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Strategies for Innovative Development of the Enterprise: Theoretical Foundations, Classification, and Modern Trends

Abstract: The article provides a comprehensive theoretical and methodological study of the processes involved in forming and implementing enterprise innovative development strategies within a turbulent economic environment. The author reveals the multifaceted nature of the "innovation strategy" concept, which in modern conditions is transforming from a mere tool for technological renewal into a fundamental philosophy for business survival and growth. The genesis of innovation theories is explored, ranging from J. Schumpeter's classical concepts to modern models of interactive engagement and the ecosystem approach. The paper proposes and details an extensive classification of innovation strategies based on several criteria: the nature of market behavior (violent, patient, explerent, commutant), risk level, market coverage scale, and intensity of research and development (R&D) activities. Particular attention is paid to strategic ambidexterity as an enterprise's ability to balance the exploitation of existing competencies with the exploration of radically new opportunities. Furthermore, the study provides a detailed analysis of modern approaches to innovation management dictated by the challenges of digital transformation and the implementation of Industry 4.0 and 5.0 technologies. In the context of Ukrainian realities, the specifics of strategic planning under high military risks are examined, where innovations serve as tools for adaptability and relocation resilience. The necessity of integrating Environmental, Social, and Governance (ESG) principles and the circular economy into the general innovation framework of the enterprise is substantiated. The practical significance of the study is supported by an analysis of successful business model transformation cases (specifically, the evolutionary path of Tesla), which allowed for the identification of mechanisms for transitioning from the stage of risky pioneering to market dominance. Based on the conducted analysis, promising directions for the innovative development of domestic businesses are outlined, focusing on process digitalization, the use of artificial intelligence, and the development of open innovation ecosystems. Recommendations are formulated to overcome internal and external barriers to an innovation breakthrough in the context of post-war economic recovery.

Keywords: innovation strategy, innovative development, competitiveness, digital transformation, Industry 4.0, innovation management, strategic planning.

Abbreviations:

CVC is corporate venture capital,
ESG is Environmental, Social, and Governance,
IoT is Internet of Things,
KPI is key performance indicator,
MVP is minimum viable product,
R&D is research and development,
ROI is return on investment.

Introduction

In the current conditions of global economic instability, intensifying competition and accelerating technological change, the innovative development of an enterprise is transforming from a desirable growth factor into a critical condition for survival, adaptability and long-term competitiveness. For Ukrainian enterprises, this issue is of particular importance in the context of wartime challenges, the destruction or disruption of traditional supply chains, forced relocation of business activities, resource constraints and the need for rapid adaptation to new conditions of doing business. Under such circumstances, innovation is no longer limited to the introduction of new products or technologies; it becomes a strategic mechanism for maintaining economic resilience, restoring market positions and ensuring the future development of enterprises.

The relevance of this study is determined by the growing role of innovation strategies in enterprise management under conditions of uncertainty, digital transformation and structural changes in the global economy. Modern enterprises operate in an environment where competitive advantages are increasingly formed through technological renewal, business model transformation, data-driven decision-making, digitalisation of processes, cooperation within innovation ecosystems and the integration of sustainability principles. The Fourth Industrial Revolution, artificial intelligence, the Internet of Things, big data, cloud technologies, blockchain and cyber-physical systems are radically changing the logic of value creation and require enterprises to reconsider traditional approaches to strategic planning (*Schwab, 2019*). At the same time, the principles of ESG-oriented development and the circular economy increasingly influence innovation priorities, investment attractiveness and consumer loyalty.

An innovation strategy is a key management tool that determines the direction of enterprise development in response to contemporary challenges. It ensures adaptation to the requirements of customers and markets, supports the transformation of internal business processes and ultimately contributes to increasing competitiveness. In this sense, an innovation strategy functions as a link between the general corporate strategy of an enterprise and its innovation activity, defining the priorities, directions, resources and mechanisms for implementing innovations. It also determines how an enterprise balances technological renewal, organisational transformation, market positioning, risk management and the commercialisation of new ideas.

The research problem lies in the fact that, despite the growing significance of innovation for enterprise competitiveness, many companies still lack a systematic approach to the formation and

implementation of innovation strategies. In practice, innovation activity is often fragmented, reactive and weakly integrated into the overall strategic management system. Enterprises may introduce individual technological solutions, digital tools or new products without a coherent innovation portfolio, clear performance indicators, sufficient resource support or a mechanism for adapting strategy to changes in the external environment. This problem is especially acute for Ukrainian enterprises, which must simultaneously respond to military risks, financial constraints, labour migration, the depreciation of fixed assets, weak links between science and business, and regulatory barriers to innovation activity.

The scientific novelty of this study consists in the systematisation of theoretical approaches to the formation of enterprise innovation strategies and in the analytical integration of classical innovation theory with modern trends in digital transformation, open innovation, ESG-oriented development and strategic adaptability under crisis conditions. The study considers innovation strategy not only as a tool for technological renewal, but also as a complex category of strategic management that includes product, process, organisational, marketing, social and business model innovations. Particular attention is paid to the differentiation of innovation strategies according to competitive position, degree of radicality, source of innovation activity and object of innovation, as well as to the need to adapt these strategies to the specific conditions of Ukrainian enterprises.

The object of the study is the innovative development of enterprises in a turbulent economic environment.

The subject of the study is the theoretical foundations, classification features, strategic tools and modern trends in the formation and implementation of enterprise innovation strategies.

The study aims to systematise theoretical approaches to the formation of enterprise innovative development strategies, analyse their classification, identify current trends in innovation management and formulate practical recommendations for the implementation of innovation strategies under conditions of digital transformation, sustainability requirements and heightened uncertainty.

To achieve this purpose, the following research tasks are set:

- to clarify the essence of the concept of "innovation strategy" and trace its evolution from the classical understanding of innovation to modern strategic management approaches;
- to systematise the main functions and principles of forming an enterprise innovation strategy;
- to analyse key classifications of innovation strategies according to competitive position, degree of radicality, source of innovation activity and object of innovation;
- to examine the influence of Industry 4.0 technologies on the transformation of innovation strategies;
- to determine the role of open innovation, network interaction and innovation ecosystems in modern enterprise development;
- to assess the significance of ESG principles and circular economy approaches for enterprise innovation policy;
- to identify the specific challenges and opportunities of innovative development for Ukrainian enterprises under wartime and post-war recovery conditions;

- to analyse strategic tools used in innovation management, including SWOT analysis, technological foresight, S-curve analysis, innovation portfolio management and the Stage-Gate process;
- to generalise practical cases of business model transformation and innovative development in global companies;
- to formulate recommendations for improving the strategic management of innovation in enterprises of different sizes and sectors.

