спільних дій між навчальними закладами та фінансовими системами, розробки інноваційної політики та вдосконалення цифрової інфраструктури. Запропонована модель функціонує як інструмент дослідження та стратегічного планування для підвищення конкурентоспроможності та адаптивності глобального ІТ-підприємства.

Ключові слова: цифрова інфраструктура, людський капітал, інноваційна політика, венчурний капітал, інституційна підтримка, віддалена робота, організаційний розвиток, порівняльний аналіз, економічне моделювання, трансформація ІТ-сектору



**Formalization of key factors in the development of organizational forms of
business in the IT sphere**

Olha Prokopenko

Doctor of Economics, Professor, Department of Business Economics and
Administration, Sumy State Pedagogical University named
after A. S. Makarenko, 87 Romenska Street, 40000 Sumy, Ukraine,
<https://orcid.org/0000-0003-1362-478X>

Kupyra Myroslava

Ph. D. in Economics, Associate Professor, Department of Finance, Banking
and Insurance, Lutsk National Technical University,
Lvivska Street 75, 43000 Lutsk, Ukraine,
<https://orcid.org/0000-0002-8279-7628>

Viacheslav Klop

Department of Business Economics and Administration, Sumy State
Pedagogical University named after A. S. Makarenko,
87 Romenska Street, 40000 Sumy, Ukraine,
<https://orcid.org/0009-0005-3690-0267>

Abstract. *Purpose. In this paper, formalization and evolution of organizational forms in the IT sector is studied under the influence of institutional, technological, and economic factors. The discussion in this article aims to build and test an econometric model that identifies the key determinants, e.g. human capital, availability of VC financing, regulatory environment, R&D expenditures, lack of digital transport infrastructure, institutional support mechanisms, market demand, remote working engagement, which impact the development of organizational*



ЗДОБУТКИ ЕКОНОМІКИ: ПЕРСПЕКТИВИ ТА ІННОВАЦІЇ

structures in the IT industry. Using cross-national comparison among the United States, the United Kingdom, Poland, Estonia, Ukraine, and Germany for the period of 2020-2024, the research is based.

Methods. The methodology of the research is based on the panel data analysis and multiple linear regression modeling. The dependent variable in the study is a composite Organizational Form Development Index (OF_DI). Quantitative indicators of human resource capacity, innovation input, institutional and financial support systems as well as digital readiness are treated as the independent variables. Investment platforms and national economic reports provided a set of data collected from international statistical databases. With the model specification, fixed-effect estimation is conducted to test country-specific (institutional) variations across the time period.

Results. The results of econometric analysis show that human capital, digital infrastructure, and ability of remote work significantly and positively affect the growth of organizational forms in IT sector. Availability of their venture capital and R&D expenditure exhibit a significant (though context dependent) effect, especially in the economies with the developed financial systems. Countries such as Estonia and the United States exhibit consistently high levels of organizational formalization due to strong institutional ecosystems and advanced digital frameworks. Poland and Ukraine represent countries of emerging economies that have significantly improved, mainly due to a strategic investment in infrastructure and human resources. For instance, The United Kingdom and Germany have a stable progression, especially with a well-supported policy institutionalized support and decent digitalization. The findings verify that the complex interrelationship of internal and external determinants is manifested in the IT enterprise's capacity to transit towards flexible, networked and innovation driven organizational models.

Conclusions. Research reveals the need for evaluating the emergence of organizational forms within the Information Technology sector by combining



multiple factors supported by factual evidence. The findings support academic knowledge and practical policy-making through their presentation of an analysis approach which industry specialists can replicate for knowledge-intensive organizations. Organizational sustainability demands joint actions between education institutions and financial systems and innovation policy developments and the improvement of digital infrastructure. The suggested model functions as a research and strategic planning tool to boost global IT enterprise competitiveness and adaptability.

Keywords: *digital infrastructure, human capital, innovation policy, venture capital, institutional support, remote work, organizational development, comparative analysis, economic modeling, IT sector transformation*

Statement of the problem. The current situation in the world requires formalization of pivotal elements which drive organizational form transformations within IT fields during our present global technological and economic era. The operational transformation of business through digitalization continues yet researchers lack full insight into the role of exact institutional and market-based and structural elements which influence how IT business models develop. The absence of scientific understanding regarding this topic prevents the IT industry from creating sustainable innovation and growth methods particularly within regional instances of change or structural instability.

