New approaches to regulating financial activity of enterprise from the position of organisational development

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Examining the problems of organizational development from the point of view of complex social economic and technical industrial systems, functioning given the constantly changing environment and reflecting possibilities and dangers in regard to maintaining financial sources is fully described in investigations made by Kvach Y., Regen V., Red'kin O. [1]. The authors proved that given permanent changes stable rules, methods and techniques not correspond to current requirements, and it provides urgent search for new approaches to organizational development.

The main conclusion of the mentioned researchers says that evaluation of opportunities to create the effective leverage of enterprise management is tightly connected with improving organizational theories, responses, as well as synergy, energetic and informational paradigm, self-organization and others.

The main properties that define opportunities of effective organism development are self-similarity and information. The main properties of social subject self-organization are connected with differentiation and integration of organizational system elements, changes in their con-elation. They promote fluctuations and cause new structures and new qualities in fluctuation moments.

The theories made by I. Prigozhin [2] contributed to modern investigation of self-organization which proved from different points of view misbalanced systems on the basis of environmental obstacles or their own fluctuations may come to new stage.

The theories of self-organization include synergy, theory of changes and catastrophe theory. Experts in theory of changes provided methods and conceptual framework to look into system movement process, jump stage in particular.

G. Haken [3] considers synergy as theoretical background of correlation, shows that stable system is making order out of chaos and characterizes it as ability "to support its balance or certain dynamics".

The traditional opinion of external regulation and system observing was equally changed due to model conception of systems with self-regulation. The environmental influences are in whole obstacles (perturbations), but the system itself decides how to include such obstacles in system operations.

To examine conceptions of development self-organization we should define the main conceptions, such as development, evolution, growth. There is a theoretical proof that development is a qualitative change in system structure and functions or, in brief, any qualitative change in system. It is typical for many economists that growth is not identical to development. Development may occur both in progress and regress stages, both as evolution and as revolution.

Since movement and development of balanced, misbalanced, open and closed systems depends on different principles, they should be regarded separately, with preliminary analysis of their balance and misbalanced from the synergetic point of view.

Balance means state of closed system when its macro parameters (constant structure, functions, inlet and outlet parameters) are unchanged. Balance may be both stable (fixed) and flexible. Fixed balance takes place when the system comes into its previous stage given changes in systems parameters under influence of external or internal stimulations.

It is necessary to emphasize the importance of financial stability parameters which reflect balance of economic entities and necessity to invest in real and financial assets.

Financial balance means achievement of such financial activity stage, when need in growth of main assets (property) is balanced with opportunities to finance this growth at its own sources' costs. It increases role of certain (main) parameters and gives impartial assessment to

financial state of enterprise for the accounting period, as well as forecasts the future. It refers, first of all, to changes in structure of assets and liabilities, in accounts with debtors and debits, in incomes and loss and so on.

Financial balance characterizes flexibility of operative creating necessary investment resources given unexpected high-effective financial proposals or new opportunities to speed up economic development. Achievement of financial balance depends much on balance level of separate structural elements of assets and capital, as well as on effectiveness of their use in space and time.

Here we should take into account a great influence of environment, such as price development, tax rates, interest rates on bank credits and deposits, stock market rates, rivals' activity on commodity and financial markets and others. The conception of modern enterprise development is created corresponding with these factors.

In open systems internal fluctuations may increase under environmental influence, and the system is even unable to repay them. In fact, internal fluctuations are harmless in conception of self-organization, but external influence is significant.

In case of very strong fluctuations the system may be destroyed on the stage of branching (bifurcation). The catastrophe in conception of self-organization means qualitative, uneven, unexpected changes and jerks in development. We should mean that small actions are enough to let the system leap into another stage through the instability boundary. Unfortunately, in synergetic and system investigations one more important detail is not mentioned - the parameters not of the whole system, but also of the environment should become significant to let the system leap into another stage.