The theoretical basis of the study is formed by classical and modern approaches to innovation theory and strategic management. Schumpeter's theory of innovation as "new combinations" of production factors provides the foundation for understanding innovation as a driver of economic development and structural change (*Schumpeter, 2011*). The strategic management approaches of Ansoff and Porter make it possible to consider innovation strategy as an integrated part of corporate development and competitive positioning (*Ansoff, 2007*; *Porter, 2020*). The concept of open innovation introduced by Chesbrough expands the understanding of innovation sources by emphasising cooperation with external actors, including universities, start-ups, research centres and technological partners (*Chesbrough, 2003*). The Oslo Manual provides a methodological framework for analysing different types of innovations and their measurement in business practice (*OECD & Eurostat, 2018*).

The theoretical significance of the study lies in deepening the understanding of innovation strategy as a multidimensional management category that combines technological, organisational, market, social and sustainability-oriented components. The study contributes to the development of the theoretical foundations of innovation management by clarifying the functions, principles and classification criteria of enterprise innovation strategies. It also strengthens the conceptual link between innovation strategy, strategic competitiveness, digital transformation, open innovation ecosystems and sustainable development. In addition, the study helps to adapt general theoretical models of innovation management to the specific conditions of enterprises operating under crisis, wartime and post-war recovery conditions.

The practical significance of the research results lies in the possibility of using the proposed generalisations and recommendations in the strategic management of enterprises. The study may be useful for managers, owners, consultants, analysts and policymakers involved in innovation development, digital transformation and competitiveness improvement. The systematised classification of innovation strategies can support more informed strategic choice depending on enterprise size, industry, resource potential, market position and risk tolerance. The analysis of modern tools, such as technological foresight, innovation portfolio management, Lean Startup, Design Thinking, Agile and Stage-Gate approaches, can be applied in the development and implementation of innovation projects. For Ukrainian enterprises, the results are particularly relevant because they help identify innovation strategies that consider military risks, relocation challenges, limited financial resources, digital opportunities, DefenseTech and AgTech development, access to grant financing and state innovation support programmes.

Thus, this study addresses an important scientific and practical problem: how enterprises can form and implement innovation strategies that ensure competitiveness, adaptability and sustainable growth under conditions of technological turbulence and economic instability. The proposed approach treats innovation strategy as a systemic element of strategic enterprise management and

as a key instrument for overcoming crisis constraints, entering new markets, increasing productivity and supporting post-war economic recovery.

Methods

This study was designed as a theoretical and methodological investigation of enterprise innovative development strategies under conditions of economic turbulence, digital transformation and heightened uncertainty. Since the research focuses on the conceptual foundations, classification and contemporary trends of innovation strategy formation, a qualitative analytical research design was applied. The methodological logic of the study combined theoretical generalisation, comparative analysis, classification, content analysis of scientific and regulatory sources, case-based interpretation and strategic management analysis.

The theoretical basis of the research was formed by classical and contemporary works in the fields of innovation theory, strategic management and innovation management. Particular attention was paid to Schumpeter's concept of innovation as a new combination of production factors, Ansoff's and Porter's approaches to strategic management and competitive positioning, Chesbrough's open innovation paradigm, Christensen's theory of disruptive innovation, and modern approaches reflected in the Oslo Manual. These sources were used to reconstruct the evolution of the concept of innovation strategy from a narrow technological and R&D-oriented category to a multidimensional strategic management construct that includes product, process, organisational, marketing, social and business model innovations.

The source base of the study included monographs, scientific publications, methodological documents, regulatory acts and analytical materials related to innovation activity, enterprise competitiveness, open innovation, digital transformation, Industry 4.0, ESG-oriented development and the circular economy. In order to ensure the relevance of the analysis, priority was given to sources that reflect both classical theoretical foundations and contemporary trends in innovation management. Ukrainian regulatory and statistical materials were also considered in order to identify the specific institutional and economic conditions under which domestic enterprises form their innovation strategies.

The study was conducted in several methodological stages. At the first stage, the conceptual apparatus was clarified. The term "innovation strategy" was analysed from the standpoint of its historical evolution, functional content and connection with the general corporate strategy of the enterprise. This made it possible to define innovation strategy as a long-term programme of actions that determines the goals, priorities, directions and mechanisms of innovation activity aimed at ensuring competitiveness and sustainable development.

At the second stage, the main functions and principles of innovation strategy formation were systematised. The analysis covered the goal-setting, adaptive, coordinating, distributive, motivational and control functions of innovation strategy. The principles of systemacity, adaptability, continuity, risk orientation, resource sufficiency and strategic balance were examined as methodological conditions for the effective formation and implementation of innovation strategies.

At the third stage, a classification analysis of enterprise innovation strategies was carried out. The strategies were grouped according to several criteria: competitive position, degree of innovation radicality, source of innovation activity and object of innovation. This made it possible

to distinguish offensive, defensive, imitation and niche strategies; radical, strategic and incremental innovation strategies; closed, open and network-based innovation strategies; and product, process, marketing and organisational innovation strategies. Such classification was used to demonstrate that there is no universal innovation strategy suitable for all enterprises, since strategic choice depends on industry, enterprise size, resource potential, market position and risk tolerance.

At the fourth stage, the study analysed contemporary trends influencing the formation of innovation strategies. Special attention was paid to the impact of Industry 4.0 technologies, including the Internet of Things, artificial intelligence, big data, cloud technologies, blockchain and cyber-physical systems. These technologies were considered not only as individual instruments of digitalisation, but also as factors that transform business models, production processes, market interaction and the logic of value creation. The study also examined the increasing role of ESG principles, green innovation, the circular economy, social innovation and responsible governance as strategic components of modern enterprise innovation policy.

At the fifth stage, strategic tools used in innovation management were analysed. The study considered SWOT analysis, technological foresight, S-curve analysis, an adapted BCG matrix for innovation portfolios, the Stage-Gate process, Lean Startup, Agile, Scrum, Design Thinking and the Jobs-to-be-Done approach. These tools were examined in terms of their applicability to the identification of innovation opportunities, assessment of technological readiness, selection of innovation projects, risk reduction and monitoring of innovation strategy implementation.

At the sixth stage, the specific features of innovative development of Ukrainian enterprises were identified. The analysis focused on wartime risks, physical threats to production facilities, logistical disruptions, forced business relocation, limited access to financial resources, labour migration, depreciation of fixed assets, weak interaction between science and business, regulatory barriers and difficulties in protecting intellectual property. At the same time, the study considered the innovation potential of Ukrainian business, including the development of the IT sector, DefenseTech, AgTech, digital public services, access to international grant financing and state support programmes for innovative entrepreneurship.

At the seventh stage, a case-based analytical approach was applied to interpret practical examples of innovation strategy implementation. The study considered global cases of business model transformation and innovation management, including open innovation practices, digital transformation, sustainable innovation and radical innovation strategies. These examples were used to identify mechanisms through which enterprises move from technological experimentation to market leadership, ecosystem formation and long-term competitive advantage.

