

# *Digitalization of business processes in the field of food services as a factor in improving the food security of the region*

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**Abstract** — The article discusses the digitalization of business processes of enterprises providing food services and the impact of this direction on improving food security in the region. The purpose of the article is to identify the effects of digitization of the industry in the field of improving the food security of the region. Objectives: to consider the theoretical foundations of the formation of the business processes of food services; to characterize their role in the production cycle; to analyze the indicators of food services of the Perm region; develop a model of business processes based on digital technologies that has a positive impact on the food security of the region.

The article describes the business process and its features in the concept of production and management. The author considers the types and features of business processes in the field of food services, their content, and goals. The author examines the role of digitalization of business processes in the system and management cycle, the impact on the main results that characterize successful activity in the market of services. The article presents indicators of the food service industry and an assessment of the dynamics and problems at the regional level. The article offers a set of measures to improve the business processes of food service enterprises based on digital technologies that have a positive impact on the food security of the region.

**Keywords** — digitalization, catering services, food security, business process, region.

## I. INTRODUCTION

Catering is an industry classified as one of the service industries. It is a set of enterprises for which the main activity is the formation of new benefits for consumers, their implementation in the production of goods and the provision of maintenance services.

The implementation of an effective business process is one of the main objectives of the success of any enterprise, including catering. Business processes are currently being optimized: new technologies and modeling methods are being introduced. This has a positive effect on the dynamics of the performance of a catering enterprise.

According to a number of scientists: Mazur I.I., Shapiro V.D., Robson M., Ullakh F., Champi J., Hammer M., a business process is a system-closed process that represents the flow of work. It has its own beginning (input), a number of stages of activity, and the result of work (output). A distinctive feature of a business process from other processes is a business focus —

a reflection of some type of economic activity, the result of which is profit [1; 2; ten].

The concept of a business process is based on the following key points:

1) Essence - business processes occur mainly between parts of the structure of the organization. Such processes are classified as interdivisional, interfunctional and inter-cooperative;

2) Object - business processes are manifested in the interaction and manipulation of any objects. Such objects are divided into informational and physical;

3) Function - the essence of business processes is the implementation of several functions: operational and management.

Domestic and foreign scientists are not paying enough attention to integrating the business process into larger systems, so these issues require detailed consideration:

1. Determining the place of the business process in the enterprise, since management is considered as a result and process according to existing ideas. Not all key areas of operation (depending on current and strategic goals and objectives) can be monitored and optimized based on the technology in question. There are parallel processes that can also cover the activities of management objects and be included in more complex ones. For example, innovation activity can be an independent process in a project to introduce service technologies, and be one of the components in other functional areas [3; 5; 9].

2. The role of the business process depends on management policy. For example, if a financial institution is faced with the task of expanding market share, or attracting a share of funds from the public, this direction can be singled out in a single business process that will be monitored by the heads of all departments within their competencies, regulated in detail, evaluated and promoted by various stimulation methods [4].

3. The level of possible regulation of individual activities. Depending on the industry sector and the specifics of the work, functional areas can be regulated to varying degrees. If the process in question is difficult to formalize, the positive effect will not be achieved. Therefore, it is necessary to change the organizational and production structure so that the individual elements and stages are transparent. The scale and complexity

of the activity can have a strong influence on the regulation of procedures [6; 8].

The business process is carried out in two cases according to several interpretations:

1) If the company receives any profit as a result of all activities - in this case, the business process is not carried out if the product or service produced is unprofitable for the manufacturer;

2) The business process is valid only during the conduct of certain financial and manufacturing services. The result is cost escalation and service conversion.

**II. MATERIALS AND METHODS (MODEL)**

Statistical analysis, modeling of socio-economic processes, systemic and situational approaches were used as research methods.

**III. RESULTS AND DISCUSSION**

The following classification of types of catering is established according to GOST R 50647-2010 in Russia:

1) Restaurant - provides the consumer with catering services (with or without leisure) with a large assortment of dishes of complex preparation;

2) Bar - an enterprise equipped with a bar counter selling alcoholic and non-alcoholic beverages, various dishes, and snacks in a limited range;

3) Cafe - provides the consumer with catering services (with or without leisure) with the provision of home-made and custom-made products in a limited range (compared to a restaurant);

4) Canteen - a publicly accessible enterprise, or serving a specific group of consumers. Implements dishes according to the menu divided by days of the week;

5) Snack Bar - a company that implements a limited range of dishes and products easy to prepare for fast customer service.

The activities of enterprises in the field of catering are divided into five main business processes [2; 6]:

- 1) Catering management;
- 2) Logistical support of all structures of the enterprise;
- 3) Production of culinary products;
- 4) Organization of service in the enterprise;
- 5) Realization of purchased goods.

