



UDC 005.591.4:004]:[664:334.012.61-022.51]:351.824.1(477)

DOI <https://doi.org/10.32782/2305-9389/2025.32.40>

PROSPECTIVE DIRECTIONS OF IMPLEMENTATION OF THE PHILOSOPHY OF BUSINESS PROCESS INNOVATION BY FOOD INDUSTRY ENTERPRISES IN THE CONTEXT OF DIGITALIZATION

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The article provides a detailed examination of the features and opportunities for implementing an innovative management approach in the context of the digital transformation of the food industry. It analyzes key aspects, models, and mechanisms that can ensure the effective integration of digital technologies into industry processes. Significant attention is paid to promising directions for developing the philosophy of business process innovation, particularly the application of sustainable development concepts and digital platforms for coordinating industry innovations. The article highlights several challenges faced by food industry enterprises during digital transformation. Special focus is given to two main management models: "Innovative Ecosystems" and "Agile Management Models". The first model involves creating an environment for interaction between enterprises, research institutions, and startups, enabling the exchange of knowledge and intellectual resources. The second model, Agile Management, emphasizes adaptation to rapidly changing environments through iterative testing and risk minimization. Based on the analysis, the article concludes that comprehensive state support is necessary to create favorable conditions for the digitalization of the food industry. It is recommended that government policy include funding for innovative projects and startups, as well as the development of regulatory frameworks to ensure the standardization of technologies and facilitate the integration of digital solutions at all industry levels. State support is particularly crucial for developing innovation infrastructure, such as incubators, technology support centers, and research laboratories, which will provide access to advanced resources, expert assistance, and financing for enterprises of various scales. The article also proposes recommendations for fostering active collaboration between businesses, research institutions, and educational organizations to create innovative ecosystems that will drive the development of new technologies and products while supplying the industry with qualified professionals. Cooperation with educational institutions will ensure workforce training in skills related to big data analytics, artificial intelligence, IoT, and other key digital technologies. Such training will help the food industry not only improve management efficiency but also ensure sustainable development in the digital economy. In conclusion, the article emphasizes that overcoming barriers to implementing digital technologies will promote the creation of innovation infrastructure and ecosystems where enterprises of all sizes will have equal opportunities for development.

Key words: *innovative management approach, state regulation, food industry, practical aspects, methodological aspects, digitalization, prospects, business processes, management of innovations.*

Олійник Олександр. Перспективні напрями впровадження філософії інноватики бізнес-процесів підприємствами харчової промисловості в контексті цифровізації

У статті детально розглянуто особливості й можливості впровадження інноваційно-управлінського підходу в умовах цифрової трансформації харчової галузі, зокрема проаналізовано ключові аспекти, моделі та механізми, які можуть забезпечити ефективну інтеграцію цифрових технологій у галузеві процеси. Значну увагу приділено перспективним напрямам розвитку філософії інноватики бізнес-процесів, зокрема застосуванню концепцій сталого розвитку й цифрових платформ для координації галузевих інновацій. Виділено низку викликів, із якими стикаються підприємства харчової галузі під час цифрової трансформації. Особливу увагу приділено двом основним моделям управління: «Інноваційні екосистеми» та «Гнучкі моделі управління». Перша модель передбачає створення середовища для взаємодії між підприємствами, науковими установами й стартапами, що дає змогу активізувати обмін знаннями й інтелектуальними ресурсами, тоді як друга – акцентує увагу на адаптації до швидко змінного середовища шляхом ітеративного тестування та мінімізації ризиків. На основі проведеного аналізу зроблено висновок про необхідність комплексної державної підтримки для створення сприятливих умов цифровізації харчової галузі. Рекомендовано, щоб державна політика включала як фінансування інноваційних проєктів і стартапів, так і розроблення нормативної бази, яка б забезпечила стандартизацію технологій і спростила інтеграцію цифрових рішень на всіх рівнях галузі. Особливо важливою є державна підтримка в розвитку інноваційної інфраструктури, зокрема створення інкубаторів, центрів технологічної підтримки й дослідницьких лабораторій, що дасть змогу забезпечити доступ до передових ресурсів, експертної допомоги та фінансування для підприємств різного масштабу. Запропоновано рекомендації для активної співпраці між бізнесом, науковими установами й освітніми закладами для створення інноваційних екосистем, які сприятимуть розробленню нових технологій і продуктів.