The methodological approach also included comparative analysis. Classical linear models of innovation, such as technology-push and market-pull models, were compared with contemporary interactive and ecosystem-based models. Closed R&D models were compared with open innovation strategies, while traditional strategic planning approaches were compared with flexible methodologies such as Lean Startup, Agile and Design Thinking. This comparison made it possible to reveal the transformation of innovation management from a hierarchical and internally controlled process into an adaptive, networked and customer-oriented system.

Generalisation and synthesis were used at the final stage of the research. On the basis of the theoretical analysis, classification, comparison and case interpretation, the study formulated conclusions regarding the strategic role of innovation in enterprise competitiveness. The synthesis

made it possible to identify promising directions for the innovative development of enterprises, including process digitalisation, artificial intelligence implementation, open innovation ecosystems, ESG integration, innovation portfolio balancing and strategic adaptation under crisis conditions.

The reliability of the research results was ensured by the use of several complementary methods and source groups. Theoretical sources were combined with methodological documents, regulatory materials, statistical information and practical business cases. This triangulation made it possible to avoid a purely abstract interpretation of innovation strategy and to connect theoretical concepts with practical management conditions, including the specific constraints and opportunities of Ukrainian enterprises.

The methodological limitation of the study is that it is predominantly theoretical and analytical. It does not include direct empirical testing based on surveys, interviews or econometric modelling of enterprise innovation performance. Therefore, the conclusions should be interpreted as conceptual and methodological generalisations that require further empirical verification. Future studies may develop this research direction by applying quantitative methods to assess the impact of specific innovation strategies on enterprise productivity, profitability, export potential, resilience and post-war recovery performance.

Overall, the selected methodology made it possible to provide a comprehensive analysis of enterprise innovative development strategies, systematise their theoretical foundations and classifications, and identify the main contemporary trends affecting their implementation. The applied combination of theoretical generalisation, classification, comparative analysis and case-based interpretation corresponds to the purpose of the study and provides a structured basis for formulating practical recommendations for innovation strategy development.

Literature Review

The problem of enterprise innovative development has long occupied a central position in economic theory, strategic management and innovation studies. In classical economic thought, innovation was primarily interpreted as a driver of economic dynamics and structural transformation. Schumpeter's theory of economic development remains the conceptual foundation for understanding innovation as a "new combination" of production factors, including the creation of new products, the introduction of new production methods, access to new markets, the use of new sources of raw materials and the reorganisation of enterprise management structures (*Schumpeter, 2011*). This approach is important because it shifts the interpretation of innovation from a narrow technical improvement to a broader economic mechanism that changes market structures, competitive relations and the trajectory of enterprise growth.

In the second half of the twentieth century, the development of strategic management theory significantly influenced the interpretation of innovation at the enterprise level. The works of Ansoff and Porter made it possible to consider innovation not only as a technological phenomenon, but also as an element of corporate strategy, competitive positioning and long-term market behaviour (*Ansoff, 2007*; *Porter, 2020*). Within this paradigm, innovation strategy becomes a tool for aligning internal enterprise resources with external market opportunities and threats. It determines how an enterprise responds to competitive pressure, technological change and shifts in consumer demand. Therefore, innovation strategy should be regarded as an integrated component of the general

development strategy rather than as an isolated functional plan limited to research and development.

The evolution of the concept of innovation strategy also reflects the transformation of innovation models. Early approaches were dominated by linear models, especially the technology-push and market-pull models. The technology-push model considered innovation as a sequence from scientific discovery to design, production and market introduction, whereas the market-pull model explained innovation as a response to consumer needs. Although these models are useful for describing basic innovation logic, they are insufficient for explaining contemporary innovation processes, which are interactive, networked and iterative. Modern innovation increasingly emerges through feedback loops between scientific knowledge, technological capabilities, market demand, digital platforms, customers, suppliers, start-ups and research institutions.

The contemporary understanding of innovation strategy is strongly influenced by the open innovation paradigm. Chesbrough (*2003*) demonstrated that enterprises can no longer rely solely on internal research and development resources, especially under conditions of technological complexity and shortened innovation cycles. Open innovation assumes the active use of external knowledge, technologies and partnerships. It also implies that internal developments may be commercialised through external channels. This approach is especially relevant for enterprises operating in dynamic markets, where cooperation with universities, start-ups, research centres, suppliers and customers allows firms to accelerate innovation processes and reduce development risks. As a result, innovation strategy increasingly becomes ecosystem-oriented rather than exclusively firm-centred.

The classification of innovation strategies is one of the key theoretical problems in innovation management. One of the most widespread approaches is based on the enterprise's competitive position in the market. In this context, offensive, defensive, imitative and niche strategies are usually distinguished. Offensive innovation strategy is typical of market leaders and technological pioneers that introduce new products or technologies before competitors. Such a strategy requires substantial investment in research and development, strong technological capabilities and high-risk tolerance. Defensive innovation strategy is based on the rapid adoption and improvement of successful innovations introduced by competitors. Imitative strategy focuses on copying or adapting existing solutions, often with lower cost or localisation advantages. Niche strategy is aimed at serving narrow market segments with specific needs, where innovation is associated with deep specialisation and customer proximity (*Kotler & Keller, 2016*).

Another important classification criterion is the degree of innovation radicality. Radical or breakthrough innovation strategies involve the creation of fundamentally new products, technologies or markets and are associated with high uncertainty and potentially high returns. Christensen's theory of disruptive innovation is particularly relevant here, since it explains how new technologies and business models may initially appear inferior by traditional performance criteria but later transform entire industries (*Christensen, 1997*). Incremental innovation strategies, by contrast, involve continuous improvement of existing products, processes or services. They are less risky and more predictable, but their growth potential is usually more limited. Between these poles are strategic innovations, which may not radically change the product itself but transform the business model, value proposition or method of customer interaction.

Innovation strategies may also be classified according to the source of innovation activity. Closed innovation strategies rely mainly on internal research, development and commercialisation. Such strategies provide stronger control over intellectual property, technological secrecy and strategic direction, but they are often expensive and slow. Open innovation strategies combine internal and external sources of knowledge and allow enterprises to access broader technological opportunities. Network and collaborative strategies go further by forming innovation ecosystems, strategic alliances, clusters, joint ventures and technology parks. These strategies are especially important in knowledge-intensive industries, where no single enterprise can independently control the full spectrum of required technologies and competences.