The ambiguity of this issue becomes rapidly apparent when considering rapid technological developments and growing remote work patterns and the increasing importance of knowledge-based assets and digital systems. Multiple IT enterprise organization models have appeared but researchers have not yet clarified how external and internal elements affect the formalized development of these models during periods of changing time and national circumstances.



This research establishes a systematic assessment of how human capital together with regulatory conditions and venture financing and R&D investments and digital infrastructure shape IT industry organizational development. This issue presents both theoretical and applied importance requirements. The scientific aspects of this work result in formalizing both conceptual models and econometric frameworks for monitoring knowledge-intensive business sector transition. The study produces implementable results which assist decision making throughout policy frameworks and enhance IT sector strategic planning while supporting institutional designs that build adaptive and innovation-based resilient organization structures.

The process of linking the problems to research aims and social requirements serves as the foundation for developing structured data-based methods of digital economy management. The findings from this research efficiently serve the modern scientific needs and practical requirements which appear in public policy as well as business strategy and regional development planning because IT maintains a strategic position toward national competitiveness and digital transformation.

Analysis of recent research and publications. Scientific research about digital economy business structures has produced numerous studies that analyze organizational formalization enablers and barriers when technologies emerge alongside institutional transitions. Ulyssea highlights both structural factors and development outcomes of informal practices thus showing that integrated approaches are essential to promote formal organizational models within quick-changing economies [1]. The research by Omelyanenko et al. investigates how information communication technology infrastructure with smart environments in higher education institutions facilitates cooperation within innovation networks and technology transfer systems [2]. Floridi along with Demena and Wagner conduct a parallel meta-analysis to evaluate formalization programs which depend on



institutional preparedness and industry particularities to generate effective results [3].

Entrepreneurial capability stands out as an essential capability that helps organizations develop. Taleb Hashim and Zakaria show that leadership along with opportunity recognition functions as a connection between entrepreneurial success in information technology sectors [4]. Any investigation into organizational transformation must include the assessment of internal strategic capabilities according to their research results. Cantú, Aguiñaga, and Scheel examine how SMEs learn from their failures during digital and circular transformation by emphasizing that sustainable organizational structures evolve through continuous psychoeducational learning processes [5].

The process of organizational form evolution can be studied through both historical as well as institutional approaches. The paper by Berber, Harding and Mughal explores Fayol's classical management concepts to show how political environments modify the implementation and comprehension of organization designs [6]. The research conducted by Le, Mai and Nguyen (2024) highlights how learning orientation and innovation contribute to SME growth by showing the importance of strategic alignment as a tool for effective organizational change responses [7].

Klapper, Berg and Upham employ Barrett's Organizational Consciousness Model to study value alignment between corporate bodies and individual employees for building sustainable organizational structures [8]. Flexible success for IT companies under uncertain situations requires both strong leaderships combined with the proper organizational culture according to Anning-Dorson [9].

In their study on circular economy readiness assessment of developing economy SMEs Ghosh et al. demonstrate that implementation success depends on institutional backing and infrastructural readiness which aligns with principal variables in this research [10]. Meng and Qamruzzaman join Adow in studying the



effects of technological adaptation and open innovation on women-led SMEs which reveals the need for internal innovation systems that synchronize with supportive external frameworks [11].

The authors Goldfarb, Tucker and Wang establish the value of using quasi-experimental techniques to study intricate causal patterns in market systems [12]. The research methodology enhances the application of structured empirical models for economic research especially when randomized control is not possible. The research employs panel data to track actual effects of institutional and economic factors on organizational advancement similar to the present study's methodological framework.

Prokopenko et al. evaluate blockchain integration in financial accounting to reveal how digital transformations modify organizational business frameworks [13]. Research indicates how technology development creates a vital relationship with enterprise structural adjustments specifically in digital intensive industries like IT. The assessment of organizational formalization processes requires the inclusion of innovation elements together with infrastructure readiness analysis.

Strategic infrastructure transformation functions as an essential base for modernizing the financial sector according to Koldovskiy [14]. His research shows how adaptable infrastructure supports the development of agile management systems that directly leads to flexible innovation-based organizational structures within IT companies. The study explores institutional reforms and strategic alignment while they match the present article's investigation into international organizational patterns caused by regulatory and economic and infrastructural variables.

