

# OPTIMIZATION OF GOODS IMPLEMENTATION ON THE BASIS OF DEVELOPMENT OF BUSINESS PROCESS RE-ENGINEERING

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## ABSTRACT

*It has been established that increasing the efficiency of re-engineering business processes of a wholesale enterprise is achieved based on the analysis of the “joints” of commercial, organizational, managerial, and logistics operations. In this regard, to optimize processes, it is proposed to apply a systematic approach to the consideration of all interacting processes in the first stage and local optimization of the most critical processes in the second. For the last stage, the most significant characteristics of business processes are proposed that create the greatest added value and/or the greatest value for wholesale buyers, as well as maximally describe the interaction between different participants. The level of efficiency of the business process re-engineering of a wholesale enterprise is recommended to be defined as an integral indicator.*

**Keywords:** Re-engineering, Business Process, Trading Enterprise, Optimization, Outsourcing.

**JEL Classifications:** C20, C50, G21

## INTRODUCTION

A general trend in the modern development of product markets is the intensification of innovative activities of key actors in their infrastructure, primarily wholesale enterprises, in order to increase their competitive potential. Accordingly, the problem of improving and using the re-engineering of business processes in wholesale formations to modernize wholesale trade, diversify their activities, and increase the competitiveness on innovative principles is being updated.

Reforming the country's domestic trade, constant changes in the external environment of commercial relations, and increasing competition in the sales markets necessitate the search for fundamentally new mechanisms for modelling business processes (hereinafter - BP) of wholesale enterprises.

Realities indicate that in practice there are difficulties in improving the business processes of wholesale enterprises, caused by the high speed of the implementation of trade and technological processes, commercial, and logistics operations in market conditions.

A feature of the modern development of domestic trade is the adaptation of the activities of wholesale enterprises to structural changes in the national economy and the globalizing environment. Accordingly, the problem of optimizing and improving the efficiency of business processes based on re-engineering is of particular relevance.

The significance of business process re-engineering is due to an increase in the number of interconnections between the elements of a holistic business structure of a wholesale enterprise, the expansion of the scope of its business units, the interpenetration of the functional content of wholesale activities in related areas and types of commercial business, in particular, in retail trade.

The aim of the work is to substantiate the theoretical and applied foundations of re-engineering business processes of wholesale enterprises and strategic approaches to its development.

## LITERATURE REVIEW

It should be noted that each wholesale enterprise depends on the market orientation of commercial activity, assortment policy, specialization, wholesale forms and methods, the size of warehouse space, etc has a set of business processes inherent only in it.

However, given the fact that management processes do not directly participate in the creation of added value, that is, are not directly related to the main activity of the wholesale trading enterprise, they should be classified as a block of auxiliary processes.

According to this approach, management processes, on the one hand, ensure the implementation of the main processes, and on the other, aimed at meeting the interests of the main interested groups (stakeholders: owners, suppliers, consumers, personnel, the state, creditors) and related to personnel management, financial management, etc. (Drobyazko et al., (2019a), Drobyazko et al., (2019b)).

Based on the generalization of literary sources, we consider it fair to conclude that from the whole set of categories of business processes for wholesale trading enterprises it is advisable to choose the following:

- 1) Processes that directly support the procurement and sales activities and wholesale of goods (Brocke & Mendling, 2018)
- 2) Planning and management processes (Alotaibi & Liu, 2017)
- 3) Resource processes (Hilorme et al., 2019)
- 4) Transformation processes (Mendling et al., 2018)

It is well known that cyclical business processes are processes that are continuous in nature and are constantly repeated at the enterprise (Kirchmer, 2017).

At wholesale trading enterprises, the main cyclical business processes are the procurement and sale of goods. Periodic business processes are repeated from time to time at regular intervals (Ariouat et al., 2017).

It is believed that these processes are also characteristic of a wholesale trading enterprise, in particular, a financial audit (Tetiana et al., 2019).

One-time business processes are processes that occur once, without a certain periodicity in time and associated with the implementation of various projects (Evermann et al., 2017). It should be added that the nature of the flow of processes over time is an important factor in the formation of a system for their monitoring and control.

Despite the availability of numerous scientific and theoretical publications and certain experience in implementing the ideas of re-engineering in the practice of wholesalers, the practical experience indicates the imperfection of the re-engineering tools in business processes of wholesale enterprises and the lack of sufficient coverage of issues on this problem, which actualizes the research and improvement of the principles of the development of business process re-engineering of the wholesale enterprises.

