

**IMPROVING THE EFFICIENCY OF CONFECTIONERY INDUSTRY ENTERPRISES
BASED ON INNOVATIVE ENTREPRENEURSHIP**

**ПІДВИЩЕННЯ ЕФЕКТИВНОСТІ ФУНКЦІОНУВАННЯ ПІДПРИЄМСТВ
КОНДИТЕРСЬКОЇ ГАЛУЗІ НА ЗАСАДАХ ІННОВАЦІЙНОГО
ПІДПРИЄМНИЦТВА**

Abstract. The study explores modern approaches to enhancing the efficiency of confectionery industry enterprises based on innovative entrepreneurship. The role of innovation in ensuring the competitiveness of enterprises is examined, and the main directions for their implementation are identified, including the use of cutting-edge technologies, digitalization of production processes, and the development of environmentally friendly and functional products. The primary barriers and challenges hindering the innovative development of confectionery enterprises are analyzed. Solutions are proposed to improve the efficiency of operations through the activation of innovative activities, modernization of production processes, and the development of public-private partnerships.

Keywords: innovative entrepreneurship, confectionery industry, efficiency, digitalization, competitiveness, modernization.

Анотація. Досліджено сучасні підходи до підвищення ефективності функціонування підприємств кондитерської галузі на основі інноваційного підприємництва. Розглянуто роль інновацій у забезпеченні конкурентоспроможності підприємств, визначено основні напрями їх упровадження, зокрема використання новітніх технологій, цифровізацію виробничих процесів, розробку екологічно чистих і функціональних продуктів. Проаналізовано основні бар'єри та виклики, що перешкоджають інноваційному розвитку підприємств кондитерської галузі. Запропоновано шляхи підвищення ефективності діяльності через активізацію інноваційної діяльності, модернізацію виробничих процесів і розвиток державно-приватного партнерства.

Ключові слова: інноваційне підприємництво, кондитерська галузь, ефективність, цифровізація, конкурентоспроможність, модернізація.

The modern development of the confectionery industry is characterized by growing competition, changes in consumer preferences, and the need to adapt to global sustainable development trends. In the context of globalization and digital transformation, the issue of improving the efficiency of industry enterprises through the introduction of innovative approaches becomes particularly relevant. Innovative entrepreneurship has become a key factor that ensures long-term competitiveness, increases productivity, and contributes to the expansion of markets.

The development of innovations in the confectionery industry covers technological, organizational, and marketing aspects. This includes the automation of production, the implementation of cutting-edge food technologies, the development of environmentally friendly and functional products, as well as the use of digital solutions for managing business processes.

However, there are a number of challenges on the way to effective innovation activities, such as insufficient funding, resistance to change, and a lack of qualified personnel.

Innovative entrepreneurship is a business model based on the implementation of new technologies, products, management decisions, and business models to increase the competitiveness of the enterprise. In the confectionery industry, innovations play a decisive role, as consumers are constantly searching for new flavors, more natural ingredients, and functional and environmentally safe products.

The main components of innovative entrepreneurship are reflected in Table 1.

Таблица 1 - The main components of innovative entrepreneurship

Component of Innovative Entrepreneurship	Content
Technological Innovations	Automation of production, use of new methods of processing and packaging products.
Product Innovations	Creation of new types of confectionery products with improved composition, use of superfoods, organic, and gluten-free ingredients.
Marketing Innovations	Application of digital platforms, artificial intelligence for market analysis and personalized approaches to consumers.
Organizational Innovations	Implementation of flexible business models, cooperation with suppliers and retail networks, strategic partnerships.

Source: created by the author

Thus, innovative entrepreneurship is a key tool for improving the efficiency of confectionery industry enterprises, enabling them to adapt to rapid market changes and consumer demands. The confectionery industry has its specific characteristics that influence the nature of innovation implementation:

- High dependency on raw materials – use of natural components, alternative sweeteners, and replacement of artificial additives.
- Sensitivity to changes in consumer preferences – growing demand for low-calorie, organic, vegan, and functional products.
- Strict regulation of product quality and safety – the need to comply with international standards such as HACCP, ISO, FDA.
- The need to optimize production processes – application of automation, robotics, and digital technologies (Big Data, IoT, blockchain for tracing the origin of raw materials) [1].

Innovations in this industry require significant investments; however, enterprises that actively implement cutting-edge solutions gain substantial competitive advantages and can expand their markets.

Modern global trends define the direction of innovation development in the confectionery industry. The most relevant of these include:

- Functional food – adding beneficial components such as proteins, collagen, probiotics, superfoods (e.g., spirulina, chia, turmeric).
- Environmental sustainability – biodegradable packaging, reducing carbon footprint, energy conservation in production.
- Alternative ingredients – using plant-based chocolate, milk substitutes, reducing sugar levels in products without compromising taste characteristics.
- Digitalization and automation – using IoT for production monitoring, artificial intelligence for demand forecasting, online platforms for order personalization.
- Product personalization – allowing consumers to create their own recipes, choose ingredients, and select product formats [4].