The Oslo Manual provides an important methodological basis for distinguishing the objects of innovation. According to this approach, innovation may relate not only to products, but also to processes, marketing methods and organisational arrangements (*OECD & Eurostat, 2018*). Product innovation strategies focus on the creation of new or improved goods and services. Process innovation strategies involve changes in production, logistics, management or service delivery. Marketing innovation strategies concern new methods of promotion, pricing, distribution and customer interaction. Organisational innovation strategies involve changes in management systems, business models, labour organisation and inter-firm cooperation. This classification is essential because modern enterprise competitiveness is often achieved through the combination of several innovation types rather than through product renewal alone.

The Fourth Industrial Revolution has significantly changed the content and priorities of enterprise innovation strategies. Schwab (*2019*) emphasised that Industry 4.0 technologies blur the boundaries between physical, digital and biological systems. For enterprises, this means that innovation strategies must increasingly integrate the Internet of Things, artificial intelligence, machine learning, big data analytics, cloud computing, blockchain and cyber-physical systems. These technologies transform production processes, supply chains, customer relations and business models. In particular, artificial intelligence enables predictive analytics and automated decision-making; big data creates opportunities for identifying hidden market patterns; IoT allows real-time monitoring and optimisation of operations; cloud technologies reduce entry barriers for digital projects; and blockchain increases transparency and trust in supply chains and transactions.

Digital transformation also changes the organisational logic of innovation management. Traditional long-term planning is increasingly supplemented by flexible methodologies that allow enterprises to test hypotheses, adapt to customer feedback and reduce the cost of failure. The Lean Startup approach is based on the rapid testing of business hypotheses through minimum viable products and the iterative cycle of "build–measure–learn" (*Ries, 2025*). Agile and Scrum support iterative development, cross-functional teamwork and constant customer feedback. Design Thinking focuses on human-centred problem-solving by combining empathy, creativity and rational analysis. These approaches are especially relevant in uncertain environments where customer needs, technologies and market boundaries are rapidly changing.

Another major trend in innovation strategy is the integration of sustainability principles. Enterprises increasingly incorporate ESG criteria into innovation activity, including environmental responsibility, social impact and transparent governance. Green innovation, circular economy models, recycling technologies, renewable energy solutions and socially oriented innovations are becoming sources of competitive advantage. This reflects a broader transformation of innovation

policy: innovation is no longer evaluated only by its economic or technological results, but also by its environmental and social consequences. For investors, consumers and regulators, sustainability-oriented innovation is increasingly becoming a criterion of enterprise reliability and long-term development potential.

The literature also emphasises the importance of strategic tools for innovation management. SWOT analysis remains widely used, but in the context of innovation it should focus not only on general strengths and weaknesses, but also on technological capabilities, patent potential, innovation culture and threats from disruptive technologies. Technological foresight allows enterprises to anticipate long-term scientific and technological trends and prepare for the emergence of new markets. S-curve analysis helps managers determine the limits of existing technologies and identify the moment when investment in a new technological trajectory becomes necessary. Innovation portfolio management, including adapted BCG matrices, allows firms to balance projects according to risk, expected return, time horizon and strategic relevance. The Stage-Gate process provides staged control over the development and commercialisation of innovation projects, reducing the probability of large-scale financial losses from unviable initiatives.

The Ukrainian context adds specific dimensions to the theory of innovation strategy. The Law of Ukraine "On Innovation Activity" defines the institutional framework for supporting innovation, but practical implementation is complicated by financial constraints, regulatory barriers, weak science-business interaction and difficulties in intellectual property protection (*On Innovation Activity, 2002*). In addition, wartime conditions create unprecedented challenges for enterprise innovation. These include the destruction of production facilities, disruption of logistics, forced relocation, reduced access to capital, labour migration and increased operational uncertainty. Under such conditions, innovation strategy becomes not only an instrument of competitiveness, but also a mechanism of resilience, adaptation and survival.

At the same time, Ukrainian enterprises possess significant innovation potential. The development of the IT sector, DefenseTech, AgTech, digital public services and access to international grant financing creates opportunities for integration into global technological ecosystems. Statistical and analytical materials on innovation activity in Ukrainian industry indicate that domestic enterprises face serious structural constraints, but also demonstrate the capacity to develop digital, defence-oriented and export-oriented innovation models (*State Statistics Service of Ukraine, 2023–2025*). For small and medium-sized enterprises, open innovation, cooperation with universities and start-ups, cloud technologies and grant financing may be especially important. For large enterprises, innovation laboratories, corporate venture capital, ESG integration and systematic intellectual property management become more relevant.

International business cases also confirm the diversity of innovation strategy models. The transformation of Procter & Gamble through the "Connect + Develop" programme illustrates the practical potential of open innovation. Siemens demonstrates how a traditional industrial corporation can become a leader in digital industry through industrial software and IoT platforms. Patagonia shows that sustainability-oriented innovation can strengthen customer loyalty and market differentiation. Tesla represents a case of radical and disruptive innovation based on electric vehicles, vertical integration, battery production, charging infrastructure and software-based product development. These examples show that successful innovation strategies combine

technological renewal with business model transformation, ecosystem creation and clear market positioning.

Despite the breadth of existing research, several gaps remain. First, many studies analyse innovation strategies in general terms but do not sufficiently integrate classical theories with contemporary digital, ESG and ecosystem-based trends. Secondly, classifications of innovation strategies are often presented separately, without showing how different classification criteria interact in real enterprise decision-making. Thirdly, limited attention is paid to the formation of innovation strategies under conditions of war, relocation risk and post-war recovery. Fourthly, the Ukrainian enterprise context requires further conceptualisation because standard global models cannot be directly transferred without considering institutional, financial and security constraints.

Therefore, the present study builds on existing theoretical approaches and seeks to systematise enterprise innovation strategies in a way that reflects both classical foundations and contemporary transformations. It considers innovation strategy as a multidimensional construct that includes competitive positioning, technological renewal, organisational change, digital transformation, open innovation, sustainability and crisis adaptation. This approach makes it possible to develop a more comprehensive understanding of how enterprises can form and implement innovation strategies under conditions of economic turbulence, technological change and structural uncertainty.

Results

The concept of "innovation strategy" has undergone a long evolution, from being identified mainly with research and development activities (R&D) to becoming a complex category of strategic management. In the 1950s and 1960s, innovation was regarded primarily as a set of technical improvements, while strategy was reduced mainly to the planning of R&D budgets (*Chesbrough, 2003*). In the 1970s and 1980s, with the development of strategic planning approaches associated with I. Ansoff and M. Porter, innovation strategy began to be understood as an integrated component of corporate strategy. The contemporary stage, from the 2000s to the present, is characterised by the interpretation of innovation strategy as a dynamic system that encompasses not only technological, but also organisational, marketing and social innovations (*Porter, 2020*; *Ansoff, 2007*).

In essence, an enterprise innovation strategy is a long-term programme of action that defines the goals, priorities, directions and mechanisms of innovation activity, thereby ensuring the competitiveness and sustainable development of an enterprise through the creation, implementation and commercialisation of innovations.