а також забезпечать галузь кваліфікованими фахівцями. Співпраця з освітніми інституціями дасть змогу забезпечити підготовку кадрів із навичками роботи з аналітикою великих даних, штучним інтелектом, IoT та іншими ключовими цифровими технологіями. Така підготовка допоможе харчовій галузі не лише підвищити ефективність управління, а й забезпечити сталість свого розвитку в умовах цифрової економіки. У результаті підкреслено, що подолання бар'єрів, пов'язаних з упровадженням цифрових технологій, сприятиме створенню інноваційної інфраструктури й екосистеми, у якій підприємства різного масштабу матимуть рівні можливості для розвитку.

Ключові слова: інноваційно-управлінський підхід, державне регулювання, харчова галузь, практичні аспекти, методологічні аспекти, цифровізація, перспективи, бізнес-процеси, менеджмент інновацій.

Formulation of the problem. In today's world, the food industry is undergoing fundamental changes driven by the rapid development of digital technologies and increasing global competition. An innovation management approach in the digital age is no longer just a trend but a strategic necessity, as market survival becomes increasingly challenging. In this context, digital transformation creates a dynamic landscape in which food industry enterprises must adapt to complex conditions where technologies play a key role in reshaping management, quality control, and supply chain collaboration. The focus shifts to implementing digital solutions that require significant investment and present new challenges: the need to restructure traditional business processes, raise employee skill levels, and find optimal models for integrating innovations.

Analysis of recent research and publications. The essence, characteristics, advantages, and disadvantages of the innovation-management approach have been studied by the following national and foreign experts: J. Schumpeter [1], E. Ries [2], J. Sutherland [3], O. Kudrina, M. Masliak [4], V. Sychenko, O. Martynenko and S. Yakimenko [5], I. Lutsyiv, O. Sorokivska, I. Kotovska [6], V. Sviatohor [7], D. Krylov [8], I. Yakushko [9], Zh. Semchuk [10], J. Bruneel, T. Ratinho, B. Clarysse, A. Groen [11]. However, the issue of defining the key aspects of the innovation-management approach, mechanisms, tools, and international experience in the context of state regulation of food industry enterprises has not been previously addressed.

The purpose of the article is to explore the specifics of implementing an innovation management approach in the context of digital transformation in the food industry, and to identify key aspects, models, and mechanisms that help enterprises adapt to the challenges of the digital economy. Examine the potential benefits and strategic implications of adopting the philosophy of business process innovation as a tool for sustainable development in the food industry. To achieve this aim, the article sets out the following objectives: to analyze the innovation management approach and its role in the development of the food industry amid digital changes; to identify key aspects of digitalizing management processes that enhance the efficiency and competitiveness of enterprises; to describe innovative management models that can be integrated into a digital environment, providing flexibility and adaptability; and to propose recommendations for applying an innovation management approach for an effective transition to a digital management model in the food industry.

Results of the research. Digital transformation in the food industry today is not merely a trend but a strategic necessity for ensuring its sustainable development and adaptation to a changing economic environment. Amid increasing demands for quality, safety, and transparency in production processes, food enterprises face the challenge of implementing an innovation management approach that enables the integration of digital solutions into their management practices. This approach involves not only modernizing technological processes but also shifting the management paradigm to focus on adaptability, organizational flexibility, and in-depth data analysis for strategic decision-making.

Therefore, consider the essence, features, advantages and disadvantages of the innovative management approach in Fig. 1.

According to the data in Fig. 1, the definition of an "innovation management approach" in the works of Joseph Schumpeter, Eric Ries, and Jeff Sutherland represents three different perspectives on the role of innovation and methods of its implementation. Schumpeter, in his work "The Theory of Economic Development", views innovation as the primary driver of economic growth and market transformation. He emphasizes that entrepreneurs implementing innovations do not merely improve existing models but create new markets and reshape economic structures. For Schumpeter, the innovation management approach focuses on strategic, often radical changes that push the economy toward dynamic development by disrupting traditional models. Eric Ries, in his book "The Lean Startup", presents a different concept, focusing on flexibility and the rapid execution of innovative ideas, viewing the innovation management approach through the Lean Startup methodology. Unlike Joseph Schumpeter, who focuses on systemic change, Eric Ries emphasizes iterative testing, rapid implementation, and risk minimization. For him, the priority is to adapt quickly to change and continually validate the viability of new products and business models, thus avoiding extensive resource expenditure.

