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REENGINEERING AS A STAGE OF THE MICRO-LOGISTICS SYSTEM LIFE CYCLE

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Summary

Introduction. *The modern business environment poses new challenges to enterprises, which requires, in particular, the application of a logistics approach and consideration of enterprise management processes as a micro-logistics system. This allows not only to take into account the peculiarities of the development of a company throughout its life cycle, but also provides an opportunity to effectively manage the duration of individual stages of their life cycle. Lifecycle analysis is a widely used tool for substantiating strategic choices aimed at the regular emergence of new products and the development of promising types of business. An important and relevant task is to study different views on the main stages of the life cycle of an enterprise as a micro-logistics system. Special attention should be paid to the study of the processes of managing the decline stage in the life cycle, which remains insufficiently studied, namely the use of the reengineering mechanism at this stage.* ***Purpose.*** *The purpose is to determine the peculiarities of the development of the decline phase in the life cycle of an enterprise as a period of time during which it is advisable to use reengineering to simplify and modernise the business processes of an enterprise as a micro-logistics system.* ***Results.*** *The results of the study are to substantiate the potential to consider the enterprise as a micro-logistics system and to determine its inherent nature of both the logistics and design systems. The processes of managing the stage of decline in the life cycle have been studied, and it does not necessarily have to end with the 'death' or liquidation of the enterprise. It is substantiated that reengineering can be considered an option for its 'revival' or 'transformation', as well as the possibility of phased introduction of not only new business processes, but also the production of many different products.* ***Conclusions.*** *Based on the analysis, the study proves that reengineering should be considered not only as a tool that can significantly extend the life cycle of an enterprise's products, optimise and improve processes at each stage of its life cycle, and adapt them to new realities and opportunities, but also as a life cycle stage that replaces the stage of enterprise decline. Such an approach, combined with a project-based approach to managing an enterprise as a micro-logistics system, will significantly increase the efficiency of its operations and have a positive impact on competitiveness in a turbulent market.*

Key words: *project, reengineering, business processes, life cycle, micro-logistics system, models of enterprise life cycles.*

РЕІНЖИНІРИНГ ЯК ЕТАП ЖИТТЄВОГО ЦИКЛУ МІКРОЛОГІСТИЧНОЇ СИСТЕМИ

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Анотація

Вступ. *Сучасні умови господарювання ставлять перед підприємствами нові завдання, що потребують, зокрема, застосування логістичного підходу та розгляду процесів управління підприємством як мікрологістичною системою. Це дозволяє не тільки врахувати особливості розвитку підприємства протягом його життєвого циклу, а й надає можливість ефективного управління тривалістю окремих етапів його життєвого циклу. Аналіз життєвого циклу є широковживаним інструментом обґрунтування стратегічного вибору, спрямованого на регулярну появу нових продуктів і розвиток перспективних видів бізнесу. Важливим та актуальним постає завдання вивчення різних поглядів на основні етапи життєвого циклу підприємства як мікрологістичної системи. Особливо потрібно приділити увагу дослідженню процесів управління етапом занепаду в життєвому циклі, який залишається недостатньо вивченим, а саме застосуванню на цьому етапі механізму реінжинірингу.* ***Мета.*** *Метою дослідження є визначення особливостей розвитку фази занепаду в життєвому циклі підприємства як періоду часу, протягом якого доцільно використовувати реінжиніринг задля спрощення та модернізації бізнес-процесів підприємства як мікрологістичної системи.* ***Результати.*** *Результатами дослідження є обґрунтування потенційної можливості вважати підприємство мікрологістичною системою, визначення притаманності йому як логістичної, так і проєктної системи. Досліджено процеси управління етапом занепаду в життєвому циклі, причому він зовсім не обов'язково має завершуватися «смертю», ліквідацією підприємства. Обґрунтовано те, що реінжиніринг може вважатися варіантом його «відродження» або «перетворення», а також можливістю поетапного впровадження не тільки нових бізнес-процесів, а і виробництва безлічі різноманітних продуктів.* ***Висновки.*** *На основі проведеного дослідження доведено, що реінжиніринг варто розглядати не тільки як інструмент, що може значно продовжити життєвий цикл продуктів підприємства, оптимізувати та вдосконалити процеси на кожному етапі його життєвого циклу, адаптувати їх до нових реалій та можливостей, але й як етап життєвого циклу, що замінює етап занепаду підприємства. Такий підхід у поєднанні з проєктним підходом до управління підприємством як мікрологістичною системою дозволить значно підвищити ефективність його діяльності та позитивно вплине на конкурентоспроможність в умовах турбулентного ринку.*

Ключові слова: *проєкт, реінжиніринг, бізнес-процеси, життєвий цикл, мікрологістична система, моделі життєвих циклів підприємств.*

Introduction. In modern market conditions, characterized by a high degree of turbulence, a successful enterprise must possess appropriate adaptive properties, since even a technological competitive advantage becomes a short-term one. In the management of enterprises, the emphasis is shifted from managing individual resources to managing dynamic business processes, including logistic ones, because in general any enterprise is a micro-logistic system [1].