## MATERIALS AND METHODS

In the research process, a set of general scientific and special research methods was used: the logical generalization method, statistical analysis (when studying the status of implementing business process re-engineering of commercial, organizational, managerial, and logistics activities of wholesale enterprises), modelling (when developing business process re-engineering models of wholesale trading enterprises), economic and mathematical modelling methods (when determining the impact of re-engineering on the effectiveness and quality of business processes), and graphical ones (for visual presentation of a number of theoretical, analytical, and recommendatory provisions).

The informational and statistical basis of the study was composed of legislative and regulatory acts, regulations of local self-government bodies and other government bodies, monographs and scientific and analytical articles of authors, informational materials published in periodicals, electronic resources presented on the Internet, and personal research materials of the author.

## RESULTS AND DISCUSSION

As you know, the effectiveness of a wholesale enterprise as an economic category means achieving the best results at the lowest cost or reducing costs per hryvnia of goods turnover; correlation between the performance of wholesale enterprises.

The most common criterion for assessing the effectiveness of economic activity of business entities in the sphere of commodity circulation should be considered to be the socio-economic effect, that is, profit. It is believed that the goal of wholesale enterprises is not always to maximize profits; it may be the achievement of a certain level or standard of wholesale.

Thus, the main goal of re-engineering of the business system of a wholesale enterprise is the need to achieve the highest possible level of economic stability, and maximizing profit is a condition and one of the means to achieve the ultimate goal. In this interpretation, profit is one of the intermediate goals in the course of the business process re-engineering of a wholesale trading enterprise.

The basic applied principles for determining and measuring the impact of re-engineering on the efficiency and quality of business processes at a wholesale enterprise have been formulated.

Making managerial decisions at a wholesale trading enterprise, taking into account forecast situational studies of market dynamics.

Let us denote the total volume of goods in the wholesale trade enterprise at time  $t$  through  $F_x(t)$  controlled variables by the wholesale trading enterprise control system at time  $t$  through  $a(t)$ , uncontrollable variables by the wholesale enterprise management system at time  $t$  through  $b(t)$ .

Then the total volume of goods at the wholesale trading enterprise at a time can be calculated as a function of  $a(t)$  and  $b(t)$ :

$$F_x(t) = f[a(t).b(t)] \quad (1)$$

Moreover:

$$a(t) = d[P_x(t).Q_x(t).M_x(t)] \quad (2)$$

Where  $P_x(t)$  – set of prices for goods of the wholesale enterprise at time  $t$ ;

$Q_x(t)$  – set of consumer characteristics of goods at time  $t$ ;  
 $L_x(t)$  – set of logistics sale channels of the wholesale enterprise at a time  $t$ ;  
 $M_x(t)$  – set of logistics sale methods of the wholesale trading enterprise at a time  $t$ .

$$b(t) = m[P_x^k(t) \cdot D_x^k(t) \cdot M_x^k(t) \cdot S_x^k(t) \cdot N_x^k(t) \cdot G(t) \cdot E(t)] \quad (3)$$

Where  $P_x^k(t)$ - set of prices for products of competing companies at a time  $t$ ;  
 $D_x^k(t)$ -set of logistics sale channels of competing companies at a time  $t$ ;  
 $M_x^k(t)$ - set of logistics sale methods of competing companies at a time  $t$ ;  
 $S_x^k(t)$ - income of consumers of goods at a time  $t$ ;  
 $N_x^k(t)$ - number of consumers of goods at a time  $t$ ;  
 $G(t)$  - state sector policy at a time  $t$ ;  
 $E(t)$  - random factors in the market at time  $t$ .

Let us express the function of the goal of the optimal system of logistical BPWTP as follows:

$$\begin{cases} Y(S) = \{Y(s) \cdot R(s)\} \rightarrow \min \\ Y(S) = \sum_l^m \sum_k^n F_{lk} r_{lk} \rightarrow \min \\ R(S) = \sum_l^m \sum_k^n F_{lk} r_{lk} \rightarrow \min \end{cases} \quad (4)$$

Under conditions:

$$\begin{cases} \sum F_{lk} \leq g_l, l = 1, m \\ F_{lk} \geq 0 \\ \sum_{k=1}^n F_{lk} \geq h_k, k = 1, n \end{cases} \quad (5)$$

As a result of the implementation of the objective function (4) and conditions (5), we have options for the distribution of goods  $S_{lk}$  at minimal cost  $r_{lk}$  and time  $t_{lk}$  under the logistics channels for promoting goods.