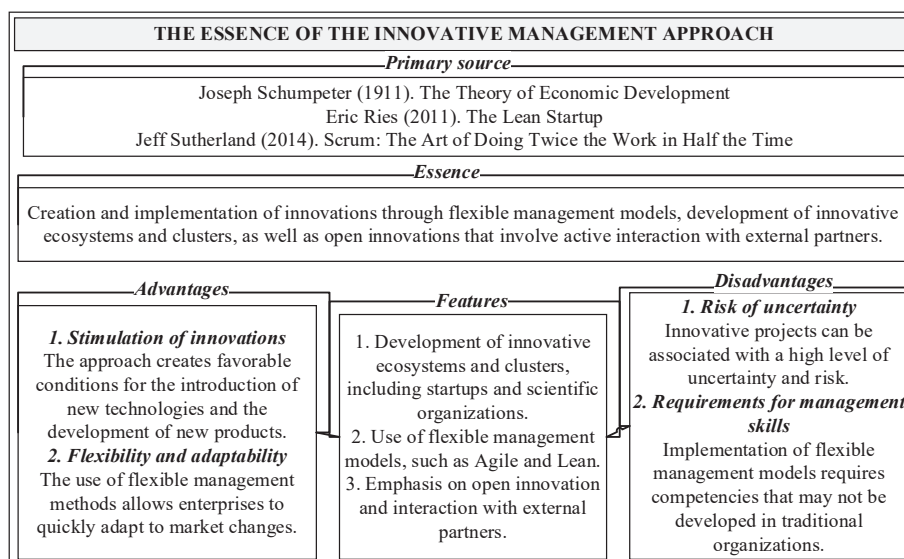


Fig. 1. The essence of the innovative management approach

Source: compiled by the author based on [1–3].

This approach seeks gradual improvement by researching real consumer needs and optimizing costs at the experimental stage. Jeff Sutherland, in *Scrum: The Art of Doing Twice the Work in Half the Time*, complements this concept with his Scrum methodology. Sutherland's innovation management approach is realized through Agile principles, which emphasize teamwork, constant communication, and quick results. In contrast to Schumpeter's strategic innovation and Ries's flexible startup, Sutherland focuses on structuring and discipline in implementing innovative solutions, highlighting efficiency, streamlined processes, and achieving concrete results in short timeframes.

Thus, the interpretation of the "innovation management approach" across these three perspectives reveals its multifaceted nature: Joseph Schumpeter sees it as a strategic tool capable of transforming markets; Eric Ries views it as a flexible adaptation process with minimized risks; and Jeff Sutherland emphasizes methods ensuring speed and structure in innovation implementation.

The innovation management approach is essential in modern enterprise management, fostering an environment that supports continuous development of new technologies, products, and enhanced market competitiveness. The core of this approach is not only internal innovation but also the active involvement of external partners through open innovation, creating synergy among diverse actors in the innovation ecosystem. The growth of innovation ecosystems and clusters, fueled by startups, research organizations, and external partners, enables companies to leverage diverse resources and knowledge, accelerating the implementation of new solutions and improving product and service quality.

Defined flexible management models, such as Agile and Lean, help companies quickly respond to market changes, manage product development more effectively, reduce costs, and minimize risks through continuous process optimization. However, the innovation management approach is not without drawbacks and carries a high level of uncertainty during the execution of innovation projects, which can lead to unpredictable outcomes and challenges in implementing new solutions, often requiring substantial resources and time to adjust strategies.

Let's consider the key elements of the innovation management approach and their interaction in Fig. 2.

As shown in Figure 2, the innovation management approach is a crucial tool for modernizing enterprises amid digital transformation and rapid shifts in the goods and services market. Key elements of this approach include innovation ecosystems, flexible management models, and open innovation, which together create a strong foundation for accelerating the adoption of new technologies and developing new market opportunities. Innovation ecosystems provide an environment for knowledge exchange and collaboration among startups, research organizations, and businesses, fostering the generation of new ideas and technological solutions. A critical component of this process is the use of flexible management models, such as Agile and Lean, which allow enterprises to quickly adapt to market changes and minimize risks across all stages of innovation development. Open innovation, based on collaboration with external partners, research institutions, and startups, also plays a vital role by ensuring a continuous influx of new ideas



and facilitating the development of new products and technologies. At the micro level, the implementation of an innovation management approach significantly accelerates innovation processes, positively impacting the adaptability and competitiveness of companies. These changes enable businesses to respond better to challenges while maintaining a high level of flexibility and adaptability. At the macro level, this approach leads to increased innovation activity both nationally and internationally, driving the creation of new markets and the development of technological infrastructure, thus allowing companies and countries to attain leadership positions in technological advancement. Additionally, effective government policy plays an essential role, focusing on creating favorable conditions for the growth of innovation ecosystems and clusters by supporting startups and scientific research.

