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Archetypes of creativity: Identification and dissemination in the Ukrainian business

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Abstract. In the context of Ukraine's post-war recovery, creativity acts as a key factor in the innovative development and increased competitiveness of business. The aim of the study was to identify creativity archetypes among employees of Ukrainian organisations, to assess their prevalence, motivational factors, barriers, and workplace factors that influence creative activity. The methodology was based on an online survey of 168 respondents from various sectors of the creative industries and socio-demographic groups. Content analysis of responses, descriptive statistics, and comparative analysis of respondent groups were applied for the analysis. The identification of archetypes was carried out on the basis of self-assessment of creative potential, frequency of use of creative methods, and perception of the benefits of creativity using a point scale. As a result, seven archetypes of creative workers were identified, each with a unique motivational profile, specific barriers, and a need for targeted support in the work environment. It was established that the dominant archetypes in the sample are "Optimist" (32.9%), "Pragmatist" (24.1%), and "System Creator" (21%), together accounting for 78% of all respondents. The most influential motivators were financial incentives (81.5%), flexible working hours (64.3%), and professional development (63.7%). A concept of targeted measures oriented towards the characteristics of each archetype was developed, with recommendations for optimising the environment to develop their creative potential. The practical significance of the study lies in the possibility of using its results by business managers, HR specialists, and organisational development consultants to implement effective programs that stimulate the creative activity of personnel, taking into account archetype-specific features. Their implementation will contribute to the sustainable development of business and post-war economic recovery based on innovation and creativity

Keywords: organisational creativity; employee archetype; creativity motivational factors; creativity barriers; work environment; personnel development; innovative development

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Introduction

In the conditions of Ukraine's military reconstruction, the issue of effectively utilising the creative potential of employees acquires particular relevance. The ability to generate new ideas, apply non-traditional, resource-saving and customer-oriented approaches to organising economic activity, as well as demonstrate flexibility and rapid adaptation to changes and threats in the internal and external environment, constitutes a key factor for business success and sustainable development in modern conditions. An analysis of the scientific literature reveals a considerable body of research devoted to organisational creativity. Organisational creativity is examined in the context of strategic development, innovation management and human resource management. It is recognised as a strategic resource for achieving competitive advantages, substantially increasing productivity and improving the financial performance of an enterprise. The effectiveness of stimulating creativity depends on the ability of leaders to cultivate a corporate culture that supports creative expression and to remove internal and external constraints. Mechanisms of leadership, motivation and communication within organisational structures are key factors that require a comprehensive managerial approach.

The concept of the archetype, originally defined in psychology, refers to a universal, stable model of behaviour, thinking and emotional patterns embedded in the collective unconscious. These models function as primary images shaping both personality and culture. Archetypes are not merely passive constructs; they actively influence the formation of response types among individuals and groups. In business research, this term is widely used to deepen the understanding of managerial roles and styles within organisations, enabling the classification of employees according to their motivational and behavioural patterns. Archetypes of creative workers may be viewed as a classification system for thinking models, behavioural types and motivational drivers that contribute to the formation of innovative environments within business structures. Revealing the essence and role of these archetypes is an essential condition for developing effective human resource management strategies, particularly in stimulating creativity and innovative activity.

Various cognitive archetypes of thinking and creativity among managers and employees were discussed in the article by E. Miron-Spektor *et al.* (2018). The authors distinguished several approaches to creative problem solving: paradoxical thinkers, analytical performers, innovative experimenters and integrators. They emphasised that, for the effective management of innovation processes, different archetypes should be combined within organisational teams, as the balance between opposing style orientations (structure-creativity, stability-change) serves as a driving force for innovative success. Researchers M. Gonçalves & P. Cash (2021) identified eight archetypes of creative ideas – shaping ideas, incremental ideas, tangent ideas, bridging ideas and others. Using protocol analysis and network

analysis, they examined 31 ideation sessions conducted with novice designers. Their findings demonstrated that typologies of creativity should account not only for individual characteristics, but also for the dynamics of teamwork. Similarly, S. Vasconcellos *et al.* (2024) identified types of creative workers among employees of innovative enterprises using quantitative surveys and cluster analysis. They distinguished such archetypes as proactive innovators, idea generators and adaptive employees, depending on the level of creative activity and contribution to innovation processes.

Researcher B. Akan (2025) conducted a bibliometric analysis of more than 370 publications in the field of business and management for the period 2001-2024, using thematic mapping and social network analysis. The study emphasised the importance of understanding diverse archetypes for effective management of innovation processes. A typology of creative workers was proposed based on the level of creative potential, the frequency of applying creative methods and confidence in the value of creativity. Three archetypes were highlighted: active innovators, passive potential creators and sceptics. S. Pemsel & J. Söderlund (2024) systematically described four archetypes of creativity management in project-oriented organisations: Directive – creativity is initiated from above, clearly regulated and subordinated to strategic goals; Incubation – creativity emerges at the team level with minimal managerial intervention; Integrative – the organisation creates conditions for the free exchange of ideas and supports experimentation; Adaptive – creativity is directed towards solving specific tasks within a project. The authors argued that the choice of management archetype determines the balance between control and autonomy, influences the type and quality of innovations, and affects the organisation's adaptability to change.

In a comprehensive bibliometric and content analysis, T. Panda & T. Swamy (2025) examined scientific publications on creativity and employee innovation in business and management for the period 2001-2024. The study included Scopus and Web of Science publications addressing the typology of employee archetypes, their creative potential and the role of leadership in stimulating innovative behaviour. Term co-occurrence analysis and thematic mapping were used to trace the evolution of research – from general issues of creativity to the deeper study of digital transformation, intercultural collaboration and the introduction of artificial intelligence into creative processes. Social network analysis made it possible to identify links between archetypes of managers and employees depending on their approaches to creativity. Various archetypes of creative workers, their typologies and the role of leadership in shaping creative activity and innovative behaviour were highlighted. The authors emphasised the importance of a personalised managerial approach and the selection of appropriate tools to support different types of employee creativity. Despite substantial progress, issues concerning the integration of approaches for measuring creativity, identifying distinct creativity

archetypes and defining methodological principles for targeted support programmes remain unresolved – particularly in sectors and countries affected by military conflict and post-war reconstruction. This underscores the relevance and practical significance of the present study.

The purpose of this study was to identify archetypes of creativity among employees of Ukrainian organisations, determine their prevalence, identify key motivators, incentives and barriers to creative activity, and develop recommendations for targeted support and development of their creative potential. To achieve this aim, several tasks were addressed. Based on the responses from a specially conducted survey of creative workers, creativity archetypes were identified and a quantitative assessment of their prevalence among participants was carried out. The next step was to determine the most significant motivators of creativity, both at present and in the future, as well as the main barriers to creativity for representatives of different archetypes. Priority factors and features of the work environment that stimulate employee creativity – particularly those associated with different archetypes – were also identified. These findings formed the basis for developing a concept of targeted support programmes adapted to the specific characteristics of each creativity archetype.

Materials and Methods

The information base of the study comprised the results of an online survey developed and conducted at Vadym Hetman Kyiv National Economic University from April 2024 to May 2025. The theoretical foundation of the study was formed by classical and contemporary theories of creativity and motivation, which determine the key factors in the development of an individual's creative potential and the influence of the organisational environment on its realisation. In particular, when formulating the questionnaire items, the social-cognitive theory proposed by A. Bandura (1986) and reviewed by J. de la Fuente *et al.* (2023) was applied, emphasising the importance of self-efficacy – an individual's belief in their own creative abilities – as a driver of motivation for creative activity.

In addition, the componential model of creativity developed by T. Amabile (2012) was used. The study by J.-B. Xu *et al.* (2023) recognises this model as a basis for identifying creative skills, motivation and intrinsic motivation, which are essential for the development of creative potential. The study also incorporated the foundations of organisational behaviour theory, substantiated by S. Robbins & T. Judge (2020) and further developed in the work

of R. de Barros *et al.* (2025), which highlight the role of motivation and the work environment as stimulators or barriers to creativity within organisations. This theoretical framework enabled the formulation of relevant questions aimed at identifying individual and organisational factors of creativity, as well as motivators and characteristics of the work environment that influence respondents' creative activity.

Data collection was organised using the Google Forms platform. The questionnaire was disseminated through thematic Telegram groups and personal email distribution. A total of 168 participants took part, representing various creative industries – primarily IT, marketing, arts and crafts – which ensured the interdisciplinary nature of the sample. Socio-demographic profiling of respondents was carried out according to the following criteria: age (categorised into age groups), gender, social status (employed workers, entrepreneurs, students, etc.), sector of activity (IT, marketing, education, arts, crafts, etc.), organisational size (micro, small, medium and large enterprises), and target market (Ukrainian or international). The survey was anonymous. To ensure confidentiality and compliance with ethical standards, participants received information regarding the purpose of the study, the processing of personal data and their right to withdraw at any time. Ethical compliance was ensured in accordance with the guidelines on the ethics of scientific research involving human participants, in particular the World Medical Association (2013).

Methodologically, the study employed a systematic approach using multidisciplinary methods. Structural and functional analysis was applied to identify archetypes of creativity; content analysis was used for qualitative processing of open-ended responses; and descriptive statistics and comparative analysis were employed to assess the prevalence of archetypes, motivational factors, barriers and incentives across different groups. These methods were selected to obtain historically and statistically valid empirical results on the dynamics of creativity and factors supporting it in post-war Ukraine. The analytical report on the survey results was published on the scientific platform Zenodo (Ligonenko *et al.*, 2025), which ensured open access to the research materials and enhanced their academic verification. The identification of archetypes was based on the scoring of responses to three key questionnaire items: self-assessment of creative potential, frequency of the use of creative methods and perceived benefit from creativity in professional activities. Responses were converted into scores from 1 to 3 (Table 1).

Table 1. Scoring of responses to questionnaire questions

Question	Answer provided by the questionnaire	Score
Self-assessment of creative potential	I consider myself an extremely creative person.	3 points
	I believe I have some creative abilities.	2 points
	I don't consider myself a particularly creative person.	1 point
Using creative methods	I often use creativity.	3 points
	Sometimes, but more often I resort to traditional methods.	2 points
	I don't use creativity.	1 point

Table 1, Continued

Question	Answer provided by the questionnaire	Score
Feeling the benefits of creativity	Yes, my ideas help improve work.	3 points
	Sometimes, but not always, ideas bring results.	2 points
	No, standard methods are more effective.	1 point

Source: developed by the author

The respondent's total score determined his or her archetype (innovator, system creator, optimist, practitioner, potential creator, disappointed sceptic or traditionalist). The criteria and rules for identification are presented in Table 2.

Table 2. Identification and characteristics of creativity archetypes

Archetype	Score range	Brief description	Typical combination of answers
Innovator	9	High self-esteem, systematic use of creative methods, confidence in the benefits of creativity in professional and entrepreneurial activities	3+3+3
System creator	8	High/average self-esteem, systematic use of creative methods, but does not always see the result of using a creative approach in professional activities	3+3+2, 3+2+3, 2+3+3
Optimist	7	Average self-esteem, occasional use of creative methods, believes in the potential benefits of creativity in professional activities	3+2+2, 2+3+2, 2+2+3
Practitioner	6	Average self-esteem, periodic use of creative methods, partial belief in the effectiveness of creativity in professional activities	2+2+2, 3+1+2, 2+3+1, 1+3+2, 2+1+3, 1+2+3
Potential creator	5	Average/low self-esteem, occasional use of creative methods, does not always see the results of creativity in professional activities	2+2+1, 2+1+2, 1+2+2, 1+1+3, 3+1+1, 1+3+1
Disappointed (skeptical)	4	Has creativity and skills, but does not see the benefit for the organisation, is demotivated to be creative in professional activities	1+2+1, 1+1+2, 2+1+1, 1+3+0, 3+0+1, 0+3+1
Traditionalist	3	Low self-esteem, uses mostly traditional methods, sees no benefit in a creative approach in professional activities	1+1+1

Source: developed by the author

To assess the motivators of creativity, the questionnaire included the question: "What methods of motivating creative workers do you consider the most effective?" Respondents could select multiple options from four alternatives: financial incentives (bonuses, salary increases); flexibility in work and the ability to plan working hours independently; professional development and training; and recognition, distinctions and awards. To determine the main barriers to creativity, respondents were asked to rate the level of importance of several potential obstacles, including resource limitations, bureaucracy, resistance to change, lack of support, difficulties in implementing ideas, uncertainty of outcomes, and lack of experience or motivation. The assessment was carried out on a five-point scale, where 1 indicated the minimum and 5 the maximum level of significance. The list of barriers encompassed both organisational factors (bureaucracy, lack of resources) and psychological factors (scepticism, demotivation), providing a comprehensive view of elements that inhibit creativity and inventiveness in the workplace. This approach enabled a systematic assessment of key obstacles to the development of creative potential across different archetypes, as well as the identification of priority areas for supporting and stimulating innovative activity within organisations.

To identify priority factors within the work environment, respondents answered the question: "Which factors, in your opinion, could most contribute to the growth of creativity among employees in your organisation (and are appropriate for implementation)?" The proposed list included:

workspace (creative office environment); material incentives for innovation or career opportunities for creative employees; the cultural life or social positioning of the company; and other factors. Answers were given on a scale where 1 represented maximum support and 5 represented minimum support. A comparative analysis of motivational factors, barriers and priority work-environment factors was conducted for each identified archetype. The chosen methodology ensures historically and statistically valid results that have practical value for developing strategies to enhance creative potential in the post-war context of Ukraine and to strengthen innovative activity in the business environment. The survey results will be used to formulate recommendations for supporting creative activity in organisations, taking into account the specific characteristics of different types of creative workers. This approach provides a comprehensive understanding of the factors that facilitate or hinder the development of organisational creativity during post-war economic recovery.

Results and Discussion

Assessment of the prevalence of creativity archetypes and formation of their socio-demographic profile

The results of the frequency analysis of the prevalence of individual creativity archetypes are presented in Figure 1. The analysis was conducted on the basis of 168 completed questionnaires, which took into account the total scores for the key parameters: self-assessment of creative potential, frequency of using creative methods, and perception of the usefulness of creativity in professional activity.

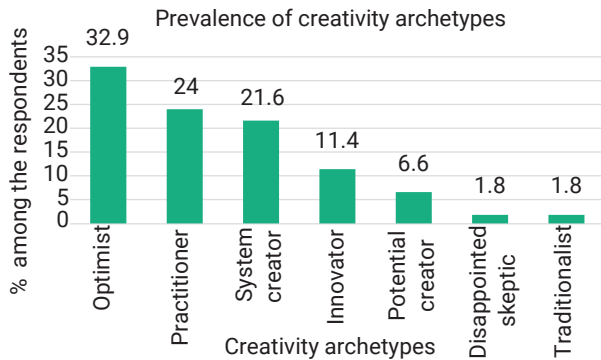


Figure 1. Results of frequency analysis of the prevalence of individual creativity archetypes among study respondents
Source: developed by the author

Almost one-third of respondents (32.9%) belong to the Optimist archetype. Representatives of this group exhibit an average self-assessment of their own creativity, periodically use creative methods in professional and entrepreneurial activity, and believe in the potential benefits of creativity. The second most common archetype is the Practitioner (24.1%), that is, individuals who apply creative methods when necessary and are convinced of the effectiveness of creative approaches. The third most prevalent archetype is the System Creator (21%), which includes individuals who systematically employ creative tools in their professional activity. Thus, 78% of respondents belong to highly creative archetypes that actively use creative methods, stimulate creativity and believe in its effectiveness. Skepticism regarding creativity and adherence to traditionalist approaches were recorded in only 3% of respondents.

Socio-demographic analysis showed that the Optimist and Practitioner archetypes are more common among young people under the age of 35, predominantly from the IT sector and creative industries, while the System Creator archetype is more frequently represented among older age groups with project management experience. These trends correspond to the characteristics of professional activity and the motivational factors typical of these groups. The optimistic attitude of young specialists under 35, especially

those working in IT, can be explained by several important factors. The culture and working environment of the IT industry traditionally support innovation, openness to experimentation and readiness to take risks, which forms a positive perception of creativity as a key resource for professional development. Young employees demonstrate high adaptability to rapid technological changes, which strengthens their confidence in their creative abilities and in their capacity to influence outcomes. Educational programmes and corporate training initiatives that emphasise creative thinking also equip this generation with relevant skills and motivation to generate and implement new ideas. In addition, the desire for self-realisation, professional growth and participation in innovation processes reinforces young employees' belief in the effectiveness of creative approaches. Thus, the interaction of corporate culture, educational trends and personal motivations fosters an optimistic attitude towards creativity among younger groups within the IT sector.

The prevalence of the System Creator archetype among older respondents with project management experience is explained by several factors. Accumulated professional experience enables these specialists to understand which creative methods are most effective in solving specific tasks, encouraging their systematic integration into work processes. Experience in project management develops skills in structuring, planning and embedding creative approaches within implementation and control procedures, making creativity not a spontaneous phenomenon but a consistent tool for achieving objectives. Older employees often bear greater responsibility for final outcomes, which motivates them to rely on proven creative methodologies to increase team efficiency and enhance product quality. Professional maturity and confidence also allow them to balance innovative approaches with practical constraints, resulting in creativity that is more focused and effective. Thus, the combination of experience, responsibility and methodological competence explains the systematic use of creative tools among representatives of this archetype. The socio-demographic profile of the identified archetypes – including their social status, the size of the organisations in which they work, and their target markets – is presented in Table 3.

Table 3. Socio-demographic portrait of individual creativity archetypes

Archetype	Age	Sex	Social status	Sector	Organisation size	Market	Typical features
Innovator	Up to 35 years old (≈58%), 35-45 years old (≈42%)	Women 58%, men 42%	Employees, sole proprietors, students	IT, marketing, media, design, education	Micro (≤10 people) and medium-sized businesses	Ukraine 63%, world 26%	High self-esteem, frequent use of creative methods, belief in usefulness, orientation towards development and innovation
System creator	25-35 years old (≈24%), 35-45 years old (≈33%)	Men 61%, women 39%	Employees, sole proprietors	IT, marketing, education, consulting	Medium (10-250 people) and large-sized (>250)	Ukraine 60%, world 29%	High/average creative potential, regular use of methods, seeks flexibility, does not always see the result
Optimist	25-35 years old 21%, 35-45 years old 42%	Men 63%, women 37%	Employees, sole proprietors	IT, marketing, advertising, education	Micro and large-sized business	Ukraine 47%, world 42%	Average creative potential, sometimes uses methods, partially recognises benefits, appreciates flexibility and support

Table 3, Continued

Archetype	Age	Sex	Social status	Sector	Organisation size	Market	Typical features
Practitioner	Up to 25 years old 32%, 25-35 years old 28%	Men 55%, women 45%	Employees, sole proprietors	IT, design, education, marketing	Micro and medium-sized businesses	Ukraine 68%	Average potential, situational application, focus on simple stimuli
Potential creator	25-35 years old 25%, 35-45 years old 33%	Men 50%, women 50%	Employees	IT, education, marketing	Medium-sized business	Ukraine 75%	Medium/low potential, needs support and training, rarely sees benefits
Disappointed skeptic	55-65 years old 67%, 25-35 years old 33%	Men 67%, others 33%	Self-employed, students	Crafts, architecture, marketing, education	Micro and small business	Ukraine 100%	Has potential, but sees no benefit, often demotivated
Traditionalist	45-55 years old 67%, <25 years old 33%	Women 67%, men 33%	Employees, business owners	Cultural heritage, crafts, education	Small and medium-sized businesses, state-owned enterprises	Ukraine 100%	Low potential, rarely applies methods, sees no benefit, focused on standard solutions

Note: SE – sole proprietors

Source: developed by the author

Identification of motivational factors of creativity

According to the results of the survey (multiple choice from the proposed list of factors), the overwhelming majority of respondents consider financial incentives (bonuses, salary increases) to be the most effective motivator of creativity. This option was selected by 81.5% of participants. Less common, yet still dominant motivators (over 60%), included flexibility in work and the opportunity to independently plan working hours (64.3%), as well as professional

development and training (63.7%). By contrast, recognition, distinctions and awards act as a motivating factor for only 45.8% of respondents, indicating that symbolic forms of encouragement are perceived as less influential than material incentives or opportunities for autonomy and learning. Table 4 presents the distribution of creativity motivators across different archetypes of creative workers. A dash indicates that none of the respondents belonging to a particular archetype selected the corresponding motivational factor.

Table 4. Comparative table of motivational factors for different archetypes of creative workers

Archetype	Financial incentives (%)	Work flexibility (%)	Professional development (%)	Recognition (%)
Innovator	89.5	63.2	57.9	42.1
System creator	83.3	80.6	77.8	52.8
Optimist	76.4	67.3	65.5	41.8
Practitioner	82.9	61.0	61.0	39.0
Potential creator	75.0	41.7	58.3	66.7
Disappointed skeptic	100.0	-	-	66.7
Traditionalist	100.0	-	-	50.0

Source: developed by the author

Financial incentives (bonuses, salary increases) are the most important motivator for all archetypes, especially for traditionalists and the disappointed (sceptics), where this indicator reaches 100%. Recognition, distinctions and awards are most significant for potential creators (66.7%) and disappointed respondents (66.7%), as well as for traditionalists (50%). Flexibility in work and the ability to plan one's own schedule are particularly valued by system creators (80.6%), optimists (67.3%) and innovators (63.2%). Professional development and training play an important role for system creators (77.8%), optimists (65.5%) and innovators (57.9%). Thus, the analysis of the results makes it possible to outline clear motivational profiles for each creativity archetype. Innovators expect comprehensive support that combines

financial incentives, flexible working arrangements and opportunities for professional development, while also attaching considerable importance to public recognition of achievements.

System creators demonstrate an orientation towards a balanced combination of flexible conditions, learning and development opportunities, financial incentives and openness to recognition. For optimists, all the main factors are relevant, although priority is given to financial rewards and flexible working hours. Practitioners primarily value financial incentives, supplemented by opportunities for professional development and elements of flexible work organisation. Potential creators place recognition of achievements at the forefront, while financial motivation and development opportunities are of

secondary importance. Disappointed respondents (sceptics) focus mainly on material incentives and recognition, considering other factors significantly less important. Traditionalists are almost exclusively oriented towards financial incentives, only partially assigning value to public recognition.

Identification of barriers to creativity

The results of the survey (score-based assessment of the importance of the proposed list of barriers) by archetype are presented in Table 5. The main barriers to creativity are those that received the highest importance scores on the five-point scale for each archetype.

Table 5. Significance of barriers to creativity by archetype (score)

Archetype	Insufficient resources	Bureaucracy and formalisation	Resistance to change and conservatism	Lack of support and incentives	Difficulty implementing ideas	Uncertainty	Insufficient experience and competence	Ignoring ideas and demotivation	Skepticism and lack of motivation
Innovator	2.5	2.0	2.3	2.2	2.0	1.8	1.7	1.5	1.3
System creator	3.0	3.2	3.1	2.9	3.0	2.8	2.7	2.5	2.3
Optimist	2.8	2.9	3.0	3.1	3.2	3.0	2.8	2.7	2.5
Practitioner	3.2	3.3	3.5	3.4	3.3	3.1	3.0	2.9	2.7
Potential creator	3.4	3.5	3.6	3.7	3.4	3.3	3.5	3.2	3.0
Disappointed skeptic	3.6	3.7	3.8	3.9	3.7	3.5	3.4	3.6	3.5
Traditionalist	3.8	4.0	4.2	4.1	3.9	3.8	3.7	3.9	4.0

Source: developed by the author

The results obtained can be explained as follows. For Innovators, the most significant barrier is the lack of resources (2.5), which is associated with the intensity and activity of their work, requiring extensive material and technical support. The second most important barrier is resistance to change and conservatism (2.3), which hinders the acceptance of new ideas and limits rapid adaptation. The third barrier is bureaucracy and excessive formalisation (2.0), which slows down innovation processes by constraining freedom of action and limiting creative initiative. The System Creator archetype values consistency, structure and clarity in creative activities. They prioritise streamlined processes, well-developed methods and adherence to established rules; therefore, barriers that disrupt this order have the greatest impact. Bureaucracy and excessive formalisation (3.2) create obstacles due to unnecessary administrative procedures, delaying the implementation of innovative ideas. Difficulty in implementing ideas (3.0) arises because System Creators tend to plan and control each stage of the process, so any complications related to access to resources, changes in strategy or lack of team support reduce the effectiveness of their creative work. Lack of support and incentives (2.9) also negatively affects their motivation, as they expect understanding and organisational backing.

For Optimists, the primary barrier is the difficulty of implementing ideas (3.2), since they are open to new opportunities but may underestimate the complexity of practical implementation. Lack of support and incentives (3.1) presents additional difficulties, as Optimists typically rely on approval and encouragement, which reinforce their enthusiasm and belief in success. Uncertainty of results (3.0) represents a psychological barrier: despite their generally positive

attitude, instability or potential failure may provoke doubt and limit their creative activity. The Practitioner archetype values stability, tangible results and practical solutions. Their strongest barriers are resistance to change and conservatism (3.5), which limit the acceptance of new ideas and experimentation, and lack of support and incentives (3.4), which reduces motivation for creativity during periods of change. Bureaucracy and excessive formalisation (3.3) complicate work processes and turn simple, effective solutions into lengthy procedures, hindering the implementation of creative ideas. In general, Practitioners prefer traditional approaches, value structure and clarity, and are often constrained by a reluctance to take risks or deviate from established methods.

A Potential Creator possesses a high level of creative potential but faces significant obstacles in realising it. The most important barrier for this group is lack of support and incentives (3.7). They require external support – moral, organisational or resource-based – to implement creative ideas and develop their skills. Resistance to change and conservatism (3.6) impede innovation, as new ideas often face scepticism from colleagues or organisational systems. Lack of experience and competencies (3.5) highlights the need for professional training, upskilling and development of practical skills that would reduce uncertainty and enable more effective use of creative potential. This archetype requires maximum attention to both personal and professional development, as well as a supportive environment conducive to innovation.

The Disappointed (Sceptic) archetype often experiences a pronounced lack of support and incentives (3.9), leading to low motivation and a sense of isolation in the workplace. They find it difficult to overcome the complexity of implementing ideas (3.8) due to limited resources

and a lack of encouragement for innovation. Scepticism and demotivation (3.6) reinforce negative attitudes, making them distrustful of change and innovation, which reduces creative activity and limits participation in collective creative processes. For Traditionalists, the most significant barriers are resistance to change and conservatism (4.2), lack of support and incentives (4.1), and scepticism and lack of motivation (4.0). This set of barriers reflects their preference for stability and constancy, as well as reluctance to adopt new methods. Bureaucracy and insufficient support further strengthen this tendency. Low motivation and scepticism explain their limited readiness for change and innovation.

Identification of priority factors of the work environment

To analyse more deeply how the characteristics of the work environment influence the manifestation of creativity among representatives of different archetypes, it is advisable to examine the importance ratings of relevant factors for each identified type. Such an approach makes it possible not only to observe general trends but also to identify the unique priorities that shape creative activity and the conditions necessary for its activation depending on the dominant archetype. In this context, Table 6 summarises the data obtained and enables the identification of specific patterns in how different groups perceive work environment factors either as incentives or as constraints.

Table 6. The importance of work environment factors for creativity (by archetype)

Archetype	Freedom	Workspace	Material encouragement	Cultural life
Innovator	1.8	2.0	2.3	2.6
System creator	2.0	2.2	2.5	2.7
Optimist	2.2	2.5	2.8	2.9
Practitioner	2.3	2.6	2.9	3.0
Potential creator	2.4	2.7	3.0	3.1
Disappointed skeptic	2.5	2.8	3.1	3.2
Traditionalist	2.7	3.0	3.3	3.4

Source: developed by the author

The highest-priority work environment factor for all respondents is "freedom" in relation to work schedule and dress code, which received an average score of 2.1 on a five-point scale, where 1 indicates the highest priority. A total of 68% of respondents assigned 1-2 points to this factor. The second most important factor is the organisation of the workspace (average score 2.4; for 54% of respondents, it represents the highest priority). Material incentives and career

opportunities for creative employees ranked third (average score 2.7, with 41% identifying this factor as their top priority). The lowest-rated factor was the cultural life of the organisation (average score 2.9), which proved to be important for only one-third of respondents. No significant differences in priorities were found across the different archetypes. The importance of individual aspects of the work environment for each creativity archetype is presented in Table 7.

Table 7. Importance of aspects of the work environment in terms of creativity archetypes (multiple choice), % of respondents

Archetype	Open exchange of ideas	Friendly team	Flexible working hours	Innovation space	Support and energy from colleagues	Collaboration with others	Freedom of expression	Financial compensation	Tolerance and openness	Developed cultural infrastructure
Innovator	82	74	68	59	54	51	48	44	41	38
System creator	75	68	65	59	54	51	48	44	41	38
Optimist	68	64	61	59	54	51	48	44	41	38
Practitioner	64	60	58	59	54	51	48	44	41	38
Potential creator	59	54	52	59	54	51	48	44	41	38
Disappointed skeptic	54	50	48	59	54	51	48	44	41	38
Traditionalist	48	45	43	59	54	51	48	44	41	38

Source: developed by the author

The most important aspects of the work environment were: open exchange of ideas and opinions (72% of respondents); a supportive team (68%); flexible working hours (65%); an innovative space (59%); support and energy from colleagues (54%); and the opportunity to collaborate with different people (51%). The least important

were: developed cultural infrastructure (38%); tolerance and openness (41%); financial compensation (44%); and freedom of expression (48%). No fundamental differences were identified across archetypes. The importance of individual aspects of the work environment for different archetypes of creativity demonstrates general trends that

promote creativity among all respondent groups. The most significant factor for each archetype was an innovative space, supported by 59% of respondents across all groups, which indicates the universality of this factor as a key stimulus for creative activity.

Open exchange of ideas and a supportive team also occupied leading positions, receiving the highest scores within the range of 54-82% depending on the archetype. In particular, Innovators and System Creators value open exchange of ideas most highly (82% and 75%, respectively) and consider a supportive team atmosphere especially important (74% and 68%). By contrast, the Traditionalist archetype demonstrates lower scores on these aspects: 48% for open exchange of ideas and 45% for a supportive team. This reflects its greater conservatism and a weaker need for collective creativity, which suggests the necessity of targeted efforts to overcome such limitations. Flexible working hours, support and energy from colleagues, opportunities for cooperation, freedom of expression, financial compensation, tolerance, and a cultural infrastructure show

relatively stable values within the range of 38-68% for all archetypes. This indicates their general but less differentiated role in stimulating creativity. It is important to note that no fundamental differences were identified among the archetypes regarding the perceived importance of these aspects, which indicates a similar set of needs for the development of creativity regardless of the specific type of creative behaviour. This makes it possible to recommend a universal approach to shaping the work environment, with an emphasis on the key incentives: an innovative space, open exchange of ideas and strong team support.

Development of the concept of targeted support programmes for different creativity archetypes

The proposed concept of targeted support programmes for different creativity archetypes is based on taking into account the motivators, barriers and expectations of each group, which enables the most effective targeting of efforts and resources (Table 8).

Table 8. Prerequisites and content of the support programme for different archetypes of creative workers

Archetype	Expectation	Barriers	Motivation	Support Programme
Innovator	Recognition; resources for experimentation; autonomy; participation in strategic decisions	Insufficient resources; bureaucracy; resistance to change	Financial incentives; flexibility; professional development; public recognition	Grant programs for innovative ideas; internal accelerators and experimental laboratories; public recognition: awards, prizes, conferences; the right to influence the organisation's strategic decisions
System creator	Flexible working conditions; development; simplification of bureaucracy	Difficulty implementing ideas; lack of support; excessive formalisation	Flexibility; learning; recognition	Flexible schedule and remote work; regular trainings, experience exchanges, internships; simplified procedures for submitting ideas; project competitions with funding
Optimist	Support for initiatives; financial incentives; flexibility	Uncertainty of outcome; insufficient support	Financial incentives; flexibility; support for ideas	Bonuses for initiative and participation in projects; independent planning of working hours; mentoring programs for the development of ideas; regular feedback on implemented initiatives
Practitioner	Simple and clear incentives; training; support	Lack of incentives; conservatism; limited resources	Financial incentives; training; simple tools	Clear key performance indicators with bonuses for achievements; workshops on practical creativity; access to simple tools for implementing ideas; mentoring and support in implementation
Potential creator	Mentoring; training; recognition of small achievements	Insufficient experience; lack of support; insecurity	Recognition; mentoring; training	Mentoring programs from experienced colleagues; trainings to develop creativity and confidence; recognition of even small successes (honors, feedback); involvement in team projects to gain experience
Disappointed skeptic	Feedback; recognition; psychological support	Lack of support; ignoring ideas; demotivation	Financial incentives; recognition; psychological support	Feedback sessions on ideas (analysis of reasons for failures); coaching and work with motivation; participation in team projects to feel meaningful; celebration of attempts and efforts even without a final result
Traditionalist	Simplicity; gradual involvement; financial incentives	Skepticism; resistance to change; lack of motivation	Financial incentives; simple examples; gradual involvement	Small bonuses for participating in initiatives; hints of the real benefits of creativity; gradual involvement in simple creative tasks; trainings to develop openness to new things

Source: developed by the author

Innovators and system creators value freedom of expression, an innovative creative space, open exchange of ideas, flexibility in work and the support of colleagues most highly. Therefore, it is important to create conditions that ensure autonomy, access to resources for experimentation, and opportunities to participate in strategic decision-making. Practical solutions include grant programmes for innovations, internal accelerators, public recognition through awards, and simplified procedures for submitting ideas. Optimists and practitioners, who are oriented towards more traditional material and moral incentives, prefer flexibility, collective support and stable rewards. For them, bonus programmes for initiative, the ability to independently plan working hours, mentoring initiatives and regular feedback are effective motivational mechanisms.

Potential creators, who often lack sufficient experience and require support, are motivated through mentoring, recognition of even small achievements, and gradual involvement in creative activities. Mentorship schemes, confidence-building training, and encouragement through awards and participation in team projects are particularly useful for this group. Disappointed sceptics and traditionalists demonstrate lower levels of activity in creative processes, show scepticism towards innovations and resistance to change. For such archetypes, simplicity, psychological support, gradual involvement in creative tasks and financial incentives in the form of small bonuses are especially important. Effective measures for these groups include feedback sessions, coaching, real-life examples demonstrating practical benefits, as well as recognition of even minor attempts and achievements.

Analysis of Table 8 shows that each archetype has its own specific expectations for support and motivation, as well as significant barriers, including bureaucracy, lack of resources, resistance to change and imperfect communication. At the same time, all archetypes require a combination of financial, motivational and organisational measures that enhance flexibility, interaction and recognition. This approach enables the development of targeted support programmes that reflect the varying needs of creative workers, increase their involvement and productivity, and contribute to the formation of an innovative organisational culture. The absence of radical differences in some aspects of creativity stimulation between archetypes also makes it possible to plan and implement universal support practices.

In general, to support and develop creativity in organisations, regardless of the archetype of employees, it is appropriate to introduce a number of universal measures aimed at creating a favourable innovative environment. First, regular monitoring of employees' needs and barriers is necessary, enabling timely identification of changes in motivational attitudes and the adaptation of support programmes. Such monitoring may be conducted through periodic surveys, interviews or HR data analytics, ensuring the validity of management decisions. The second key direction is the establishment of an organisational culture that encourages openness to new ideas and supports

experimentation, whereby employee initiatives are considered as opportunities for development rather than risks. This requires not only a declaration of values, but also practical mechanisms – for example, pilot projects, “failure budgets” for safe testing of ideas, and transparent procedures for reviewing innovative proposals.