The adaptability of the process of efficiently providing trading services to the wholesale buyer according to the demand for the corresponding product.

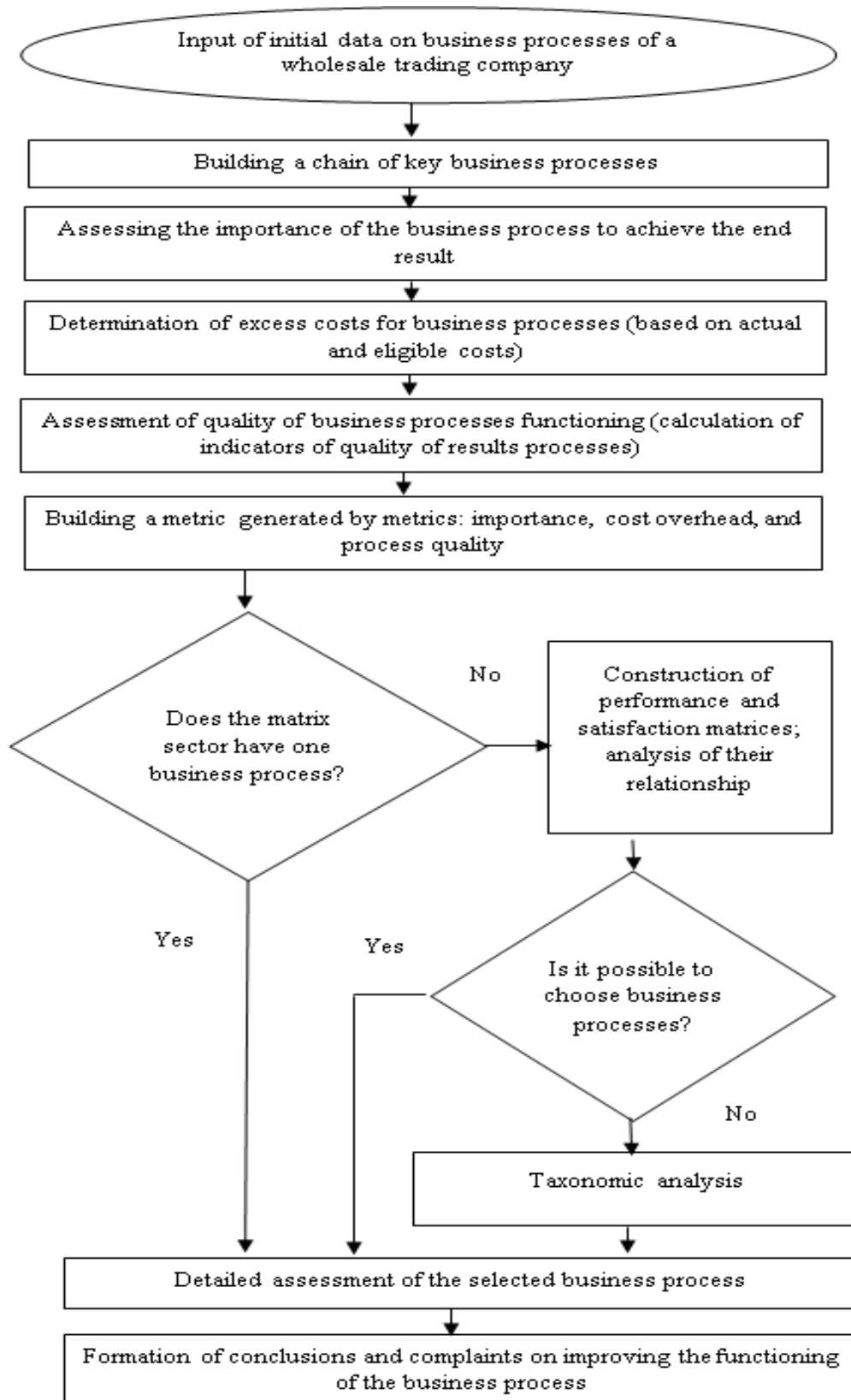
We believe that the proposed methodological approaches will provide information support for the effective implementation of the business process re-engineering of the wholesale trading enterprise.

Improving the effectiveness of the wholesale trading enterprise business process re-engineering project can be achieved by studying the interconnections of commercial, organizational, managerial, and logistics operations.