The main functions and principles of innovation strategy formation should be considered. An innovation strategy performs the following key functions:

- goal-setting function, which involves the formulation of strategic objectives for innovative development;
- adaptive function, which ensures the enterprise's adaptation to changes in the external environment;
- coordinating function, which aligns innovation activity with other functional strategies;
- distributive function, which determines the priorities for financing innovation projects;

- motivational function, which stimulates the creative activity of personnel and supports the formation of an innovation culture;
- control function, which establishes criteria for assessing the effectiveness of innovation activity.

At the same time, the principles of innovation strategy formation include the following:

- systemacity, which means considering innovation as an integral system connected with all aspects of enterprise activity;
- adaptability, which refers to the ability to adjust the strategy in response to environmental changes;
- continuity, which implies the constant search for and implementation of innovation opportunities;
- risk orientation, which requires taking into account uncertainty and the risks inherent in innovation activity;
- resource sufficiency, which means ensuring correspondence between innovation ambitions and available resources;
- balance, which involves the optimal combination of radical and incremental innovations.

The scientific literature presents a wide range of classifications of innovation strategies. The most widespread approaches are considered below.

The first approach is classification according to competitive position, following F. Kotler (*Kotler & Keller, 2016*). This classification is based on the role of the enterprise in competition.

The leader strategy, or offensive strategy, is used when an enterprise is the first to introduce new products or technologies to the market. It requires substantial investment in R&D, a strong scientific and technical base, and a high tolerance for risk. This strategy is typical of pioneering companies such as Apple, Tesla and Alphabet.

The follower strategy, or defensive strategy, is used when an enterprise does not seek to be first, but quickly adopts successful innovations introduced by competitors, improves them and reduces associated risks. This strategy requires well-developed benchmarking and engineering analysis skills.

The imitator strategy, or borrowing strategy, involves copying the leader's products with minimal improvements, often with an emphasis on a lower price or adaptation to the local market.

The dependent strategy, or niche strategy, is aimed at serving a narrow market segment with specific needs. In this case, innovation is directed towards deep specialisation.

At the same time, the founder of innovation theory, Joseph Schumpeter, as early as the beginning of the twentieth century, defined innovation as a "new combination" of production factors, which includes the creation of a new product, the introduction of a new method of production, the development of a new market, the attraction of new sources of raw materials or the reorganisation of the management structure (*Schumpeter, 2011*). In the second half of the twentieth century, linear models dominated:

Model 1, Technology Push: Science → Design → Production → Marketing.

Model 2, Market Pull: Market Needs → Development → Production.

The contemporary approach, represented by the interactive model, argues that innovation is not a linear process, but a complex network of feedback links between scientific knowledge, technological capabilities and consumer demand.

The second approach classifies innovation strategies according to the degree of innovation radicality.

The strategy of radical, or breakthrough, innovations involve the creation of fundamentally new products or technologies that transform the market landscape. It is characterised by high risk and significant investment, but also by potentially very high returns. An example is the transition from push-button mobile phones to smartphones.

Strategic innovations involve a change in the business model or in the method of creating value for the customer without necessarily radically changing the product itself. One example is the transition from selling a product to providing a service, as in the Product-as-a-Service model.

The strategy of incremental innovations involves the continuous improvement of existing products, processes or services. It is associated with lower risk and more predictable results, but also with more limited growth potential.

The third approach classifies innovation strategies according to the source of innovation activity.

A closed, or vertically integrated, strategy means that the entire innovation process is carried out internally, from fundamental research to commercialisation. Classical examples include Bell Labs and IBM in the twentieth century. The advantages of this strategy are full control and protection of intellectual property, while its disadvantages are high costs and slower implementation.

An open innovation strategy combines internal and external sources of knowledge. The enterprise actively uses start-ups, universities, research centres and crowdsourcing. The term was introduced by Henry Chesbrough in 2003 and has become a contemporary paradigm for most technology companies.

A network, or collaborative, strategy involves the creation of innovation ecosystems through strategic alliances, joint ventures, clusters and technology parks. The synergy of participants makes it possible to accelerate innovation processes.

The fourth approach classifies innovation strategies according to the object of innovation.

- A product strategy focuses on the creation of new products and services or the improvement of existing ones.
- A process strategy involves the introduction of new or improved production, logistics or management processes.
- A marketing strategy is based on the application of new methods of promotion, pricing and distribution.
- An organisational strategy involves the introduction of new organisational structures, management systems and business models (*Ries, 2025*).

With regard to innovative development in contemporary conditions, the following tendencies may be identified. The Fourth Industrial Revolution is radically transforming approaches to innovative development (*Schwab, 2019*). The key Industry 4.0 technologies that shape enterprise innovation strategies include the following:

- the IoT, which enables the creation of "smart" products and production systems, as well as real-time data collection for process optimisation;
- artificial intelligence and machine learning, which support the automation of decision-making, demand forecasting and personalised offers;
- big data, which enables the analysis of large datasets in order to identify hidden patterns and innovation opportunities;
- cloud technologies, which reduce entry barriers for innovation projects, provide scalability and ensure access to advanced digital tools;
- blockchain, which contributes to transparency, security and trust in supply chains and financial transactions;
- cyber-physical systems, which integrate computational and physical processes, including the development of digital twins.

At the same time, the global trend towards sustainable development significantly influences innovation strategies. Enterprises increasingly integrate ESG criteria, that is, Environmental, Social and Governance principles, into their innovation activities. This includes the implementation of green innovations, such as the development of environmentally friendly products, recycling technologies and renewable energy solutions; the transition to the circular economy through the creation of closed production cycles and waste minimisation; social innovations aimed at developing products and services that address social problems; and responsible governance based on transparent and ethical management practices.

Modern innovation management is also increasingly based on flexible methodologies. These include:

- Agile and Scrum, which involve the iterative development of innovative products with continuous customer feedback;
- Lean Startup, which focuses on rapid hypothesis testing through MVPs and the "build–measure–learn" cycle (*Ries, 2025*);
- Design Thinking, which represents a human-centred approach to innovation combining empathy, creativity and rational analysis;
- Jobs-to-be-Done, which focuses on the functional, social and emotional "jobs" that customers need to accomplish.

The process of forming and implementing an innovation strategy should be considered in more detail through the main stages of innovation strategy development.

At the first stage, the external environment is analysed through the assessment of technological trends, the competitive landscape, regulatory changes and macroeconomic factors. Tools such as PESTEL analysis and technological foresight may be used for this purpose.

At the second stage, the internal potential of the enterprise is assessed. This includes evaluating the scientific and technical base, R&D capabilities, innovation culture and financial resources. Relevant tools include VRIO analysis, technological audit and other diagnostic instruments.