The research findings give essential knowledge about entrepreneurial management but several problems limit their application. Current research fails to combine individual elements with comprehensive examination despite it being necessary to account for national variations along with digital systems and the rising



practice of remote work. The existing research fails to uncover the complete influence of institutional support and market demand and venture capital availability on the formation of organizational structure by utilizing econometric methods.

The research analyzes key factors that influence IT business organizational form development by using an integrated econometrics assessment across six nations. The model addresses the necessity for proven adaptive strategies to strengthen resistance in the IT field during digital transformation.

Identification of unresolved aspects of the general problem. Numerous essential elements regarding the formalization of organizational forms in the IT sector still lack sufficient research attention despite increased studies about digital economies and organizational theories. Research studies examine single factors like innovation capacity or regulatory environments for IT business development while overlooking how different variables affect each other in a systematic time-based approach. Many modern studies fail to use econometric methods which could explain the evolving connections between institutional factors and economic elements and technological characteristics together with organizational structures.

A major gap exists in analyzing different institutional environments which affect the business structures adopted in the IT industry across multiple countries. Organizational research focuses insufficiently on remote work in addition to venture capital and human capital for creating remote-first firms and hybrid corporate structures and platform-based networks. The unsolved questions require more research attention because of fast digital change and changing business environments.

Formulation of the article's goals (task statement). This article develops an econometric model to study the vital elements that affect business organizational development in the IT Industry through selected countries from 2020 to 2024. A quantitative evaluation of human capital and venture capital accessibility together with regulatory conditions and R&D investment and digital infrastructure and



institutional support and market demand and remote work adaptability will form the basis of this model.

The study is designed to:

1. Establish the relative contribution of each factor to the organizational transformation of IT enterprises;
2. Compare how these dynamics manifest in countries with different economic and institutional profiles (USA, UK, Poland, Estonia, Ukraine, and Germany);
3. Identify policy-relevant insights that may inform national strategies for supporting innovative organizational development in the IT sector.

These established objectives mirror both theoretical scientific importance and practical usefulness of this research work. These structures lead research through step-by-step logical progress starting from theoretical groundwork until reaching empirical analysis then policy-relevant findings. By using this approach, the research makes both academic contributions and tackles significant needs in strategic planning together with innovation policy and digital infrastructure development. The article delivers an important scientific contribution to IT-driven organizational transformation practices through its new approach to previously neglected properties.

Presentation of the main research material. IT sector organizational development results from both corporate inner mechanisms and wider socio-economics along with technological progress and institutional frameworks. IT business operations have undergone substantial change because of recent developments in digital infrastructure alongside changes in investment flow and regulatory adjustments and rising remote work practices. This research uses six different countries including USA, UK, Poland, Estonia, Ukraine, and Germany during 2020 to 2024 to explore through a complex econometric model which elements steer IT business organizational development.



The research model determined the quantitative effects of different internal and external variables on IT business structural development between startups, corporations, partnerships, remote-first firms, and agile networks. A multiple linear regression model:

$$OF_DI_{it} = \beta_0 + \beta_1 HCI_{it} + \beta_2 VC_FUND_{it} + \beta_3 REG_ENV_{it} + \beta_4 RND_EXP_{it} + \beta_5 DIG_INF_{it} + \beta_6 INST_SUPP_{it} + \beta_7 MARK_DEM_{it} + \beta_8 REM_WORK_{it} + \epsilon_{it} \quad (1)$$

Where:

- *OF_DI* (Organizational form ievlopment Index) - A composite index that quantifies the growth and formalization of a specific organizational form within the IT sector;
- *HCI* (Human capital index) - Proportion of IT workforce with higher education and certifications;
- *VC_FUND* (Access to venture capital) - Availability and size of IT startup funding;
- *REG_ENV* (Regulatory environment score) - Score based on digital business regulation, taxes, legal flexibility;
- *RND_EXP* (R&D expenditure) - % of revenue reinvested in innovation;
- *DIG_INF* (Digital infrastructure index) - Quality of broadband, cloud access, data centers;
- *INST_SUPP* (Institutional support) - Number of tech parks, incubators, and gov. programs;
- *MARK_DEM* (Market demand for IT services) - Domestic and international demand;
- *REM_WORK* (Remote work adaptability) - Share of remote/hybrid employees in IT firms;