An effective management requires an integrated use of various methods and models of management. A large-scale application of the project management methodology tools led to formation of a project approach to the enterprise management, i.e. its activity is viewed through the prism of ongoing projects. Considering an enterprise as a micro-logistic system, one can say that it has features of both a logistic and a project system [2]. The general idea that is reflected in both concepts is the "lifecycle", which is commonly understood as the activities of all supporting systems leading the target system from its concept to decommissioning [3].

The lifecycle model is one of the well-known tools used to describe the development process of any system: technical, biological, economic, social. Based on the lifecycle model, individual factors affecting organizational effectiveness can be analyzed at various stages of existence.

Analysis of recent studies and publications. We should take note of foreign scientists, in the writings of which the fundamentals of the lifecycle models were laid: I. Adizes, L. Greiner, B. Scott and R. Bruce, M. Davis [4; 5; 6; 7]. The study of the lifecycle involved such ukrainian scientists, as O.I. Gudz, S.V. Koryagina, Zh.V. Poplavska, O.V. Arefieva [8; 9; 10; 11], etc.

To date, 8 lifecycle models are widely known, namely: A. Downs' model, G. Lippitt and W. Schmidt's model, L. Greiner's model, W. Tornbert's model, D. Katz and R. Kahn's model, J. Kimberly's model, I. Adizes' model, E. Schein's model.

In their models, the scientists proposed the main stages of an organization development:

– A. Downs proposed three main stages of growth and development of organizations. The first stage - a struggle for autonomy – occurs before the formal birth or immediately after it. The second stage – a rapid growth - includes rapid expansion, which emphasizes innovation and creativity. The last stage – a deceleration - is characterized by clarification and formalization of rules and procedures.

– G. Lippitt and W. Schmidt developed one of the first lifecycle models of the organization operating in the private sector. They offered to consider a corporation that goes through three stages in development: birth - a creation of management systems and an attainment of viability; youth – a development of stability and reputation; and maturity – an attainment of uniqueness and ability to adapt in changing areas of work (the model describes six basic management tasks that vary from stage to stage).

– L. Greiner argues that the life of an organization consists in moving through the stages where each evolutionary period creates its own revolution. The revolution is seen as a turbulent period in the organization development, requiring a serious review of management methods. The path of the organization from one stage of its development to the next one lies in overcoming the corresponding crisis of this transition period.

– W. Tornbert considers the model where an organizational development is closely related to the development of a sense of community of personnel. The development comes from

the individuality and diffuseness of the groups to the sense of belonging to and involvement in the team. At the same time, the development mechanisms are not specified.

– D. Katz and R. Kahn are building their own model of organizations development on the careful development of an organizational structure. Accordingly, they propose three main stages of development: a stage of simple systems, a stable stage of organization, and a stage of structures development. After release of this paper, social organizations began to be considered as "open" systems characterized by interaction with an external environment;

– J. Kimberly argues that the first recognizable stage occurs even before the actual creation of an organization. At this stage, alignment of resources and formation of a future ideology take place. All this leads to the transition to the second stage of development, including the choice of "main schemes of movement", recruitment. The third stage involves formation of an organizational identity. At the fourth stage, the rules become more rigid, the structure becomes formalized, the organization becomes more conservative and predictable in response to the pressure of the external environment;

– I. Adizes presents the model as a natural, phased and programmed number of mandatory phases (stages), providing for an inevitable and phased movement of the organization in the course of development. His theory focuses on two most important parameters of the organization life activity: flexibility and controllability (manageability).

Formulation of the article's objectives. The purpose is to determine the peculiarities of the development of the decline phase in the life cycle of an enterprise as a period of time during which it is advisable to use reengineering to simplify and modernise the business processes of an enterprise as a micro-logistics system.

Presentation of the main material. At the moment, the most popular and most frequently used lifecycle model is the model of I. Adizes [4], in which the author proposes to consider development of an organization as ten stages of evolution, divided into short periods of organizational changes (Fig. 1).