All these trends indicate that confectionery enterprises that actively implement innovative approaches gain significant advantages, increase the efficiency of their operations, and create long-term competitive positions in the market.

The assessment of the efficiency of confectionery industry enterprises is based on a range of financial, production, and market indicators, which allow for a comprehensive evaluation of the level of competitiveness and business sustainability (Table 2).

Table 2 - Financial, production, and market indicators of enterprise performance efficiency

Category of Indicators	Indicator	Description
Financial Indicators	Profitability of production and sales	Characterizes the ability of the enterprise to generate profit from product sales and the efficiency of resource utilization.
	Return on assets and capital	Determines the profitability level of investments in production and resource allocation.
	Revenue and net profit dynamics	Reflects the stability of the financial condition and the effectiveness of cost management.
Production Indicators	Labor productivity	Defines the ratio between the volume of produced goods and the resources used, particularly labor.
	Cost of production	The level of expenses for manufacturing one product, which is a critical factor in ensuring price competitiveness.
	Defect and waste level	Indicates the quality of production processes and the efficiency of raw material usage.
Market Indicators	Market share	Reflects the enterprise's position relative to competitors.
	Customer loyalty and brand value	Determined based on the level of repeat purchases and the company's reputation.
	Export potential	Expanding sales markets is an important criterion for enterprise efficiency.

Source: created by the author

The table shows that the performance of confectionery industry enterprises is assessed based on three main categories: financial, production, and market indicators.

1. **Financial indicators** are crucial for determining the enterprise's ability to generate profit and manage costs. Profitability of production and sales, return on assets and capital, as well as the dynamics of revenue and net profit are the key criteria for assessing the financial stability of the company.

2. **Production indicators** reflect the efficiency of resource utilization, product quality, and the ability to reduce costs. Labor productivity, cost of production, and defect rate are important factors that influence the competitiveness of the enterprise.

3. **Market indicators** define the position of the enterprise in the market, its ability to maintain consumer loyalty and expand market segments. Market share, brand value, and export potential are essential indicators of successful performance in both global and local markets [7].

Therefore, to improve the efficiency of enterprise operations, it is important to systematically work on each category of indicators, implementing innovations and improving production, marketing, and financial management processes.

Innovative technologies significantly impact the economic indicators of enterprises as they contribute to reducing costs, increasing productivity, and expanding the product range.

- **Cost optimization:** Automation of production helps reduce labor costs and minimize raw material waste.

- **Increased profitability:** New products with improved characteristics (functional, ecological, gluten-free items) have higher added value and are in demand.

- **Expansion of sales markets:** Using modern marketing technologies (Big Data, AI) helps better predict consumer demand and personalize offerings.

- **Reducing environmental impact:** Ecological production technologies help companies meet international standards and improve their image [6].

Despite the clear advantages, confectionery industry enterprises face a number of challenges when implementing innovations:

- **High innovation costs:** Acquiring modern equipment and developing new products require significant investment.

- **Lack of qualified personnel:** Managing innovation processes requires specialists with knowledge in new technologies, digitalization, and change management.

- **Regulatory restrictions:** Legislative requirements for food quality and production safety may complicate the innovation implementation process.

- **Resistance to change:** Traditional business models often do not foresee a rapid shift to innovative solutions due to concerns over uncertainty.

To ensure high production efficiency, enterprises must implement cutting-edge technologies such as: using 3D printing in confectionery production to create unique products; developing new recipes based on plant-based proteins, low-calorie sweeteners, and superfoods; using natural colorants, probiotics, and antioxidants in product formulations.

Digitalization significantly improves the efficiency of production process management. The main directions include:

- **Implementing IoT** for real-time monitoring of equipment status and product quality.

- **Using artificial intelligence** for demand forecasting and personalized offerings.

- **Applying CRM systems** for managing customer relationships.

Ecological and functional products are in demand among health-conscious consumers. Key trends in this direction include:

- Producing organic and gluten-free products.

- Using eco-friendly packaging that is recyclable.

- Reducing carbon footprint through energy-efficient technologies [3].

For the development of innovative activities, it is important to attract government support and investment. Key mechanisms include:

- **Grant programs and subsidies** for technology and eco-friendly production development.

- **Creation of innovation clusters and technology parks** for the confectionery industry.

- **Tax incentives** for enterprises implementing innovations and eco-technologies.

Thus, improving the efficiency of confectionery enterprises is impossible without the implementation of innovative technologies. The analysis shows that digitalization, automation, the development of functional products, and environmentally friendly production are key areas for development. However, there are several barriers, including financial, staffing, and regulatory issues, that slow down innovative progress. To overcome these challenges, government support, the development of the industry's investment appeal, and active implementation of digital technologies are necessary.

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