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NEW DEVELOPMENT CONCEPTS FOR FAST FOOD ESTABLISHMENTS: SAFETY AND SERVICE

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НОВІ КОНЦЕПЦІЇ РОЗВИТКУ ЗАКЛАДІВ ШВИДКОГО ХАРЧУВАННЯ: БЕЗПЕКА ТА СЕРВІС

In the current conditions of the fast food industry, characterized by rising demands for product quality, safety, and customer experience, hybrid development concepts are increasingly being implemented, integrating production efficiency with high standards of service and food safety. The purpose of this article is a comprehensive analysis and synthesis of the latest concepts in the development of fast food establishments, which result from the combination of modern management models with innovative approaches to improving service and ensuring food safety. Within the scope of the study, key concepts are examined, such as the integration of Lean and Six Sigma methodologies, the implementation of digital solutions combined with the Agile flexible methodology, as well as the application of international standards and food safety management systems — HACCP, ISO 22000, and IFS Food. Special attention is given to the fact that each of these concepts has its unique characteristics, tools, and approaches specifically adapted to the fast food market's particularities. It has been demonstrated that integrating Lean and Six Sigma aims to optimize processes through waste elimination, quality control, and production stability, which requires systematic data collection and a culture of continuous improvement. The combination of digital solutions with Agile ensures flexibility, rapid adaptation to changes, and an improved customer experience through iterative change implementation cycles and active team collaboration. The application of HACCP, ISO 22000, and IFS Food ensures comprehensive safety control throughout all stages of production, thereby enhancing consumer trust through compliance with international standards. Thus, each of the examined concepts addresses specific market challenges and employs its methods and standards to achieve an optimal balance between production efficiency, product quality, safety, and customer satisfaction/ Future research prospects should focus on

the development of a comprehensive systemic approach based on adapted principles and tools that will contribute to the successful management and development of fast food establishments in contemporary conditions.

У сучасних умовах розвитку індустрії швидкого харчування, яку характеризують зростаючі вимоги до якості продукції, безпеки та клієнтського досвіду, дедалі частіше впроваджуються гібридні концепції, що поєднують виробничу ефективність із високими стандартами обслуговування та харчової безпеки. Метою цієї статті є всебічний аналіз і узагальнення новітніх концепцій розвитку закладів швидкого харчування, які є результатом поєднання сучасних управлінських моделей із інноваційними підходами до удосконалення сервісу та забезпечення харчової безпеки. У межах дослідження розглядаються гібридні концепції, які сформувалися внаслідок інтеграції методологій Lean та Six Sigma, впровадження цифрових рішень у поєднанні з гнучкою методологією Agile, а також застосування міжнародних стандартів і систем управління безпекою харчових продуктів — HACCP, ISO 22000 та IFS Food. Особливу увагу приділено тому, що кожна з цих концепцій має свої унікальні характеристики, інструменти та підходи, які спеціально адаптовані до специфіки ринку швидкого харчування. Доведено, що інтеграція Lean та Six Sigma спрямована на оптимізацію процесів через усунення непродуктивних втрат, контроль якості та сталість виробництва, що вимагає системного збору даних і культури постійного вдосконалення. Поєднання цифрових рішень із Agile забезпечує гнучкість, швидку адаптацію до змін та покращення клієнтського досвіду завдяки ітеративним циклам впровадження змін і активній взаємодії команд. Застосування HACCP, ISO 22000, IFS Food гарантує комплексний контроль безпеки на всіх етапах виробництва, підвищуючи довіру споживачів через відповідність міжнародним стандартам. Таким чином, кожна з розглянутих концепцій відповідає на специфічні виклики ринку і використовує власні методи та стандарти для досягнення оптимального балансу між виробничою ефективністю, якістю продукції, безпекою та задоволеністю клієнтів. Перспективи подальших досліджень мають бути спрямовані на розробку комплексного системного підходу, заснованого на адаптованих принципах і інструментах, які сприятимуть успішному управлінню та розвитку закладів швидкого харчування в сучасних умовах.

Key words: Lean and Six Sigma methodologies; digital solutions; Agile methodology; international standards; food safety management systems; service industry.