At the third stage, strategic objectives are defined. This involves formulating long-term goals of innovative development, such as the share of innovative products in total sales, the number of patents, or the increase in market share achieved through innovation.

At the next stage, the type of innovation strategy is selected. Based on the results of the previous analysis, the enterprise chooses the most appropriate strategic option, such as an offensive, defensive, imitation or other type of strategy.

The following stage involves the development of an innovation portfolio. At this stage, a set of innovation projects is formed and balanced according to risk level, implementation horizon and expected return. Resource provision is also determined, including budget allocation, sources of financing, staffing requirements and infrastructure needs.

The final stage consists of implementation and monitoring. It includes the execution of innovation projects, control over the achievement of KPIs, and adjustment of the strategy in response to changes in internal and external conditions.

In the course of this study, it is also necessary to analyse the tools of strategic innovation analysis. The main tools should therefore be considered in more detail, beginning with SWOT analysis. In the context of innovative development, SWOT analysis shifts its focus towards assessing the technological capacity of the enterprise, identifying hidden patent opportunities and analysing threats posed by competitors' disruptive technologies. Technological foresight also plays an important role as a method for the systematic anticipation of long-term horizons of scientific and technological progress, enabling businesses to prepare in advance for the emergence of new markets. At the same time, the analysis of technology S-curves helps management clearly identify the performance limits of existing solutions and determine the critical moment for investing in fundamentally new developments in order to avoid technological lag. In parallel, the use of an adapted BCG matrix for innovation makes it possible to balance a portfolio of projects by distinguishing them according to expected profitability and required financing volumes. In combination with the implementation of the Stage-Gate process, this ensures strict stage-by-stage control over the implementation of ideas through a system of decision-making "gates", where each step is assessed in terms of commercial feasibility and technical implementability, thereby minimising financial losses from potentially unsuccessful innovation initiatives.

The effective application of the strategic analysis tools considered above, from SWOT matrices to technological foresight, allows companies to reduce uncertainty. However, their effectiveness in the real sector of the economy critically depends on the specific features of the national business environment. For domestic business entities, theoretical models of strategy selection inevitably encounter a unique complex of exogenous factors. This makes the transition from general global methodologies to the analysis of the specific features of innovative development in Ukrainian enterprises a logical and necessary step for understanding the real state of affairs. It is therefore appropriate to consider in more detail how global innovation tools are adapted to contemporary Ukrainian realities, where traditional approaches to development management are being tested by unprecedented challenges and, at the same time, open windows of new strategic opportunities.

When analysing the specific features of innovative development in Ukrainian enterprises, it is necessary first of all to emphasise unprecedented wartime risks. These include direct physical threats to production facilities, critical logistical complications and the need for forced business relocation. These challenges are accompanied by acute financial constraints, including a shortage of working capital, high interest rates and extremely limited access to venture capital. The situation is further complicated by a large-scale brain drain caused by the emigration of leading scientists,

engineers and IT specialists. In combination with the critical depreciation of fixed assets and the moral obsolescence of equipment, this significantly narrows the technological room for manoeuvre. At the same time, the imperfection of innovation infrastructure, weak links between science and business, systemic regulatory barriers and difficulties in protecting intellectual property create additional obstacles to strategic renewal (*On Innovation Activity, 2002*).

At the same time, despite these complex challenges, Ukrainian business demonstrates considerable innovation potential. A powerful driver is digital transformation and the success of global IT leaders, which creates a basis for integrating domestic companies into international technological ecosystems and value chains. The sphere of defence technologies, or DefenseTech, is gaining particular momentum, including the development of drones and cybersecurity systems. This trend is closely connected with the active implementation of agricultural innovations in the form of precision farming. In addition, expanded access to international grant financing, such as Horizon Europe, in synergy with state initiatives such as Diia.City and the Innovation Development Fund, opens new prospects for scaling Ukrainian start-ups at the global level (*State Statistics Service of Ukraine, 2023–2025*).

The formation of an effective innovation strategy requires a differentiated approach. For small and medium-sized enterprises, the open innovation model becomes a priority, as it involves active collaboration with universities and start-ups instead of maintaining expensive internal R&D departments. In this segment, the application of Lean methodologies for rapid hypothesis testing through MVPs is critically important, since it allows risks to be minimised at early stages. Equally important are niche specialisation and the active implementation of accessible digital tools and cloud services. Together with the attraction of non-traditional financing through crowdfunding and grant programmes, these factors create conditions for technological growth even under resource constraints.

For large enterprises, the strategic emphasis shifts towards the development of complex internal infrastructure, in particular through the creation of CVC funds and innovation laboratories operating in the format of "internal start-ups" for the search for breakthrough technologies. Large-scale businesses should focus on deep integration with the academic environment, the implementation of ESG principles to increase investment attractiveness and the development of a systematic intellectual property management policy. Such a policy includes the formation of strong patent portfolios and the licensing of proprietary developments in external markets.

The effectiveness of the selected strategic course is assessed through a system of KPIs, among which the share of innovative products in total sales, with a target benchmark of more than 20%, and the ROI in innovation are of particular importance. Alongside quantitative parameters, such as the number of products introduced or patent applications submitted, special attention is paid to dynamic characteristics, including time-to-market, the assortment renewal rate and the customer satisfaction index. Taken together, these indicators make it possible to objectively measure the impact of innovation on the market position and strategic resilience of the enterprise.

The analysis of international experience confirms that the success of an innovation strategy depends on a company's ability to adapt its business model to global trends. This is demonstrated by Procter & Gamble through its "Connect + Develop" programme. By transforming a closed R&D system into an open innovation model, the company ensured that more than 50% of new ideas came from external sources, which made it possible to increase development productivity by

60% while simultaneously reducing costs through the active use of online platforms for partner search and technology licensing. Similarly, the case of Siemens illustrates a deep digital transformation in which a traditional industrial giant became a leader in industrial software by creating the cloud-based IoT platform MindSphere and the Digital Industries division, enabling the share of digital services in revenue to exceed 30%.

Another vector of success is demonstrated by the Patagonia brand, which integrated sustainability principles directly into its innovation strategy by using recycled materials and implementing circular economy practices through repair services. This environmentally conscious position, reinforced by allocating 1% of revenue to environmental projects, paradoxically became a major driver of customer loyalty and financial growth (*OECD & Eurostat, 2018*; *Christensen, 1997*).

At the same time, Tesla represents a benchmark example of a radical innovation strategy. The company did not merely create an electric vehicle; it formed a new mobility ecosystem by combining vertical integration in battery production, the development of its own Supercharger charging network and regular functional updates of vehicles through software, including over-the-air updates. This enabled Tesla to transform the automobile into a "smartphone on wheels", secure the status of the world's most valuable car manufacturer and force the entire industry to accelerate the transition towards renewable energy sources.