In this regard, to optimize trade and technological processes, it is advisable to apply a systematic approach to the analysis of interacting operations at the first stage of the implementation of re-engineering and local optimization of the most problematic technological operations at the second stage.

Since the input and output parameters of the assessment, factor characteristics, effective indicators, and parameters of commercial risk for various types of wholesale enterprises will be relatively different, it is quite difficult to foresee using a unified method to assess the level of functionality of a business process.

However, in our opinion, the general chart for measuring the impact of re-engineering on the efficiency and quality of the business process should be standard (Figure 1).



**FIGURE 1**  
**CHART OF ASSESSMENT OF THE IMPACT OF RE-ENGINEERING ON THE EFFICIENCY AND QUALITY OF WHOLESALE ENTERPRISE BUSINESS PROCESSES (CREATED BY THE AUTHOR)**

It should be borne in mind that the indicators of business process quality result include productivity and customer satisfaction, and the indicators of process quality are the coefficients of actualization, concentration, functionality (flexibility), and compatibility.

This approach not only allows to evaluate the quality of each business process after re-engineering but also to focus on their interconnectedness and consistency in the value chain. This, in turn, allows exploring the organization of their functioning using the proposed process quality indicators.

Particular attention in the development of a wholesale trading enterprise business process re-engineering project should be given to creating a process chart that allows analyzing all parts of the process and how much they are interconnected, as well as weaknesses and strengths that should be preserved in the new process. The algorithm for creating a chart for re-engineering is as follows: structural analysis of processes; development of a process environment chart; creating a process chart.

In our opinion, this will give the following benefits:

- 1) reduction of costs, duration, and number of errors in each of the analyzed processes;
- 2) integration of the wholesale enterprise strategy and key performance indicators; improvement of interaction between employees and departments of the enterprise;
- 3) approximation to certification according to ISO:9000;
- 4) improving investment attractiveness.

Thus, optimization and corrective tools during re-engineering create the conditions for increasing the efficiency and quality of business processes due to their process-system analysis, selecting methodological evaluations of the performance indicators of trade and technological processes (operations), developing recommendations for improving business processes that carry out priority impact on selected quality criteria.

## CONCLUSION

It is proposed to consider all re-engineering measures aimed at optimizing business processes from the perspective of classifying them into one of two categories: internal ones provide for a way to increase the efficiency of individual trade and technological processes when they operate in the wholesale enterprise structure; external- provide for the transfer of part of business processes (functions) on the terms of outsourcing.

The simultaneous use of these management tools allows achieving an additional positive effect as a result of their interaction. To determine the effectiveness of the sale of goods based on re-engineering, it is proposed to use the following concept: application of outsourcing and benchmarking methods as part of the re-engineering process to increase the efficiency of trade and technological processes through the implementation of competitors' best practices based on benchmarking and refusal from their own performance of inefficient components of production processes based on outsourcing.

It has been proven that benchmarking cannot be a one-time analysis. To obtain proper efficiency from the application of this process, it is necessary to make it an integral part of the business process re-engineering, carrying out it at all levels of the activity of the wholesale enterprise.

To predict the impact of re-engineering on the economic and organizational support of wholesale trading enterprise activity in the perspective of further research, it is necessary to use econometric modelling, which consists of the following steps: calculation of parameters and characteristics of the regression model; assessment of the adequacy, reliability, and statistical significance of the model with the mandatory verification of heteroskedasticity;

prediction of the functional variable and estimation of the polynomial dependence of the parameters of the obtained regression model.

## RECOMMENDATIONS

You should take into account the growth of effective performance indicators of the wholesale enterprise from the application of a specific method to improve the quality of the business process and reduce implementation costs (ABC analysis method). We recommend the following, in our opinion, the most effective measures to improve the quality of the business process in the process of re-engineering the activities of wholesale enterprise:

1. Formalization and detailed documentation of the business process. At this stage, all errors and inaccuracies should be identified and eliminated. These procedures facilitate the course of re-engineering under controlled conditions;
2. The allocation of end-to-end business processes, the appointment of managers (performers) and the rationale for their functional responsibilities. For business process managers, administrative and financial responsibility arises, however, duplication of operations is eliminated;
3. The introduction of innovative software and technology approaches to the business process re-engineering, in particular, combining existing software based on Workflow systems and creating further a common information space (Internet/Internet technology).

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