An important component is the development of internal communities and the formation of a “creativity ecosystem”, within which employees with different archetypes can exchange experience and participate in general organisational mini-projects, workshops or hackathons. Such informal cross-functional interactions contribute to the dissemination of knowledge, increased motivation and the creation of a culture of mutual support. No less important is the development and implementation of a multi-level motivation system that includes both financial (bonuses, salary increases) and non-financial incentives (recognition, career advancement opportunities, training, flexible schedules). The system should take into account the specifics of different archetypes, ensuring the individualisation of approaches while maintaining general standards of fairness and transparency in rewards.

Thus, the strategy for developing creativity should provide for a comprehensive approach – from the systematic collection and analysis of feedback to building an organisational culture that supports innovation and provides motivation. This will make it possible to strengthen the creative activity of employees of all archetypes and contribute to the sustainable innovative development of the organisation. The proposed archetypes of creativity (innovators, system creators, optimists, practitioners, potential creators, sceptics and traditionalists) expand the typologies proposed by other scholars. In particular, they clarify the socio-demographic characteristics of each type and their expectations of the working environment identified in the study by M. Manimala & K. Wasdani (2015). The similarity of the needs of innovators and system creators, described in the work of E. Martins & F. Terblanche (2003), is particularly noteworthy – highly creative employees prefer autonomy, flexibility and direct influence on strategic decisions. In the article by V. Zianko & T. Nechyporenko (2023), the authors focused on the impact of artificial intelligence on the financial sector of Ukraine, considering it a powerful factor of modernisation and development. They analysed in detail how the introduction of innovative technologies transforms business processes and contributes to increased competitiveness. Their conclusions emphasised the role of technological innovations as a driver not only of technical change but also of cultural transformations within enterprises, which opens up prospects for the formation of new archetypes of creativity.

The identification of archetypes of creativity not only deepens the understanding of the internal diversity of creative workers but also opens up real opportunities for building targeted and effective support programmes that can become an important component of strategies for the innovative development of enterprises and organisations.

This conclusion is consistent with studies that highlight the importance of an archetypal approach to understanding and managing employee behaviour in complex socio-organisational systems. The study by A. Kraevska & I. Shvarts (2023) focuses on criteria for assessing the effectiveness of management in industrial enterprises, identifying the key parameters that influence productivity and sustainability. The authors emphasised that management effectiveness is closely linked to the implementation of innovations and adaptation to change, which, in essence, is a manifestation of a creative approach to organising work. They highlighted the importance of a systemic approach to management, yet they did not sufficiently reveal the role of individual and collective creative strategies that shape archetypes of creativity in specific organisational contexts. The conducted research deepened the understanding of individual and collective creative strategies that form archetypes of creativity in specific organisational contexts.

The identified motivation factors of creative workers are consistent with the results of the study by B. Wikantiyoso (2024). The analysis of motivation patterns among creative workers makes it possible to distinguish key archetypes that correlate with the level of creative activity and the use of creativity tools in professional activities. The article by O. Hudz & I. Koval (2020) is devoted to analysing the concept of creative management in enterprises. The authors emphasised that creativity in business is not only the generation of ideas but also the systematic management of creative potential, which requires specialised approaches and structures. They showed that creative management contributes to increasing the innovative capacity of enterprises and forms new models of behaviour. The conclusions of the study conducted in this work confirm that creativity requires systemic management, and the analysis undertaken in this article provides the empirical basis lacking in the referenced study, identifying specific archetypes in Ukrainian companies.

Based on the empirical analysis, the positive impact of learning orientation (the desire to constantly acquire new knowledge and skills) on the level of creativity in the course of business activities was demonstrated. The mechanisms proposed by these authors, which contribute to the emergence of innovative and creative ideas, were used in the development of the concept of targeted support programmes. The developed concept of targeted support programmes for different archetypes of creativity is a logical addition to the proposals of O. Tarasov *et al.* (2022) regarding the development of archetype models for analysing leadership styles and team motivation in innovative environments, emphasising their role in increasing productivity and innovative potential.

The conclusions formed are consistent with the results obtained by W. Leal Filho (2015) concerning the importance of internal communities, open exchange of ideas and the development of cultural infrastructure for enhancing innovative potential. At the same time, they complement these approaches with targeted detailing of support programmes that take into account archetypes, which was not the focus of the aforementioned work. In the study by

O. Plakhotnik (2022), emphasis is placed on the theoretical and methodological aspects of creative management, where the fundamental concepts and approaches to developing creative potential in organisations are outlined. The author carefully considered the factors influencing creativity and provided methodological recommendations for increasing the effectiveness of managing creative processes. The conclusions indicate the need to integrate various management tools to support creativity; however, there is no detailed examination of the specifics of the Ukrainian business context, which is important for understanding the features of the formation of creativity archetypes in this country. The author laid the theoretical foundations of creative management, and the present article has supplemented them by confirming these theories in practice within the Ukrainian business context, which is important for understanding the features of the development of creativity archetypes in this country.

However, unlike the study by N. Crilly (2025), the sample formed in this research did not reveal significant differences in the importance of individual factors of the working environment among the various archetypes, which indicates the existence of universal basic needs for the development of creativity. This may be due to the broader socio-economic context in Ukraine, where similar challenges and opportunities shape a comparable structure of needs among representatives of different sectors. Thus, the study confirms a number of widely recognised scientific provisions concerning the factors and motivators of creativity, while introducing novelty in the form of an archetypal approach and adapted recommendations relevant to the Ukrainian context of post-war reconstruction.

The attractiveness of the proposed methodological approach to identifying creativity archetypes lies in its simplicity and accessibility, which allows such studies to be scaled up and enables the application of the developed concept of support programmes in various organisations. The ease with which employees can be categorised by archetype makes it possible to determine their motivational needs, barriers and priority working environment conditions quickly, thereby increasing the effectiveness of support measures. This approach contributes to more accurate resource allocation and the adaptation of strategies for developing creative potential to the specific characteristics of different groups of creative workers. In addition, the accessibility of archetype identification methods makes it possible to reuse these tools within large organisations or at the regional level, significantly expanding the practical scope of the research. The developed concept of support programmes is universal, enabling the combination of both individual and collective strategies for motivating and stimulating creativity, which meets the current needs of dynamic business environments.

Conclusions

The study made it possible to determine the prevalence of creativity archetypes in the Ukrainian business environment, to outline the socio-demographic profile of

representatives of each archetype, and to identify the key motivators and working environment factors that influence employees' creative activity. According to the results, the most numerous archetypes were Optimists (32.9%), Practitioners (24.1%) and System Creators (21%), which together account for 78% of the sample. This indicates a predominant orientation among Ukrainian creative workers towards a combination of flexibility, pragmatism and a systematic approach to implementing creative solutions. The most important factors for the development of creativity were identified as freedom and autonomy at work, flexible schedules, a supportive collective climate, a modern and functional workspace, and open exchange of ideas. Overall, 81.5% of respondents consider financial incentives (bonuses, salary increases) to be the strongest motivator of creativity, while almost two-thirds (64.3% and 63.7%, respectively) emphasised flexible working hours, opportunities for professional development and training.

The study confirmed that the effectiveness of creative potential realisation largely depends on the alignment of support programmes with the characteristics of each archetype. For Innovators, priorities include resources for experimentation, public recognition and the ability to influence strategic decisions; for System Creators – flexible working conditions, professional development and reduced bureaucratic pressure; for Practitioners – clear and comprehensible incentives combined with learning opportunities; for Potential Creators – mentoring support, recognition of even small achievements and gradual involvement in

creative projects; for Disappointed individuals and Traditionalists – psychological support, simplicity of tasks and moderate financial incentives. The developed concept of targeted support programmes enhances the engagement and effectiveness of creative workers and contributes to the formation of an innovative culture within organisations. The simplicity and accessibility of archetype identification also allow this model to be scaled across different industries and applied both at the level of individual enterprises and in inter-organisational or regional initiatives. The study demonstrated that for the sustainable development of Ukrainian businesses it is critically important not only to identify creativity archetypes but also to build a flexible support system that takes into account the motivational characteristics and barriers associated with each type. Further research should focus on testing the effectiveness of the proposed support programmes in real business settings, as well as examining the influence of digital technologies and artificial intelligence on different creativity archetypes in the context of rapid socio-economic change.

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Архетипи креативності: ідентифікація та поширення в українському бізнес-середовищі

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Анотація. У контексті повоєнного відновлення України креативність виступає ключовим чинником інноваційного розвитку та підвищення конкурентоспроможності бізнесу. Метою дослідження було визначити архетипи креативності серед працівників українських організацій, оцінити їх поширеність, мотиваційні чинники, бар'єри та фактори робочого середовища, що впливають на творчу активність. Методологія ґрунтувалася на проведенні онлайн-опитування 168 респондентів з різних секторів креативних індустрій та соціально-демографічних груп. Для аналізу було застосовано контент-аналіз відповідей, метод описової статистики та порівняльний аналіз груп респондентів. Ідентифікація архетипів проведена на основі самооцінки творчого потенціалу, частоти використання творчих методів і сприйняття користі креативності за бальною шкалою. У результаті виокремлено сім архетипів творчих працівників, кожен з яких має унікальний мотиваційний профіль, специфічні бар'єри та потребує адресної підтримки в робочому середовищі. Встановлено, що у вибірці домінують архетипи «Оптиміст» (32,9 %), «Практик» (24,1 %) та «Системний креатор» (21 %), що разом становлять 78 % усіх опитаних. Найбільш впливовими мотиваторами виявилися фінансові стимули (81,5 %), гнучкий режим роботи (64,3 %), професійний розвиток (63,7 %). Розроблено концепт адресних заходів, орієнтованих на особливості кожного архетипу, з рекомендаціями щодо оптимізації середовища для розвитку їх креативного потенціалу. Практична значущість дослідження полягає у можливості використання його результатів керівниками підприємств, HR-фахівцями та консультантами з організаційного розвитку для впровадження ефективних програм стимулювання творчої активності персоналу з урахуванням архетипних особливостей. Їх впровадження сприятиме сталому розвитку бізнесу та повоєнному відновленню економіки на засадах інновацій та креативності.

Ключові слова: організаційна креативність; архетип працівника; мотиваційні чинники креативності; бар'єри креативності; робоче середовище; розвиток персоналу; інноваційний розвиток

Management of digital communication channels in organisations: The experience of Epiroc Ukraine

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Abstract. The research relevance is determined by the fact that digital tools are gradually transforming from an auxiliary tool into a basic management infrastructure, on which the speed of decision-making, the coordination of business processes and the quality of interaction with customers and partners depend. The study aimed to summarise theoretical provisions on the management of digital communication channels. The article examined the management of an organisation's digital communication channels using the example of the industrial company Epiroc Ukraine, which operates in the mining and construction equipment market. The methodological basis of the study was the analysis of scientific sources, content analysis of the company's internal documents, expert assessment of digital channels by groups of organisational and functional-behavioural criteria, as well as a comparative analysis of the competitive environment. As a result, the study determined that Epiroc Ukraine LLC has a sufficiently developed digital infrastructure, but its practical use is characterised by unevenness, excessive load on individual channels, and an insufficient level of integrated analytics for systematic evaluation of communication effectiveness. A concept for a digital communications management strategy is proposed, which involves the creation of an internal digital interaction team, the introduction of a unified digital communications policy, the modernisation of the internal portal as a centre for information interaction, the development of external content for social networks, and the implementation of a system of key performance indicators. According to the results of the estimated forecast, the implementation of the proposed measures will improve the consistency of information flows, reduce the time required to process requests, and increase the level of engagement of target audiences. It is also expected

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that the transparency of management processes will increase and the quality of management decisions will improve due to the use of real-time analytical data. The practical value of the study is determined by the potential use of the proposed approaches in industrial companies to build a comprehensive digital communications system, increase the transparency of management processes, and strengthen their competitive position in the market

Keywords: corporate communications; digital transformation; industrial enterprise; communications strategy; communications analytics; integrated channels

Introduction

The development of the digital environment has significantly transformed the logic of organisational management, turning digital communication channels into key infrastructure for coordinating management decisions, internal interaction and customer relations. In a modern environment, digital platforms not only ensure the transfer of information but also shape customer experience, manage business processes, provide analytics and support strategic management decisions. Digital business transformation is a complex process that encompasses changes in business models, organisational structures, communication channels and approaches to creating value for customers.

A significant area of scientific research has been devoted to the issues of customer relationship management and the integration of Customer Relationship Management (CRM) systems into corporate communication processes (Salman *et al.*, 2024). In modern organisations, CRM is seen as a tool for centralising customer data, automating sales, providing customer service and ensuring personalised interaction. As noted by H. Hansen *et al.* (2022), the integration of CRM systems into the overall corporate communications system contributes to greater consistency in information flows, transparency of internal processes, and effective customer interaction.

A separate block of scientific works focuses on brand interaction with the audience in the digital environment and communication management in social networks. Thus, C. Ledro *et al.* (2025) recognised social media resources not only as a channel for disseminating information, but also as an environment for shaping brand reputation, consumer engagement and feedback from the audience. Consumer engagement on social networks is a substantial factor in forming an emotional connection with the brand, increasing loyalty and trust, which directly affects the competitiveness of companies.

Contemporary research emphasises the use of digital analytics and data-driven approaches in communication management systems. According to M.Z. Bahand (2025), analytical tools ensure the evaluation of digital channel performance, customer behaviour forecasting, and the optimisation of marketing and service decisions. In the digital environment, marketing analytics is becoming a key tool for justifying management decisions based on large data sets and quantitative performance indicators.

A separate area of research covers omnichannel communication management strategies, especially in the B2B segment. Omnichannel communication involves integrating

internal and external digital platforms into a single customer interaction system, providing a consistent customer experience regardless of the point of contact. As noted by O. Popko & V. Filatov (2025), in the B2B segment, omnichannel communications combine service support, technical consulting, project management, and after-sales support into a single information loop.

Ukrainian scientists have also been actively researching the processes of digitalisation of marketing communications and management at industrial enterprises. O. Chukurna *et al.* (2024) analysed the problems of introducing digital technologies, forming digital channels of interaction, and improving the effectiveness of international and internal communications. According to I. Zakryzhevskaya *et al.* (2025), the integration of digital technologies into the development of global marketing communications of industrial enterprises contributes to increasing their competitiveness and adaptation to the conditions of the digital economy.

At the same time, despite the availability of a significant number of scientific studies, most works focus on individual aspects of digital communications – marketing, analytical or technological – without forming a comprehensive vision of digital communication channel management at the level of a specific enterprise. This necessitates further applied research to analyse real-life practices of using digital channels, their integration into management systems, and the evaluation of their effectiveness in the context of specific companies. The study aimed to summarise theoretical approaches to the management of digital communication channels, analyse the practice of their use using the example of Epiroc Ukraine, and develop practical recommendations for optimising the communication system of an enterprise.

Materials and Methods

The empirical basis of the study was provided by materials from the activities of Epiroc Ukraine LLC, which operates in the mining and construction equipment market and actively implements digital solutions in management, production and service processes. The choice of this company as the subject of the study is determined by the belonging to the segment of industrial B2B companies, for which digital communications perform not only marketing, but also operational, managerial, service and coordination functions. Epiroc Ukraine is characterised by a high level of digitalisation of business processes, active

use of integrated information systems, and an extensive network of long-term partnerships with customers, which creates a representative basis for analysing the effectiveness of digital channels in real management conditions. In addition, the company operates in an environment of high technological complexity of products and services, which increases the requirements for the quality of communications, speed of information exchange and coordination of actions between departments and contractors. This renders it a prime example for studying modern approaches to digital communications management in the Ukrainian industrial sector.

The study analysed the following structural divisions of the company: service department, sales department, finance and accounting department, logistics department, HR department, and management unit. The study covered the period of the company's activity from 2022 to 2024, which tracked digital transformations in the context of martial law in Ukraine and increased requirements for management efficiency. The object of applied analysis was digital communication channels that ensure internal interaction between company departments and external communication with customers and partners. The sample included the Integrated Management System (IMS), the internal corporate portal Homepage, the Salesforce CRM system, the Vchasno electronic document management platform, corporate email, the company's official website (Epiroc official website, n.d.) and the company's official Facebook page (Epiroc Ukraine Facebook page, n.d.). Access to the company's internal digital communication channels was provided to the authors of the study with the official consent of the management of Epiroc Ukraine LLC, which was used to analyse the functioning of these tools within the framework of existing corporate regulations and information security standards. Content analysis was conducted based on internal regulations, job descriptions, business process diagrams, information security policies, digital platform logs, CRM usage reports, and IMS materials. Only those documents that directly regulate the functioning of digital channels and have a status were included in the study. The units of analysis were management functions, information messages, business processes, digital interfaces, and algorithms for interaction between departments.

The expert assessment was conducted with the participation of nine company specialists, including department heads, sales managers, and service coordinators with 5 to 15 years of experience. The selection of experts was based on their direct involvement in digital communication processes. The assessment was conducted in the form of a structured questionnaire. Each digital channel was rated on a 10-point scale according to criteria such as frequency of use, speed of information exchange, convenience, security, integration, analytical capabilities, level of automation, user engagement, support for corporate culture, and overall satisfaction. The results were processed by calculating average values and the consistency of expert assessments.

The sources of information were official company websites, reports, analytical market reviews, and publicly available statistical data. The comparison was based on the following criteria: level of digitalisation, integrated smart solutions, service support, innovation, and adaptation to the Ukrainian market. Digital communication channels were evaluated on a 10-point expert scale, where 1 point corresponds to a very low level of performance and 10 points to a very high level. The final integrated indicator was determined by adding up the scores for reliability, integration, speed, convenience, and analytical capabilities. The unit of measurement was a conditional score. A radar chart was developed to demonstrate the level of effectiveness of various digital channels.

The main limitations of the study were the small number of experts, lack of access to certain internal financial data, and the subjectivity of some expert assessments. To minimise risks, a cross-checking method was used. Regarding company personnel, the principles of voluntary participation, anonymity, and confidentiality were observed in accordance with international ethical standards and the provisions of the Helsinki Declaration (World Medical Association, 2024). This set of methods combined a descriptive characterisation of the company's digital infrastructure with a quantitative assessment of its effectiveness and the formulation of sound practical recommendations.

Results

The study was conducted to comprehensively assess the state of the company's digital communications, determine the level of development of key interaction channels, and outline their impact on the effectiveness of information and management processes. The results showed that the company's digital communication infrastructure consists of several heterogeneous platforms and services that vary in terms of integration, functionality, and impact on operational activities. On the one hand, this multi-component nature creates opportunities for segmented data processing, but on the other hand, it increases the risk of fragmentation of information flows and reduces the transparency of management processes. They remain functionally relevant but have limited potential in terms of analytics and integration. This is particularly noticeable in cases where employees have to interact with several systems at the same time, spending additional resources on searching for information or manually duplicating data.

Along with performing internal functions, the company's digital channels are in constant interaction, forming a coordinated information flow management system. The integration of corporate platforms ensures continuous data exchange between the company's administrative, service and commercial departments. Digital communication channels are a key link in the interconnection between business processes, as they are used to transfer, process and analyse management information. To illustrate these processes, a diagram of the main data flows between the company's digital tools has been developed (Fig. 1).

Internal	Channels with mixed function	External
• IMS (Integrated Management System) • Internal Homepage portal	• Salesforce • Vchasno platform • E-mail	• Official web-site • LinkedIn • Facebook

Figure 1. Scheme of interaction between digital communication channels of Epiroc Ukraine LLC

Source: compiled by the authors based on the Epiroc official website (n.d.)

The system's effectiveness is ensured precisely by the deep integration between individual platforms. To determine the mechanism of this interaction, it is useful to consider the key links between the leading digital tools used in the activities of Epiroc Ukraine LLC. The Salesforce CRM system is the central link in digital interaction. It is integrated with email and the Vchasno system, which can automatically synchronise document flow and correspondence with customers. Any requests or commercial offers sent via email are automatically recorded in Salesforce as customer

inquiries. This avoids duplication of information and ensures transparency in tracking communication history.

The corporate website (Homepage) is integrated with the CRM system through a feedback mechanism: requests left by users on the website are automatically transferred to Salesforce, where they are processed in accordance with established corporate standards. Social media integration is conducted through Salesforce analytics modules and the company's internal reporting system. Audience engagement metrics (engagement level, clicks, comments) are automatically transferred to CRM, where they are processed for further study of customer behaviour characteristics and evaluation of marketing campaign effectiveness. In general, this interaction model forms a single digital communication circuit within which information is continuously transferred between systems. This not only reduces the time required for management decisions but also ensures coordination between departments, which is critical for the effective functioning of a large international company such as Epiroc Ukraine LLC. An analysis of the digital tools used in the organisation revealed significant differences between them in terms of several criteria: reliability, integration, speed of data exchange, ease of use and analytical capabilities. These differences are reflected in Table 1.

Table 1. Overall assessment of digital communication channels of Epiroc Ukraine LLC on a scale of 1 to 10

Communication channel	Reliability	Integration	Speed	Ease of use	Analytics	Total
Salesforce	9.8	9.7	9.5	9.3	9.9	48.2
Vchasno	9.5	8.9	9.7	9.2	8.3	45.6
E-mail	7.4	7.0	7.9	6.1	5.4	33.8
IMS	8.1	7.5	7.2	6.4	5.9	35.1
Homepage	6.7	6.1	6.8	6.0	4.3	29.9

Source: compiled by the authors based on the Epiroc official website (n.d.)

Expert evaluation demonstrated a clear differentiation of roles between digital channels. The highest ratings were given to the Salesforce CRM system and the Vchasno electronic document management platform. They ensure stable information exchange, minimise the time spent on document approval, maintain transparency of business processes, and provide quick tracking of changes in customer requests. On the other hand, traditional tools such as corporate email and the internal Homepage portal showed lower results, indicating a need to modernise these resources or integrate them into a more comprehensive communications ecosystem. Low analytical capabilities and fragmented information content lead to a decline in communication quality and increase the risk of losing necessary data.

The high performance of Salesforce and Vchasno is due not only to their technical characteristics, but also to the regularity with which they are used by staff. These systems act as key hubs through which a significant amount of service, customer and internal information passes. Their dominance is also confirmed by a radar chart showing their superiority over other tools in most criteria (Fig. 2). The radar chart shows that Salesforce is the most effective digital communication channel in terms of a combination of

key parameters (frequency of use, speed, ease of use, security, and integration), demonstrating consistently high ratings across all criteria. Email and Homepage also have a high level of integration and security, confirming their role in supporting internal and mixed communication processes. At the same time, the Vchasno platform and social networks are characterised by lower scores on certain parameters, in particular integration and frequency of use, which indicates their auxiliary nature in the overall digital communications system. Overall, the results confirm the advisability of further developing integrated digital tools and strengthening coordination between internal and external communication channels.

In an era dominated by digital technologies and profound transformation of communication systems, effective management of information flows is becoming a key factor in the competitiveness of industrial enterprises (Teece, 2010; Paul *et al.*, 2024). For Epiroc Ukraine LLC, which combines a complex organisational structure, a large number of internal and external contacts, and active interaction with the international divisions of the Epiroc Group, the formation of a comprehensive digital communications management strategy is a prerequisite for sustainable development. The digital channels already operating within the company, including

IMS, Salesforce, Vchasno, Homepage, corporate email and social networks, form a powerful foundation for building an integrated communication environment. At the same

time, their fragmented use, the lack of uniform regulations and an analytical system for evaluating effectiveness indicate the need for a strategic approach to their management.

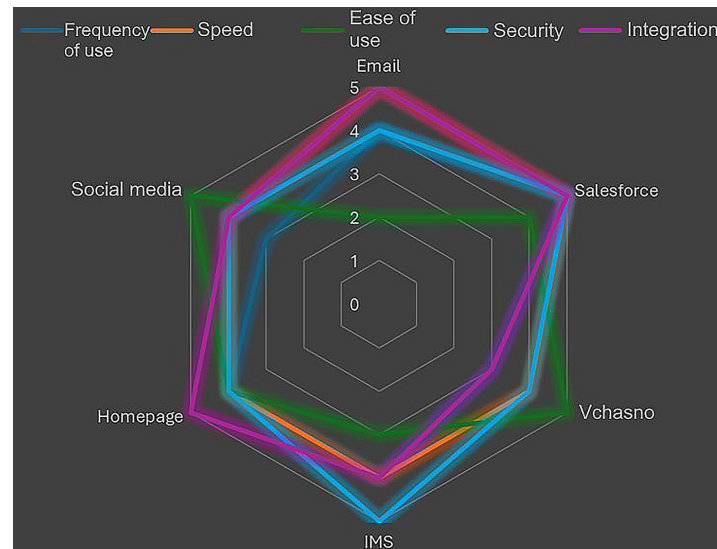


Figure 2. Radar chart of digital channel efficiency levels

Source: compiled by the authors based on the Epiroc official website (n.d.)

Developing a digital communications management strategy involves creating a unified, coordinated information interaction environment in which all systems function in an interconnected manner, ensuring continuous data exchange between departments, customers and partners (O'Reilly & Tushman, 2013). The main goal of this strategy is to form a modern communication management model that combines technological integration, analytical transparency, corporate culture, and information security. Its implementation will accelerate decision-making, reduce the document processing time, improve internal processes and increase the effectiveness of interaction with partners and customers (Sebastian *et al.*, 2017).

To implement this strategy, it is advisable to create an internal digital communications management team (Digital Communication Team). Its composition may be as follows:

- Digital Communication Manager – coordinates all processes, is responsible for implementing strategic initiatives and communicates with the Epiroc Group head office;
- Salesforce CRM system administrator – controls customer data, generates reports and provides analytical support for sales;
- Internal communications specialist – administers the IMS and Homepage portals, responsible for content, announcements, and training materials;
- External Communications Manager (PR & SMM) – manages activity on Facebook, LinkedIn and other social networks, ensures content is consistent with corporate style;
- IT Coordinator – responsible for technical channel integration, data security, and user support.

This team will report directly to the company's CEO, and its activities will be coordinated with the Epiroc Group's global communications policies.

The content of the digital communications management strategy covers several interrelated areas that form the basis for the comprehensive development of the system. Firstly, this concerns the integration aspect, which involves the creation of a single information space within which IMS, Salesforce, Vchasno, and Homepage interact via a shared platform with unified access to data. This approach ensures automatic synchronisation of documents, commercial requests, reports and internal correspondence, eliminating duplication of information and reducing the risk of data loss. The analytical aspect is substantial in the implementation of this concept, involving the introduction of tools for monitoring the effectiveness of communications. The development of an integrated analytical panel based on the Salesforce CRM system will make it possible to visualise key performance indicators such as response speed to requests, staff activity, communication channel load and user satisfaction levels. This will facilitate the transition from intuitive management to a data-driven decision-making system.

An equally relevant component is the organisational and regulatory aspect, which involves the implementation of an internal document, "Digital Communication Policy". This document should define the principles of digital interaction, the procedure for using corporate tools, information security standards, regulated requirements for the format and style of business communications, and rules for ethical communication. Standardisation of communications will contribute to increasing the transparency of management

processes, strengthening corporate discipline and ensuring the information integrity of the enterprise. Furthermore, the strategy provides for a cultural and educational aspect related to the development of digital competence among employees and the formation of a positive attitude towards innovation. The introduction of a system of short training modules, workshops and the “Epiroc Digital Ambassadors” programme will engage employees in the transformation process, increase user activity and strengthen corporate culture. The implementation of these areas involves the gradual introduction of the strategy in several stages, as shown in Figure 3.

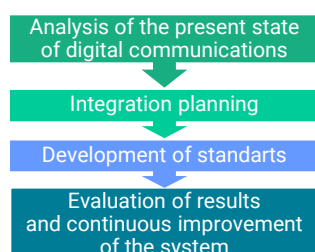


Figure 3. Stages of implementation of the digital communications management strategy of Epiroc Ukraine LLC

Source: compiled by the authors based on the Epiroc official website (n.d.)

The proposed digital communications management strategy is advisory in nature and can be implement-

ed at the enterprise as part of the next stage of digital transformation. Its implementation does not require a radical restructuring of the organisational structure but rather involves the gradual improvement of existing processes through the integration of information systems, automation of data exchange, and expansion of analytical capabilities. This approach maintains the stability of the enterprise while improving the effectiveness of management decisions and the quality of internal and external interactions.

This study examined a strategy for improving the corporate communications system at Epiroc Ukraine LLC, which can be implemented in the medium term after the relevant management decisions have been made. The implementation of the strategy involves a set of organisational and technical measures, including the introduction of analytics tools, document flow automation, and the systematisation of internal interaction. An essential component of the strategy is the definition of key performance indicators that can be used for the assessment of the success of communication changes. These indicators include the speed of processing customer requests, the proportion of documents signed in digital format, the level of employee activity in corporate systems, the number of automated operations, information security indicators, and the dynamics of audience engagement on social networks. Measuring these parameters will provide feedback and can be used to adjust management actions based on results. Key performance indicators are shown in Table 2.

Table 2. Key performance indicators (KPI)

Direction	Indicator	Target value
Communication efficiency	Average response time to customer enquiries	≤3 hours
Document flow efficiency	Percentage of electronic documents signed via Vchasno	≥85%
Staff engagement	Percentage of employees actively using IMS/Homepage	≥90%
Information security	Number of data leakage or loss incidents	0
External communication	Engagement rate on Facebook/LinkedIn	+25%
Process consistency	Share of automated communication operations	≥70%

Source: compiled by the authors

The establishment of target values for digital communication performance indicators is based on a combination of industry standards, B2B communication practices, and the actual capabilities of the company's digital infrastructure. The target value for the average response time to a customer request of ≤3 hours was determined based on the requirements of the modern industrial services market, where response speed directly affects customer confidence, service quality, and the company's competitiveness. The indicator of the share of electronic documents signed via the Vchasno platform ≥85% was chosen as a realistic level of document flow digitalisation, which can substantially reduce time and administrative costs, number of paper transactions, and, at the same time, incorporate the existence of certain processes that require paper duplication.

The target value of the share of employees who actively use IMS/Homepage ≥90% is justified by the need for maximum staff involvement in internal information processes to ensure a unified information space, transparency of management and prompt exchange of official information. The indicator of the number of data leakage or loss incidents = 0 was set as a non-alternative goal, since even isolated cases of information security breaches create significant financial, reputational and legal risks for an industrial enterprise. The target level of engagement on Facebook/LinkedIn of +25% was set as a benchmark for moderate but stable growth in external communication activity without sharply overloading communication channels and promotion budgets. The target value of the share of automated communication operations ≥70% is justified by the need to move from fragmented digitalisation to systematic automation

of key business processes, which reduces the impact of the human factor, improves process coordination and accelerates management decisions.

The introduction of such metrics will ensure a systematic measurement of progress in strategy implementation and timely adjustments to communication policy. The development of the strategy also requires consideration of the potential risks and barriers to its implementation. Among the main challenges are the insufficient level of digital literacy of individual employees, psychological and professional unpreparedness for change, difficulties with the technical integration of systems, and risks of confidential data leaks. These problems can be addressed

through phased staff training, the creation of a secure infrastructure with multi-level protection, the introduction of two-factor authentication, and a clear information access policy (Gensler *et al.*, 2013). Internal communication support for change is particularly relevant, which includes demonstration of the benefits of the new system and the positive impact on routine activities. The proposed digital communications management strategy provides for several organisational, informational and economic effects. Table 3 further illustrates the core of digital communications management strategy, demonstrating the expected results, the criteria for achieving them and the corresponding implementation tools.

Table 3. Expected results of strategy implementation

Expected result	Achievement metric	Implementation method
Increased speed of internal communications	Reduction of document approval time by 40-50%	Salesforce integration – Vchasno
Increased effectiveness of management decisions	Quick access to analytics in the dashboard	Analytical CRM dashboard
Optimisation of information flows	Reduction of data duplication	Digital Communication Policy
Development of corporate culture	90% of employees are involved in internal communications	Homepage, IMS
Improvement of external brand reputation	Increased activity on social media	SMM-strategy of Epiroc Ukraine

Source: compiled by the authors

Thus, the conceptually structured digital communications management strategy for Epiroc Ukraine LLC is not only a technical tool for modernising internal processes, but also a management model that combines technological, analytical and social aspects of the company's activities. It creates the basis for building a comprehensive system of corporate interaction capable of ensuring the effective functioning of the enterprise in the digital economy and increasing its competitiveness at the national and international levels. Research on external digital channels has shown that the Epiroc official website performs mainly

an informational function, but the level of interaction with users remains low. At the same time, the Facebook page shows potential for growth in reach, but its use is irregular and unsystematic. This confirms the need to create a single communication centre and develop an updated Homepage portal that would integrate key interaction processes. The proposed layout in Figure 4 demonstrates a clearer structure that will provide faster access to key documents and information flows. Its implementation will effectively eliminate the identified problem of communication fragmentation.

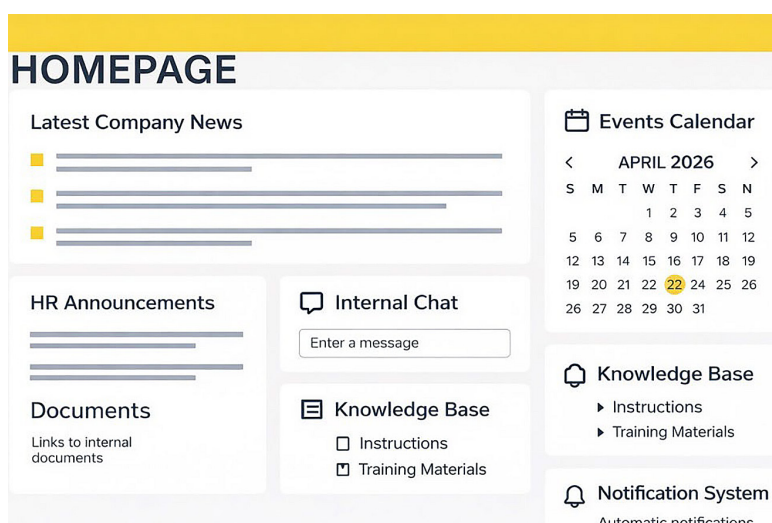


Figure 4. Layout of the updated internal portal Homepage

Source: compiled by the authors based on the Epiroc official website (n.d.)

The proposed layout of the updated internal Homepage portal demonstrates an integrated approach to organising internal communications within the institution. The structure of the main page provides quick access to the latest news, documents, knowledge base, events calendar and internal chat, which helps improve the efficiency of information exchange between employees. The implementation of such a portal will reduce communication fragmentation, increase staff engagement and optimise internal information flows.

Along with internal channels, it is necessary to develop external digital platforms that shape the brand's information field and ensure its communication with external stakeholders (Gawer & Cusumano, 2014; Homburg *et al.*, 2017). Thus, the external direction of digital communications development is primarily associated with the active use of social networks, which shape the public image of the company. One of the most effective channels of interaction with the market for Epiroc Ukraine LLC is Facebook, which provides coverage of the target audience, the possibility of two-way communication, and support for the image of an innovative brand. To increase the effectiveness of this channel, a partial test of the proposed digital communications strategy was conducted as part of the practical part of the study.

During this stage, a series of advertising publications and graphic banners were developed to promote Epiroc's modern technological solutions on Facebook. The visual materials were created in accordance with corporate brand standards, preserving the company's colour palette, fonts and logo, as well as the principles of informational conciseness and visual clarity. The content focused on the company's key values: innovation, energy efficiency, safety and reliability.