During evolution process quantitative and qualitative changes in parameters of the system and its components are accumulated. According to these changes the system chooses one of its possible attractor on the stage of branching. As the result, the qualitative leap takes place and the system forms its new dissipative structure, which is correspondent to the chosen attractor. It takes place in the process of adaptation to the changed environmental conditions.

After new dissipative structure has been created, the system may change smoothly again, and the cycle repeats. In the developing process, consisting of consequently repeating stages of evolution and leap, the systems changes constantly from stable condition to unstable and vice versa.

Structural and functional stability means the system ability to preserve its parameters in a certain field of financial balance. It allows establishing the qualitative definition, particularly enterprise assets during the major part of evolutionary stage. So, stability, instability, adaptation and disadaptation are necessary conditions for any system developing process, including financial activity regulation.

The authors [1] confirm that the system order appears as integral phenomenon on the basis of interaction between all parts of the system. The order means regularity which allows to define or to foresee lack of elements, as well as to diagnose mistakes (perhaps also disparities).

The order in social systems is the result concerning autonomous, differently bound administrative decisions. In our context autonomous self-organization appears only in that case, if order of asset redistribution is self-defined within the company. In this case the order is considered as the result of deliberate and planned actions concerning cash flow regulation.

According to the mentioned point of view, introduction the principles of self-organization into business activity regulating system should be concentrated on ability to survive and to own possibilities to change capital or assets' structure.

The highest possible solution of contradictions takes place at the moment of catastrophe. Later the contradictions accumulate and the cycle repeats. The change faces fixity of unchangeable structure, that's why at the leap stage structure changes very quickly. It is the system itself that requires its quality and breakage of functioning processes to be changed. At the evolutionary period functioning processes control development and smooth fluctuations.

Autonomous system exists only given relations and correlations which define its integrity and define themselves only through this system. That's why we mean relative autonomy concerning only certain guidelines. Such adaptations are not passive: autonomous systems always try to have an active influence on its environment and to construct its actions according to its ideas which are possible in certain framework.

Nowadays the problem of evaluating the influence of different strategic variants on stability features of given results is badly studied. Among the

main features of the results to make decisions describing property of stability, there are sensitiveness and flexibility to changes in market parameters.

The analysis of sensitiveness of the results in different connection between external parameters and the results in made decisions contains using sensitiveness coefficients (functions). They are degrees in parameters of strategy to be realized, in total amount of parameters characterizing external environment.

The general theory of sensitiveness as independent scientific branch was discovered in the middle 1960-s by R. Tomovich [4]. The analyzing methods of sensitiveness became widely spread in solving the regulation problems in technical systems. The results of theory of sensitiveness in technical systems caught the economists' interest. First the methods of theory of sensitiveness and their use in solving economic problems were systematically described by M. Intriligator [5].

Financial and economic literature and practice (both home and foreign) distinguishes general financial market and certain kinds of market, which are the parts of the general market structure. General financial market characterizes general situation of economic relationship between its participants in the certain period; the conjuncture of certain markets, on the other side, characterizes the situation in the market including the whole interrelated conditions in the certain period of time.

Scientific literature and practice uses the conceptions of sensitiveness and flexibility of demand and supply to set the goals of market analysis with greater effectiveness. There is sensitiveness coefficient for each functional point of demand or supply, and it characterizes the change in demand given the small change in price. Economic and mathematical methods of optimization and analysis supply both with optimal decision and with its substantiation given the changes in market situation.

The work made by M. Sorokina [6] contains an interesting approach to set the complex models and methods to analyze the influence in current deposit and credit market on the results of credit decisions on doing financial operations. To prove the accepted decisions on doing deposit and credit operations given the changes in market situation, first we should define relations between credit institution, investors and debtors in simple situations, given the expired terms of credit repayment and deposit storage.