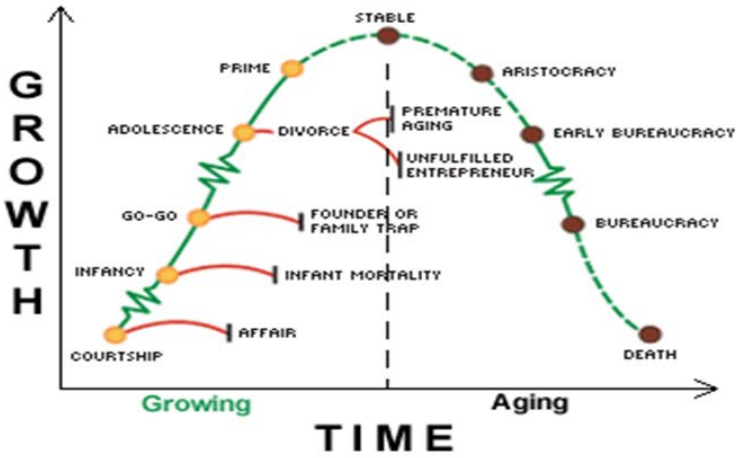

Fig. 1. Stages of development of an organization of I. Adizes

At each stage, an organization will have to face the need to solve various sets of tasks. In this case, the organization managers shall use the appropriate management methods. The most acceptable approach in solving the tasks set is the use of project management tools.

Project stages are usually consistent in nature, but may have parallel links. Together they form the lifecycle of project management. Further, the approved project management lifecycle is often a standard of the organization project management. In fact, the project manager may have no opinion on the approved approach to the lifecycle, but an understanding of different approaches and methodologies can help the project manager to adapt better to the changes [12].

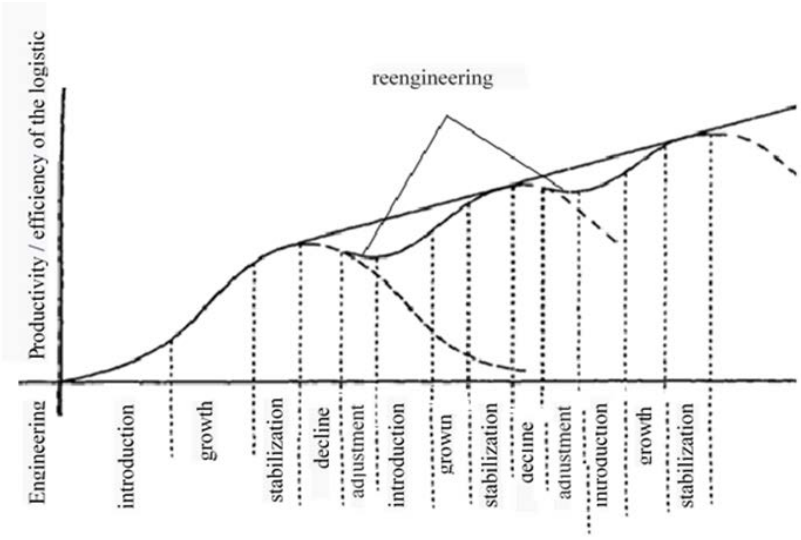

Fig. 2. Stages of the logistic system lifecycle

Among the scientific papers of local scientists studying the lifecycle of an enterprise as a logistic system, one can mark out the researches of Krikavsky E. and Chernopiskaya N.V. They propose to consider the stage of recession in the lifecycle of the logistic system as a period of time during which it is advisable to use reengineering, the purpose of which is to simplify and modernize business processes. (Fig.2). But, unfortunately, in the subsequent study, the authors do not consider the impact of reengineering on the development of the logistics system and changes in the characteristics of its life cycle.

The decline phase is accompanied by the following changes in the activities of the enterprise as a logistics system:

– increase in costs (if the costs of logistics activities begin to exceed the expected profit, this may be a sign of the beginning of the decline phase);

– decrease in efficiency (a decrease in the productivity and effectiveness of logistics processes, for example, an increase in order fulfilment time, an increase in the likelihood of errors and delivery delays, may also indicate the beginning of a downturn)

– decline in service quality (if there is an increase in the number of customer complaints about service quality, delivery delays or other problems, this may indicate

a deterioration in the quality of the logistics system); decline in demand (if demand for an organisation's goods or services is declining due to problems with the logistics system, this may also be a sign of the beginning of a recession);

– increase in inventory and debt (an increase in inventory and debt to suppliers may indicate problems with the company's inventory management and financial position, which may be related to the decline of its logistics system);

– loss of competitiveness (if competitors offer more efficient and better logistics solutions and the company loses market share as a result, this may indicate a decline in the logistics system).

To survive, companies at this stage often make adjustments aimed at improving certain elements of the logistics system. If such adjustments do not achieve the goal, reengineering is used, which is aimed at achieving significant changes [13].

In their opinion, at this stage the adjustments are often resorted that are aimed at improving some elements of the logistic system. When such adjustments do not achieve the intended goals, reengineering is used, which is aimed at achieving significant changes [13]. But, unfortunately, in the further research, the authors do not consider the influence of reengineering on the development of the logistic system and the change of its lifecycle characteristics.