Figure 5 shows the first example of the Epiroc Smart Solutions advertising campaign. The main goal of this campaign is to crystallise sustainable brand recognition among industrial customers and emphasise the technological advantages of smart solutions in drilling, compression and process automation. The slogan "Epiroc Smart Solutions – automate productivity" conveys the key message: the company's innovations help businesses operate more safely, economically and quickly, as smart control systems, energy-efficient solutions and reliable service are the future of industry.



Figure 5. The first example of an advertising campaign
Source: compiled by the authors

The second option for an advertising campaign is "Revolutionary Drilling Solutions", shown in Figure 6. The campaign type is promotional, and its goal is to attract new customers and retain existing ones by demonstrating the benefits of service support. The concept of the slogan is that the company not only sells equipment, but also offers solutions for full life cycle support: diagnostics, spare parts supply, and remote monitoring.

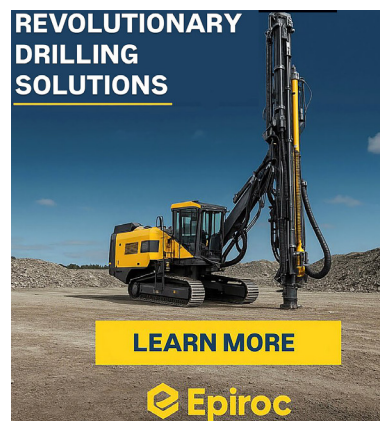


Figure 6. The second example of an advertising campaign
Source: compiled by the authors

As part of practical testing, several test advertising campaigns were created, one example of which was the Epiroc Green Power campaign (Fig. 7). The presented fragment of the Epiroc Green Power advertising creative focuses on the environmental friendliness and energy efficiency of the company's industrial equipment. The visual combination of green colours, equipment and infographic elements reinforces the brand's association with sustainable development and CO₂ reduction. This approach helps create a positive image for the company and increases the target audience's trust in the brand's environmental initiatives.



Figure 7. Excerpt from the Epiroc Green Power advertising campaign
Source: compiled by the authors

The analysis of Epiroc Ukraine LLC's digital communication system conducted in the previous sections showed that the existing tools – IMS, Salesforce, Vchasno, the internal Homepage portal, corporate email, and social media accounts – formally create a powerful foundation for building an integrated interaction environment, but in fact, they are used unevenly and fragmentarily. This is particularly evident in external communications: the company's official Facebook page has not been updated since 2021, which, in the eyes of external stakeholders, can be interpreted as a lack of activity or even stagnation of the brand. At the same time, internal channels are overloaded with routine correspondence, and the lack of a single centre for information interaction and systematic analytics leads to duplication of messages and the loss of substantial information. Under such conditions, the key task is not so much the introduction of new tools as the construction of a holistic, analytically managed communication model based on existing systems. The generalised structure of an optimised digital communications system for an enterprise is shown in Figure 8.

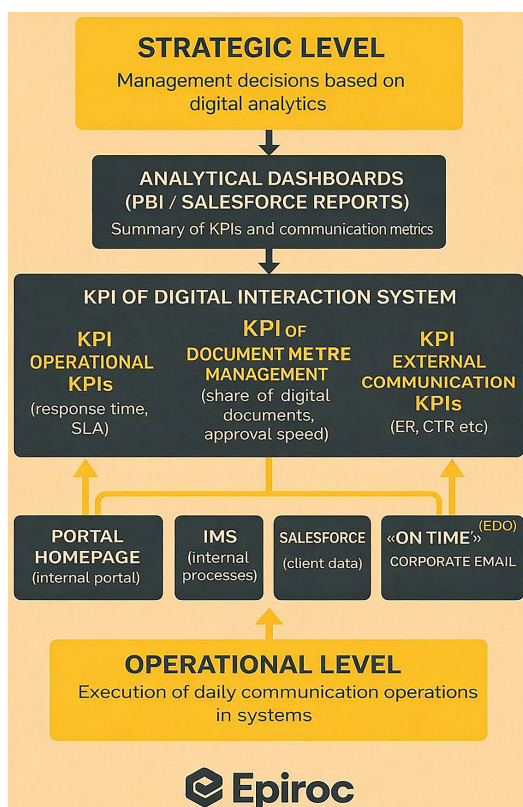


Figure 8. Infographic model of the optimised digital communications system of Epiroc Ukraine LLC

Source: compiled by the authors

The proposed infographic model includes two inter-related levels: operational (daily communications in IMS, Salesforce, Vchasno) and strategic (dashboards, KPIs, analytical conclusions). The infographic demonstrates the scheme “strategic level → analytical dashboards → KPI

interaction systems ← communication systems ← operational level”, which ensures systematic management of digital channels and immediate response to changes in the internal and external environment. Therefore, the proposed practical recommendations for optimising communication processes at Epiroc Ukraine LLC are based on a combination of three interrelated components: integration of internal interaction channels around a modernised Homepage portal, development of an analytical support system for management decisions based on dashboards and KPIs, and restoration of the company's systematic presence in the external digital environment, primarily on social networks. The use of numerical indicators, efficiency calculations, and infographic solutions not only makes communication processes transparent and manageable but also ensures their organic integration into the overall digital transformation strategy of the enterprise. As a result, this creates the basis for the formation of a holistic digital communications ecosystem capable of supporting the competitiveness of Epiroc Ukraine LLC in the context of growing demands for speed, flexibility and information transparency in business.

Discussion

The results obtained in the study on the state of digital communication channels at Epiroc Ukraine LLC generally confirm the modern approaches to digital business transformation, CRM system management, and omnichannel communication development presented in the latest scientific research. At the same time, empirical analysis revealed several practical limitations and industry-specific features characteristic of the industrial B2B segment, which complement and specify the existing theoretical provisions. According to G. Vial (2019), digital transformation is a systemic process that encompasses changes in business models, organisational structures, and digital platforms. The results of the analysis of Epiroc Ukraine's activities confirm this position, as the company's digital channels are integrated into key business processes – customer enquiry management, service maintenance, document flow and analytical support for management decisions. At the same time, in contrast to generalised models of digital transformation, empirical data show that in the industrial market, digital transformation is primarily operationally and service-oriented, rather than marketing and communication-oriented.

J. Järvinen & H. Taiminen (2016) demonstrated that integrating CRM systems into corporate communications significantly improves the consistency of information flows, management transparency, and the effectiveness of customer interactions. The results fully confirm this position: at Epiroc Ukraine, Salesforce CRM serves as the central hub for customer data management, combining email, service requests, and document flow channels. At the same time, it has been established that the integration of CRM with internal platforms remains partially fragmented, which complicates a comprehensive analysis of the customer experience. The use of digital analytics and data-driven approaches is substantial in improving the

effectiveness of digital communications. According to M. Wedel & P.K. Kannan (2016), marketing analytics in a data-rich environment provides the ability to quantitatively justify management decisions and predict customer behaviour. At Epiroc Ukraine, analytical tools are used to evaluate customer inquiries, the speed of request processing, and the effectiveness of service channels, but the potential for using analytics for strategic forecasting remains limited due to the lack of integrated dashboards.

As noted by L.D. Hollebeek *et al.* (2014), consumer engagement in the digital environment is central in shaping brand loyalty. The results of the study show that Epiroc Ukraine's social networks perform a supporting function in image building and information dissemination but are not the main channel of interaction with B2B customers. This confirms the industry-specific nature of the industrial market, where the main focus is shifting from social networks to service channels, personal communications and CRM systems.

The omnichannel approach to communications management deserves special attention. As noted by O. Popko & V. Filatov (2025), omnichannel in the B2B segment involves the integration of marketing, service and management channels into a single customer experience system. At Epiroc Ukraine, the prerequisites for an omnichannel model are already in place (CRM, email, the Vchasno platform, corporate platforms), but the lack of a single coordination centre for channel management is preventing the full implementation of omnichannel.

The results of a study by I. Zakryzhevskaya *et al.* (2025) confirmed that the integration of digital technologies into the marketing communications of industrial enterprises contributes to the formation of their competitive advantages. The results of the Epiroc Ukraine study confirm this thesis: the use of digital channels ensures the efficiency of communications, reduces the time spent on document approval, and improves the quality of customer service support. At the same time, the study established that personnel and organisational constraints remain a limiting factor for digital efficiency. From a strategic management perspective, the digital transformation of communications is also linked to changes in business models. As D.J. Teece (2010) notes, innovative business models are formed through the integration of digital technologies into key management processes. The practice of Epiroc Ukraine confirms that digital channels not only support existing processes but also transform the logic of customer interaction and service.

The results of the study are consistent with the approach of A. Teece *et al.* (2013) view digital business strategy as an integrated set of solutions that combines digital platforms, organisational processes and strategic goals of the company. An analysis of Epiroc Ukraine's activities confirms that digital communication channels are integrated into the company's key business processes, including customer service management, maintenance, document flow, and analytical support for management decisions. At the same time, in contrast to generalised models of digital

transformation, in the industrial market, these processes are primarily operational and service-oriented rather than marketing-oriented.

CRM system management is substantial in the development of digital communications. O. Berestetska *et al.* (2023) defined CRM systems as a key tool for the formation and implementation of digital brand management communication strategies. The results confirm this position: at Epiroc Ukraine, Salesforce CRM is the central element of customer data and communications management, combining email, service requests and document flow. Similar conclusions are also consistent with the findings of T. Coltman *et al.* (2011), demonstrating the positive impact of CRM systems on company performance when strategically integrated into business processes. At the same time, empirical analysis has shown that fragmented integration of CRM with other internal platforms limits the possibilities for comprehensive analysis of customer experience. The results also correlate with the conclusions of J. Bughin *et al.* (2017), emphasising the need for a digital rethinking of business processes as a condition for increasing organisational flexibility and efficiency. At Epiroc Ukraine, the implementation of digital communication channels contributes to reducing the time spent on processing requests, increasing the transparency of internal interaction, and optimising service processes, which correlates with the concept of digital reinvention.

The use of analytical and data-driven approaches are substantial in improving the effectiveness of digital communications. As noted by W. He *et al.* (2017), the analysis of large amounts of digital data is substantial for the support of management decisions. In the company under study, analytical tools are used primarily to monitor customer inquiries, the speed of their processing, and the effectiveness of service channels, but the potential of integrated analytics for strategic forecasting remains underutilised. Similar conclusions are also confirmed by the results of D.P. Reklitis *et al.* (2025), emphasising the significance of knowledge-driven approaches in digital transformation processes.

The analysis of Salesforce platform usage is consistent with the conclusions of K. Kaliuta (2022) regarding the economic benefits of implementing CRM solutions in business. At Epiroc Ukraine, the use of Salesforce contributes to improving communication efficiency, standardising customer service, and reducing administrative costs, which is particularly relevant for industrial B2B companies. At the same time, the results of the study confirm the thesis of T.F. Cawsey *et al.* (2015) that the effectiveness of organisational changes primarily depends not only on technological solutions, but also on management approaches and the level of digital competence of staff. At Epiroc Ukraine, personnel and organisational constraints remain a limiting factor in the full realisation of the potential of digital communication channels. The role of social media in the digital communications system is consistent with the approach of K. Sharma & P. Kumar (2018), emphasising the need for strategic use of social media marketing. In the case of

Epiroc Ukraine, social networks perform a supporting image function and are not the main channel of interaction with customers, which confirms the industry specificity of the industrial B2B segment.

Thus, the results of the study generally confirm modern scientific approaches to digital transformation, CRM management, omnichannel communications, and digital analytics. At the same time, empirical data deepen theoretical positions by identifying industry-specific features of digital channel management in industrial B2B companies in Ukraine. The conclusions view the proposed management solutions as a practical extension of existing scientific concepts in the field of digital communications.

Conclusions

The study made it possible to comprehensively assess the structure, effectiveness, and degree of integration of Epiroc Ukraine LLC's digital communication channels in the context of modern requirements for communication process management in the industrial B2B segment. The generalisation of theoretical approaches, analysis of the practice of using digital channels and the development of recommendations for their optimisation formed a holistic view of the state of the enterprise's digital communication system. The results confirmed that the company's digital infrastructure is functionally developed but characterised by uneven levels of technological maturity of individual channels.

The practical results of test advertising campaigns demonstrated the effectiveness of using external digital tools to increase brand awareness and build a positive image for the company. In particular, the Epiroc Green Power campaign demonstrated an increase in audience engagement, reach and positive user responses, confirming the

promise of environmentally oriented communication solutions in the industrial sector. This suggests that external digital channels can be an effective tool not only for marketing but also for reputation management.

The scientific novelty of the study is determined by the combination of structural analysis of digital communication channels with their assessment based on a set of organisational, technological, behavioural and communication criteria, as well as the development of an applied model of integrated digital communication management for industrial enterprises in the Ukrainian context. In contrast to most existing works, the study considers digital channels not only as marketing tools but also as an element of management and service infrastructure. In summary, the results of the study prove that effective management of digital communication channels is a prerequisite for increasing the competitiveness of a modern industrial enterprise. The further development of digital communications at Epiroc Ukraine LLC should be directed towards deepening the integration of heterogeneous systems into a single digital ecosystem, scaling analytics and automation, and strengthening the strategic role of external communications in forming long-term partnerships and sustainable development of the company.

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Conflict of Interest

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Управління цифровими каналами комунікацій організації: досвід компанії «Епірок Україна»

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Анотація. Актуальність дослідження зумовлена тим, що цифрові інструменти поступово перетворюються з допоміжного засобу на базову інфраструктуру управління, від якої залежать швидкість прийняття рішень, узгодженість бізнес-процесів і якість взаємодії з клієнтами та партнерами. Метою дослідження було узагальнення теоретичних положень щодо управління цифровими комунікаційними каналами. У статті розглянуто управління цифровими каналами комунікацій організації на прикладі промислової компанії «Епірок Україна», що працює на ринку гірничо-будівельного обладнання. Методичну основу дослідження становили аналіз наукових джерел, контент-аналіз внутрішніх документів компанії, експертне оцінювання цифрових каналів за групами організаційних і функціонально-поведінкових критеріїв, а також порівняльний аналіз конкурентного середовища. У результаті виявлено, що ТОВ «Епірок Україна» має достатньо розвинуту цифрову інфраструктуру, однак її практичне використання характеризується нерівномірністю, надмірним навантаженням на окремі канали та недостатнім рівнем інтегрованої аналітики для системного оцінювання ефективності комунікацій. Запропоновано концепцію стратегії управління цифровими комунікаціями, яка передбачає створення внутрішньої команди цифрової взаємодії, запровадження єдиної політики цифрових комунікацій, модернізацію внутрішнього порталу як центру інформаційної взаємодії, розвиток зовнішнього контенту для соціальних мереж і впровадження системи ключових показників ефективності. Реалізація запропонованих заходів, за результатами розрахункового прогнозування, дозволить підвищити узгодженість інформаційних потоків, скоротити час опрацювання запитів і збільшити рівень залученості цільових аудиторій. Очікується також зростання прозорості управлінських процесів та підвищення якості управлінських рішень за рахунок використання аналітичних даних у режимі реального часу. Практична цінність роботи полягає в тому, що запропоновані підходи можуть бути використані промисловими компаніями для побудови цілісної системи цифрових комунікацій, підвищення прозорості управлінських процесів та зміцнення конкурентних позицій на ринку.

Ключові слова: корпоративні комунікації; цифрова трансформація; промислове підприємство; стратегія комунікацій; аналітика комунікацій; інтегровані канали

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Food audit in Ukraine: Problems and challenges in an unstable environment

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Abstract. The full-scale invasion of Russia against Ukraine in 2022 significantly disrupted the functioning of the food safety control system, necessitating the adaptation of audit and certification procedures in order to minimise public health risks and maintain the resilience of the food sector. The purpose of this study was to comprehensively identify the specific features of food safety and quality auditing under martial law in Ukraine and to determine pathways for improving control mechanisms in the context of post-war recovery. The research employed analysis and synthesis of regulatory and legal acts, comparative analysis of international standards in the field of food safety management, as well as SWOT analysis to assess the strengths and weaknesses of the audit system under wartime conditions. The findings indicate that martial law led to a reduction in the number of inspections, limited access of inspectors to enterprises, and an increase in violations related to the documentation of food safety procedures. Significant difficulties were identified in laboratory testing due to resource shortages and infrastructure destruction. It was established that enterprises were forced to adapt production through relocation, changes in technological processes, and the modernisation of supply chains. The SWOT analysis revealed the need to strengthen state control, develop laboratory capacity, improve audits of humanitarian supplies, and enhance producers' awareness of food safety requirements. The results of the study can be used by enterprises in developing food safety control systems,

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by public authorities to improve inspection mechanisms under crisis conditions, and by certification bodies to adapt audit procedures to the realities of wartime

Keywords: food quality management; assessment of production processes; risk-oriented approaches; laboratory diagnostics of products; regulatory and technical requirements; certification procedures

Introduction

The audit of food products is one of the key mechanisms for ensuring food security, particularly since the beginning of Russia's full-scale invasion of Ukraine in 2022, when the control of product quality and safety became critically important. Military operations have significantly affected the functioning of Ukraine's food industry: many enterprises have been forced to reduce production, adjust logistics routes, or temporarily suspend operations. In these circumstances, auditing plays an essential role in verifying compliance with established food safety requirements, preventing hazardous products from entering the market, and supporting the stable functioning of the food supply chain.

Despite numerous challenges, Ukraine's agro-industrial sector demonstrated resilience: producers gradually resumed operations, logistics chains were reorganised, and consumers increasingly preferred Ukrainian goods. This trend reinforces the importance of strengthened quality control mechanisms across all stages of production, storage, transportation, and distribution. Changes in consumer behaviour during the war further increased the importance of food safety audits, as Ukrainian consumers increasingly prioritised domestically produced goods and brands perceived as reliable and compliant with safety standards (Gradus Research, 2022; 2023).

During the 2020-2025 years a substantial body of research has examined the functioning of food safety systems, audit mechanisms, and risk management in crisis conditions. L. Bal-Prylypko *et al.* (2024) emphasised the growing importance of Hazard Analysis and Critical Control Points (HACCP) implementation in Ukrainian enterprises, noting that the system remains an effective audit tool even under unstable conditions. Research of I.D. Bezerra *et al.* (2024) emphasised that crisis conditions significantly complicate food safety auditing by restricting physical access, disrupting infrastructure, and limiting laboratory capacity, thereby increasing the need for flexible and adaptive audit mechanisms.

Ukrainian researchers, such as O.M. Boiko (2022) highlighted ethical dilemmas in audit practice, focusing on the risks of non-compliance and the need for transparency and professional responsibility – issues that have become particularly relevant during wartime. HACCP functions not only a preventive system but also a core internal audit instrument, enabling enterprises to maintain safety standards despite resource limitations. The effectiveness of food quality audits depends on the maturity of internal control systems and the consistency of documentation, both of which tend to deteriorate under crisis conditions.

At the international level, research indicated a clear shift towards digitalisation and technology-assisted audits. In particular, blockchain- and IoT-enabled solutions have been highlighted as tools for strengthening traceability, data integrity, and verification across the supply chain, which becomes especially relevant when logistics are disrupted and physical access is constrained (Sugandh *et al.*, 2023; Pelé *et al.*, 2023). In addition, reviews of AI-driven inspection systems emphasise the growing role of image processing and automated control tools in supporting food safety assurance under operational uncertainty (Chen & Yu, 2022), while more recent studies demonstrate practical applications of machine vision and deep learning for detecting non-conformities when laboratory capacity is limited. I.D. Bezerra *et al.* (2024) argued that remote and hybrid audit formats may partially replace traditional on-site inspections – an approach that is particularly relevant for wartime Ukraine.

In connection with the crisis and rapid changes in the market, the audit helps enterprises adapt to new conditions, adhere to safety standards and maintain consumer confidence in Ukrainian products. Similar relationships between consumer confidence and the effectiveness of food safety control mechanisms have been identified in the European agri-food sector, where trust in food products is closely linked to the transparency and reliability of audit and inspection systems (Bánáti *et al.*, 2024). This is consistent with findings in the European agri-food sector, where improved reporting and audit practices have been shown to enhance corporate efficiency and resilience (Zabolotnyy, 2024). In wartime conditions, special attention should be paid to the flexibility of audit procedures, adaptation of requirements to current challenges (disruptions in logistics, evacuation of personnel, limited access to laboratory research) and ensuring the continuity of food safety control.

However, existing research does not fully address how wartime disruptions affect micro-level audit procedures within enterprises – including access to documentation, the operation of internal monitoring systems, and the performance of laboratory analyses when facilities are damaged or inaccessible. Previous studies also lack systematisation of auditors' practical challenges related to restricted mobility, security threats, fragmented supply chains, and inconsistent access to regulatory updates. Furthermore, academic research about how international audit standards should be adapted to extreme conditions are insufficient. These gaps highlighted the need for a comprehensive study focused specifically on audit-

ing practices during the war, the functionality of food safety management systems under extreme constraints, and the development of resilient audit mechanisms adapted to the realities of military conflict. Therefore, the purpose of this article was to identify the specific features and challenges of conducting food safety and quality audits in Ukraine under martial law, as well as to assess the impact of wartime conditions on auditing and certification processes, and to justify priority directions for improving audit methodologies and strengthening the resilience of the national food safety control system during post-war recovery.

Materials and Methods

This study applied a combination of theoretical, empirical and analytical methods to evaluate how wartime conditions affect food safety and quality control systems in Ukraine. The methodological framework consisted of four sequential stages: (1) regulatory analysis, (2) analysis of institutional practices, (3) assessment of certification dynamics, and (4) strategic analytical synthesis using SWOT analysis. Each method was selected to address specific research tasks and identify systemic vulnerabilities under martial law. The regulatory and standards analysis involved examining the Law of Ukraine No. 771/97-BP (1997), HACCP guidelines (Codex Alimentarius Commission, 1997), ISO 22000:2018 (ISO, 2018), DSTU ISO 22000:2019 (2019) and the FSSC 22000 scheme (FSSC, 2020) to determine the mandatory requirements food enterprises must follow during wartime. This method was chosen because wartime introduces regulatory uncertainty, making it essential to establish a baseline for assessing compliance risks and audit challenges. The analysis of official statistical and sectoral data used inspection statistics of the State Service of Ukraine on Food Safety and Consumer Protection (n.d) and International Finance Corporation (IFC), analytical materials and TIC-Ukraine (n.d.), reports on ISO 22000 and FSSC 22000 certification dynamics. The practical data examined included changes in inspection frequency and structure, disruptions in certification processes, documentation and logistics problems, staffing shortages due to military mobilisation, and limitations in laboratory capacity. This method revealed systemic disruptions not identifiable through legislation alone.

The empirical generalisation of industry practices summarised real operational challenges based on audit reports, production inspection publications (Shaluru, 2025), studies on laboratory and HACCP implementation (Maliuk & Saprykina, 2018) and case descriptions of infrastructure damage, supply chain failures and breakdowns of prerequisite programmes. The data were qualitative, derived from documentary sources, expert assessments and descriptive industry cases; quantitative indicators (such as declines in certification) served only as supportive evidence. This method enabled the identification of typical non-conformities and technological and organisational failures specific to wartime conditions.

The SWOT analysis systematised strengths, weaknesses, opportunities and threats affecting food safety audits. SWOT factors were developed using HACCP guidelines, ISO 22000, DSTU ISO 22000 and FSSC 22000 requirements, State Service inspection reports, IFC assessments and scientific and sectoral studies (Kotsanopoulos & Arvanitoyannis, 2017; Bezerra *et al.*, 2024). Factors were included only in case they were directly relevant to wartime audit conditions, confirmed by authoritative sources, had a clear impact on audit feasibility or accuracy and reflected wartime or post-war realities. The SWOT analysis was qualitative; no scoring or weighting was applied, as the aim was strategic systematisation rather than quantitative prioritisation. The overall research logic followed a consistent sequence: identifying normative requirements, comparing them with actual wartime practices, extracting bottlenecks from empirical and sectoral data and synthesising the results into a SWOT framework to develop strategic recommendations. This ensured reliable triangulation of regulatory, empirical and analytical insights.

Results and Discussion

The assessment of audit findings and identified non-compliances was conducted against the mandatory food safety requirements established by national legislation and international standards, including the Law of Ukraine No. 771/97-BP (1997) and Codex Alimentarius Commission (1997). The analysis revealed that food safety and quality auditing practices in Ukraine have undergone significant procedural adjustments under conditions of instability. These findings are consistent with post-pandemic trends in the global food and beverage industry, where resilience, flexibility, and the restructuring of control and reporting mechanisms have become essential for maintaining operational continuity (Veronesi & Schiavello, 2023). These adjustments concerned the organisation of audit stages, documentation requirements, and the use of laboratory and inspection resources. As a result, the key stages of food safety and quality audits currently applied in Ukraine were identified and systematised. The comparative analysis of international food safety standards demonstrated that the formal requirements of HACCP-based systems, ISO 22000, and FSSC 22000 remain largely aligned; however, their practical implementation under wartime conditions is primarily constrained by organisational, infrastructural, and human resource limitations rather than regulatory inconsistencies. The structured sequence of these stages is illustrated in Figure 1.

The figure reflects a structured sequence of stages in a food safety and quality audit, covering preparation, risk analysis, evaluation of production processes, laboratory testing, and documentation of results. The scheme takes into account the specifics of martial law, in particular threats to supply chains and the impact of hostilities on the sanitary and technical condition of production.

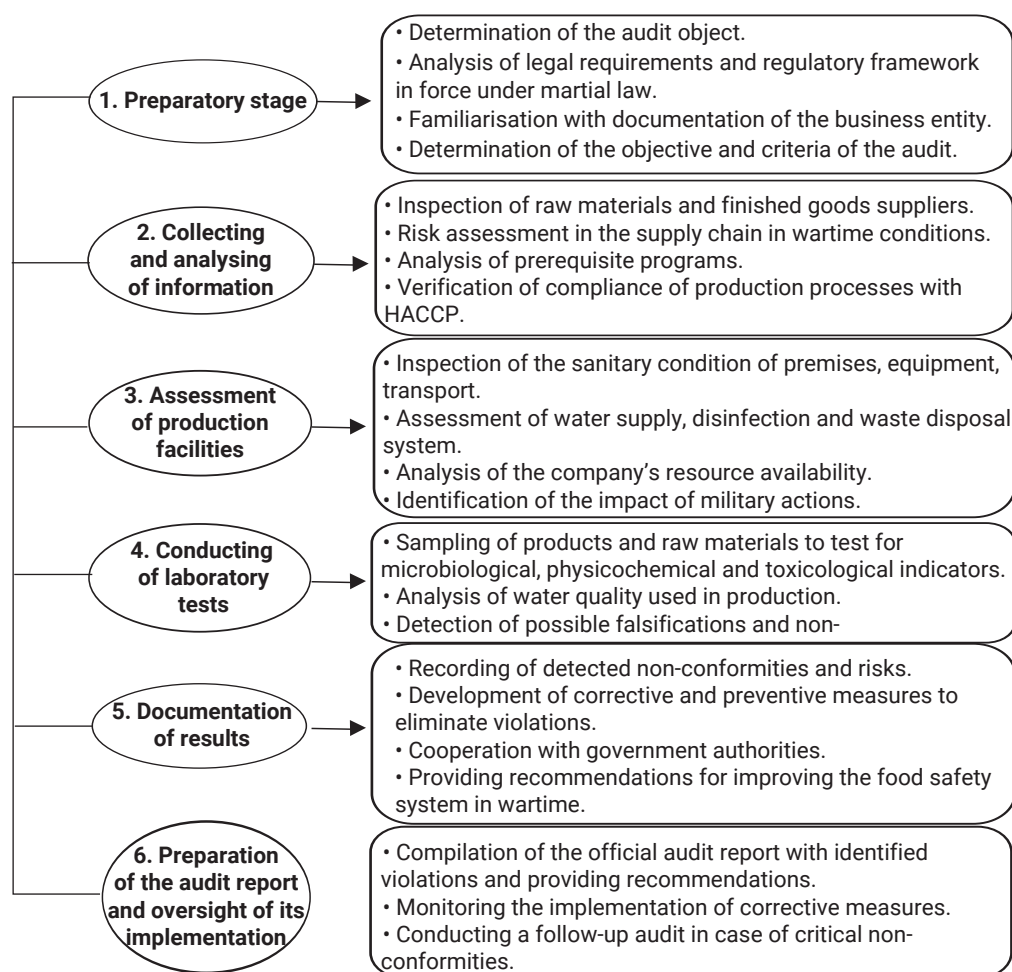


Figure 1. Stages of a food safety and quality audit in Ukraine

Source: created by the authors based on SGS Digicomply (2024)

The audit of the food safety system during wartime is much more complex process, as it requires the consideration of additional security and instability factors that significantly complicate the normal audit process (Kotsanopoulos & Arvanitoyannis, 2017). The overall structure of food safety audits follows internationally recognised approaches, which emphasise process verification, documentation review and corrective actions. The audit begins with careful preparation, which includes the identifying the object of inspection, studying of the legal requirements and regulatory framework applicable under wartime conditions. At this stage, the company's documentation is also analysed, the audit objective is formed, and evaluation criteria are established. An important component of this phase is the selection of the audit team, which may include quality experts, microbiologists, technologists and other specialists.

According to the State Service of Ukraine on Food Safety and Consumer Protection (n.d.), the share of enterprises that do not properly perform document management in the field of food safety has increased significantly during the war. Challenges at this stage include restricted access to relevant regulatory documents due to active hostilities, making compliance verification difficult. These

organisational difficulties are consistent with broader structural constraints reported in the food industry, including deficiencies in documentation systems and resource shortages.

Rushed legislative changes are often not properly communicated to companies. Moreover, forming an audit team is also complicated by the military mobilisation or displacement of specialists, which is consistent with observations regarding personnel shortages and difficulties in maintaining audit procedures. The next stage involves collecting and analysing information about the enterprise. Raw material and finished product suppliers are inspected, and supply chain risks are assessed, particularly considering martial law. Prerequisite programs are analysed, the compliance of production processes is evaluated with HACCP standards (ISO 22000:2018, 2018), and staff availability to act in emergency situations is verified. Challenges at this stage include difficulties in monitoring suppliers due to logistics disruptions and limited access, as well as increased supply chain risks due to infrastructure damage and road blockages. Additionally, there is a shortage of microbiological laboratories to test products, caused by infrastructure destruction and staff limitations.

One of the key tools of the audit is the assessment of the HACCP system's implementation (Maliuk & Saprykina, 2018). The audit of ongoing procedures based on HACCP principles includes verification of continuity and effectiveness of their application. This involves analysis of documents, accuracy of records, inspection of processes that affect food safety, evaluation of the operator's internal control system, analysis of corrective actions taken upon identifying non-conformities, and assessing personnel qualifications. Issues include non-compliance with HACCP procedures (TechConsult Ukraine, 2024) due to a reduced number of critical control points resulting from disrupted technological processes, and difficulties in personnel training or shortages caused by military mobilisation or relocation. Assessing the effectiveness of process control is challenging because many companies cannot properly document all steps due to the lack of electronic systems.

Assessment of production facilities is a crucial part of the food safety management system certification process, as this stage determines both the safety of the final product and the enterprise's ability to maintain production standards. It involves a detailed inspection of the sanitary condition of premises, equipment, and transport vehicles, which are essential for ensuring safe production conditions. Such inspections are essential for identifying sanitary, infrastructural and technological risks across production sites (Shaluru, 2025). Water supply, disinfection, and waste disposal systems are also analysed, as their effectiveness is crucial for preventing product contamination. At the same time, it is important to assess whether the enterprise possesses necessary resources to maintain food safety and how wartime disruptions affect its operations. Among the primary challenges, confronting this stage is damage to production facilities as a result of hostilities, which leads to significant losses in production capacity. The loss of access to consistent supply of water and disinfectants complicates safety standard compliance. Disruptions in the logistics chain of transport network pose a significant challenge to the effective transportation and storage of finished products, which can result in health risks for consumers (Cwikowski & Kahraman, 2023).

Particular attention should be paid to laboratory testing, which ensures product quality and compliance with safety standards (Maliuk & Saprykina, 2018). Sampling of raw materials and finished products for microbiological, physicochemical, and toxicological analysis is a crucial part of this process. It also includes water quality testing used in production. Laboratory analyses help detect potential violations of standards and identify product adulterations (Gil-Ramírez & Díaz-Romero, 2025). However, significant challenges may arise at this stage due to shortages of laboratory supplies and materials caused by disrupted

deliveries and funding deficits. The use of artificial intelligence, image processing, and robotic inspection systems has been identified as a promising approach to enhancing food safety inspections and audit procedures, particularly when traditional control methods are constrained (Chen & Yu, 2022). More recent studies, conducted by C. Shen *et al.* (2024), further demonstrate the application of advanced machine vision and deep learning techniques to support audit and inspection processes under resource and capacity limitations. Ensuring the accuracy of product composition and compliance with declared characteristics is a critical element of consumer protection, as demonstrated in international studies on food authenticity and labelling (Sussman *et al.*, 2019). In some instances, the damage or inaccessibility of laboratories located within active combat zones complicates the analysis process. Logistical challenges arising from infrastructure damage and unstable transport networks also affect sample collection and testing, potentially delaying the certification process (Shevchenko *et al.*, 2024).

After completing all necessary analyses, the results are recorded and documented. The identification of non-conformities and potential risks is followed by a thorough analysis, resulting in the development of specific corrective actions. If it is necessary, auditors may collaborate with governmental authorities responsible for food safety control to ensure compliance (State Service of Ukraine on Food Safety and Consumer Protection, n.d.). However, certain difficulties arise at this stage, such as the loss of documentation due to archive damage or server inaccessibility. Challenges in coordinating with control authorities may also occur due to restrictions and inspection delays caused by military operations. The challenges posed by communication difficulties and infrastructure failures further complicate the timely reporting of violations to government agencies (TechConsult Ukraine, 2024).

The final stage of the audit process is the preparation of an audit report, which documents all identified non-conformities and provides recommendations for improvement (Lupenko, 2025). This is a critical step, as the report forms the basis for determining the necessity for further corrective actions. In cases of critical violations, a follow-up/second audit may be required to verify corrective measures. However, this stage presents challenges in the organisation of repeated audits due to the constant changes in the security situation. Under such instability and hostilities, enterprises may be forced to prioritise efforts to ensure their own survival rather than addressing non-compliance issues (Shostak *et al.*, 2024). The audit results play a significant role in determining the risk level of market operator activities and in establishing the frequency of state control measures, as illustrated in Table 1.

Table 1. Frequency of scheduled state control measures

Risk level	Type of control	Frequency
Very high-risk level	Inspection	No more than four times a year
	Audit	No more than once a year

Table 1, Continued

Risk level	Type of control	Frequency
High risk level	Inspection	No more than three times a year
	Audit	No more than once a year
Medium risk level	Inspection	No more than twice a year
	Audit	No more than once a year
Low risk level	Inspection	No more than once every two years
	Audit	No more than once every two years
Insignificant risk level	Inspection	No more than once every two years
	Audit	Not conducted

Source: State Service of Ukraine on Food Safety and Consumer Protection (n.d.)

