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# DETERMINANTS AND STRUCTURAL COMPONENTS OF INNOVATION POTENTIAL FORMATION IN DAIRY PROCESSING ENTERPRISES: EVIDENCE FROM THE FERGANA REGION

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**ABSTRACT**

The article examines the principal determinants and structural components of innovation potential formation in dairy processing enterprises in the Fergana Region of Uzbekistan. Drawing on the resource-based view, dynamic capabilities theory and the concept of absorptive capacity, the study systematizes six interconnected components: technological, financial and investment, human capital, research and development, organizational and managerial, and marketing and digital capabilities. A conceptual framework is proposed to connect enterprise resources and management capabilities with innovation implementation and production and economic outcomes.

**Keywords**

innovation potential, dairy processing enterprises, innovation management, technological development, human capital, digitalization, Fergana Region.

## INTRODUCTION

In the modern economy, innovation is one of the principal factors determining the competitiveness and long-term development of industrial enterprises. This is particularly relevant to the dairy processing industry, where production efficiency depends on processing technologies, raw material quality, storage conditions, logistics and compliance with food safety requirements. The perishability of raw milk, seasonal fluctuations in supply and changing consumer preferences require enterprises to continuously improve production processes, diversify products and strengthen their organizational capabilities.

For Uzbekistan, the development of dairy processing is important for food security, employment and regional industrial growth. The Fergana Region has a substantial raw milk production base: official statistics indicate that milk production increased from 1,075.5 thousand tonnes in 2021 to 1,191.2 thousand tonnes in 2024 [5]. This growth creates opportunities for expanding processing capacity, improving product quality and introducing innovative production solutions.

The purpose of this study is to identify and systematize the principal determinants and structural components of innovation potential formation in dairy processing enterprises and to develop a conceptual framework for improving its management.

## METHODOLOGICAL APPROACH

The theoretical foundation combines the resource-based view, dynamic capabilities theory and the ab-

sorptive capacity approach. The resource-based view explains how enterprise resources can support competitive advantage when they are valuable and effectively organized [1; 2]. Dynamic capabilities theory emphasizes the ability to integrate and reconfigure resources in response to changing market and technological conditions [3]. The absorptive capacity approach highlights the importance of identifying, acquiring and applying external knowledge [4].

The study uses systematic and comparative analysis of scientific literature and official regional statistics. The statistical indicators characterize the regional innovation environment and should not be interpreted as direct measurements of innovation activity in individual dairy processing enterprises. Enterprise-level survey data are required for subsequent empirical validation.

## RESULTS AND DISCUSSION

The analysis indicates that innovation potential is a multidimensional category. It cannot be assessed solely through the availability of modern equipment or the amount of investment. Its formation depends on the coordinated development of several complementary capabilities.

| Component | Main content | Expected contribution |
|---|---|---|
| Technological | Modern processing lines, automation, refrigeration and quality-control systems | Higher productivity and product safety |
| Financial and investment | Investment resources, innovation expenditure and access to finance | Capacity for modernization and innovation projects |
| Human capital | Employee qualifications, training and technical competencies | Effective use of new technologies |
| Research and development | University cooperation, research projects and new product development | Knowledge transfer and product innovation |
| Organizational and managerial | Innovation strategy, project management and performance indicators | Coordinated implementation of innovation |
| Marketing and digital | Market research, digital promotion and product traceability | Product differentiation and market access |

*Source: developed by the author.*

The technological component provides the production basis for innovation through modern processing equipment, automated control and energy-efficient technologies. The financial and investment component determines whether enterprises can finance modernization and new product development. Human capital ensures that employees can operate new equipment and apply improved production methods. Research and development capabilities facilitate cooperation with universities and research organizations, while organizational and managerial capabilities integrate innovation into enterprise strategy. Marketing and digital capabilities help identify consumer needs, improve product positioning and strengthen traceability across the value chain.

The regional innovation environment may support these processes. At the end of 2024, the Fergana Region had 21 organizations conducting research and development and 2,111 R&D employees; regional R&D expenditure amounted to 17.9 billion soums [6]. These indicators point to potential opportunities for cooperation between enterprises and research institutions. However, the extent to which dairy processors use this infrastructure requires separate enterprise-level investigation.

On this basis, the author proposes the following conceptual sequence: enterprise resource base → innovation management capabilities → implementation of innovative solutions → production and economic outcomes. The expected outcomes include improved product quality, lower resource losses, higher production efficiency, product diversification and stronger competitiveness. The relative contribution of each component should be tested using primary data from dairy processing enterprises.

## CONCLUSION

The study systematizes six interrelated components of innovation potential formation in dairy processing enterprises: technological, financial and investment, human capital, research and development, organizational and managerial,

and marketing and digital capabilities. The principal contribution is a sector-specific conceptual framework connecting enterprise resources and knowledge absorption with innovation implementation and expected economic outcomes. For dairy processors in the Fergana Region, improving innovation management requires coordinated investment in technology, employee competencies, research cooperation, strategic management and digital solutions. The proposed framework can serve as a methodological basis for subsequent enterprise-level assessment and the development of practical recommendations. Its empirical validation requires collecting primary data from a verified sample of dairy processing enterprises.

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