The work made by L. Kuznetsov [7] describes opportunities to make models on real mechanism of different factors that influence on the data of certain enterprise. They are synthesized both on the basis of theory of sensitiveness provided within theory of regulation for technical systems, and on the basis of mathematic model of financial and economic enterprise activity. The author sets forth the technique of synthesizing methods of investigation the environmental and production influence (e. g. income), which can be used without changes to analyze any other parameters of effectiveness in enterprise activity.

The mentioned author sets forth that corresponding to the rules of bookkeeping; the income is formed at number 90 "sales" and makes difference between receipts for sold good and amounts of "cost of sales" and "VAT". "Cost of sales" is the sum of production price, accumulated in account of "production costs" and "sales expenses".

Given the formal representing of regulating system in the financial activity, source price, tax rates, dues and fees are external factors and source consumption rates defined by technical quality; parameters are internal factors. The theory of sensitiveness lets explore the parameter influence on the system, so it methods may be quite effective to analyze influence of external and internal factors on economic activity on enterprises different in their structure and volume.

The basic elements of theory of sensitiveness are extra movements, functions and coefficients of sensitiveness. Coefficients and functions of sensitiveness let estimate the influence of change in separate parameters on the optimal condition of system. Extra movements give the opportunity to explore the parameter influence on dynamics of system directly in economic terms which correspond with self-regulation mechanisms.

The results are more substantial and more identical to real market conditions if the expense mechanism includes the opportunity to account for trends in source price changes, production price changes, source expense changes due to up-to-date technology.

Change in prices takes place due to time series built up on data of previous time-frames. In the same way, given the absence of theoretic suppositions to

build the model of source expense forecast, empiric models of source consumption dynamics may be created.

Models of price forecast and of source consumption norms let define extra movements, functions and coefficients of sensitiveness concerning economic entity. Model of extra movements concerning financial and economic activity of enterprise allows to explore prospects and retrospects of economic activity of enterprise.

Price meanings, source expense norms and other factors occurred in the previous period may be accepted as nominal parameter meanings which correspond to the basic movement. It is defined by balance and transaction meanings on accounts and terms (months) from reports for previous periods. Increment of fund costs defines increment of balance and transaction on enterprise accounts. By using increment of balance and transaction instead of their full meanings, we receive increment of economic activity parameters, which are of interest for investigation, for example, increment of income due to increment of corresponding transactions.

The problem, where the explorer sets at his will the meanings of parameter addition and calculates corresponding additions of enterprise activity parameters, is called direct. Direct problem can be solved within the existing bookkeeping systems. It is enough for it to change input data to make account (e. g. price for raw materials or ready production) and to make consecutively transactions which are standard for given enterprise. As a result, new meanings of source costs, costs of sales, incomes etc., which would be relevant given unchanged input data.

The problem, which defines the optimal parameter additions and approximates maximal meaning of enterprise activity efficiency to prescribed (expected) meanings, is called reversed. If independent variables are parameter additions and constants are prescribed production volumes, we may define addition of prices, source expense norms and other parameters which provide extreme addition of selected factors of effectiveness given the prescribed production program. The solution of this task is the total change in prices, source expenditure rates etc., and it has the most favorable influence on foreseen meanings of enterprise effectiveness parameters.

Another way is to define addition of parameters (prices, expenditure rates, tax rates etc.) as constants and production volumes of different kinds of production as variables. Here the task solution is change in production plan (addition of volumes in kinds of goods or services) which makes up for unfavorable foreseen trends in change of external and internal factors as much as possible, or allows using favorable trends as much as possible.

The functions of sensitiveness are partial derivatives of condition of the object (according to parameters) calculated given certain meanings of initial status and entries. Given the formal description of financial and economic activity of enterprise, the status means fund sums that depend on parameters such as prices, norms, tax rates etc. That's why in the given aspect functions of sensitiveness characterize dependence on external and internal factors of different intermediate stages (including internal) of fund expenditure in different periods of enterprise activity which may be hidden in final factors of enterprise economic effectiveness.