One of the main issues is the loss or damage of documentation, as well as the unavailability of relevant regulatory materials due to hostilities and disruptions in logistics chains. A significant number of enterprises are incapable of providing the necessary documentation to demonstrate compliance with ISO 22000 standards. According to the study by M. Cwikowski & T. Kahraman (2023), the certification of enterprises for compliance with ISO 22000 in the context of the war in Ukraine is complicated by difficulties related to the movement of auditors and damage to infrastructure. In this context, remote and hybrid audit formats may serve as a viable alternative to traditional on-site inspections, allowing audit activities to continue despite restricted mobility, security risks, and limited physical access to enterprises (Bezerra *et al.*, 2024). The ongoing hostilities have resulted in significant challenges, including auditors' mobility and limit access to certain enterprises due to damaged infrastructure and security threats. These challenges in the certification process have been confirmed by A. Shevchenko *et al.* (2024), who observed that a considerable number of employees have been mobilised or forced to leave their workplaces. In this context, digital solutions such as IoT-based monitoring and blockchain technologies may enhance audit traceability, data integrity, and documentation reliability, particularly under conditions of disrupted logistics and limited physical access to enterprises (Pelé *et al.*, 2023). Blockchain-based traceability systems may further strengthen audit reliability by enabling secure tracking, authentication, and verification of food products throughout disrupted supply chains (Sugandh *et al.*, 2023).

Due to disruptions in logistics chains and the lack of access to relevant regulatory materials caused by the hostilities, numerous enterprises are unable to provide the necessary documents to confirm compliance with ISO 22000 (Uyttendaele *et al.*, 2016). Moreover, due to restrictions in Ukraine regarding the conduct of regular surveillance audits, some enterprises are compelled to seek certification through international certification authorities, which further complicates the certification process. Simultaneously, some enterprises are unable to afford switching to a new certification authority due to the additional financial burden. Figure 2 presents the certification process of the food safety management system in Ukraine. The flow-chart reflects the standard sequence of certification of the

Food Safety Management System according to DSTU ISO 22000:2019 (2019) – from application submission and preliminary analysis of documentation to stage I and II audits, decision-making on certification and subsequent supervision. It demonstrates the logic of conformity assessment and emphasises that a safety system requires not only initial confirmation, but also ongoing monitoring of its effectiveness. The total number of enterprises certified under ISO 22000 or FSSC 22000 in Ukraine during the war has decreased by 20-25% compared to the pre-war period (TIC-Ukraine, n.d.). Nevertheless, a notable trend has appeared in the maintenance of certification among enterprises that had already obtained it, despite significant challenges. Enterprises encounter numerous barriers, including damaged documentation, loss of access to databases, logistical disruptions, and resource supply issues. Simultaneously, certification persists as a crucial instrument in maintaining consumer trust and facilitating access to international markets, which is essential for the national economic recovery.

The war in Ukraine has significantly affected the food safety control system, causing a number of challenges. Due to the hostilities, government agencies have been forced to redirect resources to critical areas, leading to a decrease in the number of inspections in the food industry. These circumstances weaken food safety controls and increase risks to consumer health. Many professionals have moved abroad or changed their field of activity due to security threats and economic difficulties caused by the war. Such factors complicate the conduct of quality audits and reduce the effectiveness of control over compliance with food safety standards. Limited financial resources hinder the upgrading of equipment and the conduct of modern laboratory tests, which affects the reliability of inspections and the ability to detect hazardous substances in food products. These challenges reflect broader structural changes in the food industry observed at both regional and national levels during the wartime period (Smolinska *et al.*, 2025).

According to the State Service of Ukraine on Food Safety and Consumer Protection (n.d.), experts from the IFC have provided recommendations for improving state food safety control measures, which is especially important under conditions of limited funding. Many producers are not interested in undergoing independent audits due to high costs and the lack of significant sanctions for non-compliance.

These problems lead to lower product quality and potential risks for consumers. The Government of Ukraine is trying to

combat food fraud by supporting draft laws aimed at strengthening labelling and sales requirements for food products.

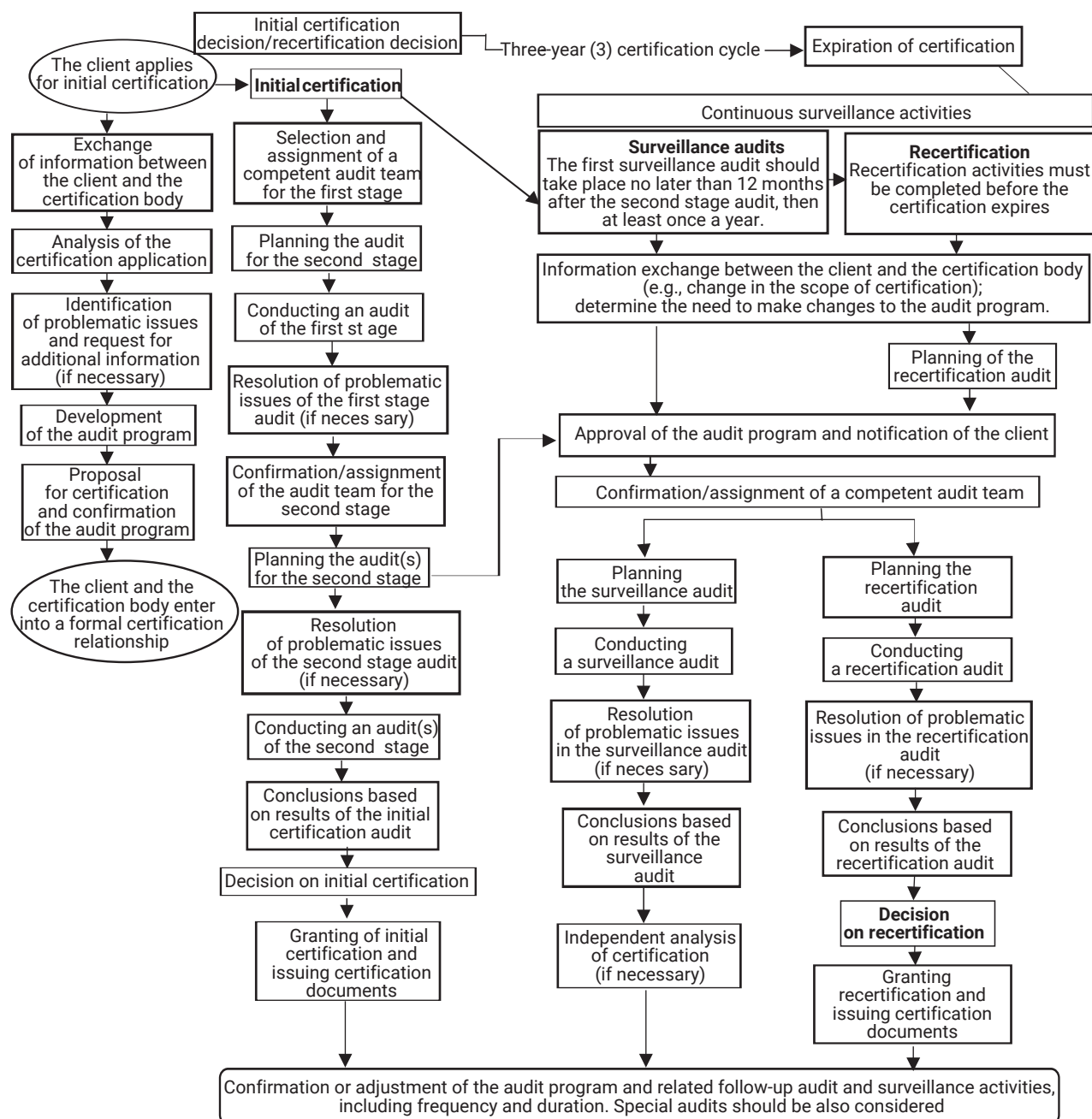


Figure 2. Flowchart of the food safety management system (FSMS) certification process

Source: created by the authors based on SE "Kharkovstandartmetrology" (2021)

In times of war, it is crucial to strengthen international co-operation and attract additional resources to support the food safety control system, ensuring the protection of public health and the stability of the country's food security (Shevchenko *et al.*, 2024). To minimise the consequences of the war and ensure effective post-war recovery, it is necessary to identify priority directions for food security regulation, particularly in the area of food quality and safety auditing (Table 2). The consequences of hostilities in Ukraine have had a significant impact on food

safety and quality audits, necessitating the adaptation of existing control mechanisms and the expansion of audit functions to ensure food security. Strengths, such as auditing humanitarian aid and monitoring the effectiveness of food infrastructure rehabilitation, contribute to stabilising the food market and restoring the agricultural sector to normalcy. However, there are also significant weaknesses, such as gaps in state quality control of humanitarian products and the lack of an effective audit mechanism in temporarily occupied territories.

Table 2. SWOT analysis of the impact of military actions in Ukraine on the conduct of food safety and quality audits

Strengths	Weaknesses
Conducting food quality audits of humanitarian aid delivered to affected areas.	Gaps in state control and audit of the quality of humanitarian food products.
Control and assessment of the effectiveness of measures to restore food security.	Insufficient funding for state food safety audits.
Monitoring the state of the agricultural sector and assessing the effectiveness of agricultural recovery measures.	Absence of an effective mechanism for auditing the supply of products to the temporarily occupied territories.
Auditing the physical and economic accessibility of food, contributing to the stabilisation of the food market.	Limited state control over environmental safety in food production.
Implementation of environmental audits to minimise the negative impact on the environment.	
Assessment of the effectiveness of food infrastructure recovery and implementation of innovations in food safety.	Lack of an effective audit mechanism for food supply to temporarily occupied territories.
Audit of programs to promote healthy eating and assess their impact on the population.	
Opportunities	Threats
Expanding the audit system to meet the population's needs for food security.	Impact of active hostilities on the possibility of conducting food security audits.
Implementation of innovative methods of auditing the effectiveness of humanitarian aid, including the monitoring of material resources and products.	High financial costs of implementing effective food sector audit systems.
The use of food quality audits to stabilise the market and increase consumer trust.	The threat posed by mined areas, which complicates the audit of food availability.
Strengthening environmental audits through the implementation of zero-waste production.	Price instability for food products, requiring regular audits of pricing policies.
Adaptation of state audit mechanisms to current challenges in the area of food security.	The risk of increased production of GMO products due to insufficient control over compliance with standards.
Audit of programs to promote healthy eating and introduce mechanisms to reduce prices for organic products.	Low public awareness of the role of audit in ensuring safe and quality food.

Source: created by the authors based on K.V. Kotsanopoulos & I.S. Arvanitoyannis (2017)

Opportunities for expanding the audit system to meet the population's needs allow for the adaptation of state control mechanisms to new conditions, as well as the introduction of innovative methods for monitoring humanitarian assistance and evaluating its effectiveness. However, these opportunities are accompanied by risks,

such as the impact of ongoing hostilities on the accessibility and security of audits, as well as the high financial costs required to implement effective audit systems. A SWOT analysis allows the assessment of key strengths, weaknesses, opportunities, and threats that affect the audit process under martial law (Table 3).

Table 3. Priority directions for food safety and quality audits in Ukraine

Directions	Results
Audit of food production	Increasing the volume of production of high-quality and safe products
Inspection of the food storage system	Formation of strategic agricultural product reserves
Audit of critical elements of the agricultural sector	Increasing the efficiency of key enterprises and productions
Monitoring the state of food security in the affected regions	Restoring access to quality food products in war-affected areas
Monitoring the continuity of food chains	Restoration of logistic connections and stable supply of products
Assessment of the level of security of agricultural territories	Demining of agricultural lands for the restoration of sowing operations.
Analysis of the efficiency of logistics processes	Optimisation of food transportation routes
Social audit of providing the population with products	Strengthening social protection and access to necessary food products
Audit of healthy food programs	Improvement of the state system of promotion of a healthy lifestyle and nutrition

Source: created by the authors based on M. Cwikowski & T. Kahraman (2023)

The implementation of the identified priorities will help ensure the stability of the food sector and strengthen the mechanisms of food quality control, which is critical for

the country's food security. The transition to priority directions in food safety and quality audits in Ukraine involves a number of key tasks that aim to overcome challenges aris-

ing from wartime conditions. In particular, auditing food production, inspecting food storage systems, and monitoring the continuity of food supply chains are essential for restoring access to safe food in affected regions. Other important areas – such as monitoring food security and auditing healthy eating programmes – not only contribute to stabilising the food market but also play a significant role in improving public health during the post-war recovery period. The results obtained in this study demonstrate that food safety and quality audits in Ukraine during wartime undergo substantial transformation due to disrupted logistics, unstable production processes, limited laboratory capacity and restricted access to enterprises. These findings align with and complement the conclusions of other researchers who have examined the functioning of food safety systems under crisis conditions.

The documented reduction in the number of inspections and increased difficulties in maintaining documentation correspond with the observations of L. Bal-Prylypko *et al.* (2024), who emphasised that the redistribution of state resources during martial law has weakened supervisory activities within the food sector. Similarly, M. Cwikowski & T. Kahraman (2023) highlighted the deterioration of record-keeping procedures at food enterprises and the challenges of implementing international standards due to staff mobilisation or relocation. These findings corroborate the results of the present study, especially the difficulties associated with assessing compliance with HACCP procedures and ensuring continuity in recording critical control points.

The results also indicate a significant decline in the availability of qualified specialists in the food industry during wartime, primarily due to displacement, mobilisation and disruptions in enterprise operations. This corresponds to observations of this study regarding challenges in forming audit teams and ensuring regular inspections. This research further showed that personnel shortages additionally affect laboratory operations, limiting the ability to conduct microbiological and toxicological analyses.

The identified challenges in laboratory operations during wartime are consistent with the findings of I.D. Bezerra *et al.* (2024), who indicate that insufficient funding and outdated laboratory equipment undermine the reliability of food safety assessments. Likewise, Y. Motarjemi & S. Mortimore (2014), analysing laboratory practices in crisis contexts, argue that disruptions in sampling and transportation can cause significant delays in certification and increase food safety risks. The results of this study confirm these global trends and illustrate their specific manifestations in Ukraine's wartime context.

The study's analysis of production facility inspections under martial law – particularly with regard to sanitation, waste management, and infrastructure damage – corresponds with the conclusions of O.S. Maliuk & T.V. Saprykina (2018), who underlined the importance of maintaining hygienic processes even under extreme conditions. However, this study adds a new dimension by showing how direct hostilities destroy production sites, disrupt

water supply, and block transportation routes, creating unprecedented risks that have not been thoroughly addressed in prior research. The study also revealed notable obstacles in the certification of enterprises under DSTU ISO 22000:2019 (2019). These findings are consistent with the conclusions of M. Uyttendaele *et al.* (2016), who emphasised that disruptions in logistics chains and limited access to regulatory documents hinder conformity assessment processes. At the same time, this study identified a new trend that had not been highlighted in previous works: enterprises increasingly turn to foreign certification bodies due to the suspension or delays of supervisory audits in Ukraine.

The SWOT analysis conducted in this study provides additional insights by identifying both vulnerabilities and emerging opportunities for strengthening food safety control. While K.V. Kotsanopoulos & I.S. Arvanitoyannis (2017) mainly focused on environmental audits and waste minimisation in food production, the present study broadened the analytical scope by incorporating war-time-specific threats such as mined territories, damaged agricultural land and unstable supply chains. Moreover, the proposed priority directions – such as enhancing monitoring of supply chain continuity and conducting social audits of vulnerable populations – extended the issues raised in previous research and offer practical implications for Ukraine's post-war recovery.

From a regulatory perspective, the identified challenges in food safety auditing highlighted the importance of a coherent legal framework that ensures effective control, traceability, and compliance throughout the food supply chain. Similar principles underpin food safety regulation in the European Union, where legal mechanisms integrate risk-based approaches, transparency requirements, and accountability across all stages of production and distribution. Such regulatory alignment has been identified as a key factor in maintaining food safety under conditions of systemic stress (Golovko, 2019).

A comparison of the obtained results with existing literature indicated that many Ukrainian and international researchers identified similar systemic weaknesses, including insufficient state control, financial constraints and disruptions in logistics. However, this study contributed new empirical evidence on how audits function under the direct impact of hostilities, including the loss of documentation archives, destruction of laboratory infrastructure and the need for enterprises to adapt production processes under extreme conditions. Furthermore, the SWOT analysis provided a structured framework for assessing the challenges and prospects of food safety audits during and after the war – an aspect that remains insufficiently explored in the existing literature.

Overall, the discussion confirms that although previous studies have examined certain aspects of food safety management in crisis conditions, the complexity and scale of the challenges faced by Ukraine during wartime require a broader and more integrated audit approach. The results

of this study therefore addressed an important research gap by offering a comprehensive analysis of audit stages, vulnerabilities and priority directions for strengthening food safety control in wartime and post-war contexts.

Conclusions

The war and economic instability in Ukraine have significantly affected the food market, leading to disruptions in production and supply chains. Nevertheless, food production and distribution have gradually resumed as enterprises adapted to new operating conditions and consumer demand stabilised. Safety audits help minimise risks to consumer health and prevent the spread of diseases. Compliance with HACCP standards and certification of safety management systems, such as ISO 22000 and FSSC 22000, is important for maintaining consumer confidence and access to international markets. It is predicted that only a fraction of companies will be able to obtain a new certification, but it is important to maintain certification for those who already have it. The SWOT analysis highlights strengths, such as auditing humanitarian aid and infrastructure restoration, but also identifies risks, including financial difficulties, instability in the regions, and restrictions in the temporarily occupied territories.

Thus, the research has shown that in times of war and economic instability, the adaptation of existing safety standards and prompt response to new challenges are critical to protecting consumers and maintaining trust in national producers. Supporting certification processes and developing new audit approaches that consider the

specifics of wartime will help strengthen food security and contribute to the country's economic recovery. It is important that all market participants, from producers to regulatory authorities, act in a coordinated and effective manner to overcome the consequences of the war and ensure the quality and safety of food products for Ukrainian consumers.

Future research should focus on developing audit methodologies that remain effective under crisis conditions and allow the wider use of remote or hybrid verification tools. It is also essential to assess post-war reconstruction needs related to laboratory and certification infrastructure, as these elements will determine the capacity of the food safety system to operate fully. Further academic attention should be directed toward studying the resilience of food supply chains under military risks, evaluating the effectiveness of ongoing reforms in risk-based state control, and analysing best practices for auditing humanitarian food aid to ensure its quality, transparency and traceability. Together, these directions will contribute to building a more sustainable and robust food safety control system in Ukraine during the post-war recovery period.

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Аудит харчових продуктів в Україні: проблеми та виклики в умовах нестабільності

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Анотація. Повномасштабне вторгнення росії до України у 2022 році суттєво порушило функціонування системи контролю безпечності харчових продуктів, що зумовило необхідність адаптації аудиторських і сертифікаційних процедур з метою мінімізації ризиків для здоров'я населення та підтримання стійкості продовольчого сектору. Метою дослідження було комплексне виявлення особливостей проведення аудиту безпечності та якості харчових продуктів у період воєнного стану в Україні та визначення шляхів удосконалення механізмів контролю в умовах післявоєнного відновлення. У статті використано аналіз і синтез нормативно-правових актів, порівняльний аналіз міжнародних стандартів у сфері управління безпечністю харчових продуктів, а також метод SWOT-аналізу для оцінки сильних і слабких сторін системи аудиту в умовах війни. Дослідження засвідчило, що воєнний стан спричинив скорочення кількості перевірок, ускладнення доступу контролерів до підприємств та зростання кількості порушень у сфері документування процедур безпечності. Значні труднощі виникають під час лабораторних досліджень через нестачу ресурсів і руйнування інфраструктури. Установлено, що підприємства змушені адаптувати виробництво шляхом релокації, зміни технологічних процесів і модернізації ланцюгів постачання. SWOT-аналіз показав потребу у посиленні державного контролю, розвитку лабораторної бази, удосконаленні аудиту гуманітарних поставок і підвищенні рівня інформованості виробників щодо вимог безпечності. Результати дослідження можуть бути використані підприємствами під час побудови систем контролю безпечності, державними структурами – для вдосконалення механізмів перевірок у кризових умовах, а сертифікаційними організаціями – для адаптації процедури аудиту до реалій воєнного часу.

Ключові слова: стратегічне управління; орієнтованість на інноваційність; гнучкість і соціальна відповідальність; структурна модернізація економіки; зміни зовнішнього середовища

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Public digital marketing in government information policy

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Abstract. The relevance of the study is determined by the fact that in the context of digital transformation of public administration, public digital marketing is gradually transforming from an auxiliary tool into a basic infrastructure for the implementation of state information policy, on which the efficiency of informing citizens, the level of public trust, the effectiveness of feedback and the transparency of management processes depend. The aim of the study was to summarise the theoretical provisions on public digital marketing and analyse its application in the system of state information policy at the local level. The methodological basis of the study included analysis and systematisation of scientific sources, content analysis of the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council digital resources and social networks and evaluation of their effectiveness. The study found that the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council has an established system of basic digital communication channels, including an official website, pages on Facebook and Instagram, and a YouTube video platform. At the same time, the practical use of these tools is characterised by uneven activity, limited use of analytical data to evaluate the effectiveness of communications, insufficient interactivity and weak integration between individual digital channels. Directions for improving public digital marketing in the community's state information policy system, which include increasing the regularity and strategic consistency of content, developing interactive forms of citizen engagement, introducing analytical elements to measure the effectiveness of communications, and making more active use of digital tools to promote the community's cultural, sports and tourism initiatives. The practical value of the work lies in the fact that the proposed approaches can be used by local

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authorities to improve public digital communications, increase the effectiveness of state information policy, strengthen interaction with citizens and form a positive image of territorial communities

Keywords: public communications; digital marketing tools; communication strategy of public authorities; local self-government; social networks; digital communications

Introduction

The digital transformation of society during 2020-2025 has become systemic and a key factor in the modernisation of public administration, government communications and the provision of administrative services. These processes are particularly intense in Ukraine in the context of European integration, decentralisation and martial law. As recent studies show, digitalisation not only covers the technological aspects of government activities, but also transforms the models of interaction between the state and citizens, changes the logic of public communications and the ways of building public trust (Lomachynska *et al.*, 2025). Digital communication channels are gradually replacing traditional forms of information and becoming the main medium for public dialogue. Social networks, official web resources, electronic services and mobile platforms ensure the efficiency, openness and two-way nature of communication between the authorities and citizens. Researchers N.A. Hrynychak & A.V. Syniakov (2023) emphasised that digital communications in public administration currently perform not only informational, but also integrative, coordinating and reputational functions, forming a new model of interaction between public institutions and society.

In this context, public digital marketing as a tool for implementing state information policy is of particular importance. It combines marketing communication methods and public administration mechanisms, focusing not on profit, but on improving the quality of public services, the transparency of management decisions, the involvement of citizens in social processes, and the formation of a positive image of state and municipal institutions. A. Verbovatyi (2024) argued that in modern conditions, digital marketing is becoming an important element of strategic management in public authorities and is closely linked to the development of electronic services and platforms such as "Diia". A separate area of contemporary research concerns the development of electronic public services as a component of the digital state. For example, A. Gurzhii & O. Shevchenko (2025) noted that electronic services not only optimise management processes, but also significantly increase citizens' trust in public authorities by simplifying access to services, reducing bureaucratic barriers and increasing transparency. In this sense, digital communications are a prerequisite for the effective functioning of e-government.

Digital communications also play an important role in the socio-cultural sphere. In particular, in the field of culture and education, digital tools are seen as an effective means of promoting cultural products, popularising socially important initiatives and supporting feedback from the community. N. Bachynska & V. Kasian (2024) have shown

that digital marketing communications in public cultural institutions significantly increase their informational openness, expand their audience, and contribute to the formation of citizen loyalty. The digitalisation of social communication processes at the level of local communities is also the subject of contemporary scientific research. Thus, E. Pakhucha & Yu. Kolomiets (2024) noted that it is at the local level that digital channels acquire the most practical significance, ensuring the prompt provision of information to the population, the mobilisation of public activity and the coordination of social initiatives, especially in crisis conditions. This confirms the growing role of public digital marketing in the activities of local self-government bodies. The relevance of the issue has increased significantly since 2022, when digital communications in Ukraine became critically important for ensuring information security, coordinating humanitarian processes, maintaining social stability, and countering disinformation. In these conditions, public digital marketing has transformed from an auxiliary tool into a strategic component of state information policy (Lomachynska *et al.*, 2025).

At the same time, despite the growing number of scientific studies, the issues of practical implementation of public digital marketing at the level of individual territorial communities, particularly in the fields of culture, sports, and tourism, remain insufficiently covered. Most contemporary works focus on nationwide processes of digitalisation and e-governance, while applied municipal practices require more detailed analysis. In view of this, research into public digital marketing in the system of state information policy, using the example of the activities of the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council, is scientifically relevant and practically significant. The aim of the article was to study the essence of public digital marketing and analyse the practice of its implementation in the activities of local self-government bodies using the example of the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council.

Materials and Methods

The study covered the period from 2022 to 2025. As it was conducted during martial law against the backdrop of full-scale aggression by the Russian Federation, which has been ongoing since 2022, and focused on the Ukrainian media space, the peculiarities of public digital communications were tracked in conditions of social tension and growing information threats. The empirical basis of the study was provided by materials from the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council,

which actively uses digital communication tools in its interaction with community residents. The research materials included the official website of the settlement council (Kotelyva Settlement Council official website, n.d.), the official Facebook page of the department (Kotelyva Central Library Facebook page, n.d.), the YouTube channel of the "Skifiia" Cultural Services Centre ("Skifiia" Cultural Services Centre YouTube channel, n.d.), the department's Instagram profile (Kotelyva Settlement Council Instagram page, n.d.), as well as Google Forms online registration and survey services. The Facebook page was the key object of the study, as it allowed for a comprehensive assessment of the effectiveness of digital interaction through metrics such as views, reach, user engagement, and subscriber growth.

Content analysis was carried out based on publications from the above-mentioned sources, which included news reports, photo and video archives, as well as internal event plans and reporting documentation. The functional purpose of each resource, the frequency of publication updates and their target audience were analysed. The units of analysis of web resource activity were news reports, digital content formats (text messages, photos and video materials in both regular and Reels formats), level of interactivity, publication topics and update frequency. Audience engagement indicators were used as units of effectiveness of these resources in interaction with the community, in particular the number of subscribers, the number of page views (reach), and the number of audience reactions to publications in the form of likes, comments, and reposts. To assess the effectiveness of the department's digital communications, analytical tools from the Meta Business Suite platform were used, which integrates metrics from Facebook pages and Instagram profiles. The system made it possible to track the reach of posts, the level of user interaction, the dynamics of subscriber growth, and the demographic characteristics of the audience. Digital activity was monitored over two

time periods: from 19 October to 15 November (28 days) and from 18 August to 15 November (90 days). This made it possible to track the effectiveness of communication both over the course of a month and in the longer term.

For the comparative analysis, publicly available examples of digital communications from local governments in selected municipalities in EU countries (Poland, Lithuania, Estonia, and the Netherlands) and Singapore were used. The sources of information were official community websites, social media pages, analytical reports, and scientific publications. The comparison was made according to the following criteria: level of digital activity, interactivity, use of analytical tools, public engagement and transparency of communications. The main limitations of the study were: a limited number of experts, lack of access to certain internal administrative data and the subjectivity of some expert assessments. To minimise risks, a method of cross-checking empirical data was used. This set of methods made it possible to combine a descriptive characterisation of the community's public digital marketing system with a quantitative assessment of the effectiveness of digital communications and a justification of practical recommendations for their improvement.

Results

The study provided numerical data on the effectiveness of digital communication tools used by the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council. The analysis showed that the most actively used digital resources are the official website, social media pages (Facebook, Instagram) and YouTube channel. These tools perform a variety of functions, from informing the public to promoting cultural and sporting events. Table 1 shows the main characteristics of the use of digital communication tools in the activities of the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council.

Table 1. Main digital tools of the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council

Digital tool	Functional purpose	Update frequency	Target audience
Official Facebook page	Information dissemination, announcements, reporting	3-5 posts per week	All population groups
Settlement council website	Official information, documents	As required	Media
"Skifiia" Cultural Services Centre YouTube channel	Video archive of events	2-3 videos per month	Young people
Instagram (CSC "Skifiia")	Visual promotion	4-5 posts per week	Young people
Google Forms	Registration, surveys	As required	Active residents

Source: developed by the authors based on Department of Culture, Tourism, Youth and Sports of the Kotelyva Settlement Council Facebook page (n.d.), Kotelyva Settlement Council official website (n.d.), "Skifiia" Cultural Services Centre YouTube channel (n.d.), Kotelyva Settlement Council Instagram page (n.d.)

An analysis of digital tools showed that the frequency of updates and the nature of the content determine the target audience of each resource. Thus, the official Facebook page and the settlement council website are aimed at a wide audience of all population groups, providing information and access to official documents. Media resources, in

particular the YouTube channel and Instagram account of the "Skifiia" Cultural Centre, are intended for young people who are interested in cultural events and visual promotion. Tools such as Google Forms are used to interact with active residents through registration and surveys, targeting those who are actively involved in community initiatives.

Table 1 shows that the most official means of information interaction is the settlement council website, as it serves as an official source of verified data on community activities, in particular on initiatives implemented by the Department of Culture, Sports and Tourism. Another effective tool is the availability of electronic appeals and petitions on the website, which allows citizens to interact directly with the authorities and express their suggestions or comments. At the same time, the page dedicated to the department's activities has not been updated since the end of 2021, which reduces the overall informational visibility of the department's activities and creates an imbalance in communication with the community.

However, despite the fact that the website is the main source of official information, the most versatile means of communication for the department is its official Facebook page, as its digital audience covers all population groups. A unique feature of this means of communication is that the page's content is characterised by a variety of topics, including coverage of cultural and sporting events, publications dedicated to public and professional holidays, representations of the activities of local cultural institutions participating in national or regional events, as well as publications related to environmental and community initiatives (Department of Culture, Tourism, Youth and Sports of the Kotelyva Settlement Council Facebook page, n.d.). An analysis of content formats revealed that the page uses various types of publications, including text messages, photos, and videos. The video format is mainly used to show events and performances, which has aesthetic appeal and enhances the emotional impact on the audience. Short videos in Reels format are also actively used to help increase reach by presenting information in a visually appealing way. Text messages with photos serve an informative function, providing brief reports on activities, group participation and community achievements as a whole.

The total number of Facebook page subscribers during the study period was 1,851 users, indicating a stable core audience. From August to October, there was a gradual increase in the number of subscribers, indicating continued interest among community residents in information about cultural, sporting and tourist events. Based on the data obtained, an analysis of the effectiveness of the department's official Facebook page in interacting with the community was carried out. Data for the period from 18 August to 15 November (90 days) showed that the total number of views reached 131,018, confirming the active dissemination of content among the target audience. Figure 1 shows the overall dynamics of page views for this period, where three peak periods of increased user activity are clearly visible, coinciding with cultural, artistic and sporting events in the community. The figure shows that the

total number of page views at the end of the 90-day period was 131,018. The graph is characterised by uneven activity with individual peak values, indicating wave-like audience engagement and coverage dependence on the publication of individual information materials. Additional analysis of the view structure, which was performed based on metrics (likes, reposts, view dynamics), showed that 8% of views lasted more than three seconds, and 3% led to active interaction (likes, comments, sharing). Additional analysis of views was performed by combining the platform's quantitative metrics: total number of views, likes, comments, and reposts. Views lasting more than three seconds were considered active views and allowed passive content consumption to be separated from real user attention. The percentage of active interactions (likes, comments, reposts) was defined as the share of all views that resulted in any user action and showed real audience engagement, not just the number of views. This indicates real audience engagement, not just passive content consumption. The engagement rate varied depending on the thematic focus of the publications. The highest interaction rates were observed in publications dedicated to cultural holidays and festivals, the participation of local groups in regional and national events, sports competitions, social initiatives and charity events, patriotic and memorial events. Over the last 28 days, the total number of interactions was 5,297. If considering a longer period of 90 days, the number of interactions reaches 12,040, showing only a slight decrease (-14%), which can be explained by the seasonal decline in user activity after summer events.

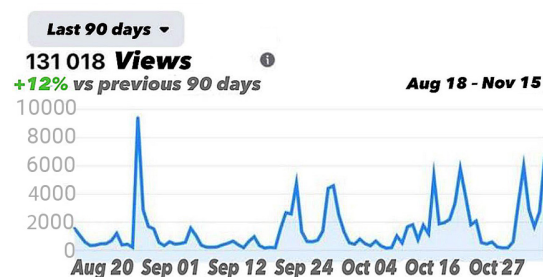


Figure 1. Dynamics of page views on Facebook

Source: compiled by the authors based on Department of Culture, Tourism, Youth and Sports of the Kotelyva Settlement Council Facebook page (n.d.)

Although Facebook plays a major role in functioning as an information resource, Instagram is also important for promoting cultural and sporting events. Table 2 shows the absolute and percentage values of interactions (likes, comments, reposts) for different types of posts on Instagram over a 90-day period (18 August – 15 November).

Table 2. Audience interaction indicators for the Instagram page by content type over a 90-day period

Content type	Interactions (number)	Share (%)
Reels	4,214	35.0
Photos	3,106	25.8
Text posts	1,987	16.5

Source: compiled by the authors based on Department of Culture, Tourism, Youth and Sports of the Kotelyva Settlement Council Instagram page (n.d.)

The content type structure shows that Reels videos received the highest number of interactions (35%), while photos received 25.8% and text posts only 16.5%. This confirms the preference for short videos as a tool for quickly engaging the audience. In addition, more than 50% of interactions were made by users who were not subscribers to the page, which indicates effective outreach to new groups of citizens outside the established community. To systematise the results of the analysis of the department's digital activity on Facebook, the main quantitative

performance indicators obtained using the Meta Business Suite analytical system were also summarised. Table 3 shows the key interaction indicators for two time periods – 28 and 90 days, which made it possible to track the dynamics of changes in reach, interactions and audience growth. As of 18 August 2025, the page had the following indicators: views – 35,900, interactions (likes, comments, reposts) – 3,460, number of subscribers – 1,832. These values were used as the starting point for calculating the growth of indicators for the next 28 and 90 days.

Table 3. Dynamics of the effectiveness of the department's Facebook page over the periods 19 October – 15 November (28 days) and 18 August – 15 November (90 days)

Indicator	For 28 days	Change	For 90 days	Change
Views (reach)	62,100	+73%	131,018	+12%
Interactions (engagements)	5,297	+53%	12,040	-14%
Audience (followers)	1,851	+1%	1,851	Stable
Reels videos (effectiveness)	↑ 29%	-	↑ 29%	-

Source: compiled by the authors based on Department of Culture, Tourism, Youth and Sports of the Kotelyva Settlement Council Facebook page (n.d.)

Over the past 28 days, the number of views has increased to 62,100, which is +73% compared to the previous period (from 18 August to 14 September). The data obtained indicates a steady increase in the effectiveness of the department's digital communications. At the same time, it is important to note that it is not only the number of views and interactions that matters, but also the nature of the

content itself, which shapes audience engagement. In addition to the department's official page, its subdivisions also have active Facebook pages and groups, which also play a communicative role by covering local events, helping to inform community residents and promoting cultural life. Table 4 shows the use of digital communication channels by all subdivisions.

Table 4. Characteristics of the Facebook pages of the departments of culture, sports and tourism of the Kotelyva Settlement Council as means of digital communication with the population

No.	Subdivision	Page type	Number of followers	Activity (posts per week)	Main content areas	Notes
1	CSC "Skifiia"	Public page	≈1.5 thousand	2-3	Cultural events, concerts, posters, videos, reports	The only subdivision with an Instagram account; the highest level of activity
2	Profile "Kotelyva House of Children's and Youth Creativity"	Personal profile	≈700	1-2	Out-of-school education, activities for children	Updated irregularly
3	Group "Kotelyva Sports Community"	Group	≈1.2 thousand members	1	Sports news, results, photos from tournaments	Moderate activity
4	Group "Kotelyva Youth"	Group	≈900	<1	Youth initiatives, volunteering	Episodic updates
5	Kotelyva Public Library	Public page	≈800	2-3	Literary events, exhibitions, promotion of reading	Fairly stable activity
6	Profile "Department of Culture, Kotelyva"	Personal profile	≈1.1 thousand	<1	Official information on the department's activities	Last update: 2021
7	Group "Kotelyva Local History Museum"	Group	≈500	<1	Local history, historical publications	Low activity

Source: summarised by the authors based on "Skifiia" Leisure Palace Facebook page (n.d.), Department of Culture, Tourism, Youth and Sports of the Kotelyva Settlement Council. Facebook page (n.d.), Kotelyva Settlement Council official website (n.d.), "Skifiia" Cultural Services Centre YouTube channel (n.d.), Kotelyva Settlement Council Instagram page (n.d.)