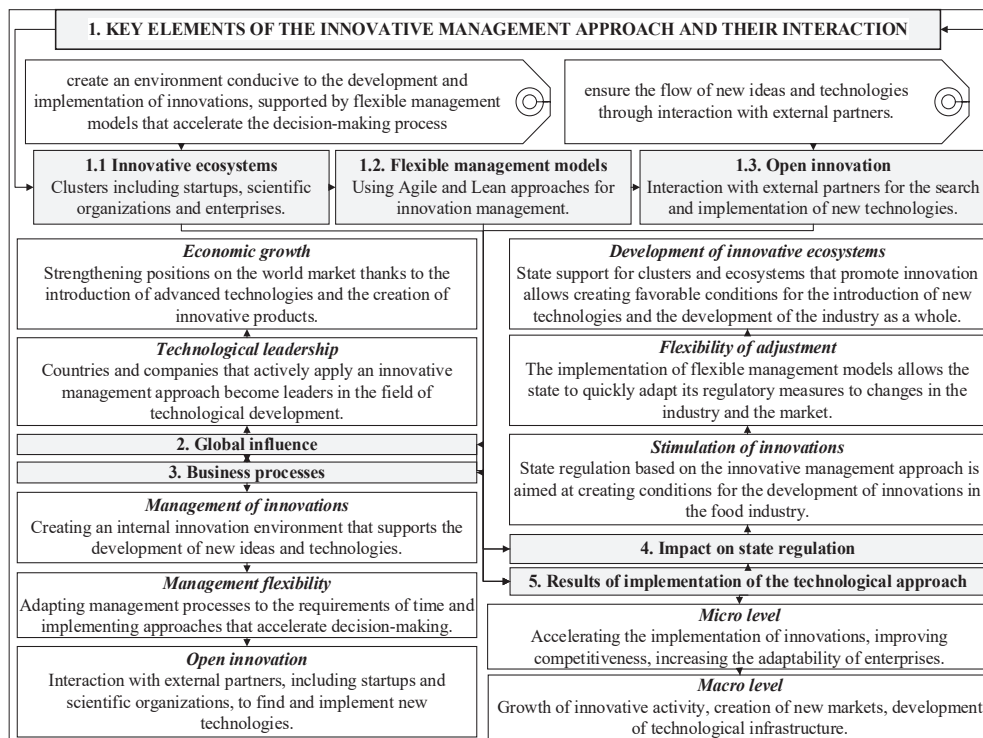


Fig. 2. Key elements of the innovation management approach and their interaction

Source: compiled by the author based on [1–7].

Let's consider the features of the implementation of the «Innovative management approach» models in Fig. 3.

As shown in Figure 3, the implementation of an innovation management approach is achieved through two key models: “Innovation Ecosystems” and “Flexible Management Models”. The “Innovation Ecosystems” model aims to create synergistic interactions among key players in the innovation space, including enterprises, startups, research institutions, and universities. This collaboration encourages the exchange of knowledge and intellectual resources, which in turn drives the adoption of technological innovations. Such interactions produce a scaling effect for innovative solutions, accelerating their entry into the goods and services market.

Supporting startups within an established ecosystem will enhance the competitiveness of specific regions in Ukraine, creating new markets and opportunities for investors. The role of infrastructure in the “Innovation Ecosystems” model is essential, particularly in establishing modern innovation centers and research laboratories that provide their own resources and the necessary conditions for developing advanced technologies.

A key aspect of the “Innovation Ecosystems” model is building a network of interaction among cluster participants, enabling quick access to needed partners and thus opening up funding opportunities and safeguarding developed intellectual resources. This model thus serves as an important tool for fostering innovation at both regional and global levels, creating a favorable environment for long-term innovation changes. The “Flexible Management Models” approach focuses on fast decision-making and quick adaptation



to internal and external changes, using Agile and Lean methodologies that are well-suited to dynamic environments. The Agile methodology family primarily targets the development and refinement of products and services in demand, implementing an ongoing iterative process. Applying the Lean Startup methodology helps minimize risks during project development, simplifying the process of testing new ideas, encouraging innovation, and allowing future products and services to adapt to unpredictable internal and external market changes. Comparing the “Innovation Ecosystems” and “Flexible Management Models” approaches reveals that they serve different but complementary aspects of innovation development. “Innovation Ecosystems” focus on creating a favorable macro-environment for innovation, while “Flexible Management Models” concentrate on internal processes within companies, improving their speed and adaptability. Both approaches are effective when applied in the appropriate context: the former is suitable for strategic, long-term planning and the development of regional innovation clusters, whereas the latter is intended more for operational management and rapid adaptation in uncertain market conditions. Together, these models can achieve an effective balance between stability and flexibility, providing a solid foundation for sustainable innovation development for food enterprises and the industry as a whole.



