Model Of Safe Management (Bases Of The Protection Theory)

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Abstract - **The article describes basic elements of object protection theory. It is based on "descriptive language of economic objects (DLEO)". Quantitative fulfillment of basic terms is given. Also unresolved task of economical theory is declared.**

Keywords: problem, protection theory

1. Introduction

Object management needs a scientific substantiation of safe management (the protection theory). This theory defines ways of creation of appropriate systems and prevention of centuries-old economic downturn. The co-ordinated model of concepts is absent in this area, therefore such theory is not developed. The article describes basic elements of this theory.

Current methods and object protection means are based on works of V. Pareto [3]. This methods and means are based on principle «interests - threats - protection» and on scenarios of any intrusions. They are not based and don't contain: the solution of object formalization problem; object's activity; an environment; their interactions. Such categories as "complex safety", "internal security", "physical protection", etc. are the result of evolution of methods and means.

Attempts to create of the object's model continue nowadays. These attempts use target indicators of object's activity. Attempts are not based on knowledge of resource characteristics, or on knowledge of structure and dynamics of internal communications, or on various influences on object. Recent publications [4] show that the majority of concepts, categories and other descriptive means of the object interaction with environment are linguistic (do not have theoretical base). This is a main disadvantage of known publications.

2. Bases of the protection theory

The protection theory is a result of knowledge differentiation. The theory includes management, analysis of systems, econometric, accounting and information technologies. We know that every production function is realized by creating of economical objects which interact with

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environment. Approaches to object's formalization are known. These approaches are based on the fact that the object is system with small (one - two) and equivalent feedbacks; this system uses a unique "industrial" resource for its functioning; the basic indicator of system activity is formed at the only level. Set of resource components uniquely changes in time. These changes unequivocally generate unique behavior of the object activity basic indicator (vice versa is not necessarily true). We used this statement as a principle to formalize objects in habitual parameters, units of measure, terms. We have chosen decomposition as a method of object's representation. Object decomposition allowed to find formulas of all components of object production function at each level [2] (appointment, care, protection, counteraction, control, auxiliary, etc. functions). We support the principle that safety at all levels should be formed in a direction from the bottom ("atomic level") to the top. The principle of protection from simple to difficult is an essence of the protection theory suggested by us.

Set of symbols, operators, rules of the developed language (Descriptive language of economic objects - DLEO) are formalization means of any object. This language includes accounting (language of "dual record»).

Production function f(s) at the chosen level of object decomposition is rational fraction of n-th order [2]. The fraction numerator is the L-image of realization of the basic indicator p (descriptor one facts of an economic life). The denominator is the L-image of realization of its resources r (descriptor other facts of an economic life) [2]. The estimation of conditions "lifting", "crisis" and others should be authentic, well-founded on a registration interval of time. We have not found a substantiation of such size of a registration interval. Such substantiation is an unresolved problem of the economic theory.

The formula f(s) describes behavior of all resource components, the basic indicator of activity and duration of a registration interval at each level. Therefore, it quantitatively fills the term «a transparency of object activity» at the chosen level.

3. Model of safe management

The area of our interest is safe object management. We are interested in two types of object interaction: "influence" and "market". The basic tools of influence are «power influence», "fashion", "word". The purpose of influence on object is to change its activity indicators. Resources are means of realization of any and all object functions. Therefore, change of activity indicators can be reached by influencing on its resources. Hence, protection of resources is «a necessary condition of economic safety». Modern Russian philosophers assert, that «power influence» between the states cannot provide achievement of the mentioned purpose.

Educational institutions, church, mass media implement socialization of citizens. We think that socialization is a fashion version. Fashion purpose are influences on vital rules, ethics preferences, age manners, taste, image, etc. at human resource of an environment. Such influence is effective, if it changes indicators of the activity of object.

We explain how DLOE describes safety procedures. The formula f(s) gives static or dynamic characteristics of efficiency of production function on a registration interval of time. Settlement value p_i of the basic activity indicator (for example, the income in cost expression) on a registration interval $n\Delta t$ time is received by using r_i resource (for example, in cost expression). Then we calculate settlement value of production function $f(s) = p_i / r_i$ based on these values. The static estimation of production function efficiency is as follows. Let's assume that we received actual value p_i`, which differs on size Δp from settlement p_i. If $|\Delta p| < \Delta p_{st}$ (Δp_{st} - standard), the object have not damage; if $|\Delta p| > \Delta p_{st}$, the object has a damage. The dynamic characteristic is calculated similarly.

The formula f(s) lets us to calculate sensitivity S production function to changes of object's resource components. Value S defines weight (w) (either importance, or value, or rapidity, or weight of approach of consequences) of each resource component r(t) for production function f(s). Therefore we can write $r_w(t) = w_e r_e(t) + w_c r_c(t) + w_{te} r_{te}(t) + w_h r_h(t) + w_m r_m(t) + w_{ti} r_{ti}(t) + w_p r_p(t)$, where indexes $_{e, c, te, h, m, ti, p}$ at "w" and at "r" belong to a resources of object's environment, communicative, technical, human, monetary, time, protection accordingly. We named this formula «the equation of value of resources».