Ключові слова: методології Lean та Six Sigma; цифрові рішення; методологія Agile; міжнародні стандарти; систем управління безпекою харчових продуктів; сфера обслуговування.

PROBLEM STATEMENT

The fast food industry is undergoing constant transformations driven by changes in consumer demands, technological advancements, and increased requirements for service quality and product safety. Modern consumers expect not only speed and accessibility but also consistently high levels of service, transparency in food preparation processes, and guarantees regarding product safety. In response to these challenges, businesses are compelled to implement innovative concepts that enable efficient operation of establishments and meet the demands of the times.

Among such concepts, particular attention is given to the Lean, Six Sigma, and Agile approaches, which have proven their effectiveness in manufacturing systems and are increasingly being adapted to the service sector, especially in the restaurant business. In addition, models for service improvement and food safety assurance, based on the principles of HACCP (Hazard Analysis and Critical Control Points), ISO 22000, and IFS Food, are actively developing. The very formation of concepts by combining these approaches makes it possible to achieve high levels of efficiency, reliability, and compliance with safety standards.

ANALYSIS OF RESEARCH AND PUBLICATIONS

Many researchers have made a significant contribution to the study of the modern characteristics of fast food industry development, as well as to ensuring the safety and service quality of the establishments operating within it.

In particular, L. I. Hirnyak, V. A. Hlahola, R. Cherkes, N. Kosar, and H. Bey investigated the key factors determining the development of fast food establishments. V. A. Hrosul and T. P. Ivanova studied the development trends of restaurant enterprises. They emphasized the importance of hybrid approaches to facilitate growth, particularly in light of the ongoing quest for effective methods to enhance the safety of establishments, improve service quality, optimize production processes, and ensure food safety.

Therefore, the further development of the fast food sector requires a comprehensive approach that combines innovative perspectives on growth with modern methods of safety and service management.

FORMULATION OF THE ARTICLE'S OBJECTIVES

The purpose of this article is to analyze and summarize new concepts for the development of fast-food establish-

Table 1. Features of forming integrated development concepts for fast-food establishments

Poncept of development	Features of the formation of development concepts	
	Specific	General
Integration of Lean and Six Sigma	- Combining methods of waste elimination and reduction of variability and defects to balance speed, quality, and production stability.	The combination of efficiency improvement methods with statistical quality control requires the involvement of skilled personnel, systematic data collection and analysis, and a culture of continuous improvement
	- Focusing on creating maximum value for the customer with minimal time and resource expenditure.	
	- Using statistical methods and analytics to monitor key quality indicators.	
	- Implementing standardized processes to ensure operational stability and predictability.	
Integration of digital solutions and Agile	- Developing flexibility and adaptability under the influence of rapid changes in technologies and consumer preferences.	The implementation of flexible project management approaches and the use of modern digital technologies require organizational adaptability, rapid response to changes, and strong communication between teams.
	- Iterative implementation of changes with short cycles of testing and service improvement, enhancing the customer experience.	
	- Digital transformation.	
	- Ensuring effective teamwork and interaction with fast customer feedback.	
HACCP, ISO 22000, IFS Food Integration	- A comprehensive approach to safety control at all stages of food production and supply in accordance with international standards.	A systematic approach to food safety management, including the implementation of standards, documentation of processes, conducting audits, and staff training, which ensures compliance with legal requirements and international regulations.
	- Implementation of systematic and documented procedures for control, monitoring, and auditing that ensure transparency and traceability of operations.	
	- Focus on identifying and controlling critical risk points to minimize health hazards for consumers..	
	- Increasing customer trust through certification and verification of product quality and safety in accordance with international standards.	

Source: compiled based on [1; 5—6].

ments that result from the integration of modern management concepts and models for improving service and ensuring food safety.

