

## **KAIZEN RESERVES FOR PRODUCTS AND SERVICES QUALITY IMPROVEMENT**

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**Key words and phrases:** Kaizen; quality; reserves.

**Abstract:** The paper presents Kaizen analysis and the estimation of the reserves of the quality of functioning of a modern credit organization as an open dynamic self-organizing system.

The sphere of bank services (**BS**) is winning new and new positions in Russian market economy. Its structural and institutional progress has generated the «start quality» of BS within the framework of the systematic and informational quality paradigm: extensive and intensive (qualitative) BS development with the purpose of getting the competitive advantage. The latter is displayed in BS market through the totality of economic relations concerning the satisfaction of consumer BS needs. As a whole the quality of a commercial bank (**CB**) as a BS producer may appear inefficient only in case of its productivity restriction. Therefore functioning condition which does not limit the productivity is effective under any circumstances and should not be limited by institutional management. Otherwise such regulation will inevitably lead to the suppression of a producer freedom concerning the satisfaction of the needs of a BS consumer whereas the latter quite agrees with any activity which in a pointed manner does not limit BS productivity and thus is quite competitive.

As the efficiency criterion the restriction of CB productivity connected with BS production of better quality and in shorter terms is most frequently used [1]. It corresponds to higher degree of the development process of BS sphere.

Ensuring the BS competitiveness in the market is achieved due to Kaizen reserves allowing the bank to obtain strategic evolution thanks to its ability to constantly and dynamically improve the quality of services and processes with the help of which the CB functions and also to the opportunity to raise the degree of consumer satisfaction.

Kaizen theory was formed on the basis of ten key principles (focus on clients, improve constantly, openly acknowledge problems, promote openness, form work groups, manage projects on the inter-functional basis, stimulate the processes of mutual support, develop self-discipline, inform each worker, create

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conditions for each worker) and methods of planning the quality improvements on the basis of K. Levin's theory of power fields, forming the mechanistic model of economic system movement to the point of balance.

The evolutionary theory of bank sphere development assumes the consideration of a CB as a non-equilibrium synergetic economic dynamic system. Conceptually the reserves of improving the quality of functioning of such systems are formed by the methods of script modelling; the nucleus of the script displays quality phenomenology (BS quality), and the covering is formed by TQM conception (Total Quality Management) and institutional preconditions of its realization (legislative regulation of competition in the market of bank services) [2].

In order to provide the conformity of BS to the specification, its reliability, productivity, adaptability and value for CB consumers it is recommended to consider such «quality ladder» as the development process supposing the dynamical program of changes consisting of several Kaizen reserves. The opportunities which are given to CB are the important means of orienting the personnel on final changes and their strategic importance.

Work on each step allows CB to appropriately mobilize and direct Kaizen resources towards solving the given problem.

In Kaizen terms standards are created, and SDCA process provides the introduction of the standard into operations as the best current way of working. Without such a consolidation the general improvement of quality in CB acquires not the S-shaped, but the SAW-shaped character leading the CB system to stable equilibrium, aimed only at the survival instead of the CB development.

The quality of Kaizen reserve corresponds to the mission, vision and credo of a CB, and the quantitative estimation is displayed through the benchmarking self-estimation of CB quality management with revealing the script trees of the purposes of the realization of reserves within the framework of the corresponding quality paradigm.

Script performance is realized by means of operational divisions as quality brigades with gemba leaders, and the dynamics of the formation of teams with the purpose of the fastest synergy providing becomes the way of the acceleration of Kaizen culture introduction.

A commercial bank is considered as the enterprise of special sort producing financial products and services, as a rule, products as bank services. Such approach suggested by D. Wood in 1975 displays the strategic conception of a bank as the institute of the quality of services aimed at the evolutionary development.

The change of demand for bank services and the conditions of the offer of the factors of «financial» production under the conditions of uncertainty are connected with the non-equilibrium of the condition of bank functioning.

The formation of the mission, vision and credo of a CB as the starting components of the practical realization of TQM strategy is possible while analyzing the synergetic bank economic system with non-equilibrium open matrix functioning structure [3].

The reserves and mechanisms of the improvement of bank services quality are formed on the basis of the principles of stages and at the first stage the cybernetic way of presenting a CB as a model of «black box» (Fig. 1) is realized.

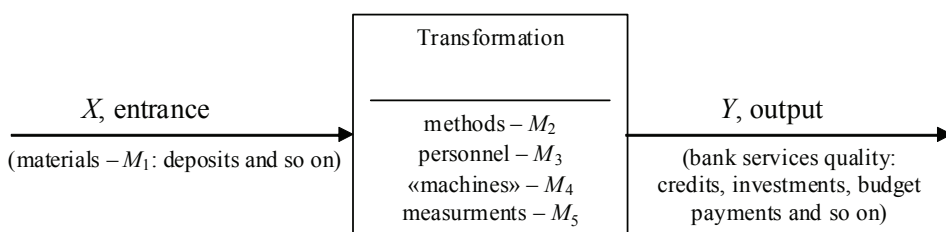


Fig. 1. Cybernetic way of presenting a commercial bank as a model of «black box»

Under quasi-static condition CB functioning is described by the following model:

$$y = f(x(M_1), \bar{g}) + \bar{\xi}, \quad (1)$$

where  $\{\bar{g} = g_1(M_2), g_2(M_3), g_3(M_4), g_4(M_5)\}$  – vector of influencing parameters;  $x \in [X_{\min}, X_{\max}]$ ;  $y \in [Y_{\min}, Y_{\max}]$ ;  $M_1 \in [M_{1\min}, M_{1\max}]$ ;  $M_2 \in [M_{2\min}, M_{2\max}]$ ,  $M_3 \in [M_{3\min}, M_{3\max}]$ ,  $M_4 \in [M_{4\min}, M_{4\max}]$ ;  $M_5 \in [M_{5\min}, M_{5\max}]$ ;  $\bar{\xi}$  – additive model of the hindrance (error) of transformation.