Quantitative fillings of terms «object's risk» and «object's threat» are such. The environment makes unapproved influences v_{un} (variety $_{unapproved}$) on the basic indicator p(s) object: $f_{un}(s) = v_{un} f(s)$. We named this equation «the influence equation in the market». The protection system finds such influences by means of comparison of an actual and settlement basic indicator (standard) values. If the protection system has revealed v_{un}, it counteracts a_{un} (anti-variety $_{unemproved}$) to this influence. These safety procedures give the protected value $p_p(s) = a_{un} v_{un} f(s) r(s)$. We named this equation «the basic equation of safety» for interactions of "market".

For interactions of "influence" at the chosen level we have «the equation of security from influences»: $p_{p\ lev}(s) = a_{un\ lev}\ v_{un\ lev}\ r_{lev}(s)\ f_{lev}(s)$. If value of influences on a recourse component x is such that counteraction function is executed inefficiently ($E_{a\ x} < 1$), we can write down «the equation of security (efficiency - $_{eff}$) of a resource»: $r_{eff}(t) = E_{a\ e} P_{si\ e} r_e(t) + E_{a\ c} P_{si\ c} r_c(t) + E_{a\ te} P_{si\ te} r_{te}(t) + E_{a\ h} P_{si\ h} r_h(t) + E_{a\ m} P_{si\ m} r_m(t) + E_{a\ ti} P_{si\ ti} r_{ti}(t) + E_{a\ p} P_{si\ p} r_p(t)$, where $P_{si\ x}$ – efficiency of subject-influence ($_{si}$) detection indicator for resource x ($_x$) (care function efficiency). Further we can write down $p_{eff}(t) = f(t) r_{eff}(t)$ or $p_p(t) = f(t) r_p(t)$ ($_p$ - protective). The absolute

majority of possible influences «v» and counteractions "a" in the analytical form can now be entered into «the basic equation of safety».

Difference $\Delta r_x(t) = r_x(t) - P_{si\ x}\ E_a\ r_x(t) = (1 - P_{si\ x}\ E_{a\ x})\ r_x(t)$ gives "risk"-formula: risk = $1- E_{a\ x}\ R_{si\ x}$. $r_x(t)$ - standard value of a resource x, $P_{si\ x}$ - an indicator of effectiveness of a resource x care system; $E_{a\ x}$ – an efficiency indicator of counteraction to unapproved influences on a resource x (counteraction function efficiency). Threat th(t) is a risk, which has exceeded threshold value $th(t) > (1 - E_{a\ x}\ P_{si\ x})_{thresh}$.

It is possible to prove a hypothesis: the lower the resource level in object's decomposition, the more the risk.

DLEO allows to formalize object management in the form of the equation: $p(s)=\{r(s) + \Delta r\}f_{ap}(s)$; $f_{ap}(s)$ – appointment function. It's possible to show that the operational contour on parameter p(s) is reclusive (Figure 1): $f_m(s) = f_{ap}(s) / [1 + \beta f_{ap}(s)]$.

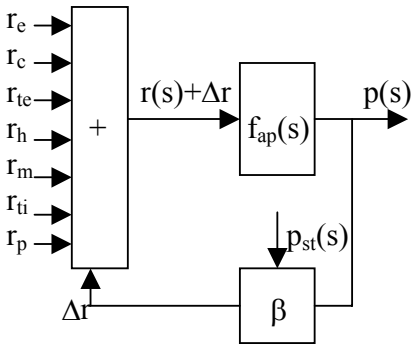

Figure 1. Structure of one operational contour cell.

Operational function hasn't enough time to generate additional Δr during a manufacturing cycle, so the risk is an estimation of this situation. In this case we can write down the formula of operational function $f_{op}(s) = f_{ap}(s) / [1 - \beta f_{ap}(s)]$. The question is: during what time period ($n\Delta t$) there should be a shortage of a resource, so that the estimation of an object condition is authentic, well-founded. As mention above, the problem of the economic theory and ours is that nobody knows the answer to this question.

DLEO can describe a state of decline or lifting, positive or negative dynamics of activity, or downturn, crisis.

We mark the following: the operational function $f_{op}(s)$ shows that appointment function $f_{ap}(s)$ is subordinated operational functions $f_{op}(s)$, i.e. $f_{ap}(s)$ is an "internal" function. Operational function $f_{ap}(s)$ of any level is indifferent to the reason of change of a resource component r(s) + Δr. Hence, the control element should be placed on an input of $f_{ap}(s)$ (Figure 1). This element ("care frontier") should distinguish the authorized influences on a resource from unapproved influences.

Means of DLEO allow to generate 4-level-object's-management structure. This structure consists of cells (one cell is shown on Figure 1). Structure gives possibility to object's management to give tasks to functional components and to check their decisions at each level. Such properties of structure do it

«high-end-updating» systems of strategic management BalancedScore Card [1].

The protection system demands the full information on numerical values of each resource component for execution of all functions at all levels. The full information is contained in analytical and synthetic accounts of modern accounting. For this reason accounting is a core of protection system.

Let's state: the damage would rather be stochastic in interactions of "market" than in interactions of "influence".

4. Conclusion

The unresolved problem of the economic theory is revealed in a material. The developed language of the object description on the basis of production functions has given "the basic equation of safety". This language is a basic principle of object protection system. Object's accounting is a core of this system. This language gave a quantitative description of the basic terms.

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