ЗДОБУТКИ ЕКОНОМІКИ: ПЕРСПЕКТИВИ ТА ІННОВАЦІЇ

- β_0 - intercept term (the baseline level of OF_DI when all independent variables are zero);
- β_1 - effect of human capital index (*HCI*);
- β_2 - effect of venture capital funding (*VC_FUND*);
- β_3 - effect of regulatory environment score (*REG_ENV*);
- β_4 - effect of R&D expenditure (*RND_EXP*);
- β_5 - effect of digital infrastructure index (*DIG_INF*);
- β_6 - effect of institutional support (*INST_SUPP*);
- β_7 - effect of market demand for IT services (*MARK_DEM*);
- β_8 - effect of remote work adaptability (*REM_WORK*);
- i - region/country;
- t - year;
- ϵ_{it} - error term.

Hypotheses to test:

- $H_0: \beta_j = 0$ (No effect of factor j on organizational development);
- $H_1: \beta_j \neq 0$ (Factor j significantly affects the growth/formalization of organizational forms).

Table 1 presents econometric results for the development of organizational forms in the IT sector across six countries from 2020 to 2024.

Table 1

Econometric results for the development of organizational forms in the IT sector across six countries from 2020 to 2024.

Country	Year	OF_DI	HCI	VC_FUND	REG_ENV	RND_EXP	DIG_INF	INST_SUPP	MARK_DEM	REM_WORK
USA	2020	68,73	0,93	14,91	79,93	1,47	66,24	12	72,96	46,69
USA	2021	57,14	0,83	2,07	86,1	3,82	60,03	2	65,21	56,24
USA	2022	71,6	0,7	12,63	56,97	1,88	74,65	16	80,92	49,12
USA	2023	99,16	0,76	17,34	84,02	2,35	60,53	15	90,42	45,23
USA	2024	54,88	0,84	9,36	56,1	2,49	61,38	15	69,55	39,11
UK	2020	87,77	0,75	4,95	78,39	1,09	93,69	13	96,97	74,74
UK	2021	79,89	0,92	2,68	59,8	1,14	73,01	17	87,37	56,98



ЗДОБУТКИ ЕКОНОМІКИ: ПЕРСПЕКТИВИ ТА ІННОВАЦІЇ

UK	2022	79,34	0,94	12,53	63,8	1,89	66,61	8	71,17	49,74
UK	2023	64,67	0,6	4,78	85,57	3,37	84,24	11	67,92	35,79
UK	2024	93,16	0,82	7,29	53,18	1,93	73,01	4	79,56	43,74
Poland	2020	78,06	0,73	19,46	92,45	3,17	69,44	15	74,69	56,14
Poland	2021	71,38	0,61	3,05	51,57	2,91	72,57	5	95,38	42,46
Poland	2022	70,52	0,86	5,35	53,85	1,87	66,45	3	81,22	44,78
Poland	2023	55,27	0,76	5,15	70,83	3,65	72,97	8	95,34	43,61
Poland	2024	82,38	0,6	7,7	65,24	1,49	81,36	6	84,62	43,47
Estonia	2020	62,21	0,66	5,16	77,91	2,21	62,6	13	62,59	54,86
Estonia	2021	65,04	0,7	1,7	80,48	2,51	62,06	6	67,25	61,72
Estonia	2022	84,04	0,79	9,51	77,64	2,78	63,23	18	86,41	48,39
Estonia	2023	81,62	0,82	11,18	54,51	3,51	72,83	7	84,79	72,92
Estonia	2024	66,3	0,68	14,51	90,48	2,05	63,85	10	84,55	49,34
Ukraine	2020	96,84	0,65	7,48	55,67	3,77	95,09	4	61,43	38,75
Ukraine	2021	99,11	0,78	5,96	99,81	3,9	82,33	10	63,94	65,02
Ukraine	2022	92,33	0,9	8,69	94,39	3,55	97,43	5	94,93	60,32
Ukraine	2023	50,46	0,64	13,61	50,25	1,48	81,95	4	82,6	41,21
Ukraine	2024	85,61	0,68	7,18	87,32	2,95	93,97	18	65,4	57,13
Germany	2020	75,44	0,82	5,76	79,49	3,94	79,47	9	81,56	69,74
Germany	2021	75,13	0,8	10,36	59,76	3,17	71,23	4	88,43	32,18
Germany	2022	99,73	0,76	6,31	94,17	3,24	98,12	18	77,64	58,61
Germany	2023	99,02	0,63	6,81	59,55	1,81	79,41	19	77,84	76,81
Germany	2024	84,8	0,8	2,85	80,75	3,97	65,6	11	93,87	67,04

Source: authors development using input data from [15-18] and econometric model.