This organizational system of business processes particularly highlights the processes of production and management. The development and provision of business processes are difficult to trace at a catering enterprise. Table 1 presents all types of business processes of catering organizations.

**TABLE 1. TYPES OF BUSINESS PROCESSES OF CATERING ENTERPRISES [1; 2; 5; 6]**

Process category	Process type	Possibility of use
The formation and development of the basic concept	Managerial	Partial
Product and service management	By development	Partial
Sale of existing goods and services	Main	Partial
Delivery of existing goods and services	Providing	Partial
Customer Service Management	Managerial	Partial
Personnel Management	Managerial	Partial
Financial Management	Managerial	Partial

Construction, acquisition and management of enterprise property	By development	Partial
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The implementation of business processes in catering should be associated with economic criteria of economic activity, and with social efficiency. It may involve such functions as building up the level of trust among consumers, promoting banking services to new market segments, which will lead to gaining advantages and increasing profitability for a long period of time.

Figure 1 shows a diagram of the relationship of business processes in catering enterprises, their role in the management, production and financial cycles.

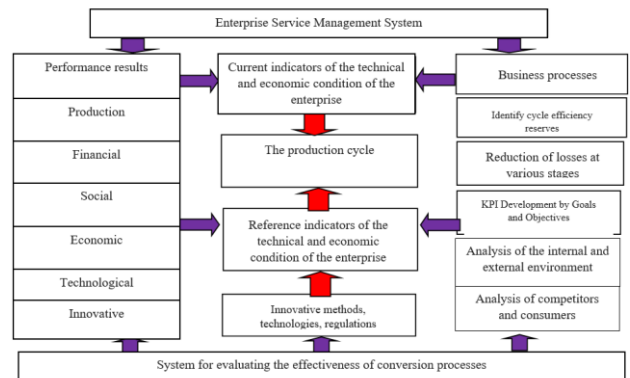


Fig. 1. Place and role of the business process in the production and management cycle system (developed by the author)

Business processes affect all the functional structures of catering, combine various tasks and work, forming a common set and having a continuous nature. Such processes are designed simultaneously with the process of creating a product or service (and are engaged in their processing). The activity of a catering enterprise is characterized by a combination of business processes of production and non-production types.

At the present stage of the development of computer technology, accounting systems have been developed at catering enterprises. They contribute to the simplification, acceleration, and optimization of core and auxiliary business processes.

Such automation of the operating activities of catering enterprises increases the degree of efficiency of management decisions, provides an increase in the quality of services for consumers, and involves the use of the following technologies:

- 1) Local automation systems, such as 1C-Rarus, R-Keeper, Iiko, UNISYSTEM Restaurant, and others;
- 2) Cloud storage - R-keeper7-Cloud, Paloma365, Quick Resto, and others;
- 3) Programs by type of electronic menu;
- 4) Mobile applications for ordering home delivery.

Automated information systems carry out timely settlements with customers, allow you to manage the order of service, and control the accuracy of the supply of ingredients for the kitchen.

The main task of automating business processes in catering enterprises is to increase the efficiency of restaurant management (cafe, canteen) due to an increase in the quality of

customer service, minimizing the negative effects of risk-management, and attracting new customers.

Automation of business processes in the catering industry helps to minimize the loss of money due to the risk of the human factor, increase the speed of guest service, effectively implement marketing strategy and tactics.

The main stages of the automation of business processes in catering enterprises are as follows:

- 1) Choice of the supplier;
- 2) Choice of the employee responsible for the automation;
- 3) Install an automated system;
- 4) Training of personnel to work in this system;
- 5) Run an automated system.

The advantages of automating business processes in this industry are:

- 1) Effective marketing, which is tactically implemented in the provision of promotions, bonus cards, discounts;
- 2) The increase in the level of customer service quality;
- 3) Streamlining the activities of all services of the enterprise;
- 4) Automation of inventory management and inventory control;
- 5) Control over the execution of business processes;
- 6) Reducing the risk of personnel errors (including cases of theft);
- 7) Profit growth;
- 8) Monitoring the efficiency of the catering business of individual units and in general.

The catering market is dynamically developing in Russia. This is evidenced by the rate of catering.

Growth in turnover is observed in the domestic catering market every year. As of 2017, the turnover growth was about 1.5 million rubles. This fact indicates the continuous development of the industry and effective models of business processes to achieve a high level of product development.

The number of catering enterprises is growing, as well as the total market turnover, every year. The largest growth rate is accounted for by such enterprises as restaurants, cafes, and bars. It also has a positive impact on the exchange of experience in the field of management and the formation of models of effective business processes.