As can be seen from the table, the most active units in the digital space are the "Skifiia" Cultural Services Centre and the Kotelyva Public Library, which regularly update their content. This unit used various publication formats,

including videos in both the usual format and the Reels format. The rest of the pages showed lower activity, and in some cases a complete lack of updates, which indicates the need to improve the digital communication strategy within

the community. In this context, intensifying digital interaction with citizens can ensure more effective public information, strengthen communication links and increase interest in cultural events in the community. In addition to traditional text messages and photos, the department is gradually introducing elements of multimedia formats – short videos, online broadcasts of individual events, and interactive presentations of the community's tourist attractions. Such formats increase resident engagement and contribute to the formation of a positive image of Kotelyva in the digital environment.

The study also found that the Kotelyva Department of Culture, Sports and Tourism actively uses digital channels to organise and communicate about cultural and sporting events. For example, the race "I honour the soldiers, I run for the Heroes of Ukraine" was covered on the department's official Facebook page, where participants could register using a Google form. This approach ensured effective feedback and allowed for prompt interaction with citizens, helping to attract more participants. In view of this, it can be argued that digital tools, in particular social networks and online registration, play a key role in strengthening interaction between municipal authorities and the population, increasing interest in public initiatives and cultural events.

However, despite the positive dynamics of digital communications development, the study identified a number of issues that hinder the improvement of this type of interaction. The first significant problem is the limited financial and human resources. In most cases, digital communications are handled by employees for whom this activity is not their main functional specialisation. The lack of a separate position for an SMM specialist or communications

manager leads to inconsistencies in content style, uneven publication frequency and limited use of analytical tools. The second problem is the uneven digital activity of departments. Some institutions demonstrate a high intensity of publications, while others are almost absent from the digital space. This reduces the overall informational visibility of the department's activities and creates an imbalance in the presentation of individual areas of work. The third problem remains the insufficient level of strategic planning for digital communications. Publications are mostly situational in nature and are not always united by a single communication concept. The lack of a clearly formulated digital strategy makes it impossible to forecast results in the long term and systematically evaluate effectiveness. The fourth problem is the limited use of analytical tools. Although basic statistics on views and engagement are tracked, a more in-depth analysis of audience segments, interaction time, and behavioural characteristics is practically not used. This complicates the development of personalised communications. The fifth problem is digital inequality among the population, especially among older people, which limits the reach of part of the target audience exclusively through digital channels and requires a combination of online and offline communication methods.

A study of global experience in public digital marketing has shown that even small communities can effectively implement digital communications provided they take a systematic approach and make optimal use of available resources. To clearly demonstrate how international experience can be adapted to Ukrainian conditions, Table 5 systematises the main mechanisms, tools and expected results of their practical implementation.

Table 5. Mechanisms for adapting global digital marketing experience for the Department of Culture, Sport and Tourism

Adaptation area	International practice	Tools and methods for the local community	Expected effect
Collection of proposals and evaluation of events	Poland – interactive maps of cultural events	Online forms, interactive maps, voting	Identification of community needs and priorities
Interactive participation	Estonia – digital platforms for collecting public proposals	Short surveys, open-ended questions, social media stories	Increased citizen engagement and trust
Feedback and analytics	Singapore – mobile applications with automated analysis of citizen requests	Systematic data collection, analytical tools	Optimisation of content and managerial decision-making
Sustainable communication	Lithuania, the Netherlands – regular online surveys	Regular publications, micro-interactions, cyclical information delivery	Shaping citizens' expectations regarding timely information
Transparency	European Union – open platforms for participatory budgeting decisions	Publication of plans, reports and budgets in a clear and accessible format	Reduction of information asymmetry and increased trust

Source: compiled by the authors based on OECD (2023)

The examples of practices in European countries and Singapore reflect modern approaches to public engagement, gathering proposals and ensuring transparency in governance. The proposed tools are focused on the use of digital platforms, social networks and analytical methods, which allows for increasing citizen participation, optimising management decisions and establishing sustainable communication between local authorities and the community.

For the Kotelyva community, the use of these mechanisms allows not only to inform citizens, but also to form active two-way interaction. An analysis of theoretical approaches and international practices of public digital marketing allows to identify a number of tools and mechanisms that can be adapted to the conditions of the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council. Despite the existing barriers, global experience shows

that even communities with limited resources can ensure a high level of digital presence by implementing a structured systemic model, rationally organising key tasks and using available technologies.

For the practical implementation of these principles, it is advisable to apply a model of two-way interaction “state → citizen → feedback”, which promotes the combination of global practices with internal resources and provides for the transformation of government bodies from subjects of one-way information to communication-open systems. In international practice, this model is a key element in ensuring transparency, involving the public in decision-making processes and building trust in institutions. It ensures cyclical communication, in which each message from an institution is accompanied by a response from citizens, its analysis and subsequent adjustment of actions or the content of information.

In the practice of municipal authorities in the European Union and Asia, the model of two-way interaction is based on a number of principles: transparency (ensuring accessible and understandable presentation of political decisions, budgetary processes and procedures, which reduces the knowledge gap between citizens and authorities), inclusiveness (creating real opportunities for different social groups to participate in decision-making, express suggestions and comments), regularity (maintaining a stable and predictable flow of communication, which shapes the population's expectations of receiving information in a timely manner), analyticity (systematic accumulation and use of feedback to improve management practices and communication content).

The application of this model in the activities of the Department of Culture, Sports and Tourism allows overcoming a whole range of challenges identified by the preliminary analysis. First and foremost, this involves a transition from a predominantly informational format of communication to interactive forms of interaction, which may include the use of short surveys, open-ended questions, polls and other engagement mechanisms that help create a space for community members to express their expectations and needs. Such tools are in line with global practices of digital participation, which are actively used in cities in Poland, Lithuania and the Netherlands. For the Department of Culture, Sports and Tourism, the implementation of such measures will help to increase trust, as citizens will receive confirmation that their opinions are not only recorded but also used to improve activities.

An important aspect of adapting the model is the creation of an accessible feedback infrastructure, as international experience shows that the effectiveness of communication increases exponentially when simple, short and mobile-oriented participation mechanisms are in place. For local authorities, it is realistic to use short online forms, interactive elements on social networks, regular thematic surveys and micro-interactions in “stories” mode. This approach does not require significant financial or human resources, but allows the creation of a large amount of primary data on the interests of the community.

Given the community's human and technical limitations, it is advisable to implement a simplified cycle of digital interaction, which includes six stages: informing, gathering feedback, analysing, responding, adapting management measures, and re-informing. This cycle allows for systematic monitoring of the effectiveness of digital communications and their rapid adaptation to people's needs. According to data from the OECD (2020) and the European Commission (2021), it is used in the communication practices of local administrations in Poland and Lithuania as a basic mechanism for ensuring constant content updates in line with the information needs of the population, and in fact creates a system of operational monitoring, which is particularly important in an unstable social and security environment.

Discussion

The results obtained in the course of the study on the functioning of public digital marketing in the activities of the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council generally confirm the main theoretical positions of contemporary Ukrainian researchers in the field of digital communications and state information policy. In particular, the leading role of digital channels in ensuring timely information, shaping the image of the community and supporting interaction with the population, as established in the study, is consistent with the conclusions of I. Lomachynska *et al.* (2025), who considered digital transformation as a systemic factor in changing the models of interaction between the state and citizens.

The results of the analysis of the department's activities confirmed that social networks play a key role as the basic environment for public dialogue. This fully correlates with the research of N.A. Hrynchak & A.V. Syniakov (2023), who emphasised that digital communications in public administration are no longer just a tool for providing information but are transforming into a means of integration, coordination and reputation building for public institutions. As in the case of the Kotelyva community, Facebook has become the main channel of communication, while the official website performs a supporting regulatory function.

The fragmented use of analytical tools and the lack of a systematic digital strategy at the local level revealed in the study confirm the conclusions of A. Verbovatyi (2024), who emphasised that public digital marketing in Ukraine often develops unevenly and needs to be integrated with electronic services and software platforms. Within the community under study, such integration is limited and does not provide for full-fledged strategic management of digital communications. The results obtained regarding the role of electronic services in increasing the accessibility of information are generally consistent with the approaches of A. Gurzhii & O. Shevchenko (2025), who argued that the development of electronic public services directly affects the level of citizens' trust in public authorities. At the same time, the results of the current study show that in the field of culture, sports and tourism,

electronic services still play a supporting role, yielding to social networks in terms of influence.

The high engagement rates of visual content, in particular photos and videos, coincide with the conclusions of N. Bachynska & V. Kasian (2024), who emphasised that multimedia formats are most effective in generating interest and loyalty among audiences in public cultural institutions. In the Kotelyva community, this pattern is confirmed by statistics showing the highest interaction with short videos and photos. At the same time, the study found significant limitations related to the community's human and resource capacities. This is fully consistent with the conclusions of E. Pakhucha & Yu. Kolomiets (2024), who noted that at the local level, the level of digital transformation depends significantly on human resources and financial support. The uneven activity of individual departments of the Kotelyva Settlement Council in the digital space confirms this thesis. It should be noted that the results obtained complement the scientific work of the above-mentioned authors in terms of the practical implementation of public digital marketing in the field of culture, sports and tourism. While most studies focus on administrative services and general digital services, this study emphasises the socio-cultural dimension of digital communications, where image, integration and mobilisation functions prevail. Thus, the results of the study not only confirm the basic theoretical positions of other researchers, but also expand them in terms of applied analysis of the activities of a specific territorial community. The comparison showed that public digital marketing at the local level in modern conditions is in the stage of active formation and requires further strategic improvement.

The results obtained are also consistent with international research in the field of digital governance and public communications. In particular, the works of A. Bhargava *et al.* (2013) and R.M. Cortez & W.J. Johnston (2020) emphasised that the effectiveness of digital communications is determined not by individual tools, but by the systematic integration of digital channels into the overall management model of an organisation. A similar position was shared by J. Bughin *et al.* (2017), who emphasised the need for constant content updates and adaptation of digital strategies to changes in audience behaviour. In the context of public administration, the conclusions of the OECD (2020) and the European Commission (2021) are also important, according to which the cyclical model of "information – feedback – analysis – institutional response" is the basic approach to ensuring sustainable digital dialogue with citizens at the local level. This confirms the feasibility of applying a similar simplified cycle of digital interaction in the context of territorial communities with limited resources, particularly in the fields of culture, sports, and tourism.

The issue of analytical support for public digital communications and the transition to data-driven management models (Alam *et al.*, 2022) deserves special attention in contemporary research. Thus, contemporary works on digital governance emphasise that the effectiveness of communication by public authorities increasingly

depends on the ability of institutions to analyse user behaviour data, engagement indicators and feedback in real time. In the context of crisis and unstable environments, particularly in conditions of martial law, digital communications are seen as a key tool for ensuring social stability and trust in public institutions. Recent European studies emphasise that it is the local level of government that plays a decisive role in maintaining regular communication with citizens, responding promptly to requests and countering disinformation (OECD, 2023).

Further comparison of the results obtained with contemporary international studies allows for a broader interpretation of the patterns identified. In particular, scientific works devoted to digital communications of local self-government bodies have proven that social networks at the local level serve as a basic platform for public dialogue, combining information, mobilisation of public activity and feedback (Wukich, 2022; Górska *et al.*, 2022). This is consistent with the results of an analysis of the activities of the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council, where social networks have become a key channel of communication with the community. At the same time, recent research in the field of citizen engagement emphasises that the level of user interaction with digital content (reactions, comments, participation in online surveys) can be considered an important indicator of the effectiveness of public digital communications (Shin *et al.*, 2024; Guillaumie *et al.*, 2024). In this context, the results obtained for the Kotelyva community confirm the general trend of increasing importance of interactive formats and visual content compared to traditional information messages.

A separate area of current scientific discussion is related to the transition of authorities to data-driven models of digital communications management. Researchers emphasise that the effectiveness of public digital interaction increasingly depends on the systematic analysis of user behaviour data and the integration of analytical tools into the overall management model of the organisation (Mergel *et al.*, 2021; Mabillard *et al.*, 2024). The fragmented use of analytics at the community level identified in the study indicates that there is potential for further improvement of the digital communication strategy. Scientific literature also emphasises the role of digital communications in crisis and unstable conditions. Studies show that the regular digital presence of authorities and prompt responses to information requests help to increase public trust and reduce information uncertainty in times of social upheaval (Contri *et al.*, 2023; Han & Baird, 2024). This is particularly relevant for Ukrainian local communities operating under martial law. The analytical studies by M.M. Skoric *et al.* (2016) and S.-F. Tsao *et al.* (2021) showed that the impact of digital communications on the level of citizen engagement and the effectiveness of public administration manifests itself regardless of the national context and the scale of the authority, which emphasises the systemic nature of the identified patterns. In summary, it can be noted that the results of the study of the activities of the Department of Culture, Sports and Tourism

of the Kotelyva Settlement Council confirm the universal nature of the trends recorded in international scientific works.

Conclusions

The study provided a comprehensive description of the features of public digital marketing implementation in the state information policy system, using the example of the Department of Culture, Sports and Tourism of the Kotelyva Settlement Council. It was established that the department has formed a basic digital communications infrastructure, which includes the official website of the settlement council, pages on Facebook, Instagram and YouTube, as well as online registration and survey tools. At the same time, the official Facebook page is actually the leading channel for interaction with citizens, providing the widest reach and audience engagement.

A quantitative analysis of digital activity confirmed the existence of a stable core audience (1,851 subscribers) and positive dynamics in content reach (62,100 views in 28 days and 131,018 in 90 days) with an increase in interaction indicators, primarily due to the use of visual and video content, in particular the Reels format. The highest engagement rates were recorded for publications related to cultural and artistic events, sporting events, social and patriotic initiatives. This indicates that public digital marketing in the community under study primarily performs image-building, mobilisation and integration functions.

At the same time, a number of problems were identified that hinder the improvement of digital communications: the lack of specialised communication positions, uneven activity of individual departments, fragmented use of

analytical tools, weak strategic planning of digital communications, and the persistence of digital inequality among part of the population. The potential of the official website and e-participation tools is underutilised, while the integration of digital channels with each other and with e-services is mostly ad hoc. It is reasonable to assume that improving the effectiveness of the department's public digital marketing requires the following steps: developing a comprehensive digital strategy for the community; strengthening human resources (appointing persons responsible for communications); systematic use of analytics for management decisions; expansion of interactive formats for citizen engagement (online surveys, voting, short feedback forms); combination of online and offline channels, taking into account the age and social characteristics of the audience. Prospects for further research include in-depth quantitative analysis of the behaviour of digital channel users, surveys of residents on the quality of public communications, comparison of digital marketing models of different territorial communities, and study of the possibilities for integrating local digital practices with nationwide e-government and e-democracy platforms.

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Публічний digital-маркетинг у державній інформаційній політиці

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Анотація. Актуальність дослідження зумовлена тим, що в умовах цифрової трансформації державного управління публічний digital-маркетинг поступово перетворюється з допоміжного інструмента на базову інфраструктуру реалізації державної інформаційної політики, від якої залежать оперативність інформування громадян, рівень громадської довіри, ефективність зворотного зв'язку та прозорість управлінських процесів. Метою дослідження було узагальнення теоретичних положень щодо публічного digital-маркетингу та аналіз практики його застосування у системі державної інформаційної політики на місцевому рівні. Методичну основу дослідження становили аналіз і систематизація наукових джерел, контент-аналіз офіційних цифрових ресурсів та соціальних мереж відділу культури, спорту та туризму Котелевської селищної ради та оцінювання їхньої ефективності. У результаті дослідження встановлено, що відділ культури, спорту та туризму Котелевської селищної ради має сформовану систему основних цифрових каналів комунікації, зокрема офіційний веб-сайт, сторінки у соціальних мережах Facebook та Instagram, а також відеоплатформу YouTube. Водночас практичне використання цих інструментів характеризується нерівномірністю активності, обмеженим застосуванням аналітичних даних для оцінювання результативності комунікацій, недостатнім рівнем інтерактивності та слабкою інтеграцією між окремими цифровими каналами. Обґрунтовано напрями вдосконалення публічного digital-маркетингу в системі державної інформаційної політики громади, які передбачають підвищення регулярності та стратегічної узгодженості контенту, розвиток інтерактивних форм залучення громадян, впровадження елементів аналітики для вимірювання ефективності комунікацій, а також активніше використання digital-інструментів для просування культурних, спортивних та туристичних ініціатив громади. Практична цінність роботи полягає в тому, що запропоновані підходи можуть бути використані органами місцевого самоврядування для удосконалення публічних digital-комунікацій, підвищення ефективності державної інформаційної політики, зміцнення взаємодії з громадянами та формування позитивного іміджу територіальних громад.

Ключові слова: публічні комунікації; цифрові маркетингові інструменти; комунікаційна стратегія органів влади; місцеве самоврядування; соціальні мережі; цифрові комунікації

Behavioural drivers of insurance perception under wartime uncertainty: Evidence from Ukraine

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Abstract. Amid the full-scale war in Ukraine, insurance plays a crucial role in financial security and economic resilience. However, consumer behavioural under extreme uncertainty, particularly trust, risk perception, and informational awareness, remains under-investigated. The study aimed to identify the factors shaping attitudes of individuals and legal entities, and to examine how informational awareness fosters trust and influences perceptions of market efficacy and accessibility under wartime conditions. The empirical analysis was based on a quantitative online survey conducted between May and June 2025 (N = 118). Data were processed using descriptive statistics, reliability analysis, principal component analysis with Varimax rotation, Spearman's rank correlations, non-parametric significance tests, and multiple regression modelling. Two components were identified for individuals, explaining 55.4% of the variance, and three for legal entities, explaining 79.9%. These reflected similar dimensions: trust and perceived importance of insurance, market efficiency and accessibility, and informational awareness. Individual attitudes varied by age, education, residence, and employment: younger and economically active respondents showed lower trust and perceived accessibility, while informational awareness enhanced confidence and perceived market efficiency. Among legal entities, higher education correlated with more critical views of market performance, whereas smaller firms reported limited informational access. Across both groups, informational awareness consistently shaped positive attitudes, while low income, limited trust, and information deficits constrained engagement. The findings highlight the need for measures to strengthen trust, transparency, and financial inclusion in Ukraine's insurance market

Keywords: : consumer behaviour; quantitative survey; factor analysis; regression analysis; insurance trust during war

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Introduction

Since the onset of the full-scale war, Ukraine's insurance market has undergone unprecedented structural transformations, reflected in the reconfiguration of product lines, the reassessment of risks, the revision of reinsurance mechanisms, and a shift in consumer behavioural patterns (Baranov & Baranova, 2022; Brovko, 2024). According to the OECD (2022) and the IMF (2023, 2025), war-related risks have become a systemic source of financial market instability, while insurance companies have emerged as key instruments for maintaining macro-financial resilience.

Under wartime uncertainty, insurance evolves into a mechanism of social and economic stabilisation. According to K.-U. Schanz *et al.* (2023), modern insurers increasingly move beyond traditional risk transfer by providing preventive and supportive risk services crucial during systemic shocks. O. Martseniuk & O. Ruda (2024) further argue that in Ukraine this expanded role is visible in the development of war-risk insurance and the sector's contribution to post-war recovery. Meanwhile, L. Tkachuk & O. Kraus (2024) point out that the full-scale invasion has reconfigured insurance products and intensified the system's role in protecting households and businesses.

From the standpoint of behavioural economics, the wartime context radically alters risk perception, motivational structures, and levels of trust in financial institutions. The importance of informational awareness, emotional responses, and social experience increases, as these factors shape the willingness of households and enterprises to engage with insurance products. As noted by Insurance Europe (2024), trust and the perceived transparency of information have become decisive factors in restoring insurance markets following systemic crises.

Recent research demonstrated that the war has led to significant structural and behavioural shifts in Ukraine's insurance market. L. Kolinets *et al.* (2023) showed that wartime shocks – combined with pre-existing structural vulnerabilities – have reoriented demand toward core protection lines (life, medical, CASCO), reinforced the importance of insurance reserves, and highlighted the sector's gradual recovery despite market consolidation. A. Plastun *et al.* (2023) found that although the market suffered substantial losses, its competitiveness did not deteriorate markedly; however, increasing concentration trends have strengthened the regulatory role of the state and its responsibility for maintaining competitive conditions. Complementing these findings, D. Yastreba (2024) emphasised that heightened uncertainty, operational disruptions and currency restrictions have increased insurers' dependence on foreign reinsurance and accelerated the expansion of wartime coverage products, thereby reshaping consumer motives from investment-driven to protection-oriented behaviour. At the same time, works by N. Valinkevych *et al.* (2020) and J. Užík *et al.* (2023) deepened the theoretical and empirical understanding of the long-term and structural dimensions of insurance market development, emphasising the strategic role of insurance in enhancing

financial resilience and its cumulative impact on socio-economic progress. According to Z. Wang *et al.* (2023), this perspective positions insurance not merely as a financial instrument of risk redistribution, but as a key driver of the adaptive capacity of the economic system under conditions of prolonged uncertainty.

Ukrainian scholars comprehensively analysed the consequences of the war for the insurance sector. L. Marshuk & E. Poplavska (2022) emphasised that the recovery of the insurance market is structurally dependent on broader economic reconstruction and requires targeted government support, deregulation, and measures to stimulate demand, as the sector historically lags behind macroeconomic recovery during crises. L. Dobryk *et al.* (2023) documented a wartime decline in the number of insurers and in premium and payout volumes, while also showing that firms retain most collected premiums and increasingly rely on restructuring strategies to maintain viability under prolonged instability. Complementing these findings, I. Stetsenko (2024) focused on the rapid expansion and challenges of military-risk insurance, highlighting issues of reinsurance capacity, risk assessment, geographic restrictions, and financial stability that shape the emerging architecture of war-related coverage in Ukraine.

However, the behavioural aspects of insurance perception – including levels of trust, risk aversion, informational awareness, and value orientations – remain explored insufficiently. Most existing studies focus on macroeconomic and institutional dimensions, whereas the microeconomic behaviour of consumers under crisis conditions is examined only fragmentarily. This creates a gap between theoretical models and the actual mechanisms of decision-making regarding insurance during wartime.

Accordingly, the purpose of this study was to identify the behavioural and socio-economic determinants that shape the attitudes of individuals and legal entities towards insurance under conditions of heightened risk, including wartime, as well as to examine the role of informational awareness in fostering trust, and in shaping perceptions of market efficacy and accessibility under wartime conditions. Based on the overarching purpose, of the study, the following hypotheses were formulated to guide the empirical analysis:

- hypothesis 1: the theoretically proposed factor structure of insurance perception is empirically supported and corresponds to the latest constructs identified through principal component analysis;
- hypothesis 2: higher level of informational awareness is positively associated with perceptions of the significance of insurance protection, trust in insurance providers and the state, and evaluations of market efficacy, informational adequacy, and accessibility of insurance products;
- hypothesis 3: socio-demographic, economic, and status-related characteristics (individuals vs. legal entities) significantly influence insurance-related attitudes and behavioural patterns.

Materials and Methods

In line with the focus of this study, the conceptual framework has been constructed by integrating behavioural determinants (trust, risk perception, awareness) with socio-economic factors (income, education, employment status/economic activity, type of enterprise). The theoretical underpinning combined the approaches of the aforementioned theories and proposed an integrative conceptual chain, which facilitates the depiction of the mechanism through which attitudes towards insurance are formed under conditions of heightened uncertainty:

Information (IE1/LE4) → (↑ perceived efficacy + ↓ uncertainty) → Trust and perceived significance (FI2/FL2, FI3/

FL3) → Intention to demand (FI1/FL1). The informational component of the model was represented by variables (IE1/LE4, Table 1), which captured the number of insurance service channels known to respondents and were considered as indicators of informational awareness. It is important to emphasise that these variables were not part of the aggregated factors FI1-FI4 and FL1-FL4, but acted as independent predictors reflecting access to information sources and, correspondingly, the potential to reduce information asymmetry. To capture behavioural determinants, four theoretical factors were constructed, aggregating respondents' evaluations across thematically related statements (Table 1) and computed as mean scores.

Table 1. Survey questions and factor structure

F	FC	RC	QC	Survey question / Statement
-	-	IE/ LE	IE1/ LE4	Through an insurance agent, broker, or company representative
				Directly at an insurance company (e.g., office or website)
				Through a bank (branch, app, or website)
				Through a travel agency (e.g., when booking a trip)
				In a retail store (e.g., when purchasing equipment or other goods)
				At a car dealership (e.g., with car purchase)
				Via online insurance product aggregators (e.g., Hotline Finance, Finance.ua)
				At a medical facility (e.g., with medical services)
				All of the above
				Difficult to say / do not know any of the above channels
F1	FI1	IE	IE2	It is important to have an insurance policy that protects my life, health, and property
			IE3	My need for property, life, and health insurance has increased
	FL1	LE	LE5	It is important to have an insurance policy to protect business assets (property, liability, operational risks)
			LE6	The need for insurance of core assets (property, liability, operational processes) has increased
F2	FI2	IE	IE4	It is important for me to have full trust in domestic insurers
			IE5	Implementation of government insurance support programmes is necessary
			IE6	I feel a lack of government support in the field of social insurance
	FL2	LE	LE7	High level of trust in insurance companies is important for my enterprise
			LE8	My enterprise experiences insufficient government support in insurance
F3	FI3	IE	LE9	Implementation of government support programmes is critical for my enterprise
			IE7	Insurance organisations fulfil their obligations effectively
			IE8	Information on insurance products covering new risks is insufficiently accessible
	FL3	LE	IE9	Insurance companies need to improve client information on insurance terms, including changes related to war risk coverage
			LE10	Insurance is a reliable mechanism for managing financial risks for my enterprise
			LE11	Insurance organisations fulfil their obligations to my enterprise effectively
			LE12	My enterprise has limited access to information on insurance products adapted to wartime conditions
F4	FI4	IE	IE10	I consider insurance service prices affordable within my budget
	FL4	LE	LE14	I consider insurance service prices acceptable for my enterprise's budget

Note: F – Factor; FC – Factor code, RC – Respondent categories (IE – individuals; LE – legal entities), QC – Question code; F1 – Perceived Significance of Insurance Protection; F2 – Trust in Insurance Providers and the State; F3 – Market Efficiency and Awareness; F4 – Accessibility of Insurance

Source: compiled by the authors

The empirical foundation of this research was based on a quantitative survey administered to both individuals and legal entities, aimed at uncovering the particularities of attitudes towards insurance under wartime conditions, and the factors that determine levels of trust, perceived value, and accessibility of insurance services.

The study was primarily descriptive-analytical in nature and involved the investigation of behavioural and socio-economic determinants through the analysis of respondents' self-assessments regarding their insurance experience, expectations, and barriers to participation in the insurance market.

The sample was predominantly random and based on the principle of open access to the questionnaire. The survey was conducted online between May and June 2025. The questionnaire was made freely available via social media platforms (Facebook, Telegram) and professional communities, thereby enabling the recruitment of a maximally heterogeneous group of respondents. Participation was open to all adult citizens of Ukraine who voluntarily consented to take part in the survey. This approach aligns with the principles of open self-selection sampling, which is widely employed in online studies of socio-economic behaviour (Becker *et al.*, 2012). The total number of valid responses amounted to 118, of which 104 were completed by individuals and 14 by representatives of legal entities. Given the relatively small number of observations within the legal entity subgroup, the results of the factor analysis for this subset should be interpreted as indicative.

The questionnaire comprised structured closed-ended items grouped into six thematic blocks: (1) socio-demographic characteristics; (2) level of awareness regarding insurance products; (3) assessment of the perceived significance of insurance protection under wartime conditions; (4) evaluation of trust in insurance providers and the state; (5) assessment of market efficiency and informational adequacy; and (6) assessment of insurance accessibility. A seven-point Likert scale (Koo & Yang, 2025) was employed to measure attitudes and evaluations, where 1 – strongly disagree ... 7 – strongly agree.

The preliminary data processing included stages of data cleaning, normalisation, and verification for missing values. Statistical analyses were conducted using SPSS 25 (IBM, n.d.). The data analysis was conducted in six stages, including descriptive examination of the data, assessment of relationships between key perception variables, evaluation of measurement reliability, identification of latent perception structures, comparison of respondent groups, and modelling of the determinants of insurance perception.

A descriptive analysis was performed to determine the distribution of responses across the primary variables. The evaluated variables, IE (for individuals) and LE (for legal entities), were treated as interval-level measures, thereby permitting the application of parametric methods in subsequent analyses. Spearman's rank correlation was employed to examine the relationships between trust, awareness, and perceived accessibility of insurance products. A non-parametric approach was adopted due to deviations from normality in the variables.

Internal consistency of the items within each factor block was assessed via reliability analysis using Cronbach's α (Cronbach, 1951). The reliability thresholds followed conventional interpretations (Tavakol & Dennick, 2011; Hinton *et al.*, 2014; George & Mallery, 2019), with values ≥ 0.7 considered high, values between 0.6-0.69 acceptable, and lower values interpreted with caution in cases where blocks included a limited number of items. Reliability coefficients were computed separately for individual and legal-entity samples.

4. To explore respondents' attitudes towards insurance, a principal component analysis (PCA) with Varimax rotation was conducted. Only interval-level variables (IE and LE) reflecting respondents' Likert-scale ratings were included. The analysis aimed to identify latent structures underpinning the perception of insurance services by individuals and legal entities. Component interpretation was based on the content analysis of variables with the highest factor loadings (>0.5).

To identify differences across socio-demographic groups and respondent categories, non-parametric tests were employed: Mann-Whitney U tests for comparisons between two groups, and Kruskal-Wallis H tests for three or more groups. Where statistically significant differences were observed, post hoc pairwise comparisons were conducted with a Bonferroni α adjustment. To ascertain the determinants of insurance perception among individuals and legal entities, regression analyses were performed using a general linear model with categorical independent variables (Univariate GLM). The dependent variables comprised four perception factors (FI1-FI4 for individuals and FL1-FL4 for legal entities). The principal predictor was respondents' awareness of insurance distribution channels (IE1 for individuals; LE4 for legal entities). Control variables included: (a) for individuals: age (AGE), income (INCOME), and economic activity (EMP); (b) for legal entities: representatives' education level (EDU) and enterprise income (PROFIT).

The study assessed individuals' perceptions of the insurance environment, focusing on four core dimensions: the perceived significance of insurance protection (FI1), trust in insurance providers and the state (FI2), market efficiency and informational awareness (FI3), and the accessibility of insurance (FI4). Comparative analysis revealed that the perception of insurance services is heterogeneous and contingent upon age, educational attainment, place and region of residence, and economic activity. This methodological approach thus facilitated a comprehensive assessment of the influence of informational awareness and socio-economic characteristics on attitudes towards insurance. The utilisation of an open, self-selected sample and online survey instruments ensured relevance to contemporary digital environments, albeit with acknowledged limitations concerning the self-selection bias inherent in online surveys. The results provided an analytical foundation for identifying trends, rather than for generalisation to the entire population.

All participants engaged voluntarily, following familiarisation with an information statement outlining the purpose of the survey and assurances of confidentiality. No personally identifiable data were collected, and responses were processed in anonymised form in accordance with established principles of research ethics (Babbie, 2021). A methodological limitation lied in the use of self-reported variables within a single questionnaire, which introduced the potential for common method variance (Podsakoff *et al.*, 2003). To mitigate this risk, a combination of strategies was employed, including the use

of mixed item wording, randomised question order, and non-parametric reliability checks.

Results and Discussion

Descriptive, correlation and factor analysis

Descriptive statistics for respondents' socio-demographic characteristics and perceptions of insurance protection are presented in Table 2. For individual respondents,

perceived significance of insurance protection and trust in insurance providers and the state were generally high, with means ranging from 3.70 to 5.93. Market efficiency and awareness, as well as accessibility of insurance, showed slightly lower average ratings. For legal entities, perceived significance of insurance protection and trust in insurers also scored high, while accessibility of insurance services was relatively lower.

Table 2. Descriptive statistics of respondents' socio-demographic characteristics and perceptions of insurance protection

Variable	Code/QC	N (Valid)	Mean	Median	SD	Skewness	Kurtosis
Socio-Demographic Characteristics							
Respondent category	CAT	118	1.12	1.00	0.32	2.39	3.77
Gender	GEN	118	1.79	2.00	0.41	-1.43	0.04
Age	AGE	118	2.64	3.00	1.59	0.49	-0.95
Education level	EDU	118	4.21	4.00	1.64	-0.86	-0.12
Place of residence	CITY	118	1.29	1.00	0.45	0.95	-1.12
Region	REGION	118	4.69	5.00	1.07	-2.43	5.05
Employment status/ economic activity	EMP	118	1.40	1.00	0.69	1.47	0.68
Financial capacity	INCOME	111	2.40	2.00	0.75	-0.03	-0.34
Legal entity category	LEC	14	1.50	1.50	0.52	0.00	-2.36
Primary type of economic activity (KVED – Ukrainian classification of economic activities, comparable to NACE)	KVED	14	1.43	1.00	0.51	0.32	-2.24
Individuals							
Awareness of insurance distribution channels	IE1	104	4.08	4.00	2.76	0.15	-1.39
Perceived significance of insurance protection (FI1)	IE2	104	5.11	5.00	1.86	-0.63	-0.74
	IE3	104	4.79	5.00	2.06	-0.44	-1.10
Trust in insurance providers and the state (FI2)	IE4	104	5.93	7.00	1.53	-1.42	1.26
	IE5	104	5.63	6.00	1.65	-1.08	0.27
	IE6	104	5.55	6.00	1.67	-1.05	0.24
Market efficiency and awareness (FI3)	IE7	104	3.98	4.00	1.62	-0.07	-0.58
	IE8	104	4.86	5.00	1.57	-0.41	-0.19
	IE9	104	5.80	6.00	1.50	-1.34	1.38
Accessibility of insurance (FI4)	IE10	104	3.70	4.00	1.73	-0.02	-0.70
Legal Entities							
Awareness of insurance distribution channels	LE4	14	4.43	5.50	3.46	-0.24	-1.94
Perceived significance of insurance protection (FL1)	LE5	14	4.71	4.50	1.77	-0.36	-0.17
	LE6	14	5.57	6.00	1.79	-1.32	1.93
Trust in insurance providers and the state (FL2)	LE7	14	5.57	6.00	1.79	-1.41	1.95
	LE8	14	4.79	5.50	2.39	-0.49	-1.45
	LE9	14	4.50	4.00	2.10	-0.26	-0.89
Market efficiency and awareness (FL3)	LE10	14	4.86	5.00	2.14	-0.66	-0.57
	LE11	14	3.21	3.00	2.33	0.43	-1.38
	LE12	14	5.07	6.50	2.40	-0.80	-1.06
Accessibility of insurance (FL4)	LE13	14	6.29	7.00	1.07	-1.11	-0.30
	LE14	14	3.07	3.00	2.02	0.41	-1.06

Source: calculated by the authors

Spearman correlation analysis revealed significant positive relationships among most factor blocks for both individuals and legal entities (Table 3). The strongest correlation was observed between Perceived Significance of Insurance Protection (FI1) and Trust in Insurance Providers and the State (F2) ($\rho = 0.590$, $p < 0.01$). The weakest correlation was noted between FI1 and Accessibility of Insurance (F4) ($\rho = 0.085$, non-significant). These findings suggest that respondents who perceive insurance protection as important also tend to exhibit higher trust in insurance providers and the state, while accessibility is less

strongly associated with other factors. Factor analysis was conducted to validate the theoretically constructed factors FI1–FI4 and FL1–FL4. This approach is consistent with prior empirical research (Outreville, 2016; Gangil & Vishnoi, 2020; Kiwanuka & Sibindi, 2022). Cronbach's α values ranged from 0.494 to 0.937, indicating acceptable to high internal consistency (Table 4). Consistency was highest for FI1/FL1 ($\alpha = 0.802$ for individuals; $\alpha = 0.937$ for legal entities), whereas FI3/FL3 demonstrated only moderate reliability ($\alpha = 0.494$ and $\alpha = 0.513$), which is acceptable given the limited number of items in this block.