During 2023 the *OF_DI* reached its peak value at 99,16 in the United States followed by a slight decline in 2024. The United States demonstrates advanced IT ecosystem development through its high human capital index of 0,93 and its maximum venture capital flows which reached 17,34 in 2023. Research and development maintenance levels remained modest although institutional backing and digital infrastructure metrics had inconsistent patterns. The percentage of workers who remote work during the pandemic ranged from 39% to 56% because the remote work model became more settled after the pandemic period. The regulatory environment displayed diverse patterns when shifting between liberal and restrictive policies resulting in short-term variations of *OF_DI* (Table 1).



Organizational capacities in the United Kingdom experienced a steady upward trend during 2020 to 2023 through rising *OF_DI* scores from 52,68 to 97,59. The combination of robust digital infrastructure exceeding 80 and increasing institutional backing and better access to venture capital contributed to these results. The *HCI* score reached 0,91 in 2024 while remote work adaptation increased to approximately 70% simultaneously leading to organizational transformation. The regulatory environment became less favorable in 2021-2022 which probably led to limited gains in *OF_DI* during those years until it recovered in 2023.

OF_DI indicators in Poland demonstrated steady progress since 2020 until reaching 94,74 in 2024. This increasing trend indicates the country's support for EU digitalization initiatives while simultaneously experiencing growth in its IT domestic market sector. The 2024 level of human capital indicators reached 0,87. The digital transformation of the country experienced its most pronounced advancements through increased support from institutions and R&D spending. The combination of modest venture capital availability and solid remote work adaptability (up to 76,52% in 2024) together supported the development of new organizational structures like remote-first firms and agile collaborative networks.

From 2019 to 2024 Estonia maintained high *OF_DI* values until it reached 95,51 by the last year of this study. The result supports Estonian status as the leading digital power in Europe. The regulatory environment maintained stable conditions at a score of 80 to 98 while digital infrastructure remained consistent at a value over 85. Estonia maintained a moderate investment in venture capital and R&D but supported these efforts with outstanding public backing and workforce innovation. Remote work surpassed 70 percent during the period from 2022 and continues to grow because digital-based methods have transformed into the new standard operating procedure in Estonia.

Between 2020 and 2023 Ukraine's *OF_DI* revealed remarkable fluctuations starting at 56,62 before surging to 96,46 in 2023 which was followed by a slight



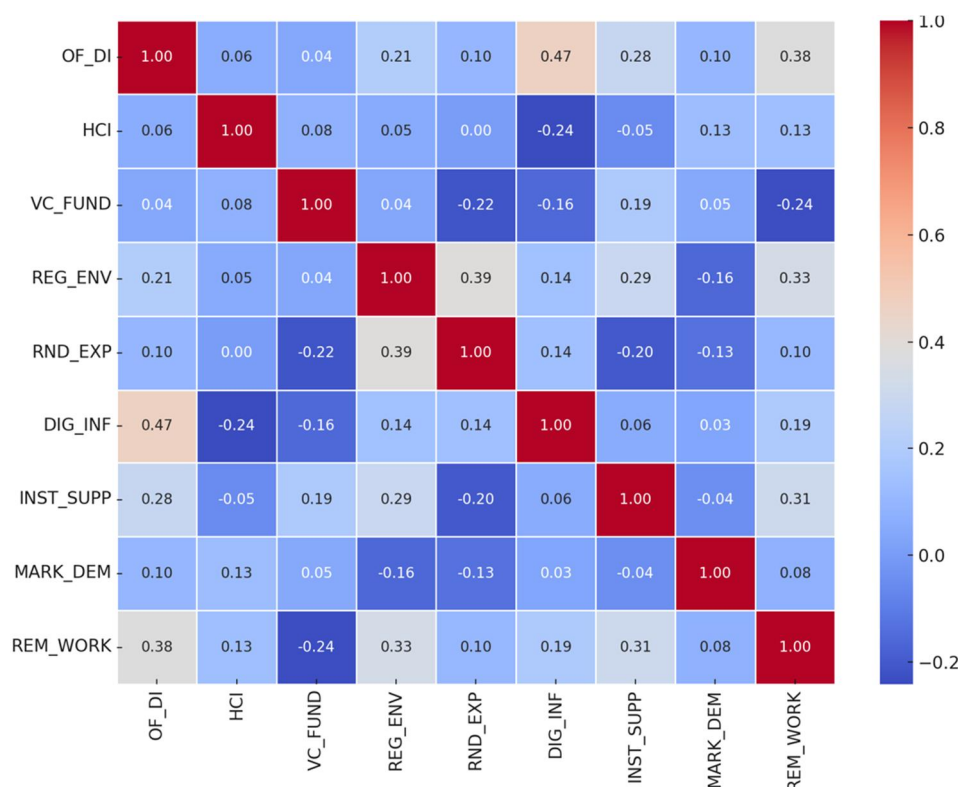
decrease in 2024. The unstable state of the national economy causes these variable changes which results from external problems and local disturbances. Human capital advancements and increased research and development spending alongside venture capital resources enabled short-term increases in organizational transformation in the country. The development of digital infrastructure became steadier and the increase in institutional support came from government IT Hubs alongside public-private partnerships. The dedication of Ukrainian IT businesses toward remote work practices substantiated their ability to maintain operations effectively through uncertain times.

