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Extension Study of Synergetic Models in Economics and Management

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Abstract: Study of problem of expansion of synergetic methodology into economic science and management was offered. We have studied synergetic models and statements of some researchers regarding assessment of enterprises' operation efficiency. We have analyzed the parameter that is introduced by synergists, namely; system activity, which allowed simultaneously consider all possible quantitative and qualitative conditions and factors at solving the task of efficiency assessment. It has been stated that this parameter reflects cost estimate of intangible assets of the enterprise which are defined as goodwill, brand and production prime costs. It has been detected that Synergetic Model, suggested by the researchers is a non-linear dynamic systems (or non-linear differential equations), which has been well known in mathematics. We have demonstrated an inability of Synergetic Model in terms of forecasting in case of unexpected deviations, i.e., the model does not reflect its destination. It has been stated that some researchers understand synergetic effect as an increase of cash flows at the account of cutting outlays and growth of shares' market value of merger company (just what takes place in traditional economic evaluation of operation efficiency). Thus, we have revealed the existence of double standards, i.e., all that is called synergetic effect is a cost effect, which may be calculated according to earlier developed calculation models. It has been shown that analyzed synergetic models and statements do not favor solving the main question of the economy science, namely; improvement of efficiency of employment of scarce resources.

Key words: Synergetic, synergistic effect, efficiency, veiling, pseudoscience

INTRODUCTION

While elaborating one's decisions, enterprise management is based on opinions of single-function specialists, which operate some models while searching the answer to some question. Existing literature sources are filled with various synergetic models, assessments and effects, which in the opinion, are of no value for practical work and which are only masking the assessment problem. We are interested in taking managerial solution, namely; assessment of innovational (investment) projects' efficiency, taking and realization of which depends on enterprise management. One of "trendy" but not efficient, from our viewpoint, are the tendencies of "economic synergy" and "synergetic management" which in their scientific methodological battery, base on the theories, methods and models, which had been developed a long time ago and which exist independently as well as they base on the principle of systems' self-organization (general systems theory, universal organizational science of Bogdanov (2015) theory of phase transitions of Landau, fuzzy set theory of Zadeh; theory of fractals of Mandelbrot; theory of neural simulation; theory of catastrophes; image discrimination theory, etc.). Representatives of this school (synergists) refer all that is connected with study of non-linear, unbalanced, non-invertible systems and what had been developed earlier than the term "synergy" appeared (it was introduced by Hermann Haken in 1973, to school of "synergy" and its applications in economics and management (Puryaev, 2014). This research is directed at actualization of existing methodological issue in taking managerial decisions on the base of offered synergetic models.

MATERIALS AND METHODS

In the research of Galeeva (2008b), "Assessment of efficiency of activity of economic entities by means of Synergetic Model", a new parameter for explanation of synergetic effect is introduced, it's system's activity. The term System Activity (SA) is understood by the researcher as an internal index which "includes both qualitative and quantitative indices of economic entity's business activity, which play an important part at defining efficiency of its activity". Currently, qualitative indices that are not covered with record-keeping, may include, for instance, individual peculiarities and creative potential of productive powers, environmental condition, effectiveness of cooperation of managers from various levels, image of the enterprise, region, country and many other factors. The researcher admits that SA

simultaneously, reflects and meets some particular conditions like sufficient financial, material, energetic and labor resources, modern technologies, good social environment and living conditions and many other factors. As the researcher states "it seems that SA is an "off-stage parameter" which is present in all social and economic systems and which conditions their potential and real capabilities with reference to transformation of production factors into return and profit of business entity" (Galeeva, 2008a). The main purpose of SA and synergetic model is development of forecasts of social and economic indices of production systems' development. This is a briefly described essence of SA Integral index, obtained with the help of Synergic Model. However, the model itself is presented descriptively and poorly, in an opinion.

In other research of the same researcher, Galeeva (2008b) states that with the help of synergetic model one may assay not only main technical and economical indices of the enterprise but also to assess its business reputation, to forecast goodwill value (an aggregate of intangible assets of the company, which encourage its clients to use products and services of this exact company) in the mid-term and to consider parameter dependence of technical and economic indices of enterprise's activity from its business reputation. In this research, the term "system's activity" is improved. Integral index of SA is a consolidated index which "represents quantitative and qualitative attributes of enterprise's activity, which has dimensionality of products' cost, however, which may be less, equal or many times more than the products' primal cost value".