Tesla implemented a disruptive innovation strategy aimed at the complete transformation of the energy and transport industries. Its key elements include vertical integration, particularly in-house battery production through Gigafactory facilities; the creation of a closed infrastructure of Supercharger charging stations; and the transition to the "car-as-a-service" model through continuous software updates. As a result, Tesla became a leader in the electric vehicle market with the highest market capitalisation in the industry, demonstrating the viability of a business model based on the combination of high technologies, energy efficiency and direct sales to consumers.

Discussion

The results of the study confirm that innovation strategy should be considered not as a narrow functional instrument of research and development management, but as a multidimensional component of strategic enterprise governance. The evolution of this concept from R&D planning to a complex system of technological, organisational, marketing, social and business model innovations reflects the broader transformation of the modern economy. In conditions of digital disruption, geopolitical instability, sustainability requirements and intensified global competition, innovation strategy becomes a critical mechanism through which enterprises ensure adaptability, competitiveness and long-term resilience.

The theoretical analysis demonstrates that the interpretation of innovation strategy must be grounded in both classical and contemporary approaches. Schumpeter's concept of innovation as a "new combination" of production factors remains relevant because it explains innovation as a source of structural transformation and entrepreneurial renewal (*Schumpeter, 2011*). However, the contemporary enterprise environment requires a broader understanding of innovation. Innovation is no longer limited to the creation of new products or production methods; it also includes the redesign of business models, the restructuring of value chains, the digitalisation of operations, the formation of innovation ecosystems and the integration of sustainability principles. Therefore, the study supports the position that innovation strategy should be understood as a long-term system

of decisions aimed at aligning technological opportunities, market needs, internal capabilities and strategic development priorities.

The classification of innovation strategies analysed in the study shows that enterprises have no universal model of innovative development. Offensive, defensive, imitative and niche strategies differ significantly in terms of risk level, resource requirements, expected returns and market behaviour. Offensive strategies are appropriate for enterprises with strong R&D capabilities, sufficient investment resources and high tolerance for uncertainty. Defensive and follower strategies may be more suitable for firms that seek to reduce risk by adopting and improving already tested solutions. Imitative strategies can provide short-term competitive advantages in cost-sensitive markets, whereas niche strategies are especially relevant for enterprises serving specialised customer segments. This confirms that the choice of innovation strategy should be contingent upon the enterprise's competitive position, resource potential, industry dynamics and strategic ambitions.

The distinction between radical, strategic and incremental innovation is also important for understanding the logic of enterprise development. Radical innovations may transform markets and create new competitive spaces, but they require substantial investment and involve high uncertainty. Incremental innovations, by contrast, are more predictable and less risky, but their effect on long-term competitiveness may be limited. Strategic innovations occupy an intermediate position because they may not necessarily change the product itself, but they can transform the way value is created, delivered and monetised. This is particularly important in the contemporary economy, where business model innovation may generate competitive advantage even without a radical technological breakthrough.

The findings also confirm the growing role of open and network-based innovation strategies. Closed vertically integrated innovation models provide control over intellectual property and internal technological development, but they are increasingly difficult to sustain under conditions of technological complexity and shortened innovation cycles. The open innovation paradigm introduced by Chesbrough emphasises the strategic value of external knowledge sources, including universities, start-ups, research centres, crowdsourcing platforms and industrial partners (*Chesbrough, 2003*). For many enterprises, especially small and medium-sized firms, cooperation within innovation ecosystems becomes a more realistic and efficient path than maintaining expensive internal R&D departments. This is particularly relevant in economies with limited investment resources and fragmented innovation infrastructure.

The analysis of Industry 4.0 technologies demonstrates that digital transformation is not merely one of the directions of innovation activity, but a fundamental factor reshaping the entire system of enterprise strategy. Artificial intelligence, big data, cloud technologies, the Internet of Things, blockchain and cyber-physical systems alter the logic of production, logistics, customer interaction and decision-making. In this context, innovation strategy must integrate digital technologies not as isolated tools, but as elements of a new architecture of enterprise competitiveness. Schwab's interpretation of the Fourth Industrial Revolution is relevant here because it emphasises the convergence of physical, digital and organisational systems (*Schwab, 2019*). For enterprises, this convergence means that innovation strategy must simultaneously address technology adoption, organisational readiness, data governance, cybersecurity, human capital development and changes in business models.

The discussion of ESG principles and the circular economy shows that sustainability has become an integral part of innovation strategy. Previously, environmental and social considerations were often perceived as external constraints or reputational obligations. In contemporary business practice, however, sustainability-oriented innovation may become a direct source of competitive advantage. Green technologies, recycling systems, circular production models, responsible governance and social innovation can increase investment attractiveness, strengthen customer loyalty and open access to new markets. Therefore, the integration of ESG principles into innovation strategy should not be considered supplementary; it is becoming one of the conditions for long-term strategic legitimacy and competitiveness.

The study also highlights the methodological importance of flexible innovation management approaches. Agile, Scrum, Lean Startup, Design Thinking and Jobs-to-be-Done reflect the transition from rigid long-term planning to iterative, customer-oriented and hypothesis-driven innovation processes. This transformation is especially important under uncertainty, where enterprises cannot rely only on linear planning and complete information. The Lean Startup logic of rapid hypothesis testing through minimum viable products reduces the cost of failure and accelerates learning (*Ries, 2025*). Design Thinking enhances the human-centred dimension of innovation, while Agile and Scrum support continuous adaptation. Together, these approaches make innovation strategy more dynamic and better suited to unstable market conditions.

The strategic tools considered in the study—SWOT analysis, technological foresight, S-curve analysis, innovation portfolio management, the adapted BCG matrix and the Stage-Gate process—are important for transforming innovation strategy from a declarative intention into a manageable process. SWOT analysis helps identify technological strengths and vulnerabilities; technological foresight supports anticipation of future technological trajectories; S-curve analysis enables management to identify the maturity and limits of existing technologies; portfolio tools help balance risk and return; and Stage-Gate procedures create structured control over the movement of ideas from concept to commercialisation. The combined use of these tools increases the rationality of innovation decision-making and reduces the probability of resource dispersion across weak or strategically irrelevant projects.

The Ukrainian context gives the problem of innovation strategy particular practical significance. For Ukrainian enterprises, innovation is not only a means of growth, but also a mechanism of survival and recovery. Wartime risks, destruction of production facilities, disruption of logistics, forced relocation, shortage of working capital, high credit costs, labour migration and weakened investment capacity create a specific environment in which standard strategic models require adaptation. The Law of Ukraine "On Innovation Activity" provides a formal institutional framework, but the effectiveness of innovation development depends on the ability to overcome gaps between science and business, regulatory barriers, insufficient protection of intellectual property and limited access to long-term financing (*On Innovation Activity, 2002*).