Table 3. Spearman correlations between factors

Factor	F1	F2	F3	F4
F1	1	0.590***	0.442***	0.085
F2	0.590***	1	0.537***	0.144
F3	0.442***	0.537***	1	0.294***
F4	0.085	0.144	0.294***	1

Note: F1 – Perceived Significance of Insurance Protection; F2 – Trust in Insurance Providers and the State; F3 – Market Efficiency and Awareness; F4 – Accessibility of Insurance; *** – p-value < 0.01

Source: calculated by the authors

Table 4. Factor block structure and internal consistency (Cronbach's α)

Factor	Respondent Category			
	Individuals		Legal Entities	
	Cronbach's α	Consistency Interpretation	Cronbach's α	Consistency Interpretation
FI1/FL1	0.802	High	0.937	High
FI2/FL2	0.629	Acceptable	0.748	Acceptable
FI3/FL3	0.494	Moderate	0.513	Moderate

Note: the aggregated factors for individuals (FI) and legal entities (FL) respondent categories: FI1 / FL1 – Perceived Significance of Insurance Protection; FI2 / FL2 – Trust in Insurance Providers and the State; FI3 / FL3 – Market Efficiency and Awareness

Source: compiled and calculated by the authors

The factor analysis for the sample of individual respondents yielded a Kaiser-Meyer-Olkin (KMO) measure of 0.766, indicating good sampling adequacy for factorisation, while Bartlett's Test ($\chi^2 = 278.564$; $df = 36$; $p < 0.001$) confirmed the presence of statistically significant correlations among the variables (Table 5). Two components were extracted, explaining 55.43% of the total variance. The first component

(38.80% of the variance) encompassed variables IE2-IE9, reflecting the value-trust dimension of insurance perception, including the recognition of its importance for the protection of life, health, and property, as well as trust in insurers. The second component (16.63% of the variance) comprised variables IE6-IE7 and IE10, capturing perceptions of insurer effectiveness and the accessibility of insurance services.

Table 5. Factor analysis results (PCA)

Component	Respondent Category	Eigenvalue (Total)	% of Variance	Cumulative (%)	Rotated Component Matrix
1	IE	3.492	38.80	38.80	IE2-IE9
	LE	4.515	45.16	45.16	LE5-LE11, LE14
2	IE	1.497	16.63	55.43	IE6-IE7, IE10
	LE	2.179	21.79	66.95	LE7, LE9, LE11-LE14
3	IE	0.988	10.98	66.41	–
	LE	1.290	12.90	79.85	LE6-LE7, LE9-LE11, LE14
Kaiser-Meyer-Olkin (KMO)	IE		0.766		Good adequacy
	LE		0.446		Marginally low
Bartlett's Test	IE		278.564***		Significant sphericity
	LE		96.711***		Significant sphericity

Note: IE – individuals; LE – legal entities; *** – p-value < 0.01

Source: calculated by the authors

For the sample of legal entities, the KMO measure was 0.446, a relatively low value that renders the interpretation of factors only marginally acceptable. Nonetheless, Bartlett's Test ($\chi^2 = 96.711$; $df = 45$; $p < 0.001$) indicated statistically significant correlations among variables. Three components were extracted, accounting for 79.85% of the total variance. The first component (45.16% of the variance) included variables LE5-LE11 and LE14, representing trust and the perceived significance of business insurance, encompassing the awareness of asset protection, the need for state support, and trust in insurance companies. The

second component (21.79% of the variance) incorporated variables LE7, LE9, and LE11-LE14, describing market efficiency and transparency from a business perspective, including the assessment of insurers' fulfilment of obligations and information accessibility. The third component (12.90% of the variance) consisted of variables LE6-LE7, LE9-LE11, and LE14, reflecting enterprises' informational awareness and the accessibility of insurance services for businesses.

In summary, the factor analysis confirmed the presence of two and three stable latent structures in the perception of insurance services among individuals and legal entities,

respectively. Differences in component prominence suggest distinct priorities: for individuals, the value-trust dimension is paramount, whereas for legal entities, market efficiency and accessibility of insurance are emphasised. The PCA was applied solely to verify the internal consistency and latent structure of the theoretically constructed factors FI1-FI4 and FL1-FL4. PCA does not generate factors per se; rather, it demonstrates that the variables included within each factor correlate in a predictable manner, thereby providing statistical support for the theoretical model.

Determinants of individual behaviour under wartime and economic challenges

Comparative analysis individuals' perceptions of the insurance environment revealed that the perception of insurance services is heterogeneous and contingent upon age, educational attainment, place and region of residence, and economic activity. Gender was found to have no statistically significant effect on the evaluations (Table 6). Analysis of individual behaviour under wartime and economic challenges showed that perceptions of insurance services among the population are heterogeneous and depend on age, level of education, place of residence, region, and

economic activity, while gender differences had no statistically significant effect. These observations are consistent with the concept of bounded rationality (Simon, 1955) and prospect theory (Kahneman & Tversky, 2000), which emphasize how cognitive and emotional processes shape risk perceptions under heightened uncertainty, such as wartime conditions (Botzen & van den Bergh, 2009; Thaler, 2016; Slovic, 2020). Age-related differences were most evident in the perception of state support and the accessibility of insurance products. Older respondents tended to feel a greater lack of governmental support, whereas both younger and older cohorts evaluated insurance accessibility higher than the middle-aged group. This aligns with the Protection Motivation Theory model (Rogers, 1975; Maddux & Rogers, 1983), where threat perception and protective capacity can vary depending on life experience and available resources. Educational level influenced perceptions of state involvement: respondents with higher education exhibited greater critical awareness of its effectiveness, which aligns with research linking higher educational attainment to stronger reflexivity and expectations regarding institutional transparency (North, 1990; Coleman, 1992; Berggren & Bjørnskov, 2023).

Table 6. Summary of statistically significant differences in the perception of the insurance environment among individuals

Demographic variable	Factor	QC	Test	Test statistic	p-value	Interpretation
Gender	–	–	Mann-Whitney U	–	>0.05	No statistically significant differences identified
Age	FI2	IE6	Kruskal-Wallis H	H = 13.562	0.019	Older respondents more frequently perceive a lack of state support in the field of social insurance than younger ones
	FI4	IE10	Kruskal-Wallis H	H = 15.246	0.009	Younger and older respondents rate the accessibility of insurance higher than those in middle age
Education	FI2	IE6	Kruskal-Wallis H	H = 10.102	0.039	Respondents with higher education perceive a greater deficiency in state support compared with those with basic or vocational education
Place of residence	FI1	IE2	Mann-Whitney U	U = 922. Z = -1.908	0.056	Tendency: residents of regional centres attach greater importance to holding an insurance policy than those in smaller settlements
	FI1	IE3	Mann-Whitney U	U = 910. Z = -1.988	0.047	Urban residents assess the need for insurance higher than respondents from other locations
Region	FI2	IE6	Kruskal-Wallis H	H = 10.102	0.039	Post-hoc analysis revealed no significant regional differences; the effect was most pronounced in the Southern region
Economic activity	FI2	IE4	Kruskal-Wallis H	H = 6.262	0.044	Employed respondents and students report higher levels of trust compared with the unemployed and retirees
	FI2	IE6	Kruskal-Wallis H	H = 8.238	0.016	Unemployed and retired respondents more acutely perceive a lack of state support
	FI3	IE8	Kruskal-Wallis H	H = 7.477	0.024	Employed respondents assess the level of market awareness lower than other groups
	FI4	IE10	Kruskal-Wallis H	H = 7.442	0.024	Employed respondents rate the accessibility of insurance lower than the unemployed and retirees

Note: FI1 – Perceived Significance of Insurance Protection; FI2 – Trust in Insurance Providers and the State; FI3 – Market Efficiency and Awareness

Source: calculated by the authors

Residents of regional centres attributed higher significance to insurance protection and a greater perceived need

for life and property insurance compared with inhabitants of smaller settlements. Regional variations were limited

and manifested primarily as a tendency in the Southern region. This tendency may be associated with the concentration of insurance services and the level of informational accessibility (He *et al.*, 2023). Economic activity emerged as a key differentiating factor shaping attitudes towards insurance. Employed respondents and students expressed lower levels of trust, awareness, and perceived accessibility compared with the unemployed and retirees. This may reflect the influence of socio-economic status and the subjective sense of financial stability on perceptions of the insurance environment. Such differences are consistent with information asymmetry theory (Akerlof, 1970; Stiglitz & Weiss, 1981), which emphasises unequal access to information and the role of economic stability in institutional trust (Goold *et al.*, 2006).

The role of informational awareness was confirmed by regression analysis: familiarity with a greater number of insurance channels (IE1) positively influenced assessments of insurance significance, trust in companies and the state, and perceptions of market efficiency. This is consistent with the Protection Motivation model, where information enhances response efficacy and reduces uncertainty (Kiwunika &

Sibindi, 2023; He *et al.*, 2023). At the same time, perceived accessibility of insurance products was determined primarily by age, income, and economic activity rather than informational awareness, highlighting the presence of financial barriers limiting demand. In summary, results confirm that informational factors are key determinants of trust and the perceived significance of insurance services, whereas socio-demographic characteristics largely shape perceptions of accessibility and deficits in state support. These patterns mirror broader behavioural insurance research, which highlights the role of cognitive, emotional, and informational factors in financial decision-making under wartime constraints (Kunreuther & Pauly, 2018; Kolinets *et al.*, 2023; Yastreba, 2024).

The regression analysis confirmed the significant role of respondents' awareness (IE1) of insurance distribution channels (Table 7). The more channels of insurance services familiar to the respondent, the higher the assessments of significance, trust, and perceived market efficiency. In contrast, the perceived accessibility of insurance products was determined primarily by socio-demographic variables: age, income level, and employment status.

Table 7. Results of the regression analysis of factors influencing individuals' attitudes towards insurance

Variables		Factors			
		F1	F2	F3	F4
Intercept	coef	5.792***	5.740***	4.562***	2.891**
	error	1.217	0.833	1.134	
IE1	coef	0.193***	0.146***	0.091**	0.026
	error	0.071	0.048	0.066	
Age (AGE)	p-value	0.670	0.905	0.523	0.067*
18-25 years	coef	0.390	-0.126	0.754	2.824***
	error	1.149	0.787	0.729	1.071
26-35 years	coef	-0.712	-0.343	0.239	2.023*
	error	1.248	0.855	0.792	1.163
36-45 years	coef	0.264	-0.161	0.281	2.340**
	error	1.131	0.774	0.717	1.054
46-55 years	coef	0.251	0.192	0.803	2.826***
	error	1.110	0.760	0.704	1.034
56-65 years	coef	0.231	0.107	0.453	3.067***
	error	1.227	0.840	0.778	1.143
65+ years	coef	base category			
Income level (INCOME)	p-value	0.518	0.712	0.302	0.025**
Very low	coef	-0.003	0.181	0.146	-2.303**
	error	0.975	0.668	0.618	0.908
Low	coef	-0.804	0.172	-0.200	-1.764**
	error	0.818	0.560	0.519	0.762
Medium	coef	-0.729	-0.162	-0.572	-0.988
	error	0.827	0.566	0.524	0.770
High	coef	base category			
Economic activity (EMP)	p-value	0.039**	0.022**	0.015**	0.016**
Formally employed	coef	-1.274*	-0.583	-0.216	-0.535
	error	0.699	0.479	0.443	0.651
Students	coef	-1.434*	-0.794	-0.555	-0.062
	error	0.856	0.586	0.543	0.797
Unemployed/retired	coef	base category			

Table 7, Continued

Variables	Factors			
	FI1	FI2	FI3	FI4
R Square	0.207	0.208	0.208	0.208
F-statistic	2.043**	2.051**	1.391	3.085***
N	98	98	98	98

Note: FI1 – Perceived Significance of Insurance Protection; FI2 – Trust in Insurance Providers and the State; FI3 – Market Efficiency and Awareness; *** – p-value < 0.01; ** – p-value < 0.05; * – p-value < 0.1

Source: calculated by the authors

The FI1 factor (Perceived Significance of Insurance Protection) revealed a significant positive effect of IE1 ($B = 0.193$; $p < 0.01$). This indicates that respondents familiar with a greater number of insurance distribution channels tend to assign higher importance to insurance protection for life, health, and property. In the context of wartime risk, this relationship appears intuitively consistent, as heightened uncertainty increases awareness of the value of insurance coverage. Age, income, and employment status variables were not statistically significant, suggesting that the perception of insurance importance is relatively universal across social groups. Nevertheless, economically active respondents and students exhibited lower scores ($B \approx -1.3$; $p < 0.1$), possibly reflecting the effects of financial uncertainty and limited liquidity during wartime. The FI2 factor (Trust in Insurance Providers and the State) also confirmed a positive effect of IE1 ($B = 0.146$; $p < 0.01$). Greater awareness of insurance channels corresponds to higher levels of institutional trust, which is consistent with findings showing that individuals with more information and greater confidence in institutions tend to exhibit lower hesitancy and higher trust in institutional actors (Chen *et al.*, 2024). Employment status was likewise statistically significant ($p = 0.022$), with economically active individuals demonstrating lower trust than retirees or the unemployed – likely a consequence of direct interaction experiences with insurers, which can expose them to transaction costs and opportunistic behaviour, as highlighted in transaction cost theory (Williamson, 1997). For FI3 (Market Efficiency and Awareness), the model identified a positive influence of IE1 ($B = 0.091$; $p < 0.05$), indicating a link between informational awareness and perceptions of market performance. Employment status again proved significant ($p = 0.015$), underscoring a

more critical perspective among economically active and higher-educated respondents. This suggests a gap between expectations and the actual quality of insurance services. The FI4 factor (Accessibility of Insurance), by contrast, showed no significant relationship with IE1, suggesting that knowledge of insurance channels does not necessarily translate into perceptions of financial accessibility. Instead, age ($p = 0.067$), income ($p = 0.025$) and employment status ($p = 0.016$) were decisive determinants. Younger respondents and those with lower incomes perceived accessibility as limited, whereas middle-aged and older groups rated it considerably higher – indicating the presence of financial barriers that constrain demand for insurance products. In summary, all regression models explained approximately 20% of the variance in respondents' assessments, a level considered acceptable for behavioural and socio-economic research (Kiwunuka & Sibindi, 2022, 2023; Lawaju *et al.*, 2023). The most consistent predictor across all models was IE1 – the level of awareness regarding insurance distribution channels, thereby confirming the pivotal role of informational factors in shaping attitudes towards insurance.

Features of legal entities' attitudes towards insurance under conditions of heightened risk

The comparative analysis of perceptions of the insurance environment among legal entities revealed a relatively homogeneous pattern of evaluations across most socio-demographic characteristics of respondents representing organisations. However, education level and economic activity emerged as significant determinants of variation (Table 8), highlighting that while many factors show uniformity, specific knowledge and engagement with economic processes can shape perceptions differently.

Table 8. Summary of statistically significant differences in the perception

Demographic variable	Factor	QC	Test	Test statistic	p-value	Interpretation
Gender	–	–	Mann-Whitney U	–	>0.05	No statistically significant differences identified.
Age	–	–	Kruskal-Wallis H	–	>0.05	No statistically significant differences identified.
Education	FL1	LE5	Kruskal-Wallis H	H = 9.841	0.020	Organisations represented by respondents with higher education (Master's or Doctoral degree) assign greater importance to insurance protection.
	FL1	LE6	Kruskal-Wallis H	H = 6.385	0.094	A tendency towards differentiation between Bachelor/Master and Doctoral groups.
	FL2	LE8	Kruskal-Wallis H	H = 10.450	0.015	Organisations with more highly educated representatives assess trust levels more critically.

Table 8, Continued

Demographic variable	Factor	QC	Test	Test statistic	p-value	Interpretation
Place of residence	–	–	Mann-Whitney U	–	>0.05	No statistically significant differences identified.
Region	–	–	Mann-Whitney U	–	>0.05	No statistically significant differences identified.
Economic activity	FL3	LE13	Mann-Whitney U	U = 11.000. Z = -1.968	0.049	Formally employed respondents rate market awareness lower than individual entrepreneurs (sole proprietors).
Legal entity category	FL3	LE12	Mann-Whitney U	U = 9.500. Z = -2.049	0.040	Representatives of individual entrepreneurs (sole proprietors) evaluate the accessibility and awareness of insurance services lower than those from other enterprises, indicating limited access of small businesses to up-to-date market information and insurance products.
Primary type of economic activity (KVED)	–	–	Mann-Whitney U	–	>0.05	No statistically significant differences identified.

Note: FL1 – Perceived Significance of Insurance Protection; FL2 – Trust in Insurance Providers and the State; FL3 – Market Efficiency and Awareness

Source: calculated by the authors

Analysis under conditions of heightened uncertainty confirmed these general patterns but emphasised the role of education and type of economic activity. This aligns with prior studies suggesting that education and informational competence influence insurance-related behaviour (North, 1990; Goold *et al.*, 2006; He *et al.*, 2023), as better-informed respondents are likely to process risk information more critically. According to the concepts of bounded rationality (Simon, 1955) and prospect theory (Kahneman & Tversky, 2000), organisational decisions regarding insurance are influenced not only by rational risk assessment but also by cognitive and emotional heuristics. This explains why respondents with higher education attach greater importance to insurance protection (FL1) yet evaluate trust in the state and insurance companies more critically (FL2). Such behaviour reflects a more reflexive, nuanced approach to risk assessment and market evaluation (Kunreuther & Pauly, 2018; Berggren & Bjørnskov, 2023). Differences by education level manifested in three factors – LE5, LE6, LE8. Organisations represented by individuals with higher education or academic degrees assigned greater importance to insurance protection, while simultaneously expressing more critical views regarding state support and trust in the insurance market.

A statistically significant difference in the FL3 factor (Market Efficiency and Awareness) between formally employed respondents and individual entrepreneurs points to disparities in access to information and insurance products. Small business representatives and sole proprietors rated market awareness lower, consistent with information asymmetry theory (Akerlof, 1970; Stiglitz & Weiss, 1981). This finding highlights the importance of digital transparency and proactive communication from insurance companies to enhance trust and willingness to insure (He *et al.*, 2023; Kiwanuka & Sibindi, 2023). With respect to economic activity, the variable LE13 (FL3 Market Efficiency and Awareness) proved statistically significant: formally employed respondents rated market awareness lower than sole proprietors. A similar pattern was observed across

legal entity types: representatives of sole proprietorships reported lower levels of accessibility and awareness in the insurance domain, which may reflect limited access to current market information and insurance products among small enterprises. Other variables (gender, age, location, region, and primary type of economic activity (KVED)) did not demonstrate any statistically significant effects on perceptions of the insurance environment.

Despite the general homogeneity of perceptions, observed differences by education and economic activity indicate the need for segmented approaches in developing insurance products and communication strategies. Enhancing informational transparency and digital access to insurance services can increase trust and motivation for insurance protection among small businesses and sole proprietors (Kunreuther & Pauly, 2018; He *et al.*, 2023).

The regression analysis revealed a selective influence of informational awareness (LE4) and the educational attainment of legal entity representatives (EDU) on the perception of the insurance market (Table 9). Awareness of insurance service channels exerted a positive effect on the perceived importance of insurance protection and trust in insurance companies (FL1-FL2). Conversely, higher education is inversely correlated with trust (FL2) and shows a tendency to affect perceptions of market efficiency (FL3). These results align with Protection Motivation Theory, suggesting that increased access to information strengthens perceptions of insurance effectiveness and reduces uncertainty (Rogers, 1975; Maddux & Rogers, 1983; Kunreuther & Pauly, 2018). Enterprise income (PROFIT) did not demonstrate a statistically significant effect, although a tendency towards lower ratings was observed among the least profitable enterprises. The FL1 factor (Perceived Significance of Insurance Protection) showed a positive but statistically insignificant effect of informational awareness LE4 ($B = 0.264$; $p > 0.1$). This suggests a general tendency whereby greater awareness of insurance channels is associated with higher evaluations of the importance of business insurance protection. Other

variables exhibited no significant effects. The FL2 factor (Trust in Insurance Providers and the State) demonstrated a statistically significant positive influence of LE4 ($B = 0.281$; $p < 0.1$): broader awareness corresponds with higher trust in the insurance market, even under wartime conditions. Education level ($B = -4.167$; $p < 0.05$) exerted a negative influence – more highly educated representatives reported lower trust levels, which may reflect a more critical perception of market regulation and systemic risk. The FL3 factor (Market Efficiency and Awareness) indicated that informational awareness (LE4) was not statistically significant; however, education displayed a tendency towards influence ($p = 0.053$). Respondents with higher education assessed market efficiency more negatively than those with vocational or basic education, suggesting

heightened awareness of product limitations and systemic deficiencies. The FL4 factor (Accessibility of Insurance) showed no statistically significant predictors. The least profitable enterprises tended to assign lower ratings of accessibility, suggesting the persistence of financial barriers to participation in insurance programmes. In sum, the regression modelling confirmed the central role of informational awareness in shaping business attitudes towards insurance. Representatives of enterprises with greater familiarity with insurance channels expressed higher levels of trust and recognition of insurance protection importance. Conversely, education level was associated with a more critical assessment of market efficiency, while financial constraints continued to act as a barrier to the accessibility of insurance products.

Table 9. Results of the regression analysis of factors influencing legal entities' attitudes towards insurance

Variables		Factors			
		FL1	FL2	FL3	FL4
Intercept	coef	7.000**	7.912***	6.889***	7.735*
	error	2.399	1.792	1.574	3.510
LE4	coef	0.264	0.281*	-0.110	0.108
	error	0.191	0.143	0.125	0.280
Education (EDU)	p-value	0.361	0.081*	0.053*	0.546
	coef	-2.396	-4.167**	-2.600	-2.896
Master's degree	error	2.185	1.632	1.434	3.197
	coef	-0.581	-2.521	-0.092	-3.646
Doctoral degree	error	2.171	1.622	1.425	3.177
Vocational and Technical Education and Bachelor's degree		base category			
Enterprise income (PROFIT)	p-value	0.514	0.506	0.929	0.457
	coef	-1.764	-1.360	-0.529	-3.842
Very low	error	0.000	0.000	0.000	0.000
	coef	-1.606	-1.214	-0.123	-2.247
Low	error	1.334	0.997	0.875	1.952
Medium and high		base category			
R Square		0.575	0.767	0.688	0.297
F-statistic		1.893	4.611**	3.089*	0.592
N		13	13	13	13

Note: FL1 – Perceived Significance of Insurance Protection; FL2 – Trust in Insurance Providers and the State; FL3 – Market Efficiency and Awareness; *** – p -value < 0.01 ; ** – p -value < 0.05 ; * – p -value < 0.1

Source: calculated by the authors

Overall, the study confirms that informational awareness and education are central determinants of legal entities' behaviour in the insurance environment, while financial constraints, though less pronounced in shaping market perception, still act as barriers to accessibility for the least profitable enterprises. These findings are consistent with international observations on behavioural and institutional factors affecting insurance demand in crisis and wartime conditions (Kolinets *et al.*, 2023; Dobryk *et al.*, 2023; Tkachuk & Kraus, 2024).

Based on the parameters of the model, a generalisation of the core issues underlying the perception of insurance was developed and systematised in Table 10. Economic activity among individuals exerts a consistently negative influence, indicating a certain degree of scepticism within the

economically active population, whereas age and income differences significantly affect only the perception of insurance accessibility, thereby contributing to socio-economic polarisation. Consequently, the key driver of insurance market development for individuals lies in expanding public awareness of insurance opportunities, fostering trust in insurers, and enhancing the financial accessibility of insurance products. The modelling results for individuals indicate that the key determinant of a positive attitude towards insurance is citizens' awareness of insurance distribution channels (IE1). Under wartime conditions, the importance of timely and reliable information about insurance opportunities becomes particularly pronounced, as it mitigates risks and enhances the population's preparedness for unforeseen events. At the same time, economic activity often correlates

with a more critical assessment of the system, while age and income shape perceptions of accessibility. The problems thus have a distinctly practical nature: (1) information deficit (limited knowledge of insurance channels) reduces the overall positive perception of insurance; (2) economically active groups display greater scepticism towards institutional reliability and operational efficiency; (3) accessibility issues reveal a clearly defined socio-economic dimension. For legal entities, informational awareness of insurance

distribution channels (LE4) likewise emerges as the principal determinant of positive attitudes. Wartime conditions exacerbate structural and psychological barriers linked to education and the financial capacity of enterprises, influencing trust, perceptions of efficiency, and perceived accessibility of insurance products. This underscores the need to enhance market transparency, broaden access to information, and adapt insurance offerings to the needs of enterprises – particularly those with constrained financial resources.

Table 10. The nature of identified issues in the attitudes of individuals and legal entities towards insurance

Factor	Nature of the Issue	
	Individuals	Legal entities
Perceived significance of insurance protection (FI1 / FL1)	Limited knowledge of ways to purchase insurance services reduces awareness of their importance (confirmed by a significant positive effect of IE1).	Informational awareness potentially enhances the perceived importance of insurance for business assets; structural characteristics of enterprises show no effect.
Trust in insurance providers and the state (FI2 / FL2)	Distrust in insurance and state institutions among economically active citizens intensifies under conditions of wartime instability (economic activity is a significant predictor of FI2).	Trust increases with higher levels of awareness (LE4), yet higher education among representatives is associated with lower trust, reflecting more critical assessments of the system.
Market efficiency and awareness (FI3 / FL3)	Low public awareness of insurance conditions – particularly regarding war-related risks – amplifies scepticism about market efficiency (IE1 positively linked to FI3, while EMP lowers efficiency scores).	Enterprise awareness does not necessarily translate into perceived efficiency or adaptability of the market; more educated representatives evaluate efficiency lower, signalling awareness of systemic limitations.
Accessibility of insurance (FI4 / FL4)	Younger and low-income citizens perceive insurance as financially inaccessible; income and age are key determinants of FI4.	Limited accessibility of insurance products for small and medium-sized enterprises during times of crisis.
Combined effect (FI2-FI3 / FL2-FL3)	Socio-economic inequality in access to insurance services becomes more pronounced during wartime.	The combination of high awareness with a critical stance among educated representatives reduces perceived trust and efficiency of the insurance market.

Source: prepared by the authors

Empirical modelling of attitudes towards insurance among both individuals and legal entities revealed a series of convergent problem determinants that collectively constrain the insurance market's development as an institutional risk-management mechanism. Despite differences between households and business entities, the pattern of observed relationships points to the shared nature of key barriers – informational asymmetry, a deficit of trust in financial institutions, insufficient market transparency, and uneven accessibility of insurance products. These issues acquire particular urgency during wartime, when risks of property loss intensify while access to insurance services diminishes due to damaged infrastructure and limited financial capacity. This provides grounds to interpret the problem of insurance perception not merely as a behavioural phenomenon, but as a systemic challenge, requiring targeted policies to strengthen trust, awareness, and the financial literacy of both the population and businesses.

Conclusions

The study of behavioural and socio-economic determinants shaping the perception of insurance services during wartime has confirmed the critical role of informational awareness, trust, and perceived market efficiency in forming insurance intentions. The findings demonstrated that

attitudes toward insurance under conditions of heightened uncertainty are not driven by a single factor but emerge from the interaction of informational, institutional, and socio-economic influences.

The analysis also revealed distinct differences in priorities between individuals and legal entities. Individuals place emphasis on trust and the perceived importance of insurance protection, whereas legal entities focus more on market efficiency and product accessibility. These divergences indicate that insurance demand during crisis conditions is structured differently across respondent categories and cannot be addressed through uniform policy or communication strategies.

Socio-demographic characteristics further shape perceptions of the insurance environment, acting as modifying determinants rather than primary drivers. Age, education, place of residence, and economic activity status influence how respondents assess trust, accessibility, and the role of state support. At the same time, informational awareness consistently emerges as a key enabling factor that reinforces trust in insurance institutions and enhances perceptions of the usefulness and relevance of insurance protection, particularly in wartime conditions.

Overall, the findings demonstrate that the formation of insurance demand in crisis conditions depends on a

synergistic interplay between informational awareness, trust, perceptions of efficiency, and socio-economic status. The empirical identification of latent factors and determinants of insurance attitudes lays the groundwork for future research. Subsequent studies could examine how these behavioural drivers evolve over time, vary across different socio-economic and cultural contexts, or respond to changing macroeconomic and geopolitical conditions. Researchers might also explore the applicability of these factors in other countries or in comparative cross-national analyses, thereby extending the

understanding of insurance perception under conditions of heightened uncertainty.

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Поведінкові чинники сприйняття страхування в умовах воєнної невизначеності: дані з України

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Анотація. В умовах повномасштабної війни в Україні страхування відіграє вирішальну роль у забезпеченні фінансової безпеки та економічної стійкості. Однак поведінка споживачів в умовах крайньої невизначеності, зокрема довіра, сприйняття ризику та інформаційна обізнаність, залишається недостатньо дослідженою. Метою дослідження було визначення чинників, які формують ставлення фізичних та юридичних осіб, а також аналіз того, як інформаційна обізнаність сприяє довірі та впливає на сприйняття ефективності та доступності ринку в умовах війни. Емпіричне дослідження базувалося на кількісному онлайн-опитуванні, проведеному в травні-червні 2025 року (N = 118). Дані оброблялися за допомогою описової статистики, аналізу надійності, факторного аналізу з Varimax-обертанням, рангової кореляції Спірмена, непараметричних тестів значущості та множинного регресійного моделювання. Для фізичних осіб було виділено два компоненти, що пояснюють 55,4 % дисперсії, а для юридичних – три компоненти, що пояснюють 79,9 %. Вони відображали подібні виміри: довіру та значущість страхування, ефективність і доступність ринку, а також інформаційну обізнаність. Ставлення фізичних осіб варіювалося залежно від віку, освіти, місця проживання та зайнятості: молодші та економічно активні респонденти демонстрували нижчий рівень довіри та сприйманої доступності, тоді як інформаційна обізнаність підвищувала впевненість і оцінку ефективності ринку. Серед юридичних осіб вища освіта корелювала з більш критичною оцінкою ефективності ринку, тоді як малі підприємства повідомляли про обмежений доступ до інформації. У обох групах інформаційна обізнаність послідовно формувала позитивне ставлення, тоді як низький дохід, обмежена довіра та дефіцит інформації стримували участь. Результати підкреслюють необхідність заходів щодо зміцнення довіри, прозорості та фінансової включеності на українському страховому ринку.

Ключові слова: поведінка споживачів; кількісне опитування; факторний аналіз; регресійний аналіз; страховий траст під час війни

Industrial parks as an instrument for attracting investment into the regional development of Ukraine

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Abstract. The purpose of this study was to assess the potential of specialised production territories in stimulating Ukraine's investment activity in the context of economic recovery after Russia's full-scale invasion since 2022. The methodology was based on a theoretical and analytical approach and included content analysis of regulatory documents, comparative analysis of Ukrainian and international models, statistical analysis of investment dynamics and case studies of individual industrial parks. The main results showed a significant increase in investment activity: the number of parks increased from 40 in 2019 to 99 in 2024, state support grew from a zero level in 2019 to UAH 1.1 billion in 2024, and the volume of private investment increased from UAH 500 million to UAH 4,600 million. The share of Ukrainian investors reached 90%, which indicates an internal reorientation of capital under wartime conditions. Industrial parks made it possible to reduce the time needed to launch production from 2-3 years to 6-9 months and to decrease infrastructure costs by UAH 15-60 million. Employment potential was estimated at 50 jobs per hectare, which can ensure 500-1000 jobs in the event of full launch of the parks. Comparison with the models of Poland, Turkey, South Korea and the United States showed that Ukrainian industrial parks, in terms of tax and infrastructure incentives, are converging with these approaches. The results obtained made it possible to identify Ukraine's competitive advantages in the global system of investment attraction. The practical significance of the study lies in the fact that its results can be used by public authorities, local communities and investors for planning the development of industrial parks, optimising mechanisms for attracting capital and substantiating decisions on the location of new production facilities.

Keywords: clusters; infrastructure; industrial parks; investment climate; financing; budget

Introduction

Rapid structural changes in the Ukrainian economy, caused by the transformation of global production chains and the destructive consequences of military aggression, have set

the state the task of searching for effective mechanisms to restore industrial potential and strengthen the investment capacity of regions. Against the background of growing

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territorial disparities, the loss of production sites and the need to relocate enterprises, industrial parks are gaining key importance as platforms for the formation of new economic centres, the stimulation of entrepreneurship and the increase of capital investment in production sectors.

In the context of transformations in spatial development and the need to strengthen investment activity at the territorial level, the assessment of mechanisms capable of ensuring sustainable economic growth becomes important. The study by S.A. Davymuka (2025) focused on the institutional conditions for the formation of innovation-oriented production sites and on the factors that determine the economic effect. The author emphasised the importance of infrastructural platforms as an environment that creates favourable preconditions for the placement of enterprises, optimisation of costs, increased productivity and activation of investment activity. In this context, the study by O. Malyarchuk & M. Shipa (2024) is devoted to the analysis of the institutional conditions for the functioning of industrial parks and the factors that shape the effectiveness. The authors considered industrial parks through the prism of infrastructural readiness, spatial planning and incentive instruments that influenced investment processes.

In conditions where the economic system is undergoing significant transformations due to the consequences of the war and changes in the spatial organisation of production, it is important to pay attention to instruments capable of supporting investment activity and contributing to territorial recovery. In the study, conducted by V. Boiko & L. Boiko (2023), issues of the creation and functioning of industrial parks were examined in the context of the use as a mechanism for attracting investment in the post-war period. The authors analysed the current state of development of industrial parks, emphasised the relocation of enterprises, infrastructural conditions, approaches to park organisation and benefits for local communities. The conclusions reflected those industrial parks contribute to the formation of new production sites, job creation and increased investment activity, and are also capable of supporting economic recovery processes.

In the process of transforming spatial development and increasing the role of agglomerations under wartime and post-war recovery conditions, the need emerged to identify effective mechanisms capable of supporting investment activity and forming new production centres. In this context, the study by O.Y. Zhabynets & O.O. Sukhyy (2024) was devoted to assessing the state of industrial parks in the Lviv agglomeration and analysing the factors that influenced the formation and development prospects. The authors considered industrial parks as infrastructural concentrators of industrial, investment and research potential, emphasising the opportunities in the context of a reindustrialisation model, spatial organisation of territories and strengthening of synergies between communities. In the study by S. Garbar (2025), industrial parks were considered as an element of restoring the economic system in Ukraine and as one of the mechanisms for stimulating production processes

and attracting investment. The author analysed the factors influencing investors' choice of production localisation, including infrastructural conditions, state incentives, tax instruments, security issues and the level of territorial readiness for the placement of enterprises.