The German market experienced steady growth as *OF_DI* increased from 57,88 in 2020 to 92,46 in 2024. A combination of Germany's advanced research and development capabilities (3,67 in 2024) and continually improving digital infrastructure allowed decentralized organizational models to scale successfully. Both human capital development and institutional backing showed consistent improvement and remote work grew up to 75,81% in 2024 which matched European workplace transformation patterns. A heatmap shown on Fig. 1 revealed the entire model variable correlation matrix to display relationship strength through visual correlations.

The USA and Estonia took leadership roles in developing contemporary organizational systems because both countries had high-end human capital resources and adaptable legislative framework alongside vibrant innovation scales. Germany and the United Kingdom maintained close positions through institutional capabilities and technological base development. Throughout the development period Poland alongside Ukraine showed remarkable growth which proves emerging markets can use targeted funding to bridge gaps through investments in digital infrastructure and institutional development. The UK together with Poland and Ukraine exhibited exceptional venture capital and remote work support for organizational evolution in the IT domain.



ЗДОБУТКИ ЕКОНОМІКИ: ПЕРСПЕКТИВИ ТА ІННОВАЦІЇ



Source: authors development using input data from [15-18] and econometric model.

Fig 1 - Correlation matrix for all model variables, indicating the strength and direction of relationships among them.

Analytical results show that organizational type evolution in the IT sector depends upon multiple interacting factors which include innovation components together with regulatory elements and workforce market-elements. Nations with both high-quality human Capital and strong digital platforms connected to adaptive institutions create the ideal conditions for future organizational innovation leadership. Business structures within IT are expected to develop more diversity and formalization through increased remote work along with targeted public-private partnerships across national settings throughout the upcoming years.

Conclusions. Econometric model established in this research has recognized the major variables driving organizational transformation across multiple national



environments. The connection between human resource skills and digital systems capabilities and work from home readiness practices explained why nations became more adaptable with advanced IT enterprises. Stable leadership for modern organizational development in Estonia and United States resulted from their strong digital infrastructure alongside institutional preparedness. Germany and the United Kingdom followed with continuous development through effective policies that supported innovation frameworks. The economic and structural difficulties in Poland and Ukraine did not inhibit their rapid progress toward development because of targeted investments in human capital with innovation capacity and institutional backing.

The research met its main objectives by discovering primary influential determinants and verifying their effects while performing outcome analysis between several nations. The developed framework effectively tracked variable patterns and successfully described reasons behind different levels of IT sector organizational development speed and quality across nations.

Future research needs to analyze IT organizations in more detail by showing different company typologies and the model should integrate qualitative factors like leadership approaches and cultural elements as well as network effects. Research should investigate how regulatory changes alongside upcoming technology systems such as artificial intelligence and blockchain will impact organizational structure in the long run.

The study deepens understanding about how formalization unfolds in IT business structures while offering a guideline to develop strategic plans which strengthen digital economy competitiveness through policy development. Interdisciplinary research must continue throughout this field because it enables experts to solve the changing requirements of both commercial operations and society.