In the frame of investigation conditions of the system are fund sums identified by indexes which define source, production and operation, as well as account numbers reflecting the system. Fund sums change constantly and transfer from one account into another. Formally they may be described as complex function. So, functions of sensitiveness in the given task are partial derivatives on parameters from fund sums on account. These derivatives characterize the influence of certain parameters on separate expenditures.

Introduction the function of sensitiveness allows to analyze the influence of different factors on intermediate or source expenses. The output data of enterprise economic effectiveness are profitability, income, liquidity etc. Coefficients of sensitiveness may be defined for all these factors, and it opens large opportunities to investigate dependence of these data on external and internal factors that have an influence on economic effectiveness.

Having inserted number values of initial conditions and foreseen changes of parameters, functions of sensitiveness let evaluate real sensitiveness of costs (in different stages of producing different goods) to changes both in external factors which reflect conditions of correlation between enterprise, market and state, and in internal factors which reflect trends in

technologic and structural changes inside the enterprise.

Different tax and contribution rates let them reflect use of financial resources and their dependence on selected account policy. The functions of sensitiveness may be arranged by standard means and represented as different diagrams and monograms which are convenient for analysis and displaying essential hidden expenses, their mechanisms and ways to reduce them.

Coefficients of sensitiveness presume parity of all sources including those ones which are reflected in general production and business expenses. They let make up simple and grounded algorithms how to receive evaluation of influence of different components of production process and enterprise regulation on creating cost of production sales and economic state.

The most essential part to make an economic analysis is not substance of different kinds of sources (equipment, raw materials, energy, work etc.) but their quantitative characteristic which should be described identically for possible comparison. The meanings may be identified on basis of account information received during the previous periods of production activity.

The goal of regulating the enterprise is the systematic reduce of expenses due to cheaper infrastructure of enterprise and techniques achieved by lower source expense due to modernization and introduction new equipment, technique and regulating systems.

We should mention that existing practice of bookkeeping, including automatized system, depends essentially on methods appeared in the period of human processing of data, when decrease in account volume was relevant. It involved aggregation and integration of data. Calculating sources provide unlimited data differentiation and allow to raise detailed elaboration, depth and accuracy of analysis and even source expense regulation.

It means that developed instruments allow to reform existing bookkeeping systems, being banal electronic account registers, into intellectual systems of analysis and planning enterprise activity. Besides operations in audit of economic activity they will contain automatized theories of regulation and operations on making decisions, which rely on modern achievements.

The discussion mentioned above may be continued and summarized in such way: financial regulation of enterprise can be understood as a group of event systems being correlated structurally. These systems need regulating on the basis of material and immaterial structures. That's why organizational changes are always structural changes in reformation of material and, first of all, immaterial structures which reflect cash flows.

References

1. Kvach Y., Regen V., Red'kin A. New approaches to regulation on the basis of self-organization/VInnovations in economy. Collected scientific works. Issue 31: innovation techniques of monitoring and regulating economic systems. -

Odessa, institute of market problems, economic and ecologic investigations of Ukrainian National Academy of Sciences, 2007. - 234 p. (8 - 17).

2. Prigozhin I., Stengers I.. Order out of chaos:

translation from English. Gorky, Nauka, 1986. - P. 354.

3. Haken G. Information and self-organization: macroscopic approach to complex systems. Gorky, 1983.

4. Tomovich R., Vukobratovich M.. The general theory of sensitiveness. Edited by Ya. Tsypkina. Moscow, Soviet radio, 1972. - 240 p.

5. Intriligator M. Mathematic methods of optimization and economic theory. Moscow, Progress, 1975.

6. Vagapova D. Evaluating sensitiveness of results of accepted decisions to studying parameters of deposit and credit market.//Vestnik SGAY, Ne2, 2003, P. 19-21.

7. Kuznetsov L., Chernyrh M. New methods of solving the problems of planning production activity of organization.//Problems in regulation. - 2005. Nsl. - P. 26 - 31.