It "represents the sum of prime cost of products and company's business reputation" and also it is different for each enterprise and it "reflects informational and entropic process of its development's activity" (Galeeva, 2008a). It means that the researcher sums up quantitative and qualitative characteristics that have cost measurement (i.e., it has dimensionality of products' cost. At the same time, business reputation refers to qualitative characteristics, since prime cost may be counted with a certain evidence.

On the other hand, cost estimate of business reputation, brand or goodwill may be performed either at the moment of selling business (as a difference between selling price and cost of net assets of acquired company or with the help of Synergic Model, offered by the researcher and knowing prime cost of products. Since, SA is a sum of prime cost of products and company's business reputation.

It is also considered here that this admission of simultaneous consideration of all possible quantitative and qualitative conditions, factors at solving the task set; however, there is no information in the study about how it is done, it only says that it is performed with the help of the abovementioned Synergetic Model.

We are analyzing the second study already; however, there is no presence of that synergetic model at all. How does it look like? What kind of synergetic computed model is it, if it is not possible to mention it in the study? As judged by its output data (forms of diagrams), it is similar to statistical analysis and forecast model, which is performed with the help of program product. SA is calculated by variation technique, based on harmonization of calculating and forecasting parameters of enterprise's activity. This synergetic model allows concluding that activity of "Nizhnekamskshina"OJSC system for the period from 2002-2007 has a negative tendency. Moreover, actual data show us that product primal cost increases, production output and sales revenues increase at both internal and external market. At the same time, system's activity, calculated with the help of developed synergetic model, decays. How can it be explained through the espectacle of manager? A simple answer suggests itself: there is some mistake in calculations or modeling. However, synergists give the following explanation: "Decaying activity (entropy's fall) of production system is indicative of enterprise's switch to higher organizational and informational level of an open system". Or "decrease in enterprise's entropy is also associated with connection with "Tatneft" OJSC (Galeeva, 2008b), since goodwill of parent company "Tatneft" OJSC is more powerful. That's how's imply, it is explained.

It should be noted that goodwill, calculated according to results of Synergetic Model, equaled 37.2 billions of rubles in 2007 while in fact according to company's annual report. Company's capitalization equaled 2.2 billions of rubles at average cost of net assets of 4.4. billions of rubles, i.e., not goodwill but bad will (under estimation). And this under estimation is explained by synergists in the following way: 'As for goodwill's under estimation of the analyzed enterprise, it seems that there is also an influence of "Nizhnekamskshina"OJSC being dependent on parent "Tatneft" OJSC in the sphere of performance of independent production and financial policy, i.e., business reputation of bus enterprise is assimilated by more powerful goodwill of "Tatneft" OJSC.

In this study, the researcher also shows incapacity of Synergetic Model of forecasting in case of unexpected deviations. Let us provide the citation from the research (Galeeva, 2008a). The study demonstrates dynamics of revenues x_0, cost of goods manufactured x_4 and gross profit x_{12} for the period of study, Here, we also see the good data concordance in sales revenues, obtained with

the help of synergetic model, with enterprise's statistical data, marked by signs, for the period from 2002-2005. There are some deviations in expenses and gross profit for 2006 and 2007. As we have already mentioned, this happened in consequence of switching f the enterprise to give and take scheme of material processing and thus, comparison of real results of enterprise's work with the ones that are shown in statistics (researcher's note: with the help of synergetic model) is incorrect". Or here is another example (Galeeva, 2008b). "All economic indices of the enterprise for thus period fall out of general dynamics of both statistical data and the one that was calculated with the help of synergetic model". But what about synergetic model, which should consider any slightest deviations (fluctuations) in the system and build correct prognoses, according to synergists? Where is its "extraordinary capability"? Or may be, it is another effort to get oneself noticed by means of some chic word combinations like "synergetic effect", 'Synergetic Model"? And in which manner, the prognosis that is based on extrapolation models and which doesn't allow considering unexpected deviations and fluctuations, differ from prognosis, built by means of suggested synergetic model? I even admit that the mistake in the prognosis will stay the same. However, final goal has not been reached and needed result has not been obtained.