In the context of searching for instruments capable of supporting the economic growth of territories and ensuring the inflow of investment resources, attention is increasing to the factors that determine investment activity at the regional level. In the work of S.I. Bessonova (2021), the issue of the impact of investment on the economic development of Ukrainian regions was examined, the dynamics of foreign investment, regional differences, the structure of capital investment and sources of financing were analysed. The author examined the directions of inflow of foreign capital, compared Ukraine's investment indicators with those of neighbouring countries and identified factors that influenced the reduction of investment volumes, including infrastructural insufficiency, legislative instability and risks associated with the security situation. In the study by M. Vedenyapina & V. Malakhova (2023), the key aspects of the creation and functioning of industrial parks in Ukraine were considered, regulatory approaches, principles of the formation of such territories, classification features, the role of infrastructure, as well as the conditions that determined the decisions of potential participants regarding the location of production capacity were assessed. The authors analysed the experience of various countries in organising industrial parks, the legal nature, types of land ("greenfield" and "brownfield"), management features, forms of state support and business benefits, including cost reduction, expanded access to resources and the possibility of obtaining services from the management company.

Under conditions of wartime destruction and changes in the spatial organisation of production, the need is intensifying for mechanisms capable of supporting economic recovery and creating conditions for investment activity in territories. In the study by A. Andriienko (2024), the factors that influenced the development of industrial parks in the post-war period were considered, including the state of infrastructure, the level of investment risks, the availability of financial resources and the possibilities of applying technological solutions to optimise production processes. The author analysed the consequences of the destruction of energy and transport networks, fluctuations in the investment climate, the impact of security threats, as well as the role of state incentives and international technical assistance in restoring infrastructure and increasing the attractiveness of territories for potential residents.

Despite existing research, the impact of industrial parks on investment dynamics under conditions of wartime risks and post-war recovery, the effectiveness of state incentives, differences between park types and mechanisms for building territorial resilience remain insufficiently clarified, which requires further systematic study. The purpose of this study was to determine the potential of specialised production and infrastructure zones to enhance

investment processes in Ukraine during the period of economic recovery after the full-scale invasion. To achieve this aim, the following tasks were set: to analyse the conditions for the functioning of industrial parks and the instruments of the state support in the current economic circumstances; to identify the competitive advantages and limitations of Ukrainian industrial parks in the context of post-war recovery and investment attraction.

Materials and Methods

This study had a theoretical and analytical character and covered the time frame of 2019-2025. Within the study, the investment advantages of the industrial parks “Syhnyivka”, “Dolyna Stryi” and the Bucha “KYT” park were analysed, since these facilities demonstrate different development models – from border, logistics-oriented parks to capital innovation clusters, have a high level of infrastructural readiness and have already received state co-financing, which makes it possible to assess real investment results, the speed of production launch and the effectiveness of the incentives applied. For these examples, the case method was used in order to determine infrastructural opportunities, conditions for residents and the impact on the local economy. Separately, the parks “Universal industry”, “Vinnytsia industrial park” and the “Integral” park (Cherniyuk, 2025) were studied; the analysis was carried out using a structural and functional approach. These parks were studied because of demonstrating different approaches to the organisation of industrial territories and differing in the level of specialisation and infrastructural readiness, which makes it possible to comprehensively assess the investment potential.

The study examined the advantages of industrial parks on the example of “Kronospan Rivne” (Ministry of Economy, Environment and Agriculture of Ukraine, 2021), the state financing programme “Made in Ukraine” and tax incentives for residents (Law of Ukraine No. 5018-VI, 2012). The research was carried out using the method of content analysis to determine the role of state support in stimulating investment activity. The characteristics of an average industrial park in Ukraine (Marchenko, 2025) were also identified by generalising secondary statistical data, which made it possible to outline a typical infrastructural and economic profile of parks. The impact of industrial parks on social and labour relations and regional competitiveness was examined using structural and logical analysis in order to identify employment effects and the formation of new production clusters. A comparison of industrial parks by type and employment potential was carried out on the example of processing industry, agro-processing, logistics and information technology/innovation sectors (Biznes.Rayon, 2025). Materials from Rayon.Kowel (2025) also served as sources.

Investment dynamics for 2019-2024 were analysed using statistical and comparative-dynamic analysis, which involved processing secondary data on the number of registered parks, volumes of state support, private investment and the share of Ukrainian investors based on the sources of R. Vovk (2025), Made in Ukraine (2024) and the Ministry

of Economy of Ukraine (2025b). The method of comparative analysis was used to assess the participation of state, private and international instruments. The sectoral structure of residents and the level of employment after the launch of industrial parks were studied using the method of systematisation with the use of data on the formation of supply chains obtained from specialised analytical materials by Formatsia (n.d.a). Separately, the export results of industrial parks were analysed as a factor of regional competitiveness based on materials by M. Balytska (2025).

Comparison of the Ukrainian model of industrial parks with international approaches was carried out using the method of international comparative analysis based on the standards of the International Organisation for Standardisation (ISO) and the Eco-Management and Audit Scheme. The principles of the Responsible Care programme applied in EU industrial zones were also taken into account. The Polish model was studied separately through the mechanisms of the Polish Investment Zone and the tax incentives described in PwC (2025). The Turkish system was analysed based on the Law of the Republic of Turkey No. 4562 “On Organised Industrial Zones” (2000) and the ISO 9001:2015 “Quality Management Systems – Requirements” (2015) standard. The South Korean model was assessed using materials on the functioning of Korea Industrial Complex Corp (DevelopmentAid, n.d.). The US model was analysed taking into account the approaches of Enterprise Zones, the mechanisms of Opportunity Zones and funding instruments such as Tax Increment Financing. The programmes Payments in Lieu of Taxes were also considered, and special attention was paid to the federal programmes CHIPS and Science Act (United States Congress, 2022) and the Inflation Reduction Act of the United States (2022). These countries were chosen for comparison because these countries represent the most successful and well-established models of industrial park development in different parts of the world, covering European, Asian and American approaches, which made it possible to comprehensively assess the competitiveness of the Ukrainian model.

Comprehensive comparison of the above international models with the Ukrainian one was carried out according to the criteria of tax and customs incentives, infrastructure, management, clustering, integration into global value chains, risk level, main advantages and key disadvantages. For this purpose, materials from the Ministry of Industry and Technology of the Republic of Turkey (n.d.) and the Ministry of Economy and Finance of the Republic of Korea (2025) were used. A limitation of this study was that its results depended on the availability of up-to-date data on the actual occupancy of industrial parks and the economic effect, since a significant part of such facilities was at early stages of development.

Results

Industrial parks as an element of investment and regional economic policy

One of the key advantages of industrial parks in Ukraine is the availability of prepared engineering and technical

infrastructure, which significantly reduces entry barriers for investors. The level of infrastructure provision varies substantially between regions. Lviv, Kyiv, and Vinnytsia regions belong to the leaders in terms of infrastructural readiness thanks to active state co-financing of power grids, roads, water supply and sewerage. In Lviv region, the industrial parks “Syhnyvka” and “Dolyna Stryi” received more than UAH 98.9 million for electrical networks, fire-fighting water supply, heat supply and road infrastructure, which ensured a high degree of the completeness; overall, the region has six parks with active network development (Ministry of Economy, Environment, and Agriculture of Ukraine, 2025). In Kyiv region, the “KYT” park in Bucha was financed to the amount of UAH 147.7 million for internal networks, and the infrastructure of the eco-industrial park “Universal industry” is complemented by the transport and energy base of the capital region (Bucha City Council, 2025). In Vinnytsia region, the “Vinnytsia Industrial Park” and the “Integral” park (Cherniyuk, 2025) received about UAH 33.9 million for roads, water supply and transformer substations, which creates potential for hundreds of new jobs (Kyrylko, 2025). At the same time, the eastern and southern regions lag significantly behind in terms of readiness due to wartime damage to networks and high risks: out of 106 parks only 32 are functioning, and infrastructure is often at the planning stage. Only 21 parks have electricity connected as the main item of communication expenditure, about one-third are provided with water supply and sewerage, and approximately a quarter with gas supply, which leads to delays in the launch of production of up to one year (Ministry of Economy, Environment, and Agriculture of Ukraine, 2025).

The investment advantages of industrial parks are strengthened by access to developed transport and logistics communications. Parks located near international transport corridors, motorways, railways, seaports, and airports ensure a reduction in logistics costs and facilitate export-import operations. Kyiv region has parks along the main highways (Zhytomyr, Warsaw and Boryspil directions), which provides a direct link with the capital and the international airport. Odesa region forms its infrastructural base on the basis of Black Sea ports and transport corridors, which creates conditions for the development of export-oriented production and logistics. Rivne region demonstrates an example of the “Kronospan Rivne” park (Ministry of Economy, Environment, and Agriculture of Ukraine, 2021) with direct access to railway and motor roads, and Lviv region, due to its border location and proximity to EU markets, forms a transport framework for investors oriented towards European directions. Proximity to EU borders, large cities and transport hubs reduces logistics costs by approximately 7-10% of production cost, and in combination with other incentives can increase project profitability by up to one quarter. It is precisely such advantages that determine the concentration of investment in western and central regions, where logistics hubs and new routes are being formed, including the use of Danube

ports and specialised grain storage facilities with European-gauge tracks, which ensure faster access to EU markets and reduce transport costs. The development of industrial parks in Ukraine is supported by a system of state financial and tax incentives, which constitute a separate block of investment advantages (Kyrylko, 2025).

“Made in Ukraine” provides co-financing of engineering and transport infrastructure, power grids and roads up to 150 million UAH per park on a non-repayable basis, where 50% of funds are provided from the state budget and another 50% from local budgets or other sources; for de-occupied territories the share of state support may reach 80%. In 2024, about UAH 1.1 billion was allocated for the development of infrastructure in 15 parks. In 2024-2025, around 20 parks have already been financed with a total fund of more than UAH 280 million. Local programmes in Kyiv, Lviv, Vinnytsia and other regions complement state instruments by providing land plots and co-financing the construction of networks (Ministry of Economy of Ukraine, 2025a).

Tax incentives for residents of industrial parks include exemption from value added tax (VAT) and import duty when importing new equipment (provided it is used in the park for at least five years), a ten-year exemption from corporate income tax if profits are reinvested in the development of production, as well as preferential or zero rates of land tax and property tax introduced by decisions of local councils. Such measures can reduce operating costs of residents by approximately 20-30% and stimulate modernisation of production. An additional advantage is the functioning of a “one-stop shop” mechanism via park management companies, which centrally ensure the obtaining of permits, connection to networks, processing of customs benefits and registration of residents. This makes it possible to reduce time costs for bureaucratic procedures from 6-12 months to 1-3 months (Law of Ukraine No. 5018-VI, 2012).

The combined effect of ready infrastructure and tax-administrative incentives is manifested in significant savings of time and capital for investors. Where fully prepared networks are available, production can be launched within 6-9 months, whereas in the case of independent construction of infrastructure the full cycle may last 2-3 years. The approximate saving is 12-24 months of time and 15-60 million UAH of direct expenditure on connecting utilities; in the processing industry the gain may reach tens of millions of dollars per project (Ministry of Economy of Ukraine, 2025a). Thus, engineering and technical readiness, logistical advantage and the system of tax-administrative support form a complex of investment advantages of Ukrainian industrial parks, which directly influence cost reduction, acceleration of production start-up and enhanced territorial attractiveness for capital investment.

Ukrainian industrial parks are gradually forming centres of territorial clustering, concentrated primarily in woodworking, agro-processing, metalworking, logistics, and the food industry. Sites such as “Kronospan Rivne” in Rivne region, “VinIndustry” and the Vinnytsia cluster of

refrigeration equipment based on UBC Group, as well as logistics-oriented territories such as “KYT”, demonstrate how a network of interconnected production facilities is formed around anchor investors. Within these platforms, one resident’s raw materials become a resource for another, which strengthens value chains, reduces logistics costs and stimulates innovation (Made in Ukraine, 2024).

An important component of the regional effect is the impact on the labour market and social and labour relations. Industrial parks ensure a shift from a raw-material employment model to processing industry, mechanical engineering, logistics and innovative types of activity. Among residents, demand is growing for technical professions – fitters, mechanics, welders, electricians, machine and line operators, process engineers, automation specialists, logisticians and quality controllers. To train such specialists, parks sign memoranda with educational institutions, equip vocational classrooms, science, technology, engineering, and mathematics (STEM) laboratories, and carry out career guidance courses and retraining programmes, as happens in Bila Tserkva, Zhytomyr region, Zakarpattia or in the “Innovation Forpost” project in Dnipro. Such measures make it possible to fill 500-1,000 jobs per park and form a new quality of labour resources in the regions (Supreme Council of Ukraine, 2024).

An average industrial park in Ukraine creates about 36 jobs, based on actual data on 105 registered parks as of 2025. The potential of one park is estimated at up to 50 jobs per hectare, which, with an average area of 10-20 ha, ensures the creation of 500-1,000 jobs upon full project implementation. If all 104 parks are launched, the cumulative potential will amount to more than 152,000 jobs, which has

a significant impact on the transformation of regional labour markets (Marchenko, 2025).

Practice shows differentiation of results depending on scale: small parks with an area of 10-15 ha create about 250 jobs, as in the case of “Stan-Invest”, whereas large parks with an area of 16-18 ha ensure 700-930 jobs, such as “Nova Park” or “Integral” (Cherniyuk, 2025). In 2025 the employment figures are lower due to incomplete launch of production and fluctuate at the level of 1.2 jobs per hectare, yet state support and investment incentives (each hryvnia of state funds attracts 5-6 UAH of private funds) significantly accelerate the filling of parks with residents. As of 2025, 25 new factories have been built, providing more than 100,000 m² of production space and 200 MW of new energy capacity, creating conditions for further employment growth (Balytska, 2025).

The increase in productivity and technological level of residents is reflected in the level of remuneration: wages in industrial parks usually exceed average regional indicators, as confirmed by the example of “Kronospan Rivne” production facilities in Rivne region. This strengthens workers’ motivation to remain in the region, reduces the scale of external labour migration, and contributes to social stability. State stimulation of industrial parks (up to 150 million UAH per park) promotes investment inflows and wage increases through new production facilities with modern equipment and better working conditions. In 2025, the average wage across all sectors in Ukraine was about 23,460 UAH per month, while in agriculture it was 21,400 UAH; where industrial parks operate, wages are close to or exceed regional averages (Minfin, 2025). The generalised differences between types of industrial parks in the potential to create jobs are presented in Table 1.

Table 1. Comparison of industrial parks in Ukraine by type and employment potential

Type of park	Average number of jobs	Examples of parks
Processing industry	700-2,500	“Liublinets” (2,500, food), “Integral” (930, food/mechanical engineering)
Agro-processing	500-1,000	Parks for fruit/oil processing (up to 2,500 in Volyn region)
Logistics	200-700	Warehouses and logistics hubs with an increased level of automation
IT/Innovation	200-500	R&D centres with low labour intensity (for example, “Formation” – 3,500 potentially, but the IT share is smaller)

Source: compiled by the author based on N. Marchenko (2025), Biznes.Rayon (2025), A. Cherniyuk (2025), Rayon.Kowel (2025)

The data quoted indicate that industrial parks of different types have unequal potential for job creation: the highest employment is generated by processing industry and agro-processing, whereas logistics and IT-oriented parks provide fewer, but more capital-intensive and technologically advanced jobs. This confirms that industrial parks not only change the structure of the local labour market, but also form a basis for specialised production clusters and the strengthening of regional competitive advantages.

Investment dynamics and structure of residents of industrial parks in Ukraine

Investment activity in the sphere of industrial parks in Ukraine in 2019-2024 was characterised by significant growth and structural changes under the influence of

economic, political and security factors. During this period, the number of registered industrial parks increased from about 40 in 2019 to 99 in 2024, reflecting the growing interest of the state and business in this instrument of industrial development. The gradual increase in the volume of state support and private investment, as well as the change in the structure of investors, formed a new stage in the development of industrial parks, oriented towards expansion of infrastructure, relocation of production facilities and stimulation of the regional economy. The dynamics of investment in industrial parks in Ukraine are shown in Table 2. The indicators presented demonstrate steady growth across all key parameters. The lowest volumes of private investment (~UAH 500 million) and state support (UAH 0) were observed in 2019, reflecting the initial stage of

industrial park development. The highest values are recorded in 2024: state financing reaches UAH 1,100 million, private investment UAH 4,600 million, and the number of parks 99. The share of Ukrainian investors increased from ~60% to ~90%, which indicates the dominance of domestic

business and the caution of foreign capital under wartime conditions. Overall, the dynamics demonstrate the strengthening role of state support after 2022 and the intensification of investment activity thanks to the relocation of enterprises and the development of infrastructural incentives.

Table 2. Dynamics of investment in industrial parks in Ukraine in 2019-2024

Year	Number of registered parks	State support (million UAH)	Private investment (million UAH)	Share of Ukrainian investors	Notes
2019	~40	~0	~500	~60%	Initial stage of development, state support virtually absent
2020	~45	~0	~700	~65%	Intensification of registration, COVID-19 pandemic slowed projects
2021	~50	~100	~1,200	~70%	Beginning of the development of the state support programme
2022	~55	~200	~1,500	~75%	Despite the war, interest in relocation of production was observed
2023	64	~500	~3,000	~85%	First state support mechanisms began to operate
2024	99	1,100	4,600	~90%	Record figures, growth of state support, infrastructure development

Source: developed by the author based on Made in Ukraine (2024), R. Vovk (2025), Ministry of Economy of Ukraine (2025b)

The full-scale invasion in 2022 led to a sharp drop in state investment (virtually to zero) due to the redirection of the budget to the reserve fund (Resolution of the Cabinet of Ministers of Ukraine No. 245, 2022), and private investment in industrial parks decreased to minimal levels – only UAH 7.5 million among residents during the year. At the same time, the overall need for business relocation caused increased interest in industrial parks in western and central regions: in 2022 there was record demand – up to 1,500 potential residents – which became the basis for rapid growth in investment in 2023-2024 (Ministry of Economy, Environment, and Agriculture of Ukraine, 2023).

In 2024, the structure of residents of Ukrainian industrial parks was formed mainly by Ukrainian companies, whose share reached about 90% of total investment. Such dominance of Ukrainian investors was the result of a sharp reduction in foreign activity after the full-scale invasion, logistics risks and uncertainty regarding security. Before 2022, industrial parks were at an early stage of development: of 62 registered parks, only four private parks were functioning – in Bila Tserkva, Korosten, Solomonovo and Vinnytsia – and the number of residents, including foreign ones, was minimal. In 2024, state support reached a record 1.1 billion UAH, which ensured the launch of large-scale infrastructure projects (“BF Terminal” in Zakarpattia region, “Syhnyvka” in Lviv), and the private investment multiplier was 1:5-6. Thus, more than 15 parks received state funding, which made it possible to deploy the construction of roads, networks, water supply and electricity connections (Made in Ukraine, 2024). Foreign investment during this period decreased to approximately ten requests per year, yet individual examples testified to continuing interest from some transnational companies. Among these investors were Norfund, which invested in the development of the M10 park in Lviv. “Unilever” began construction of a plant in the industrial park “Bila Tserkva”. And Peikko (Finland), InTiCa

Systems (Germany) and Kronospan (Austria) developed production lines in western regions.

The sectoral structure of residents has undergone significant changes. While in the pre-war period (2019-2021) parks were mainly focused on the production of building materials, woodworking and basic industrial types, in 2022-2024 enterprises in agro-processing, the food industry, logistics infrastructure and dual-use facilities, including the defence industry, dominated. At the same time, the share of high-tech areas – IT, R&D, electronics – remained minimal: despite declared plans of individual parks (for example, “Integral” or “Odeschyna Nova Park”), there were no actual residents in these sectors, which is explained by the state’s focus on industrial and processing sectors.

Economic results of the activities of industrial parks in 2019-2024 showed growth in budget revenues, expansion of employment and the formation of local value chains, although effects differed significantly between potential and actual indicators. Tax revenues were formed mainly through personal income tax and the unified social contribution, as park residents were exempt from corporate income tax for ten years. This directed company financial resources towards staff expansion and wage growth, which, in turn, strengthened local community budgets (Solomonovo Industrial Park, 2025).

Employment in the regions of Ukraine after the launch of new industrial parks increased mainly in western regions (Lviv, Zakarpattia), where the number of parks doubled in 2022-2025, creating potential for 33.8 thousand jobs in Lviv and 19.2 thousand in Zakarpattia regions. Actual growth is noticeable in relocated parks, as in Zakarpattia (more than 1,000 jobs), and in new projects in Kyiv region (500 jobs in Trans Rail Forge), which stimulated local employment in processing and logistics. At the national level, the actual employment level remained low – an average of 36 employees per park due to incomplete production launch. However,

the potential was much higher: up to 50 jobs per hectare, which in total for 104-106 parks meant the possibility of creating up to 152,000 new jobs (Openko, 2025).

The development of parks also formed new production and logistics chains. Residents cooperated in the production of semifinished products, components, transport and warehousing services, as well as in the procurement of infrastructural resources. This contributed to the development of a cluster model and reduced costs of project start-up. In some cases, such as in Lviv, a quadruple helix model was introduced with the involvement of business, science, the state, and the community, which created a favourable environment for innovation (Formatsia, n.d.a). Export results remained limited: in 2022 the share of exports by residents amounted to only 0.0146% of the national figure, due to the early development stage of parks and the minimal number of operating enterprises. At the same time, potential increased thanks to the launch of new plants in the processing industry, woodworking, mechanical engineering and electrical engineering. It was expected that projects oriented towards EU markets, particularly in Vinnytsia and in the west of the country, would ensure growth in the share of non-raw-material exports in the medium term (Balytska, 2025). In summary, the economic results demonstrated noticeable progress, although real effects were constrained by incomplete launch of most industrial parks. The main drivers were tax incentives, business relocation and state investments in infrastructure, which created a basis for future expansion of production, employment, and exports.

Comparison of the Ukrainian model of industrial parks with international practices

International experience demonstrates considerable diversity of models of management and development of industrial parks that have emerged in the EU, Turkey, South Korea and the USA. Each model combines specific instruments of regulation, financing, clustering and investment promotion, but these models are united by a strategic focus on competitiveness, innovation and sustainable development. The European model is distinguished by a high level of organisational order and a clear division of functions between management companies, municipalities and state structures. Management bodies of industrial parks are responsible for daily operations, infrastructure maintenance, energy-efficient upgrades and compliance with environmental requirements, submitting annual plans for approval. Mandatory tasks cover the operation of core facilities, while additional ones include the development of innovative or specialised parks that implement voluntary ISO standards, the Eco-Management and Audit Scheme or Responsible Care to raise safety and environmental levels. Financing is provided through a combination of public and private sources, European Investment Fund instruments, loans from the European Investment Bank and Important Projects of Common European Interest programmes aimed at green transformation, strategic autonomy and support for innovative small and medium-sized enterprises.

EU regional policy mechanisms, in particular the European Regional Development Fund and the Cohesion Fund, make it possible to invest in infrastructure modernisation in less developed regions. In addition, financial guarantees, venture capital instruments and technical assistance are used within the Technical Support Instrument (Fontana & Vannuccini, 2024).

Poland, through the Polish Investment Zone, provides exemption from Corporate Income Tax or Personal Income Tax for up to 15 years, linking the level of support to the size of the enterprise, jobs created and location in transformation regions, in outdated small and medium-sized enterprises or based on the size of investment and jobs created, with higher aid intensity for micro/small (+20 p.p.), medium (+10 p.p.) enterprises and just transition regions (+10 p.p.); large firms receive up to 25-35% of two-year labour costs. Additional incentives include a 50% deduction for robotics costs, a 5% IP Box tax rate on qualified income from intellectual property and support for prototypes of up to 30% of trial production costs (PwC, 2025).

Turkey has developed one of the most systematic models in the world. Organised Industrial Zones (OIZs), operating under Law of the Republic of Turkey No. 4562 "On Organised Industrial Zones" (2000), represent comprehensively equipped territories with a full range of technical, social and administrative services. The development starts with dominance of state management, with a gradual transition to the private sector, which stimulates self-development of industrial agglomerations. The Ministry of Industry and Technology of the Republic of Turkey (n.d.) coordinates the work of zones, supervises infrastructure projects and ensures compliance with environmental requirements. A separate line of development has been "green OIZs" with 27 pilot zones implementing energy-efficient solutions, recycling systems and renewable energy. Turkey has a comprehensive system of incentives: covering part of employers' social security contributions in priority regions, subsidies of up to 25% of the value of machinery and equipment, reductions in corporate tax depending on investment level, VAT and customs benefits for technological equipment. Residents also gain access to inexpensive utilities, reduced local taxes and a wide network of industrial services. The state introduces requirements for OIZ management companies, including implementation of ISO 9001:2015 "Quality Management Systems – Requirements" (2015) and mandatory adherence to the best available technologies (Turkey Organised Industrial Zones Project, 2025).

South Korea represents a model focused on innovative clusters and technological modernisation. Korea Industrial Complex Corporation (DevelopmentAid, n.d.), subordinated to the Ministry of Trade, Industry and Energy, manages more than a thousand complexes and coordinates the development of high-tech sectors – electronics, bio-industry, mechanical engineering. Korea Industrial Complex Corp implements modernisation programmes, creates mini-clusters, supports technology transfer and forms innovation

networks through e-Cluster electronic platforms. The state retains a key role in land-use planning, infrastructure financing, provision of tax credits for investment in national strategic technologies, including semiconductors and batteries. The stimulation of export-oriented production, large-scale R&D support programmes and grants for small and medium-sized enterprises make Korean industrial parks one of the main drivers of the economy (Ministry of Economy and Finance of the Republic of Korea, 2025).

In the USA, industrial parks are developed through a decentralised, market-based model dominated by private developers. Municipalities provide zoning, engineering networks and compliance with environmental standards, while parks are managed by private companies or Real Estate Investment Trust (REIT) funds that provide leasing, infrastructure and management services. Special incentive regimes play a significant role – Enterprise Zones, Opportunity Zones, Tax Increment Financing. In addition, Payments in Lieu of Taxes mechanisms provide tax reductions for 10-30 years in exchange for job creation and capital investment.

Federal programmes – the CHIPS and Science Act (United States Congress, 2022) and the Inflation Reduction Act of the United States (2022) – stimulated the development of high-tech production, and states use grant programmes, tax credits and workforce training funds, contributing to the formation of production chains around large anchor investors. Management through public-private partnerships ensures flexibility, rapid project implementation and reduced budgetary risks. Comparison of the Ukrainian model of industrial parks with international approaches makes it possible to assess its level of competitiveness and identify structural differences in tax incentives, management, infrastructure readiness and integration into global value chains. Data on the EU, Turkey, South Korea and the USA demonstrate different institutional traditions and support instruments that shape investment attractiveness and the scale of business involvement. The generalised characteristics of these models are presented in Table 3, which reflects key comparison parameters and makes it possible to integrate the conclusions obtained into further analysis.

Table 3. Comparison of models of industrial parks in Ukraine, the EU, Turkey, South Korea and the USA

Criterion	Ukraine	EU (Poland, Czech Republic)	Turkey (OIZ)	South Korea (Korea Industrial Complex Corporation)	USA (Industrial Parks)
Tax incentives	Full exemption from VAT and duty on imported equipment (savings of 25-30%). 10-year corporate income tax holidays when reinvesting. Land/property benefits down to 0%	Shorter benefits: 5-7 years. Common only in specific zones (SEZ, PIZ). High requirements for technological level of projects	Exemption from VAT on imports. Reduced corporate income tax rates (15-20%). Employment support	Large R&D and CAPEX subsidies (up to 70%). Tax holidays for strategic technologies 5+5 years	State/city tax incentives: Tax Increment Financing, Payments in Lieu of Taxes, investment credits. No income tax holidays (federal 21%)
Customs incentives	Zero duty on equipment	Limited, depending on investment direction	Zero rates for strategic investments in priority regions	Benefits for high-tech sectors, especially semiconductors	Foreign-Trade Zone: exemption from duty upon re-export
Infrastructure	Partly ready; shortages of electricity, water, roads; a significant share of parks are "greenfield"	High standard of readiness, infrastructure fully connected	Up to 90% of infrastructure financed by the state	Extremely powerful industrial infrastructure, smart zones	Local quality depends on state and developer; infrastructure often formed privately
Management	Weak management companies; only 37 parks actually operate	Professional management companies, clear standards	The Ministry of Industry and Technology of the Republic of Turkey coordinates centrally	Korea Industrial Complex Corporation – a powerful state management structure	Private management, REITs, developers; decentralisation
Clustering	Developing slowly, clusters at an early stage	Developed clusters (automotive, biotech, metallurgy)	Highest clustering in the region, enterprise synergy	Innovative clusters "universities – business – research"	Clusters formed around anchor companies
Integration into global value chains	Low due to war and infrastructural barriers, but high potential in processing	Stable integration, especially in outsourcing and production	Strong export orientation, integration with the EU	Very high, oriented towards high-tech export	High, thanks to Foreign-Trade Zones and the presence of global corporations
Risk level	Highest in Europe due to the war	Stable	Medium, depending on region	Very low	Low

Table 3, Continued

Criterion	Ukraine	EU (Poland, Czech Republic)	Turkey (OIZ)	South Korea (Korea Industrial Complex Corporation)	USA (Industrial Parks)
Main attractiveness	Powerful tax incentives, low CAPEX	Quality of infrastructure and stability	Scale and clusters, production support	Technological level, innovation, R&D	Flexibility, access to markets and finance
Main disadvantages	Infrastructural immaturity, war, weak park management	Limited benefits and EU bureaucracy	Local unevenness of development, dependence on the state	High cost of entry into high-tech	High competition, high labour cost

Source: compiled by the author based on Formatsia. (n.d.b), PwC (2025), Ministry of Industry and Technology of the Republic of Turkey (n.d.), Ministry of Economy and Finance of the Republic of Korea (2025)

Comparative analysis shows that Ukraine's strongest side is its fiscal incentives, which significantly surpass in scale the basic instruments of the EU or the USA and approach those of Turkish OIZs. Ukraine provides the longest tax holidays and full exemption from VAT and duty on equipment, which sharply reduces entry costs for manufacturers. At the same time, the biggest drawback remains infrastructural immaturity and a high-risk profile, which contrasts with the high quality of management in Korea and the stability of European zones.

The most developed in terms of clustering are Turkey and South Korea, where industrial parks act as innovation hubs and platforms for technological growth. Ukraine lags in terms of organisation and occupancy, but has significant potential for integration into international production chains thanks to low production costs, logistical accessibility to the EU and large-scale tax incentives. Overall, the table shows that the Ukrainian model benefits most in the area of fiscal attractiveness, but requires deep investment in infrastructure, professional management and post-war stabilisation in order to reach the level of leading international practices.

Discussion

Industrial parks occupy a key place in territorial development strategies, as these parks combine investment, production and spatial functions. In different countries, such parks become a response to the challenges of economic modernisation, structural transformation or crisis phenomena. S. Zhao *et al.* (2020) evaluated an industrial park through the effectiveness of planning implementation: the correspondence between the project and actual development, compliance with deadlines, spatial coherence, stakeholder satisfaction and comprehensive socio-economic benefits. The aim was to determine the extent to which the park fulfilled strategic objectives and ensured sustainable development. By contrast, this study focused on investment dynamics, state incentives, infrastructural readiness and the role of parks in economic recovery during the war. What both studies had in common was that both studies interpreted industrial parks as drivers of economic growth. The difference lay in the focus: the foreign authors analysed the management process and compliance with the plan, whereas the Ukrainian study examined economic effects and investment potential in crisis conditions.

Considering the study by L. Kang & L. Ma (2021), another point of intersection could be traced: both works interpreted industrial parks as mechanisms of spatial organisation of production and regional growth. However, the emphases differed significantly. The authors analysed parks in the context of spatial efficiency and cluster interaction, tracing how the concentration of enterprises optimised production linkages and formed network synergy within agglomerations. This study, however, shifted attention to another dimension – to changes in investment activity, state incentives and the role of parks in stabilising the economy during the war. That is, while the approach of L. Kang & L. Ma focused on the structural characteristics of industrial space, this analysis highlighted its ability to respond to external shocks and support economic recovery.

A similar contrast was also observed when comparing with the work of V. Brühl (2024). Both studies recognised that industrial parks perform the function of an instrument of investment growth and regional development, yet the essence of the conclusions was formed in different economic realities. Author focused on institutional factors – regulatory regimes, policy predictability and the quality of governance in conditions of a stable economy. This study, on the contrary, revealed industrial parks as an element of economic recovery infrastructure that supported the relocation of enterprises, reconstruction of damaged areas and equalisation of investment opportunities between regions. Thus, in V. Brühl work the emphasis was on institutional effectiveness, whereas this approach highlighted the anti-crisis potential of industrial zones.

Comparison with the work of V.A. Panchenko & D.M. Zakharov (2025) demonstrated yet another plane of difference. All studies agreed that industrial parks are critically important for stimulating investment and the rapid restoration of production. However, abovementioned authors paid special attention to comparing brownfield and greenfield parks, analysing the costs, speed of launch, environmental risks and suitability for the relocation of production capacity. This study, meanwhile, went beyond typological analysis and emphasised systemic investment attractiveness, the influence of state incentives, regional specificities and the role of industrial parks in the post-war recovery of the economy.

This study and the work of S. Falahatdoost & X. Wang (2022) coincided in that industrial parks were

viewed as a factor of economic growth that depended on the quality of infrastructure, state support and effective management. Both studies emphasised that it is coordinated managerial decisions and resource availability that determine the investment attractiveness of such territories. At the same time, those authors focused on the gap between planning and the actual implementation of industrial parks in the Chinese context, analysing deviations from design indicators and management errors. This study, meanwhile, focused on the Ukrainian conditions of the war and post-war period, the role of tax incentives, regional disparities and the importance of industrial parks for restoring economic activity.

In the work of V. Vabuolytė *et al.* (2021), attention shifted to another dimension – the structure of regional specialisation and the spatial effects of industrial parks. The researchers analysed how industrial zones fit into the general economic configuration of Lithuania, changing the logic of the distribution of production and employment. This study operated in a different reality: it showed how the same regional policy instruments can become a means of economic recovery in conditions of wartime instability. What remained common was the understanding that industrial parks are capable of forming clusters and attracting capital, but the Ukrainian context added a dimension of anti-crisis management and infrastructural reconstruction that was absent in the stable Lithuanian model.

The study by Z. Liu *et al.* (2024) broadened the discussion through the ecological dimension. The authors showed that the effectiveness of parks in the Chinese system increasingly depended on technological modernisation, digital monitoring and green production standards. This study, however – due to its forced focus on the wartime period – concentrated on how industrial parks can become anchor points of regional resilience, compensate for destruction and preserve industrial potential. Hence, although both approaches recognised the need for effective management and infrastructure, the Chinese perspective emphasised innovation, whereas this one highlighted the ability to ensure functioning under crisis conditions. Another dimension of comparison was opened by the study of M. Le Tellier *et al.* (2022), which interpreted industrial parks as the result of the interaction of urban planning, social and economic factors. The authors showed that the development of such territories depended not only on state policy, but also on the structure of the urban environment, local linkages and the ability of the territory to integrate new forms of industrial activity. This created a difference in substantive priorities, yet at the same time demonstrated the universality of industrial parks as an instrument of territorial policy.