The main indicators of the Perm region services that affect the dynamics of the industry were considered to assess the effectiveness of business processes in catering enterprises at the regional level (Table 2).

**TABLE 2 INDICATORS DETERMINING THE EFFICIENCY OF BUSINESS PROCESSES OF THE SPHERE OF PUBLIC CATERING SERVICES IN THE PERM REGION IN 2013-2017. [7]**

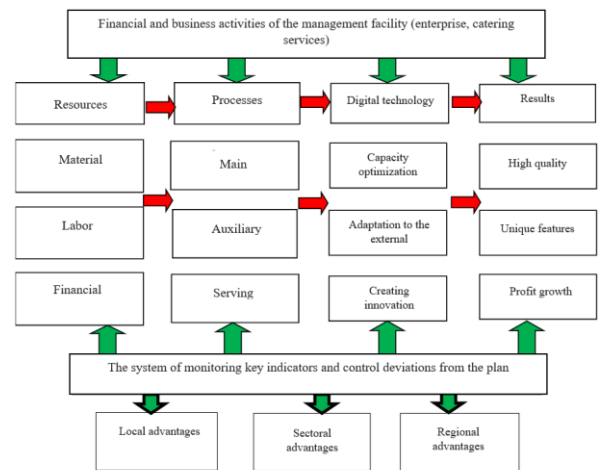
Name of the indicator	2013	2015	2016	2017
Turnover catering, mln. rubles	26082	23849,7	22530,1	23623,8
Built catering, seats	416	450	573	458
The index of the physical volume of public catering,% by previous year	99,2	84,5	88	100,7
Expenses for eating out,% of the total	5	2,9	3,6	2,6

In general, the cost of eating out has decreased in the Perm region. This indicates a lack of effective formation of business processes in the regional industry for the formation of proposals for various groups of customers and, consequently, the unwillingness of consumers to spend money in restaurants and cafes. The number of built enterprises also decreased. The turnover in the industry and the volume index showed a positive trend in 2017. It speaks of the effective conduct of business processes in almost all industries.

Meanwhile, the implementation of business processes in catering enterprises faces a number of problems:

- 1) Lack of a unified management methodology and software implementation - the business process is considered only from the standpoint of production automation at some enterprises, without taking into account the basic essence of the management process;
- 2) Lack of standards and regulations in the implementation of business processes;
- 3) Lack of a systematic approach to the formation and restructuring of business processes, which may adversely affect the management system as a whole;
- 4) The perception of the business process as a software tool - the introduction of such processes is not able to give a positive result without effective changes in the management methodology;
- 5) Unpreparedness of personnel, insufficient qualification.

The relationship of improving the performance of enterprises providing food services based on business processes is presented in Figure 2.



**Fig. 2. Directions for improving the efficiency of food service enterprises based on business processes (developed by the author)**

Efficient organization of business processes in food service enterprises will contribute to the achievement of advantages in key areas of resource management, personnel, and financial and economic potential. The regulation of each stage will allow to identify the optimal and weak areas, to calculate the quantitative and qualitative indicators of growth reserves. Digitalization of business processes will positively affect the growth of labor

productivity, reduction of time of technological processes, reduction of costs. This will generally increase the profits of the industry and will enhance the food security of the region.

#### IV. CONCLUSION

The business process is a universal management and production technology for business development and control. The sphere of public catering services is dynamically developing, therefore increasing the efficiency of regional enterprises has a complex positive effect: high-quality customer service, increasing the profitability of management objects, and receipt of funds in budgets of all levels.

The formation and implementation of an effective concept of business process management, and the consistent implementation of the complex of all the structural components of the restaurant business, including information and computer technologies, contribute to the successful implementation of the enterprise's activities in the field of catering.

Solving existing problems in the application of business processes in catering enterprises can be achieved by such methods as:

1) Formation of regulations based on digital technologies and machine-to-machine interface, which reinforce the relationship of various business processes, departments, and services of the enterprise;

2) Introduction of the concept of the Unified Body of Knowledge on Business Process Management at all catering establishments, and following the course of the Association of Business Processes in Professional Management on setting standards in the field of business processes;

3) Changing the methods of managing business processes in the enterprise, harmonization of digital regulation technologies simultaneously with the implementation of various tasks and goals of the company;

4) Improving the skills of management personnel in order to improve competence in the development, application, and management of business processes.

Qualitative improvement of the business processes of the industry will contribute to improving the food security of the regions, since financial and economic stability, saving of resources, and an increase in labor productivity will be ensured.

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