In general, the research of such type generate doubts about the fact that there is something new being offered. The will to "show off" prevails over the real problem's solution. Recommendations, built at calculation technique with the help of abovementioned synergetic model do not solve the problem of quality prognosis, which is aimed at considering any slightest deviations (fluctuations) in activity of the business entity. This fact leads to mistakes when taking managerial decisions. Building of non-linear dynamic systems (on non-linear differential equations) for the such tasks have been known by mathematical science for a long time (Fedoseeva, 2011; Grigorev *et al*., 2006; Ruchkin, 2005; Shuster, 1998) but they were not called synergetic models. Also, joint coordinated action of systems ("synergy" from ancient Greek συν (prefix) that has a meaning of joint ργον (activity) is indicated in fully developed systems theory, the bases of which were defined by Bogdanov (2015) in "Tectology. Universal organizational science" yet in 1917.

The task of making forecasts is one of the complex ones and if existing methods of variations and extrapolation would be called synergetic ones (researcher's note: in other words, system ones, which reflect conjoint and coordinated action of system's elements), the main issue of economy increasing effectiveness of employment of scarce resources will not progress any bit.

RESULTS AND DISCUSSION

Let us analyze the statements from other researches from the area of assessment of synergetic effectiveness. The researchers of this study (Hasanova and Burenina, 2011) immediately define the term "synergy", which inhibits a range of doubts in developed statements. The study, which is called "Synergy as a method of increasing the efficiency of the company" studies the issues of obtaining obvious and non-obvious effects in the process of merging of oil companies, their assets and brands with the aim to form an integrated system, which would serve as a vertical integrated oil company. With this regard, the definition of the term "synergy" in the above-mentioned research is presented as "coordinated, mutually increasing action if two or more subsystems, which increase overall regularity of the system, as a result of which unified system produces more effect than all its subsystems separately" reflects the essence of the work's name and the essence of systems theory in methodological aspect. Having studied other statements of this research, we stated that the researchers use two notions; "effect of synergism" and "synergic effect", which both denote the same process of gaining profit from integration of company's assets in oil economic sector. At the same time, "effect of synergism" is used more often than "synergetic effect". After discovering of the essence of what is meant under it, we have concluded that this is neither more nor less than the effect, measured in value units in the form of various indices depending in estimation approach used: revenue, comparison (market) and expenses one. Such methods were initially used at assessment of real estate objects (at definition of their costs). The researchers state that than "synergetic effect" or "effect of synergy" (in this research, these terms are identical according to their substance) is reflected in two directions: direct profit (augmentation of cash flows at the account of expenses' cutting) and indirect profit (increase of market value of joint company's shares). It means that everything that is called synergetic effect or effect of synergy is a cost effect, which may be calculated with the help of earlier developed formulas. The researchers make no secret of it and provide the formula for calculation of synergetic effect on the base of discounting of cash flow (Cash flow method) (Hasanova and Burenina, 2011).

Summary: In a result of performed analysis of this study, it becomes evident that the authors, using earlier developed approaches (revenue, comparison expenses ones) and Cashflow Method, evaluate economic

(valuable) effect from the merging (or takeover) of the company, calling it "effect of synergism" or "synergetic effect". As we may see, by the term "effect of synergism" the researchers mean the effect of coordinated joint action of subsystems, which form part of merger company, which had been previously defined (starting from 1917) in the theory as a system effect. One should assume that "new", "attractive" terms are used for attention arresting and for correspondence to fashionable trend in taking managerial decisions but not for solving tasks of increasing efficiency of employment of scarce resources.

For the purposes of advancing solution of the main issue in economics, we have suggested an alternative concept of assessing efficiency of investment projects and this methodology is called Compramultifactor. It is based on the principle of finding optimal criterion but not in traditional understanding (correlation of result and expenses on activity) but according to criteria that considers both qualitative and quantitative parameters, like: federally significant, ecological, social, technological, resource and economic ones (in accordance with "Cashflow" Method). This criterion is a universal and summarizing one, which is non-dimensional and is a result of mathematicians' research in solving optimization tasks. The problem of assessment of efficiency is s problem of multifactor optimization. The concept if economic activity is changing: now economy should be optimal rather than economical. The main statement are presented in the researches (Puryaev, 2009; Puryaev, 2015).

CONCLUSION

It has been stated that for justification of obtaining synergetic effect, such parameter as activity of system, which was introduced by some researches, in fact company's goodwill (monetary evaluation of company's business reputation and intangible assets), which is a well-known and described term in modern science. In addition to results of the researches, we have proved that supporters of synergetic school (synergists) assert that their statements are new ones, while operating earlier developed methodologies and theories, in particular, general systems theory and "Cashflow" methodology. Thus, it has been additionally proved than in studied research, the truth is hided and attention arresting takes place.

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