Expanding the discussion, I. Di Ruocco & A. D'Auria (2025) examined industrial parks through the prism of land-use conflicts and urban transformation, which is characteristic of European territories with high building density. Against this background, Ukrainian industrial parks emerged as objects of another type: here, the priority was not spatial conflicts, but the need to rapidly reintegrate

production, maintain economic activity and form new points of growth. Thus, although both works recognised the importance of infrastructure and planning, in I. Di Ruocco & A. D'Auria work, the emphasis was on urban morphology, whereas this study stressed economic adaptability and the ability of parks to function under external shocks.

Similarly, in the work of G. Lippi *et al.* (2025) the main subject of analysis was the spatial evolution of industrial territories and the interaction with urban structures. The researchers traced morphological changes and mechanisms for the regeneration of industrial zones, whereas the Ukrainian analysis highlighted economic incentives, infrastructure availability and the impact of martial law on investment decisions. Because of this, both works discussed the developmental role of industrial parks, but presented it from different perspectives: G. Lippi *et al.* – from an urban-planning perspective, and the Ukrainian study – from an economic-recovery one.

This spectrum of comparisons was complemented by the work of A.A. Mohib & C. Carroll (2024), which analysed regional development through the prism of regulatory and institutional barriers. In South Africa, according to the observations, it was the imperfection of procedures and policy that became the main obstacle to attracting investors. In this case, the issue was different: decisive factors were financial incentives, the speed of launching production and the role of industrial parks as an instrument of relocation in response to wartime threats. Both approaches stressed the need for coordinated policy, yet pointed to different vulnerable points. This study and the work of G.G. Jote & H. Worku (2024) converged in that industrial parks were important tools of regional development capable of creating jobs and stimulating industrial growth under conditions of proper infrastructure and state support. At the same time, they focused on the national macroeconomic effects of Ethiopia's industrial parks, highlighting the impact on exports, employment and structural transformation. This study instead analysed the regional role of Ukrainian parks during the war – the significance for business relocation, production support and economic recovery. What was common was the recognition of the development as a factor of economic strengthening, while the difference lay in scale and context: the Ethiopian model was studied as an element of industrialisation, whereas the Ukrainian one – as an instrument for strengthening resilience under crisis conditions.

Comparison with the work of H. Nur *et al.* (2025) showed that both studies interpreted industrial parks as a catalyst for regional growth, but moved along different analytical trajectories. For the Indonesian authors, the key issue was institutional interaction – the authors examined how coherence between levels of government shaped the administrative capacity of parks. In this context, another issue became paramount: economic resilience during wartime, when parks performed the functions of business relocation and restoration of regional activity. Therefore, while the authors analysed management mechanisms, the Ukrainian study focused on practical economic

consequences and investment results. In the work of I.W Wardhana *et al.* (2025), the focus shifted to geographical and logistical factors that determine the viability of industrial zones. The researchers showed that location and transport integration can have a decisive influence on long-term competitiveness. For Ukraine, the geographical aspect was also important, but under wartime conditions it was secondary to the urgent task of ensuring that parks could accommodate relocated production, stabilise employment and create new investment hubs.

The analysis of S. Dwiatmoko *et al.* (2018) added yet another perspective to this comparison – logistical integration. Indonesian parks, according to the conclusion, functioned effectively thanks to the inclusion in transport corridors and regional mobility systems. This study revealed a different configuration of dependencies: logistics was important, yet central roles were played by security risks, tax incentives and recovery functions, which did not exist in the relatively stable Indonesian economy. Despite the different contexts, in both cases, industrial parks emerged as mechanisms of territorial development, but in Ukraine, the industrial parks acquired an additional role – that of an instrument for adapting the economy to crisis circumstances. The generalisation of comparisons showed that in all the analysed studies, industrial parks were considered an important instrument for stimulating economic development, attracting investment and forming production clusters. At the same time, differences between countries determined the specifics of the functioning: in stable economies, the emphasis was placed on institutional effectiveness, planning and spatial organisation, whereas the Ukrainian context brought to the fore anti-crisis resilience, the role of state incentives and the recovery capacity of parks during wartime.

Conclusions

The results of the study indicate that industrial parks are gradually becoming one of the key mechanisms for restoring the economic potential of Ukraine, rebuilding regions and activating investment processes during the wartime and post-war periods. In 2019-2024, the number increased from approximately 40 to 99, which reflects the strengthening role of state policy in the formation of production-infrastructure zones. Financing dynamics demonstrate a significant jump: state support increased from a zero level in 2019-2020 to UAH 100 million in 2021, UAH 200 million in 2022 and a record UAH 1.1 billion in 2024. Private investment over this period also increased almost tenfold – from UAH 500 million in 2019 to UAH 4,600 million in 2024, and the share of Ukrainian investors grew from approximately

60% to 90%, which indicates the dominance of domestic business under conditions of high geopolitical risk.

Infrastructure results confirm the ability of parks to accelerate the launch of production: fully prepared sites make it possible to reduce start-up time from 2-3 years to 6-9 months and save UAH 15-60 million on the construction of engineering networks. In Lviv region, for example, 98.9 million UAH was allocated for the development of infrastructure in the “Syhnyvka” and “Dolyna Stryi” parks, in Kyiv region the “KYT” park received UAH 147.7 million, and in Vinnytsia – about UAH 33.9 million. Such investments created conditions for the emergence of new production areas, including 100,000 m² commissioned in 2025, and an increase in energy capacity of more than 200 MW.

Industrial parks have demonstrated a significant employment effect. The potential amounts to up to 50 jobs per hectare, which may ensure 152,000 jobs in the event that all parks are launched. Already in 2025, 25 new factories and hundreds of jobs in manufacturing, woodworking, and logistics were created. The average wage in such parks exceeds regional averages and approaches or exceeds the level of UAH 23,460 recorded across Ukraine in 2025. Comparison with international models showed that Ukraine's competitive advantage lies in powerful tax incentives: zero duty, exemption from VAT and 10-year tax holidays.

At the same time, the main constraints remain infrastructure imbalances and the impact of the war. Overall, the obtained results confirm that industrial parks have become an effective instrument for attracting capital, forming clusters and supporting regional resilience, and the role in the structural transformation of the economy will continue to grow. The limitation of this study is that its results are constrained by the availability of up-to-date data on the actual occupancy and economic effect of industrial parks, most of which are still at early stages of implementation. Prospects for future research are that further analysis may focus on measuring the long-term economic effects of industrial parks, the cluster impact on regional development and changes in investment attractiveness after the end of the war.

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Conflict of Interest

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Індустріальні парки як інструмент залучення інвестицій у регіональний розвиток України

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Анотація. Метою даного дослідження було оцінити можливості спеціалізованих виробничих територій у стимулюванні інвестиційної активності України в умовах економічного відновлення після повномасштабного вторгнення росії з 2022 року. Методологія ґрунтувалася на теоретико-аналітичному підході й включала контент-аналіз нормативних документів, порівняльний аналіз українських та міжнародних моделей, статистичний аналіз інвестиційної динаміки та кейс-дослідження окремих індустріальних парків. Основні результати показали суттєве зростання інвестиційної активності: кількість парків збільшилася з 40 у 2019 році до 99 у 2024, державна підтримка зросла з нульового рівня у 2019 році до 1,1 млрд грн у 2024 році, а обсяг приватних інвестицій – з 500 млн грн до 4600 млн грн. Частка українських інвесторів досягла 90 %, що свідчить про внутрішню переорієнтацію капіталу в умовах війни. Індустріальні парки забезпечили можливість скорочення часу запуску виробництва з 2-3 років до 6-9 місяців та зменшення витрат на інфраструктуру на 15-60 млн грн. Потенціал зайнятості оцінювався на рівні 50 робочих місць на гектар, що може забезпечити 500-1000 робочих місць у разі повного запуску парків. Порівняння з моделями Польщі, Туреччини, Південної Кореї та Сполучених Штатів показало, що українські індустріальні парки за рівнем податкових і інфраструктурних стимулів наближаються до їхніх підходів. Отримані результати дали змогу визначити конкурентні переваги України у глобальній системі залучення інвестицій. Практичне значення дослідження полягає в тому, що його результати можуть бути використані органами державної влади, місцевими громадами та інвесторами для планування розвитку індустріальних парків, оптимізації механізмів залучення капіталу та обґрунтування рішень щодо розміщення нових виробництв

Ключові слова: кластери; інфраструктура; індустріальні парки; інвестиційний клімат; фінансування; бюджет

**Content Blending Growth Manager and corporate identity
of the IT company Ideals as a hybrid viral marketing strategy**

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Abstract. The relevance of the study is determined by increasing competition in the digital environment and the declining effectiveness of traditional advertising tools, which encourages companies to seek new approaches to building organic reach and audience engagement. This issue is particularly significant for information technology companies whose audiences are characterised by a high level of digital literacy and a critical attitude toward direct advertising. Under these conditions, a promising direction is the combination of viral content with personalised communications and corporate visual brand identity. The aim of the article was to substantiate the effectiveness of combining the Growth Manager's content with the corporate identity of the company Ideals as a hybrid viral marketing strategy, based on the generalisation of the results of an empirical study of viral advertising campaigns. The methodological framework of the study included content analysis, comparative analysis, generalisation, and analytical evaluation of audience engagement metrics with digital video content. The empirical basis was formed from cases of viral video content analysed within a master's research project on the activities of a communication agency specialising in the creation of short creative video formats. The study found that viral mechanisms effective in the activities of creative agencies can be adapted to the communications

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of information technology companies, provided that the personal expert content of the Growth Manager is integrated with the corporate brand identity. It is proven that such a hybrid model contributes to increased organic reach, audience engagement, and the formation of trust in the brand. The practical value of the study lies in the possibility of applying the proposed hybrid strategy by information technology companies to enhance the effectiveness of digital communications without a significant increase in advertising costs

Keywords: corporate communications; personal brand; digital communications; marketing approaches; viral content

Introduction

The growing need for IT companies to move from situational viral “spikes” in digital communications to managed promotion models that ensure a combination of a high level of audience engagement and stable brand anchoring determines the relevance of research in the field of viral marketing. Under conditions of digital competition, the integration of personalised expert content with corporate identity acquires particular importance, as it makes it possible to increase trust in the brand and the effectiveness of communications in professional communities. In global practice, viral marketing is increasingly viewed not as the “accidental success” of an individual video, but as a managed communication system that combines psychological triggers of dissemination, the algorithmic visibility of platforms and the strategic anchoring of the effect to the brand. C. Lou & S. Yuan (2019) emphasised in the work that the decisive factor in brand promotion is not the mere fact of high reach, but the ability of content to stimulate active audience actions (sharing, commenting, recommending) and to transform these actions into stable attitudes towards the brand. Other scholars, Y.K. Dwivedi *et al.* (2021), found that the power of a viral message is linked to the emotional and social relevance of the content for a specific group of users, as well as to a format that facilitates “social transmission” in networks.

In parallel, another trend is strengthening: the growth of trust in personalised expert messages in professional communities. D. Venciūtė *et al.* (2023) argued that the quality and usefulness of an employee’s professional content, as well as its perceived credibility, form a parasocial bond with the audience, which indirectly improves attitudes towards the company’s brand. In turn, N. Tonsing (2025) concluded that internal organisational mechanisms and management practices can purposefully enhance employees’ activity on social networks, turning the presence into a scalable communication resource.

In contemporary research on digital branding, special attention is paid to the role of consistent communication and visual identity in forming a holistic perception of the brand. In particular, according to the studies of K.M.M. Mohamed (2025), brand identity and commercial outcomes depend on the consistency of communication signals and the brand’s ability to form recognisable semantic and visual associations at different digital touchpoints. At the same time, I.K. Hwang & H. Lee (2025) underlined that the visual construction of identity in video formats on social platforms is directly linked to the formation of brand awareness and stability of perception.

Research on digital communications is increasingly focusing on the mechanisms of forming trust, visibility, and audience engagement through content and self-presentation. In this context, L. Gomez-Vasquez *et al.* (2024) noted that content strategies and repeated self-presentation patterns in hashtag ecosystems explain how professionals form trust, visibility and “attention capital” in digital communications. Extending this logic from the individual to the organisational level, M. Mudrov (2025) showed that the visibility, reputation, and recognisability of a personal brand are also relevant for corporate communications through public representatives of the company.

Further studies emphasise the content and value dimension of communications. In particular, L. Yuliana *et al.* (2025) proved that engagement and advocacy mechanisms are strengthened when brand messages are aligned with the value orientations of the audience. In the same vein, K.M.M. Mohamed (2025) highlighted the role of visual storytelling as a tool that simultaneously increases engagement and ensures the cultural relevance of messages, which directly affects content dissemination.

At the same time, analysis of contemporary scholarly sources shows that, despite thorough elaboration of individual components of viral marketing – the psychological mechanisms of content dissemination, the personal branding of specialists and the formation of corporate identity in the digital environment – the issue of the integration within a single managed strategy remains insufficiently explored. In particular, the academic literature lacks a systematic analysis of how personalised expert content of a company’s public representatives can be aligned with corporate identity in order to ensure not only short-term virality, but also long-term brand anchoring in the IT sector.

It is precisely this research gap that determines the relevance of this study and defines its focus. The aim of the work was the theoretical justification and applied generalisation of an approach in which the content of the Growth Manager as a public expert is integrated with the corporate identity of an IT brand, forming a hybrid viral marketing strategy. The following objectives were set in the study: to summarise modern approaches to the virality of content in social networks and to analyse the impact on attitudes towards the brand; to determine the role of corporate identity and visual integrity in forming recognisability; and to develop a conceptual model of a hybrid strategy for IT companies based on the empirical cases examined in this work.

Materials and Methods

The functioning of modern communication agencies in the digital environment takes place under conditions of the dominance of short video content, algorithmic ranking of posts and a high dependence of effectiveness on users' behavioural reactions. The study was carried out using a combined methodological approach that integrates theoretical and empirical methods of analysing digital marketing communications. The overall logic of the work envisaged the sequential implementation of the following stages: forming the theoretical basis of the research; selecting and analysing empirical cases of viral video content; quantitatively measuring indicators of audience activity and engagement; conducting a comparative analysis of results between cases and with market reference values; and summarising the data obtained in the form of a conceptual hybrid model of viral marketing for IT companies.

The object of empirical analysis was the Instagram page of the PR agency "People Media" (PR Agency "People Media" Instagram page, n.d.), which was chosen due to its active presence in the digital environment and its systematic use of video formats as a key tool of professional communication. This agency represents an example of a modern PR structure that combines an expert stance with elements of personalised and culturally relevant self-presentation, which makes it an illustrative case for analysing the mechanisms of forming brand identity in social networks. Within the framework of in-depth analysis, two video posts in the short video format (Reels) were selected: "If positions in IT were memes" (PR Agency "People Media" Instagram page, 2025a) and "If Trump were your team leader" (PR Agency "People Media" Instagram page, 2025b). The choice of these particular posts was determined by the high comparability in formal characteristics (video format, length, structure of presentation), as well as by the different communication strategies these posts implement. The first post appeals to the professional experience and internal codes of the industry community through a humorous interpretation of typical work situations, whereas the second is based on the use of a recognisable public figure aimed at a wider audience. Thus, the selected video reels make it possible to analyse how different narrative and visual approaches within a single brand affect the mechanisms of engagement, recognisability and expert positioning. The sample was formed according to the criteria of organic dissemination, professional relevance, the presence of a personalised expert component and comparability of presentation formats.

The units of measurement of audience activity were quantitative indicators of user interaction with the content, namely the number of views, likes, comments and shares. To measure the overall level of engagement and the intensity of interaction, Engagement Rate (ER) metrics widely used in digital marketing were applied. The first indicator (ER^1), which reflects the overall level of audience engagement through the ratio of the number of interactions to the number of followers, was calculated using the formula

$$ER^1 = \frac{(L + C + R)}{F} \times 100, \quad (1)$$

where L is the number of likes, C is the number of comments, R is the number of reposts and F is the number of followers. The second indicator (ER^2), which made it possible to assess the intensity of interaction through the ratio of the number of interactions to the number of views, was calculated by the formula

$$ER^2 = \frac{(L + C + R)}{V} \times 100, \quad (2)$$

where V is the number of views. The use of these indicators made it possible comprehensively to assess the effectiveness of viral dissemination. For the interpretation of the results obtained, reference values adopted in SMM analytics practice were used: an engagement rate of up to 1% was considered low, 1-3% average and above 3% a high level of engagement. Additionally, the study used the virality coefficient, which reflects the ability of content to be disseminated organically by users. The Virality Coefficient (VC) was calculated as the ratio of the number of reposts to the number of video views by the formula

$$VC = \frac{R}{V}, \quad (3)$$

where R is the number of reposts and V is the number of views. This indicator makes it possible to assess the share of the audience that initiates further dissemination of the content. A coefficient value below 0.5% was interpreted as low, 0.5-1% as average and above 1% as high, indicating the presence of a viral effect. The virality coefficient was applied uniformly to all empirical cases to ensure the correctness of the comparative analysis.

Comparison of the results of both cases was carried out by juxtaposing the absolute and relative indicators of each case with each other. This approach made it possible to identify recurring patterns of virality and to assess the effect of integrating personalised expert content with elements of corporate identity. The qualitative aspect of the study was implemented using the method of content analysis aimed at identifying emotional triggers, the level of professional relevance of messages, the presence of a personal narrative and visual markers of identity. The quantitative and qualitative results obtained were summarised using the method of logical modelling in order to develop a hybrid viral marketing strategy for IT companies. At the same time, the study had certain limitations. In particular, a high number of views does not always correlate with a high level of audience engagement, and the algorithmic features of the Instagram platform may influence reach indicators regardless of the quality of the content. However, the use of relative engagement metrics makes it possible partially to minimise these limitations.

Results

A characteristic feature of the digital environment under study is that the virality of content is determined not so

much by the scale of the account as by the structure of audience engagement and the relevance of the narrative for specific social and professional groups. Under such conditions, even content created by small agencies is able to compete with the output of large brands. In turn, the content of "People Media" is characterised by a much higher interaction intensity relative to the number of followers. It is important to emphasise that some of the agency's video posts exceed

the size of the audience by hundreds of times, which is a typical sign of viral dissemination. This result indicates effective activation of the platform's algorithmic mechanisms and a high level of correspondence between the content and the interests of the target segments. The recorded indicators point to a significant level of organic dissemination and active behavioural interaction of users. The indicators for each type of interaction are presented in Table 1.

Table 1. Metrics of the viral effectiveness of the reel "If positions in IT were memes"

Metrics	Value
Views	570,878
Likes	22,100
Comments	126
Reposts	38,900
Personal reposts to the page	3

Source: compiled by the authors on the basis of the PR Agency "People Media" Instagram page (2025a)

To assess the ability of the content to spread organically among users and to reflect the intensity of its transmission, the VC was applied, which showed a result of 0.068:

$$VC = \frac{38,900}{570,878} = 0.068.$$

A value below one indicates that the content did not reach the level of self-sustaining exponential dissemination, but it does have clear signs of successful organic distribution within the platform's algorithmic mechanisms. For the quantitative assessment of the level of user engagement in interaction with the video content, the ER indicator was used and, after substituting the empirical data obtained during the analysis, the result was 10.7%:

$$ER = \frac{38,900 + 126 + 22,100}{570,878} \times 100 \approx 10.7\%.$$

The value obtained indicates a high level of audience engagement, which significantly exceeds the average industry indicators for entertainment video content on the social network Instagram (2-6%). This testifies to the high relevance of the topic, successful creative execution and effective correspondence to the expectations of the target audience. The study of the qualitative reactions of the audience showed a predominantly positive tone, since a significant proportion of comments contained phrases such as "relatable" or "I can confirm this", which indicates the resonance of the topic and a high level of audience self-identification with the content presented. It is important to note that no negative reactions or critical remarks were recorded, which makes it possible to assert that the content was perceived positively by the audience. The structural composition of the video, the use of familiar images, contrasting headlines and dynamic editing point to a professionally constructed visual model aimed at maximising the stimulation of views and primary interaction. The topic related to the IT sphere provides both narrow and at the same time mass segmentation, which positively influences organic reach. At the same time, the analysis showed limited use of elements that

directly stimulate communication (questions, interactive narrative, calls to action), which partly explains the low level of commenting.

The particularly telling feature in this case is the high share of reposts, which indicates the audience's willingness to share the content on the social networks. The calculated virality coefficient confirms the existence of stable organic scaling, even in the absence of self-sustaining exponential growth. The analysis of comments demonstrates the dominance of a positive tone and markers of professional self-identification. Summarising the analysis results, it may be asserted that the video reel of the PR agency under study demonstrated high engagement potential, a significant number of positive reactions and a noticeable empathic response from the audience. $ER \approx 10.70\%$ makes it possible to classify this content as a highly effective viral product with powerful organic reach, which not only retains attention but also actively motivates the audience to share it voluntarily. The results obtained from the analysis of the first case make it possible to form an understanding of the level of audience engagement and the structure of its interaction with video content.

A different model of audience interaction is demonstrated by the second case – "If Trump were your team leader" (PR Agency "People Media" Instagram page, 2025b). The use of a public figure with a high level of cultural recognisability provided a much broader audience reach compared with the first case. At the same time, the engagement structure indicates the predominance of discursive over repost activity. The increased number of comments in the second case indicates the intensification of users' cognitive and emotional interaction. However, the lower virality coefficient shows that the content stimulates chain dissemination to a lesser extent. This makes it possible to interpret this case as an example of a discursive engagement model oriented towards generating public resonance.

In the current conditions of digitalisation, content with a high potential for viral dissemination acquires strategic importance for strengthening brand identity and expanding the

coverage of target segments. The reel “If Trump were your team leader” is an example of the effective use of meme-based themes and a culturally relevant character to achieve broad

organic reach, which is particularly relevant now during martial law. To assess the effectiveness of the reel, the main user interaction metrics were analysed; these are presented in Table 2.

Table 2. Metrics of the viral effectiveness of the reel “If Trump were your team leader”

Metrics	Value
Views	992,455
Likes	38,600
Comments	412
Reposts	21,700
Personal reposts to the page	2

Source: compiled by the authors on the basis of the PR Agency “People Media” Instagram page (2025b)

The data obtained indicate a high level of views and substantial user activity in the form of reposts, which is a key indicator of content virality. To assess user engagement according to the ER indicator, which is calculated by the formula mentioned in the analysis of the first case:

$$ER = \frac{38,600 + 412 + 21,700}{992,455} \times 100 \approx 6.12\%.$$

Additionally, the Virality Coefficient was determined, which according to the formula equals:

$$VC = \frac{21,700}{992,455} = 0.021.$$

The value obtained is below the threshold (1), which indicates the absence of a self-sustaining viral dissemination effect. At the same time, the indicator points to moderate organic virality – that is, the content is shared by users, but without exponential growth in reach. During the analysis, several limitations were identified, namely: the relatively small number of comments indicates limited discursive activity of users; the comparatively low proportion of likes relative to views ($38,600 \times 100\% / 992,455 = 3.88\%$ (about 3.9%))

points to potential opportunities to increase the interactivity of the content through calls to action. To assess and compare the effectiveness of user interaction with the video content, a comparative analysis was carried out, presented in Table 3. The analytical results of the calculations of the integral engagement indicator (Engagement Rate) point to substantial differences in the effectiveness of audience interaction with video content across the two cases. Despite higher absolute reach indicators for Case 2 (except for reposts), Case 1 is characterised by a higher level of relative audience engagement. This means that the content of Case 1 was more effective in stimulating active user interactions per unit of views, whereas Case 2 showed mainly broader reach but less intensive dissemination. Comparison of the virality coefficients of the two viral reels indicates differences in the scale and intensity of the organic dissemination of video content. Thus, Case 1 is characterised by a higher level of viral potential, since almost two thirds of all interactions fell precisely on reposts. At the same time, both virality indicators are below the threshold value of 1, which indicates the absence of a self-sustaining exponential dissemination effect in both cases.

Table 3. Comparison of audience engagement metrics (Case 1 and Case 2)

Indicator	Case 1	Case 2	Difference
Views	570,878	992,455	+421 577
Likes	22,100	38,600	+16 500
Comments	126	412	+286
Reposts	38,900	21,700	-17,200
Engagement Rate (ER), %	10.70	6.12	-4.58
Virality Coefficient	0.068	0.021	-0.047

Source: compiled by the authors on the basis of the official Instagram page of the PR Agency “People Media” (n.d.)

The comparative analysis carried out showed that different creative concepts of video content form different types of audience engagement. Content based on professional self-identification (Case 1) provided the maximum viral effect and a high Engagement Rate, whereas content built on a personalised public image (Case 2) activated discursive interaction but lagged behind in indicators of organic dissemination. The comparison of the two cases makes it possible clearly to delineate different mechanisms of viral interaction. Content based on professional self-identification demonstrates a higher potential for

organic dissemination and more effectively activates the platform’s algorithmic mechanisms. In contrast, the use of public images provides broader reach and stimulates discussion. Detail of the research results by types of audience engagement makes it possible to describe more deeply the nature of users’ interaction with video content and to refine the mechanisms of viral effect formation. On the basis of the empirical data collected, it is appropriate to distinguish three basic types of engagement: passive, reactive and active, each of which influences the communicative effectiveness of video materials in different ways.

Passive engagement manifests itself in the form of views and reflects the primary level of audience contact with the content. Both cases under study demonstrate high view indicators, which indicates effective initial distribution of the videos and the correspondence of the format to the requirements of Instagram's algorithms. At the same time, numerous views are not a sufficient condition for forming a viral effect, since this indicator does not reflect the depth of user interaction with the content.

Reactive engagement encompasses user actions in the form of likes and reflects the emotional perception of the video material. Within the first and second cases, the proportion of likes in relation to the number of views is relatively stable and lies at a level typical for entertainment video content. This indicates that both videos elicited a positive reaction from the audience, but likes as a form of interaction mainly perform the function of individual approval and have a limited impact on further dissemination of content.

The most significant for assessing viral potential is active engagement, which includes comments and reposts. It is this type of interaction that reflects users' willingness to go beyond passive consumption and to participate in the process of disseminating or discussing content. The analysis of the results revealed substantial differences between the cases in terms of the structure of active engagement. For the first case, a dominant share of reposts is characteristic, which indicates a high level of social relevance of the video material and its ability to function as a marker of professional self-identification. In contrast, in the second case active interaction manifests itself mainly in the form of comments, which points to strengthened discursive activity and emotional discussion.

The results obtained confirm that different formats of viral content form different models of audience engagement. Content oriented towards shared professional experience stimulates more active dissemination and contributes to algorithmic scaling, whereas content based on public and culturally recognisable images activates discussion but is less likely to be transformed into repost interaction. Thus, structural analysis of the types of engagement makes it possible not only to assess the effectiveness of video content quantitatively, but also to refine the nature of the viral effect formed within each individual case.

Discussion

Research by L.D. Hollebeek *et al.* (2014) demonstrated that the virality of short video formats is formed not only by the size of the account or the number of followers, but also by a combination of the audience's behavioural responses and the social relevance of the narrative. In the first case, "If positions in IT were memes", the main engagement mechanism was professional self-identification, which transformed views into reposts as a social action ("this is about us, I am sharing it with my own circle"). G.H. Duong *et al.* (2020) noted that content spreads more actively when it reinforces a sense of group belonging, demonstrates

shared codes or status within a community, rather than merely eliciting an emotion. C. Ashley and T. Tuten (2015) likewise emphasised that socially valuable content stimulates active user participation, including likes and shares, whereas content that focuses only on an emotional reaction has lower virality.

The second case ("If Trump were your team leader") illustrated a discursive model of engagement: broader reach was accompanied by an increase in comments, but chain-like reposting was weaker (Virality Coefficient = 0.021). I.P. Cvijikj & F. Michahelles (2013) indicated that user activity manifests itself depending on the social relevance and cultural context of the content. The observations conducted in this study confirm that content which stimulates discussion does not always turn into reposts, but rather provokes conversation, which corresponds to the modern conclusions of P. Bitrián *et al.* (2021) regarding different forms of interaction in social media.

Personalisation and trust play a particular role in the cases, especially in professional communities. Thus, K.N. Lemon & P.C. Verhoef (2016) concluded that parasocial ties between the audience and a brand employee indirectly increase positive attitudes towards the company. In the first case, this was manifested through active reposts, where the Growth Manager acted as the "face" of the content, building trust and engagement. L. Gomez-Vasquez *et al.* (2024) added that personal branding in social media shapes visibility, "attention capital" and the audience's willingness to share content. S. Hudson *et al.* (2016) additionally noted that user interaction with a brand in a digital environment depends on social, cultural and emotional factors, which fully resonates with the findings obtained regarding the role of cultural relevance and systemic identity.

Cultural and social relevance of content is another key factor of virality. In Case 1, professional memes were used that were understandable and relevant to a specific IT community, whereas Case 2 appealed to a broader cultural image of a public figure. K.M.M. Mohamed (2025) underlined that visual storytelling is effective only when it corresponds to the cultural and social expectations of the audience, and W.O. Falana *et al.* (2024) added that consistent stylistic elements and recurring visual markers stabilise brand perception and increase recognisability.

An equally important aspect is the brand's systemic identity. M.D. Veirman *et al.* (2017) pointed out that integrating content with corporate markers transforms short-term virality into lasting recognisability. In this case, Case 1 had a high repost coefficient, but without brand identity the virality remained "anonymous". Therefore, combining the personalised content of the Growth Manager with the company's systemic identity makes it possible to transform organic reach into a strategic result.

The empirical results confirm the conclusions of Y.K. Dwivedi *et al.* (2021) and S. Rakshit *et al.* (2022), according to which social media influence brand perception through Electronic Word of Mouth (eWOM) and user interaction. P. Bitrián *et al.* (2021) stressed that user

activity is a key factor of engagement, which correlates with this study's analysis of different behavioural models in Cases 1 and 2.

Personalisation also creates risks: a high level of attention may become attached to the person rather than to the brand. J.G. Moulard *et al.* (2015) and K. Sokolova & H. Kefi (2020) showed that audiences distinguish between sincere and instrumental messages. Expert content, humour, or insights from an employee build trust, whereas a direct advertising message is often ignored. In this study, the Growth Manager acted as a "trust point", and brand identity served as an "anchor", which ensured strategic consolidation of the viral effect. Extended analysis shows that the virality of Case 1 is stimulated by group self-identification and "sharing motivation", whereas Case 2 activates discussion motivation through a recognisable public figure. I. Erkan & C. Evans (2016) and I.K. Hwang & H. Lee (2025) emphasised that such different behavioural models enable companies to adapt content to different goals: rapid scaling, discussion or brand consolidation. Hence, for the IT company Ideals, an optimal solution is a hybrid strategy which combines: (1) personalised content from the Growth Manager as a source of trust and relevance for a professional audience and (2) systemic corporate identity as a mechanism for accumulating brand capital even in situations of rapid viral reach (Venciūtė *et al.*, 2023; Tonsing, 2025). This approach makes it possible to maximise the impact of viral triggers while simultaneously ensuring brand stability and trust in the team. Thus, the study's results confirm current approaches in viral marketing and social media, emphasising that a combination of personalisation, cultural relevance and systemic identity makes it possible to achieve maximum user engagement and strategic consolidation of the brand. In addition, comparison of the two cases showed that different audience behavioural models can be combined in a flexible strategy that simultaneously provides broad audience reach and supports a positive attitude towards the brand.

Conclusions

The study made it possible to carry out a comprehensive analysis of the mechanisms of forming a viral effect in the format of short video content and to substantiate the expediency of combining personalised expert content from the Growth Manager with the corporate identity of an IT company as a hybrid viral marketing strategy. On the basis of empirical analysis of two viral cases from the PR agency "People Media", it was established that the effectiveness of viral campaigns is determined not by absolute reach indicators, but by the structure of audience engagement and the type of users' behavioural reactions.

The results of the first case showed that content built on the audience's professional self-identification forms a model of viral interaction, with the dominance of reposts. It is precisely this type of active engagement that ensures a high coefficient of organic dissemination and effective activation of Instagram's algorithmic

mechanisms. The second case demonstrated a different model of engagement, oriented mainly towards discursive activity. The use of a public figure with a high level of cultural recognisability provided a much broader reach, but was accompanied by lower virality indicators. This makes it possible to conclude that content capable of provoking discussion does not always turn into chain dissemination if it is not anchored in the audience's group identity. Thus, different creative approaches form distinct types of interaction, which must be taken into account when developing viral strategies.

Comparative analysis of the cases showed that, in order to achieve a strategic viral effect, it is advisable for IT companies to combine the advantages of both models. In this context the proposed hybrid strategy, which integrates the Growth Manager's content with elements of corporate identity, makes it possible simultaneously to ensure high relevance and trust in the message and to fix the viral effect to the brand. Personalised expert content performs the function of a trigger of engagement and trust, whereas identity ensures recognisability and accumulation of brand capital even under conditions of rapid organic scaling.

The practical significance of the obtained results lies in the possibility of the use by IT companies to build controlled viral communications without a substantial increase in advertising expenditure. The proposed approach can be adapted to the activities of Growth Managers, SMM specialists and digital communications teams, taking into account the specifics of a professional audience. The scientific novelty consists in substantiating an integrated approach that combines viral mechanisms (emotional-professional triggers and network dissemination) with the Growth Manager's personal expert channel and corporate identity tools, which makes it possible simultaneously to achieve short-term organic reach and long-term accumulation of brand capital. The empirical data collected are useful for developing strategies for creating highly effective video content and for forming an improved system for measuring digital communication activity in the context of social media. Prospects for further research are related to expanding the empirical base through analysis of a larger number of cases, other social platforms and the dynamics of indicators over time. It is also advisable to study the impact of the hybrid strategy on IT companies' long-term business indicators, in particular brand loyalty, conversion and reputational capital in professional communities.

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Поєднання контенту Growth Manager'a та корпоративної айдентики IT-компанії Ideals як гібридна стратегія вірусного маркетингу

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Анотація. Актуальність дослідження зумовлена зростанням конкуренції у цифровому середовищі та зниженням ефективності традиційних рекламних інструментів, що спонукає компанії шукати нові підходи до формування органічного охоплення та залучення аудиторії. Особливої значущості ця проблема набуває для інформаційно-технологічних компаній, аудиторія яких характеризується високим рівнем цифрової грамотності та критичним ставленням до прямої реклами. У таких умовах перспективним напрямом є поєднання вірусного контенту з персоналізованими комунікаціями та корпоративною візуальною ідентичністю бренду. Метою статті було обґрунтування ефективності поєднання контенту Growth Manager'a з корпоративною айдентикою компанії Ideals як гібридної стратегії вірусного маркетингу на основі узагальнення результатів емпіричного дослідження вірусних рекламних кампаній. Методологічну основу дослідження становили методи контент-аналізу, порівняльного аналізу, узагальнення та аналітичної оцінки показників взаємодії аудиторії з цифровим відеоконтентом. Емпіричну базу було сформовано на основі кейсів вірусного відеоконтенту, проаналізованих у межах дослідження діяльності комунікаційного агентства, що спеціалізується на створенні коротких креативних відеоформатів. У результаті дослідження було встановлено, що вірусні механізми, ефективні у діяльності креативних агентств, можуть бути адаптовані до комунікацій інформаційно-технологічних компаній за умови інтеграції персонального експертного контенту Growth Manager'a з корпоративною айдентикою бренду. Доведено, що така гібридна модель сприяє підвищенню рівня органічного охоплення, залученості аудиторії та формуванню довіри до бренду. Практична цінність дослідження полягає у можливості використання запропонованої гібридної стратегії інформаційно-технологічними компаніями для підвищення ефективності цифрових комунікацій без суттєвого зростання рекламних витрат

Ключові слова: корпоративні комунікації; персональний бренд; цифрові комунікації; маркетингові підходи; вірусний контент

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