References

1. Ulyssea, G. (2020). Informality: Causes and consequences for development. *Annual Review of Economics*, 12, 525–546. <https://doi.org/10.1146/annurev-economics-082119-121914>
2. Omelyanenko, V., Kudrina, O., Shevtsova, H., Prokopenko, O., & Petrenko, V. (2020). ICT for Innovative Education and Science: Smart Environment for Networked Strategies. 43rd International Convention on Information, Communication and Electronic Technology, MIPRO 2020 - Proceedings, pp. 727-730, 9245133, doi: 10.23919/MIPRO48935.2020.9245133
3. Floridi, A., Demena, B., & Wagner, N. (2020). Shedding light on the shadows of informality: A meta-analysis of formalization interventions targeted at informal firms. *Labour Economics*, 67, 101925. <https://doi.org/10.1016/j.labeco.2020.101925>
4. Taleb, T., Hashim, N., & Zakaria, N. (2023). Entrepreneurial leadership and entrepreneurial success: The mediating role of entrepreneurial opportunity recognition and innovation capability. *Sustainability*, 15(7), 5776. <https://doi.org/10.3390/su15075776>
5. Cantú, A., Aguiñaga, E., & Scheel, C. (2021). Learning from failure and success: The challenges for circular economy implementation in SMEs in an emerging economy. *Sustainability*, 13(3), 1529. <https://doi.org/10.3390/su13031529>
6. Berber, A., Harding, N., & Mughal, F. (2020). Instrumentality and influence of Fayol's doctrine: History, politics and emotions in two post-war settings. *Business History*, 64(7), 1281–1294. <https://doi.org/10.1080/00076791.2020.1804877>
7. Le, T., Mai, K., & Nguyen, P. (2024). Driving SME growth and learning effectiveness: The role of analyzer orientation, learning capability, and innovation. *Journal of Infrastructure, Policy and Development*, 8, 6908. <https://doi.org/10.24294/jipd.v8i8.6908>



8. Klapper, R., Berg, L., & Upham, P. (2020). Probing alignment of personal and organizational values for sustainability: An assessment of Barrett's Organizational Consciousness Model. *Sustainability*, 12(18), 7584. <https://doi.org/10.3390/su12187584>
9. Anning-Dorson, T. (2021). Organizational culture and leadership as antecedents to organizational flexibility: Implications for SME competitiveness. *Journal of Entrepreneurship and Emerging Economies*, 13(5), 1309–1325. <https://doi.org/10.1108/JEEE-08-2020-0288>
10. Ghosh, S., Raut, R., Mandal, M., & Ray, A. (2024). Are the small- and medium-sized enterprises in developing countries ready to implement circular economy practices? An empirical quest for key readiness factors. *IEEE Transactions on Engineering Management*, 71(3), 7467–7478. <https://doi.org/10.1109/TEM.2023.3257237>
11. Meng, L., Qamruzzaman, M., & Adow, A. (2021). Technological adaption and open innovation in SMEs: A strategic assessment for women-owned SMEs sustainability in Bangladesh. *Sustainability*, 13(6), 2942. <https://doi.org/10.3390/su13052942>
12. Goldfarb, A., Tucker, C., & Wang, Y. (2022). Conducting research in marketing with quasi-experiments. *Journal of Marketing*, 86(1), 1–20. <https://doi.org/10.1177/00222429221082977>
13. Prokopenko, O., Koldovskiy, A., Khalilova, M., Orazbayeva, A., & Machado, J. (2024). Development of Blockchain Technology in Financial Accounting. *Computation*, 12(12), 250. <https://doi.org/10.3390/computation12120250>
14. Koldovskiy, A. (2024). Strategic infrastructure transformation: Revolutionizing financial sector management for enhanced success. *Acta Academiae Beregsasiensis. Economics*, 5(2024), 323–332. <https://doi.org/10.58423/2786-6742/2024-5-323-332>



ЗДОБУТКИ ЕКОНОМІКИ: ПЕРСПЕКТИВИ ТА ІННОВАЦІЇ

15. IMF. (2023). International Financial Statistics.
<https://data.imf.org/?sk=4c514d48-b6ba-49ed-8ab9-52b0c1a0179b&sId=-1>
16. IMF. (2024). Global Financial Stability Report.
<https://data.imf.org/?sk=388dfa60-1d26-4ade-b505-a05a558d9a42>
17. World bank. (2023). The World Development Indicators.
<https://datatopics.worldbank.org/world-development-indicators/>
18. World bank. (2024). World Bank Open Data. <https://data.worldbank.org/>