In model (1) hindrance  $\bar{\xi}$  is estimated as the following model:

$$\zeta = \sqrt{\left(\frac{\partial f}{\partial x} \Pi_x\right)^2 + \left(\sum_{i=1}^3 \frac{\partial f}{\partial g_i} \Pi_{g_i}\right)^2}, \quad (2)$$

where  $\Pi_x, \Pi_{g_i}$  – hindrances  $x$  and  $g_i$  accordingly.

Models (1) and (2) characterize the model of the quality of the condition of functioning (survivability) of a commercial bank which corresponds to the model of bank certification at discrete moments of time.

$$N(y_j) = \Phi[N_{1j}(X_j), N_{2j}(g_j), N_{3j}(\bar{\xi})], \quad (3)$$

where  $j = \overline{1, m}$  – increment quantity;  $i = \overline{1, 3}$ ;  $\Phi$  – functional.

During the process of the estimation of the quality of bank services parameters  $x, g_i, \bar{\xi}, i = \overline{1, 3}$  are changing and, hence, certification parameters are also changing. To estimate the certification opportunities the methods of CB informational analysis are applied which are subdivided into analog and discrete (frequency) ones.

The former ones provide the non-equivalent display of certification code owing to the essential losses of information in the chain of transformation. Discrete methods have greater productivity and transform information with minimal losses and consequently carry out the equivalent display of a CB certification code. It finally leads to the reduction of marking expenses and increase of services competitiveness.

It is advisable to carry out the development of discrete methods on the basis of the principles formulated as requirements [4].

**Requirement 1.** The necessary condition of the estimation of the quality of services is the presence of CB and its replacement scheme.

**Requirement 2.** The sufficient condition of the estimation of the quality of services is the adequacy of CB replacement scheme with the predetermined degree of accuracy optimizing the estimation expenses.

*Consequence 2.1.* CB replacement schemes are equivalent if they are chosen with the determined degree of accuracy.

*Consequence 2.2.* Replacement scheme may not reflect all the CB services and external disturbances if the estimation of the quality of bank services with the determined degree of accuracy is provided.

*Consequence 2.3.* It is advisable to use the replacement scheme expressed obviously.

**Requirement 3.** The necessary condition of the estimation of the quality of services is the comparison of the informational signal concerning services quality with program-controlled Kaizen signal.

**Requirement 4.** The sufficient condition is the estimation of the informational signal concerning the services quality in comparison with the program-controlled exemplary Kaizen signal with the degree of accuracy determined according to the optimum error (hindrance) of the estimation of quality, corresponding to the optimum estimation expenses.

*Consequence 4.1.* Any CB has its own resonance – bifurcation point.

*Consequence 4.2.* If Kaizen signal corresponds to the bifurcation point the error of the estimation of the services quality is minimal that corresponds to minimal expenses.

*Consequence 4.3.* While estimating the services quality with minimal error the comparison of Kaizen and information signals of the services quality occurs in the bifurcation point.

**Requirement 5.** The necessary and sufficient condition of the optimum estimation of the quality of CB services is the conformity of the informational parameters of the services quality to Kaizen signals in the determined range; the sufficient condition is the estimation with the determined accuracy defined by the error of Kaizen approximation and optimizing the estimation expenses.

*Consequence 5.1.* The increase in number of stages of Kaizen technology reduces the error of the estimation of the quality of CB services and the expenses for informational analysis.

*Consequence 5.2.* The sensitivity of Kaizen technology is proportional to the quantity of stages.

*Consequence 5.3.* The flexibility of the economic regulator of the estimation of the services quality is determined by the quality of the algorithms of institutional and investment management.

*Consequence 5.4.* Kaizen technology differentiates CB to matrix structure.

The results of the informational analysis of CB are used on the stage of the development of mission, vision and credo of a CB, and also the business-plan of BS dynamic improvement.

The enterprises and organizations using Kaizen and Hoshin Kanri strategies distinguish their Kaizens as the spheres of constant improvements, and differentiate between them and Hoshins, i.e. those areas where they achieve break-through. Such strategy provides noticeable benefit as it unites two versions of changes with which a business-division deals: long-term systematic

changes aimed at the development of the processes and large single initiatives. Both types of changes are important for CB strategy taking into account that we speak about different kinds of activity which hardly follow each other and consequently can be considered as the useful reference point for the personnel [3, 4].

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## **Кайзен-резервы повышения качества продукции и услуг**

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**Ключевые слова и фразы:** кайзен; качество; резервы.

**Аннотация:** Проведен кайзен-анализ и оценка резервов качества функционирования современной кредитной организации как открытой динамической самоорганизующейся системы.

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