Fig. 3. Features of model implementation “Innovative management approach”

Source: compiled by the author based on [1–3].

Let's consider the “Methodological aspect” of state regulation of food industry enterprises according to the structure of “Integrative approach” in Fig. 4.

As shown in the data in Fig. 4, the integration approach, considered from a methodological perspective, represents a comprehensive management strategy aimed at ensuring the harmonious functioning of different economic sectors and government levels. The “Coordination of Cross-Sectoral Policies” element involves close interaction between ministries, businesses, and research institutions to align policies across various economic sectors. This approach has great potential to improve the overall efficiency of public administration by preventing conflicts within the food industry and fostering more coordinated development of Ukraine’s potential. However, coordinating actions between different ministries poses a serious challenge due to the lack of effective interaction mechanisms and conflicts of interest, which negatively impact the implementation of aligned policies. The “Multilevel Governance” element focuses on interactions between national-level government bodies and regional administrations. Its primary goal is to ensure balanced regional development and increase the effectiveness of implementing national programs.

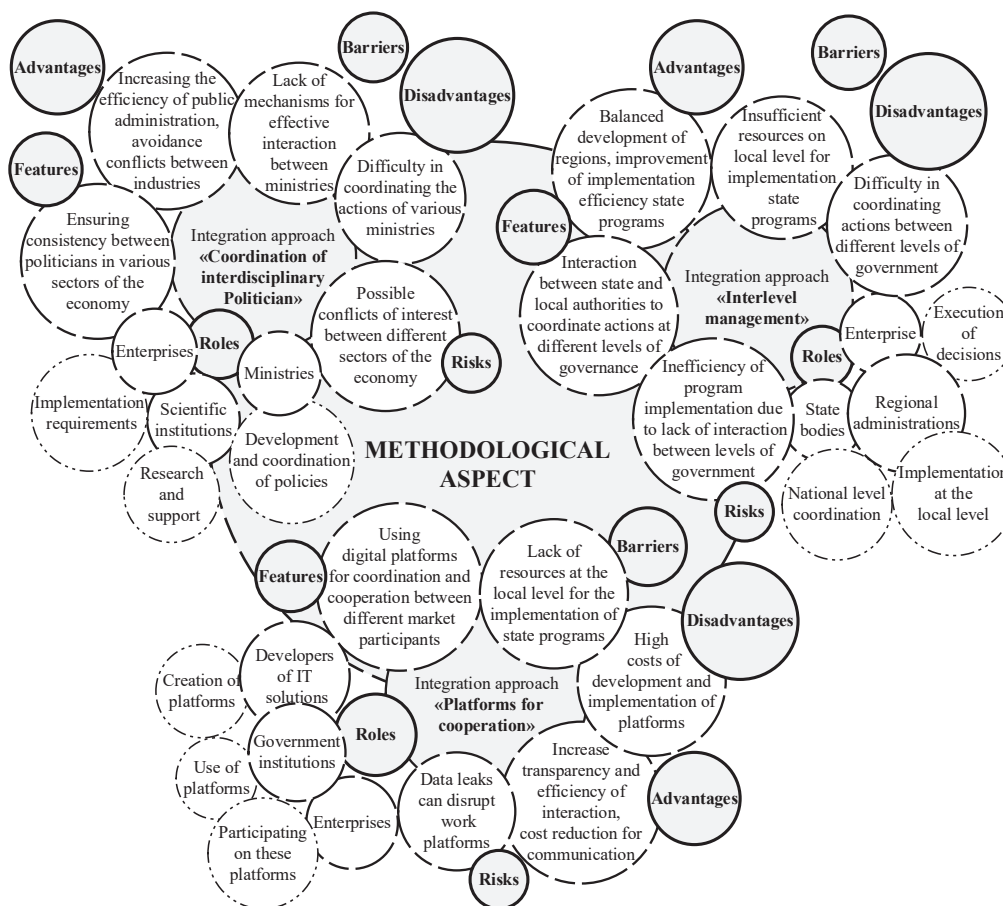


Fig. 4. “Methodological aspect” of state regulation of food industry enterprises according to the “Integration approach” structure

Source: compiled by the author based on [8].