At the stage of reengineering, a phased introduction of new business processes takes place (parallel implementation of old and new business processes is allowed), a quality control and an adjustment of implementation of new business process model are carried out, and the developed business process models and relevant documentation are being adjusted [14].

For each product of an enterprise as a micro-logistic system, its own logistic flows are formed - these can be material, financial, information flows and services. They can intersect and form the logistic network that includes many elements - links of the logistic system, interconnected by material and related flows in the field of a single logistic system of the enterprise (Fig. 3).

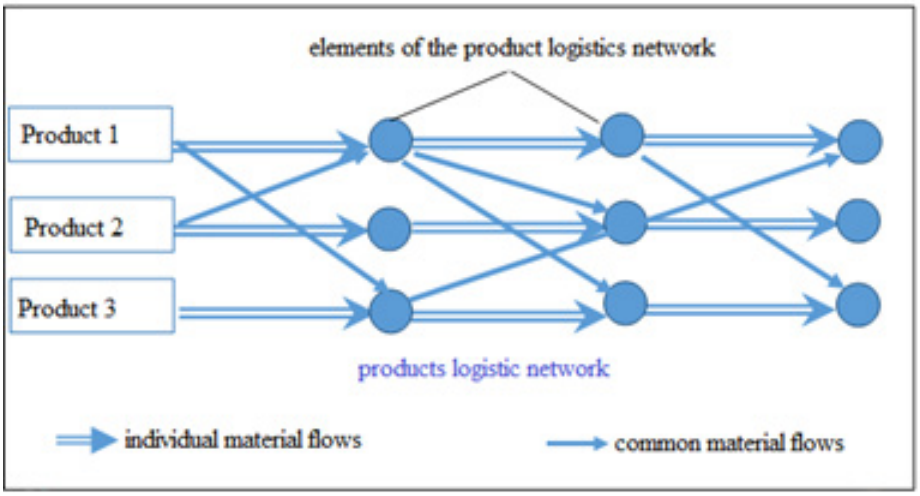

Fig. 3. Material flows of products of an enterprise

Each product has a certain set of consumer qualities, technology of promotion, sales and servicing typical for it, its lifecycle. Total products available to the enterprise, summing up, form the lifecycle of the individual enterprise (Fig. 4).

In addition, products can undergo significant changes (modifications), allowing quick respond to emerging market opportunities. So, when reengineering at the operational phase of each product's lifecycle, the lifecycle of the micro-logistic system can also be significantly extended, which will ensure a strong competitive position in the present, as well as good prospects for the future.

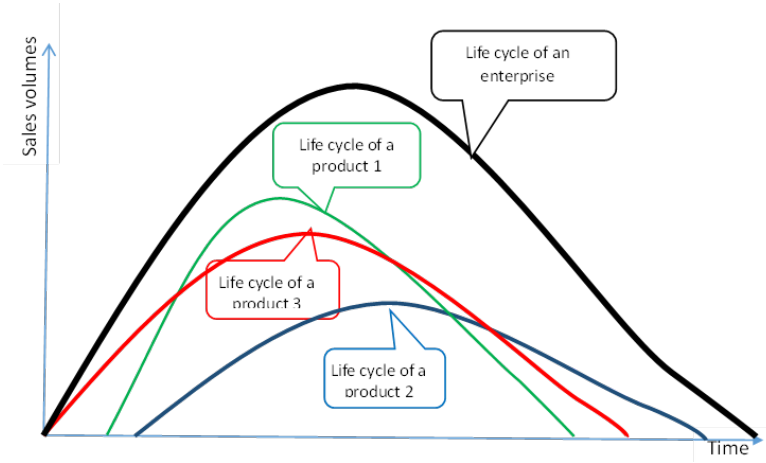

Fig. 4. Total lifecycles of products of an enterprise

Conclusions. Thus, the theory of the organization lifecycle is quite new and promising direction of researches in the field of management. Knowledge of the sequence of the organization development allows seeing the general patterns and features of each stage of the lifecycle, anticipating future changes needed and preparing a company for them. This contributes to its long-term and successful operation, and the inclusion of reengineering, as a stage of radical redesign of business processes to achieve significant improvements in the key performance indicators of a modern enterprise, in the lifecycle of an enterprise allows increasing the duration of the logistic system, which, in turn, leads to an increase in the lifecycle of the product of an enterprise. At the same time, the duration of the product lifecycle stages changes significantly - the duration of the development and implementation phases of the updated product is reduced while ensuring compliance with the required performance specifications and the product technological effectiveness, which in turn leads to an increase in the efficiency of the enterprise as a whole.

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