THE PAPER MAIN BODY

The growth of fast food establishments is driven by the demand for quick service along with several other factors. Among these factors are:

1. Rising expectations regarding the quality of food products. Consumers increasingly expect not only tasty but also high-quality, fresh, and natural food. According to survey results from the USA, Europe, and Asia, over 60% of fast food restaurant customers prefer dishes without artificial additives, preservatives, and flavor enhancers. This trend is also characteristic of Ukraine. For example, the well-known fast food chain Chipotle Mexican Grill positions itself as a brand that uses only ingredients from local farms, free of GMOs, artificial colorings, and flavorings. McDonald's also actively responds to consumer expectations regarding food quality, and in recent years, the company has implemented a number of initiatives aimed at improving the composition of its dishes and increasing transparency in its processes [6]. Specifically, the American corporation has announced its refusal to use growth-promoting antibiotics in raising the chicken used for its dishes and is gradually transitioning to eggs sourced only from farms that do not use cage confinement. In several countries, McDonald's already offers beef burgers without added preservatives, artificial flavorings, and colorings. In the USA, for example, McDonald's officially announced in 2018 that the classic "Quarter Pounder" burger would be made from fresh, never frozen beef to meet customers' demands for naturalness and quality [4].

2. Rising expectations regarding safety. Following the COVID-19 pandemic, there has been a significant increase in consumer awareness of hygiene, sanitation, and food safety. People are paying closer attention to compliance with sanitary standards, surface disinfection, and cleanliness of food establishments. As a result, most fast-food establishments are updating their safety protocols. In particular, Starbucks and McDonald's have updated their safety protocols after the pandemic, including implementing contactless service, daily staff health checks, and automated systems for preparing drinks and meals [4].

Table 2. Concept for the development of fast food establishments based on the integration of Lean and Six Sigma

Components of the concept	Features of Concept Implementation
Elimination of losses	Identification and elimination of inefficient operations (delays, excessive inventory, unnecessary movements). Reduction of preparation and serving times.
Thread optimization	Streamlining work processes in the kitchen and front office, implementation of standardized procedures. Ensuring continuous flow of ingredients and finished products.
Quality control	Use of statistical tools to monitor critical quality indicators (temperature, dish composition, sanitary standards).
Reduction of defects	Identification and elimination of causes of defects, errors in preparation and service, reduction of complaints.
Combining process acceleration with maintaining high standards of quality and safety	It ensures an increase in the overall productivity of the establishment through the reduction of operation times and optimization of resources, which simultaneously contributes to the steady improvement of product quality and service. This leads to increased customer satisfaction, strengthening of their loyalty, and the formation of competitive advantages in the fast food market.

Source: compiled based on [2—3; 5].

Table 3. Action concept for the development of fast-food establishments based on the integration of digital solutions and Agile

Components of the concept	Features of Concept Implementation
Minimum viable product	Testing new products or service formats in a limited area or audience, followed by improvement based on feedback.
Iterative service improvement	Implementing small, regular changes in service processes instead of large-scale reforms.
Cross-functional teams	Coordinated collaboration of marketers, technologists, IT specialists, restaurant staff, and logisticians to implement changes.
Customer focus	Regular collection and analysis of feedback is encouraged to quickly adapt the product or service to consumer expectations.

Source: compiled based on [5—7].

3. Rising expectations regarding the customer experience. In particular, the modern consumer seeks convenient, fast, and personalized service, which requires the implementation of digital solutions (such as mobile apps, online ordering, contactless payment, and loyalty programs) as essential elements of service. In particular, McDonald's is actively developing the MyMcDonald's Rewards program, integrated into the mobile app, which allows customers to receive personalized offers, save time through pre-ordering, and create a customized brand interaction experience [4].

In response to the challenges outlined, hybrid concepts are emerging in fast-food establishments that combine production efficiency with high standards of service and food safety. Among them are:

— the development concept based on the integration of Lean and Six Sigma;

— the development concept based on the integration of digital solutions and Agile;

— the development concept based on the integration of HACCP, ISO 22000, and IFS Food.

It should be noted that each of the development concepts we have outlined has certain distinctive features, conditions, and processes that determine how development is formed or implemented in a particular establishment.

In the context of fast-food establishments, these may include specific tools, principles, methods, and factors that influence the effectiveness of applying each of the integrated management concepts (see Table 1).

Thus, the outlined features are quite specific, as each concept responds to particular challenges of the fast food industry, which determine the targeted management methods, technologies, and standards to achieve a balance between efficiency, quality, safety, and customer satisfaction. At the same time, balancing efficiency, quality, safety, and customer satisfaction is a complex task that requires specific tools.