Coordination between various levels of government is also crucial but challenging, given the differences in resources and capabilities between national and local levels. Insufficient resources could lead to ineffective implementation of state programs, ultimately lowering the overall effectiveness of governance.

The “Collaboration Platforms” element serves as an innovative tool implemented through digital technologies to facilitate coordination and interaction among market participants. These technologies enhance transparency and reduce communication costs, improving the overall efficiency of management processes. However, due to high development and integration costs for digital collaboration platforms, there are risks of persistent cyberattacks and data leaks. Additionally, low digital literacy levels among market participants directly hinder the approach’s implementation. Thus, to fully realize the integration approach, it is necessary to develop flexible mechanisms for interaction among food industry participants, ensure sufficient funding, and improve overall digital literacy.

Let's consider the “Practical aspects” of state regulation of food industry enterprises according to the structure of “Stimulation of innovations” in Fig. 5.

According to the data in Fig. 5, the element “Programs of Financial Support for Innovation” is implemented through grants, preferential loans, and other forms of assistance to promote innovation development. The aim of these support programs is to enhance the competitiveness of the food industry, ensure its stable growth, and help it adapt to modern market challenges. However, potential drawbacks, including unequal funding distribution and bureaucratic barriers that complicate access to innovation development resources for enterprises, should be considered. The element “Evaluation of the Effectiveness of State Support” is critically important for identifying the strengths and weaknesses of current programs. This analysis allows not only for adjustments to existing initiatives but also for the development of strategies for further growth. Engaging independent analysts in this process improves objectivity and accuracy in assessment and requires



significant resources, impacting data collection and processing. Insufficiently accurate data assessment will reduce the effectiveness of integrated programs. The element “Partnerships between the State and Private Sector” is a key component in fostering innovation and enables the pooling of resources and expertise to achieve common goals.

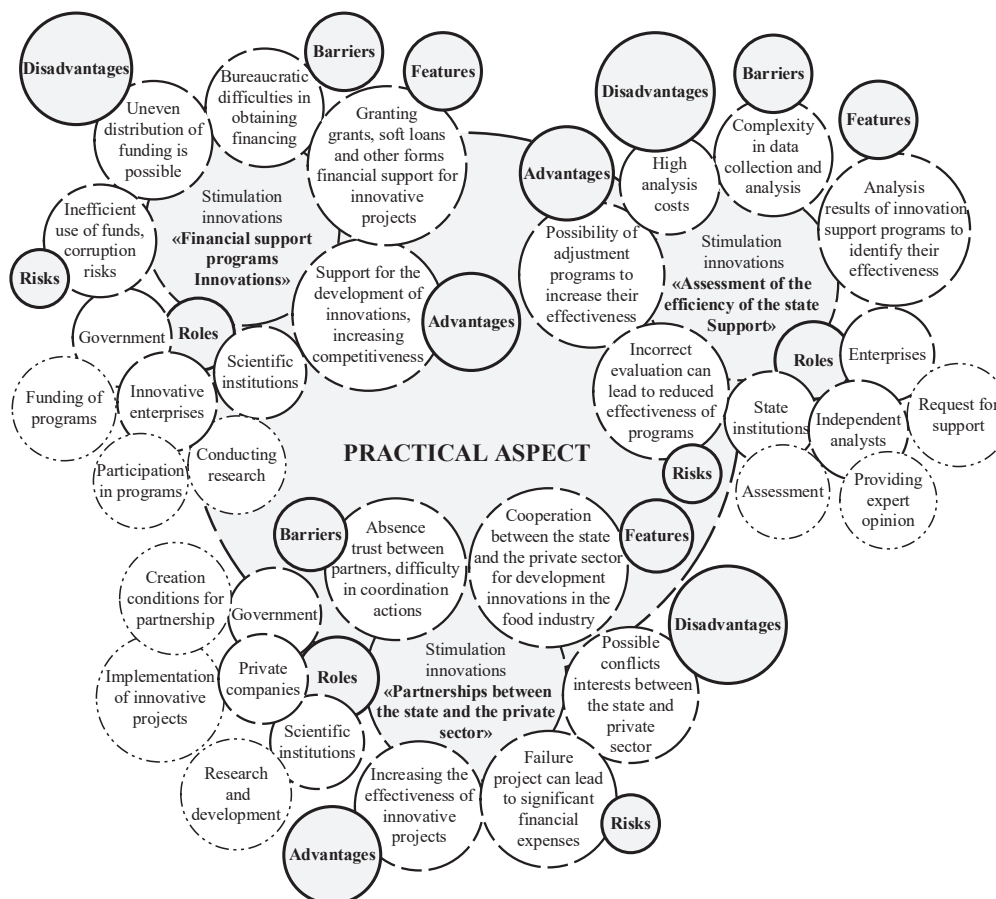


Fig. 5. “Practical aspects” of state regulation of food industry enterprises according to the structure of “Innovation Stimulation”

Source: compiled by the author based on [9].