At the same time, the analysis shows that Ukrainian enterprises possess significant innovation potential. The development of the IT sector, DefenseTech, AgTech, digital public infrastructure and access to international grant programmes creates opportunities for integration into global innovation ecosystems. In this sense, the wartime economy generates not only constraints, but also new innovation impulses. Defence technologies, cybersecurity, drone systems, precision agriculture, cloud services and digital platforms may become areas in which Ukrainian enterprises

can build specialised competitive advantages. Therefore, innovation strategy in the Ukrainian context should combine resilience-oriented measures with long-term technological positioning.

A differentiated approach to innovation strategy is particularly important for enterprises of different sizes. Small and medium-sized enterprises should focus on open innovation, cooperation with universities and start-ups, rapid market testing, digital tools, cloud services, niche specialisation and grant or crowdfunding mechanisms. Such enterprises usually lack the resources to maintain full-scale R&D structures, but they can achieve flexibility and speed through external collaboration and lean innovation methods. Large enterprises, by contrast, should develop corporate venture capital mechanisms, internal innovation laboratories, systematic intellectual property management, ESG integration and partnerships with academic institutions. This distinction is important because applying the same innovation management model to enterprises of different scale may lead to inefficient resource allocation.

The cases discussed in the study illustrate different models of successful innovation strategy. Procter & Gamble demonstrates the potential of open innovation through the transformation of a closed R&D model into a network-based system of external knowledge acquisition. Siemens illustrates how digital transformation can allow a traditional industrial corporation to become a leader in industrial software and IoT platforms. Patagonia shows that sustainability-oriented innovation can strengthen brand loyalty and financial performance. Tesla represents a radical and disruptive innovation model in which product innovation is combined with vertical integration, infrastructure creation, software-based updates and direct customer interaction. These cases demonstrate that successful innovation strategies rarely rely on a single factor; they combine technology, business model redesign, ecosystem logic, customer value and strategic consistency.

An important conclusion arising from the study is that innovation performance must be evaluated through a multidimensional system of indicators. Traditional quantitative indicators, such as the number of new products, patent applications or R&D expenditures, are insufficient for assessing the strategic effect of innovation. More comprehensive assessment should include the share of innovative products in sales, return on innovation investment, time-to-market, assortment renewal rate, customer satisfaction and the contribution of innovation to market position and resilience. Such an approach corresponds to the modern understanding of innovation as a process that affects not only technological output, but also business sustainability, adaptability and competitive advantage.

The theoretical contribution of the study lies in the systematisation of innovation strategy as a complex strategic management category. The research integrates classical innovation theory, strategic management, open innovation, digital transformation, sustainability and crisis adaptation into a single conceptual framework. This makes it possible to move beyond fragmented interpretations of innovation strategy and to view it as a coordinated system of goals, tools, resources, partnerships and performance indicators. The study also contributes to the adaptation of global innovation management approaches to the specific conditions of Ukrainian enterprises operating under extreme uncertainty.

The practical contribution lies in the possibility of using the proposed classifications, strategic tools and recommendations for enterprise-level decision-making. Managers can apply the results to select an innovation strategy consistent with their company's resources, market position and risk tolerance. Policymakers can use the findings to improve innovation support mechanisms,

strengthen science-business cooperation and facilitate access to financing. For Ukrainian enterprises, the proposed approach may help identify realistic innovation priorities during wartime and post-war recovery, including digital transformation, open innovation, ESG integration, DefenseTech, AgTech and participation in international innovation programmes.

However, several limitations of the study should be acknowledged. The research is primarily theoretical and analytical, and therefore its conclusions require further empirical verification. The study does not include quantitative modelling of the relationship between innovation strategy and enterprise performance, nor does it provide survey-based evidence from Ukrainian companies. In addition, the international business cases considered in the article are illustrative rather than statistically representative. They demonstrate strategic patterns, but they cannot be directly generalised to all enterprises or sectors without taking into account differences in institutional environment, financial capacity, technological maturity and market structure.

Future research should therefore focus on empirical testing of the proposed conceptual framework. It would be useful to conduct surveys or interviews with Ukrainian enterprises in order to identify which innovation strategies are actually used under wartime and post-war recovery conditions. Quantitative studies could examine the relationship between innovation strategy type and indicators such as productivity, export performance, profitability, resilience, digital maturity and market share. Sector-specific research is also needed, particularly for IT, manufacturing, agriculture, logistics, energy and defence-related industries. Another promising direction is the development of models for assessing the effectiveness of open innovation ecosystems and public-private partnerships in supporting enterprise recovery and technological modernisation.

Overall, the discussion confirms that innovation strategy is one of the central instruments of enterprise competitiveness in the contemporary economy. Its effectiveness depends on the ability to combine strategic vision, technological capabilities, market orientation, organisational flexibility, external cooperation and sustainability principles. Under conditions of economic turbulence and wartime uncertainty, this role becomes even more significant. For Ukrainian enterprises, innovation strategy should be viewed not only as a mechanism for growth, but also as a foundation for resilience, reconstruction and integration into global technological value chains.

Conclusion

Thus, innovation strategy is a critical element of strategic management in a modern enterprise. In a dynamic competitive environment, it is impossible to ensure long-term business competitiveness without a systematic approach to innovation. At the same time, there is no single universally correct innovation strategy. Instead, there is a variety of strategic choices, and the selection of a particular strategy depends on numerous factors, including industry characteristics, enterprise size, resource potential, competitive position and the level of risk tolerance.

Based on the results of this study, it can be argued that open innovation is becoming the dominant paradigm of innovative development. Under conditions of increasing technological complexity, the effectiveness of closed R&D models is declining. Cooperation with external partners, including universities, start-ups and research centres, provides enterprises with access to advanced global knowledge, technologies and competencies.

Digital transformation has become a key driver of innovation. Industry 4.0, artificial intelligence, the Internet of Things and cloud technologies create fundamentally new opportunities

for business by transforming not only products, but also business models, processes and methods of interaction with customers. With regard to sustainable development, it is increasingly becoming a source of competitive advantage. The integration of ESG principles into innovation strategy not only corresponds to global trends and regulatory requirements, but also opens up new market opportunities, increases investment attractiveness and strengthens consumer loyalty.

For Ukrainian enterprises, innovation strategy must take into account specific wartime risks and constraints while simultaneously using unique opportunities, including a strong IT sector, access to grant financing, the development of DefenseTech and AgTech, and state innovation support programmes such as Diia.City.

Therefore, the successful implementation of an innovation strategy requires a systematic management approach. This includes the presence of clear KPIs, a balanced innovation portfolio, a developed innovation culture, adequate resource provision and sufficient flexibility to adapt to change.

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Conflict of Interest

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