Table 4. Action concept for the development of fast-food establishments based on the integration of HACCP, ISO 22000, and IFS Food

Components of the concept	Features of Concept Implementation
Identification of hazard factors	Systematic analysis of potential biological, chemical, and physical hazards at all stages of production and processing of products.
Determination of critical control points	Definition of process stages where control is necessary to prevent or eliminate hazards.
Моніторинг та контроль	Continuous monitoring of parameters (temperature, time, sanitary conditions) at critical points with documentation of results.
Food safety management system	Implementation of an integrated management system that combines HACCP principles with quality requirements, communication, and risk management.
Communication in the supply chain	Ensure transparency and coordination between suppliers, manufacturers, and consumers to ensure product safety.
Documentation and audit	Keep track of system documentation and conduct audits both internally and externally to ensure compliance with standards.
Certification and compliance	Compliance with international quality and safety requirements in all links of the supply chain, including production, packaging and storage.
Quality and sanitation management	Maintaining high standards of hygiene, storage conditions, transportation, and maintenance of food products.
Staff training	Conducting regular trainings for employees on compliance with safety procedures and quality standards.

Source: compiled based on [3; 6—7].

Therefore, the specifics of the application can be clearly outlined, as they are based on clear, concrete principles and tools adapted to the real needs of the industry, allowing for a systematic approach to management, control, and process improvement in the fast food sector.

The development concept based on the integration of Lean and Six Sigma (or Lean + Six Sigma) provides a comprehensive approach to improving operational activities.

Lean focuses on eliminating waste and optimizing value streams, which helps reduce service time and improve production process logistics.

Six Sigma, in turn, ensures stability control and defect reduction through the use of statistical methods and systematic analysis.

The components of this concept in fast food establishments are presented by us in Table 2.

The application of the concept creates conditions for sustainable development, where increased productivity does not compromise quality or safety [5].

Development concept based on the integration of digital solutions and Agile (or Digital Solutions + Agile). This involves the use of mobile applications, self-service systems, big data analytics, and automation, which form the foundation for demand responsiveness combined with the key principles of Agile (including flexibility, short development and implemen-

tation cycles, team collaboration, rapid feedback, and continuous improvement). The components of this concept in fast-food establishments are presented by us in Table 3.

The application of the concept contributes to enhancing the customer experience, reducing response time to issues, and improving service quality.

The development concept is based on the integration of HACCP, ISO 22000, and IFS Food (a standard focused on certifying the quality and safety of food products in supply chains [6]) with elements of quality management systems, which are implemented as fundamental components of the management model. These systems serve as the fundamental elements of the management model, providing a comprehensive approach to food safety control at all stages — from raw material supply to finished products. The components of this concept in fast-food establishments are presented by us in Table 4.

This enables the achievement of a synergy effect — improving quality while simultaneously reducing costs and increasing staff accountability.

CONCLUSIONS

In the current fast-food industry landscape, characterized by increasing demands for product quality, safety, and customer experience, hybrid development concepts are being increasingly adopted. These concepts integrate production efficiency with high standards of service and food safety. The approaches considered — the integration of Lean and Six Sigma, digital solutions with Agile, as well as HACCP systems, ISO 22000, and IFS Food — each have their unique features, tools, and methodologies adapted to the specific needs of the fast-food market.

The authors have demonstrated that the integration of Lean and Six Sigma is aimed at optimization through the elimination of waste, quality control, and production stability, which requires systematic data collection and a culture of continuous improvement. The combination of digital solutions with Agile ensures flexibility, rapid adaptation to changes, and enhanced customer experience through iterative implementation cycles and active team collaboration. The application of HACCP, ISO 22000, and IFS Food ensures comprehensive safety control at all stages of production, increasing consumer trust through compliance with international standards.

Thus, each of the concepts addresses specific market challenges and employs its methods and standards to achieve a balance between efficiency, quality, safety, and customer satisfaction.

In this context, future research should focus on developing a comprehensive systemic approach based on adapted principles and tools that will support effective management and the successful development of fast-food establishments under modern conditions.

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