Such collaboration increases the efficiency of innovative projects, reduces risks, and creates a favorable environment for the implementation of new technologies. However, these partnerships are not without challenges, including conflicts of interest, coordination difficulties, and a lack of trust among stakeholders. These challenges can lead to delays and project disruptions, posing additional risks for both parties.

Let's consider the “Aspect of the development of digital transformation” of state regulation of food industry enterprises according to the “Digital Economy” structure in Fig. 6.

As shown in Figure 6, the element “Creating Digital Ecosystems” is aimed at uniting government bodies, IT companies, and businesses on a single platform to optimize interactions, automate processes, and reduce costs associated with standardization. However, the high costs of implementing digital ecosystems, the ongoing need for process standardization, and the low readiness of some market participants for digitalization are significant barriers. The element “Digital Tools for Business” is implemented through CRM and ERP software solutions and is designed to automate operational business processes in food enterprises, improving the accuracy and flexibility of their management. Right training and support for the functioning of these systems are critically important, as without them, serious issues may arise in business process execution due to human error. The element “Training and Workforce Development” is also an essential aspect of digital transformation, where government agencies, food enterprises, and educational institutions should collaborate to prepare highly specialized



workers capable of functioning effectively in the future digital environment. This not only helps reduce the overall unemployment rate but also increases the competitiveness of these workers in the labor market.

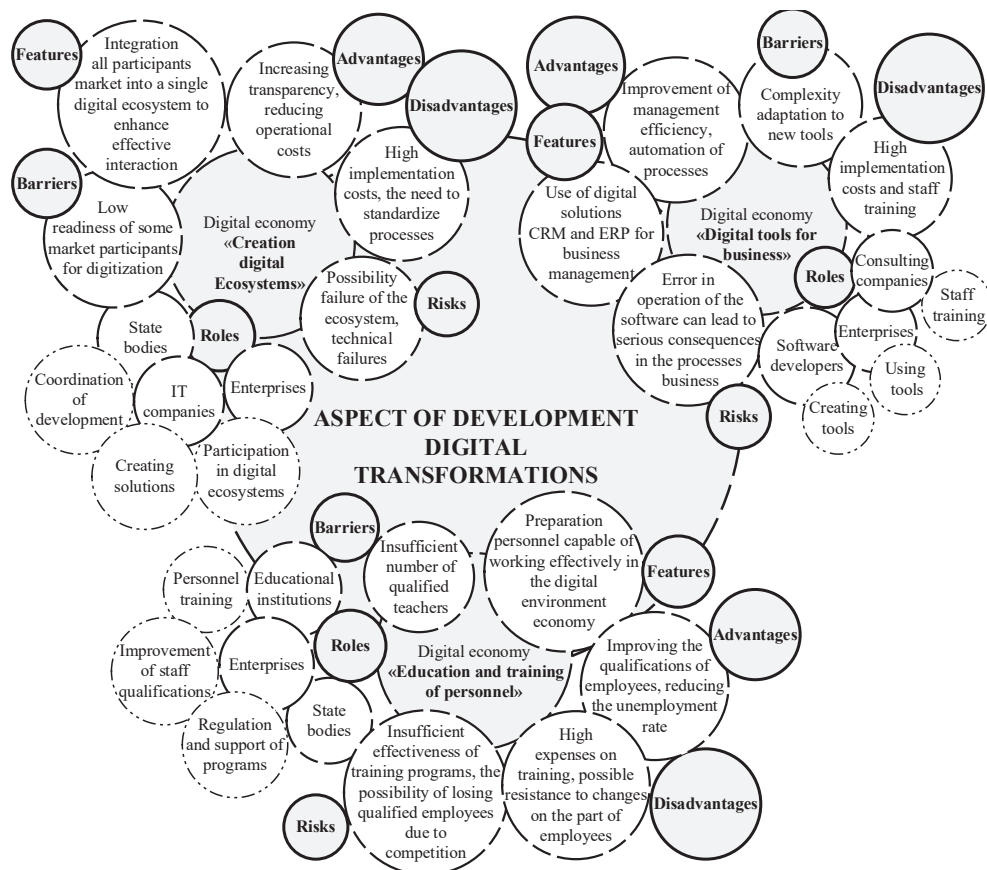


Fig. 6. “Aspect of the development of digital transformation” of state regulation of food industry enterprises according to the “Digital Economy” structure

**Source: compiled by the author based on [10].*

However, high training costs, a lack of qualified instructors, and potential resistance to change among personnel could significantly slow down this process.

Let's consider the mechanism of state regulation according to the structural element “Supporting innovations through accelerators and business incubators” in Fig. 7.

As shown by the data in Fig. 7, accelerators and incubators have become key mechanisms for fostering innovation, providing startups not only with financial support but also with access to strategic resources and expertise.

Through these platforms, small businesses gain the opportunity to accelerate the development of their products and scale them into market-ready solutions capable of thriving in highly competitive environments. The use of accelerator programs like Y Combinator and Techstars, as well as agri-tech incubator platforms like Plug and Play AgTech, aids in addressing regulatory requirements during the development of technologies and products for e-commerce. A major advantage of these platforms is their ability to support the rapid growth of startups, helping them adapt to market demands and regulatory standards.

However, participating in accelerators and incubators comes with its own barriers, including high competition, access to programs and substantial resources needed for launch, and challenges in meeting regulatory requirements, all of which create significant hurdles for startups. Regarding the integration of startups with corporate innovation platforms and research centers, this not only accelerates the development of new technologies but also makes the process more targeted and efficient. Through this type of partnership, startups gain access to expertise, resources, and infrastructure that enable them to bring new innovations to market quickly.

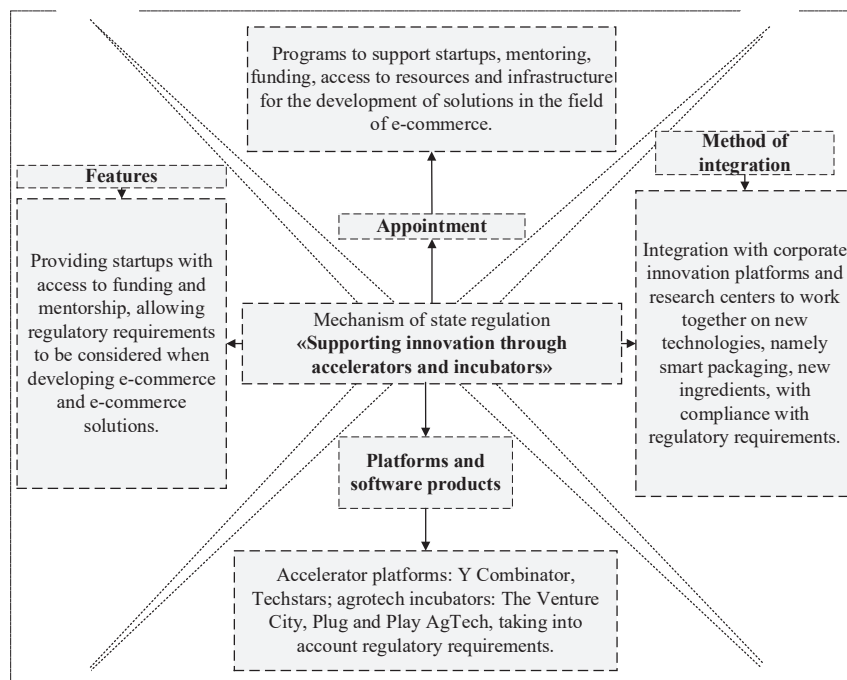


Fig. 7. Mechanism of state regulation by structural element “Innovation support through accelerators and business incubators”

Source: compiled by the author based on [11].

Conclusions. Thus, effective digitalization of the food industry requires comprehensive state support, the development of innovative infrastructure, and collaboration among businesses, research institutions, and educational establishments. State support should include funding, standardization of digital technologies, and the creation of a regulatory framework to reduce legal risks. The development of innovative infrastructure through startup support centers, incubators, and clusters will provide enterprises with access to funding, advanced technologies, and expert assistance, accelerating digitalization. Collaboration with educational institutions will prepare specialists with skills in data analytics, artificial intelligence, blockchain, and IoT, enhancing the industry’s resilience and competitiveness. This will foster the development of innovative ecosystems where all enterprises have equal opportunities to implement digital solutions, ensuring product quality and safety and strengthening the industry’s position in the global market.

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