

LAWS OF SYNERGY IN THE ECONOMY, BUSINESS AND THE OPERATION PROCESS OF THE MANUFACTURE (ORGANIZATION)

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Abstract

This article is devoted to issues of application of laws, synergy machinery in the economy, business and operation process of the manufacture (organization). There are presented concepts, classification of synergy effects and grounds of merger of the organizations. There are presented some fundamental principles, on which the strategic planning of the development of entrepreneurial activity (business) shall be based. There is determined a necessity of application of synergy laws and synergy effect throughout the economy.

Keywords: Synergy, synergy effect, merger, organization

Introduction

Synergy theory is currently the most controversial, promising, widespread, and interesting both in the natural sciences (physics, chemistry, etc.) and in economics, sociology, manufacturing organization, etc.

The founder of the synergy line in researches is the professor of University of Stuttgart Hermann Haken. Defining the term and concept of "synergy" as continuous action, cooperation, mutual effect of huge number of components, aspects, parts, he concluded the need to study their impact in the overall compatibility and integrity (Haken, 1980). Thus it was born a new science - synergy that studies the interinfluence and interconsistency of functioning of parts, which is reflected in the system behaviour as a whole.

Already in the 60s of the XX century a renowned scientist I. Zabuzkyy identified the need for "synergistic" approach for solving non-linear systems and defined such a common, coordinated, effective scientific direction – synergy (Evstigneyeva, 2006).

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The essence of synergy theory, for example, for organization of manufacture, is in the fact that when combining two or more organizations,

companies, a new structure will have a possibility to use a wide range of benefits, which arise, as synergy effect, due to association of all resources of members of the newly created structure (association), included in it. However, it shall be noted that members of the structure that has been created by the merger, may be quite varied - manufacturing, trading, social institutions, but all their efforts are aimed to maximize (optimize) the integral (synergy) effect (people welfare, shareholders profit maximization etc.). Thus, the main ground that encourages members to join the newly created structure - is receiving a synergy effect.

Interest and genuine scientific interest in synergy factors in any organization is due to receipt of additional result. This result is called a synergy (integral) effect.

All such synergy effects may be divided into two types: operational synergy and financial synergy. This distribution causes in modern science rather contradictory views, but we believe that this distribution for synergy in the economy (business) is not only appropriate, but essential, as it provides opportunities to select members of the association (cooperation, corporation) more carefully and its development prospects.

Under the operational synergies shall be understood such synergies that permit firms (institutions, corporations, manufactures, etc.) to increase their operational (current) profit, scale of growth, development, etc. Such synergies include:

- savings from increasing the scale of activities by the organization (corporation, association). At that, usually, some costs of such corporation that was formed with the merger and just cooperation between enterprises, become more efficient;
- advanced training of personnel of the enterprise, corporation. Typically, selection (requalification) of personnel, its reduction and review of basic qualification requirements takes place at the cooperation of members of the corporation;
- marketing development. All marketing outlets of every member of the corporation become common to the whole company;
- cost savings for scientific, research, experimental works. All separate research centres are summarized and achievements of each of them become available for all members of the corporation;
- the effect of combining of complementary resources. That is, each member of the incorporated corporation has the ability to use the reserves and resources both each of them and shared ones. Consequently, they own complementary resources.

All these synergy effects lead to an increase of market niche and consequently an increase of influence of the corporation, and an increase of its profit.

Financial synergies - appear when members of entities cooperate on the basis of financial merger, pooling of their capital, investments, profit. At that the synergy effect includes:

- reduction of costs for external capital raising. This is may be explained by the fact that it becomes possible at the merger to use finance of all members;
- tax benefits of the united corporation. Taxes are paid not by each its member, but by the one unified structure;
- increase in cost of the corporation (united structure) and cost of production.

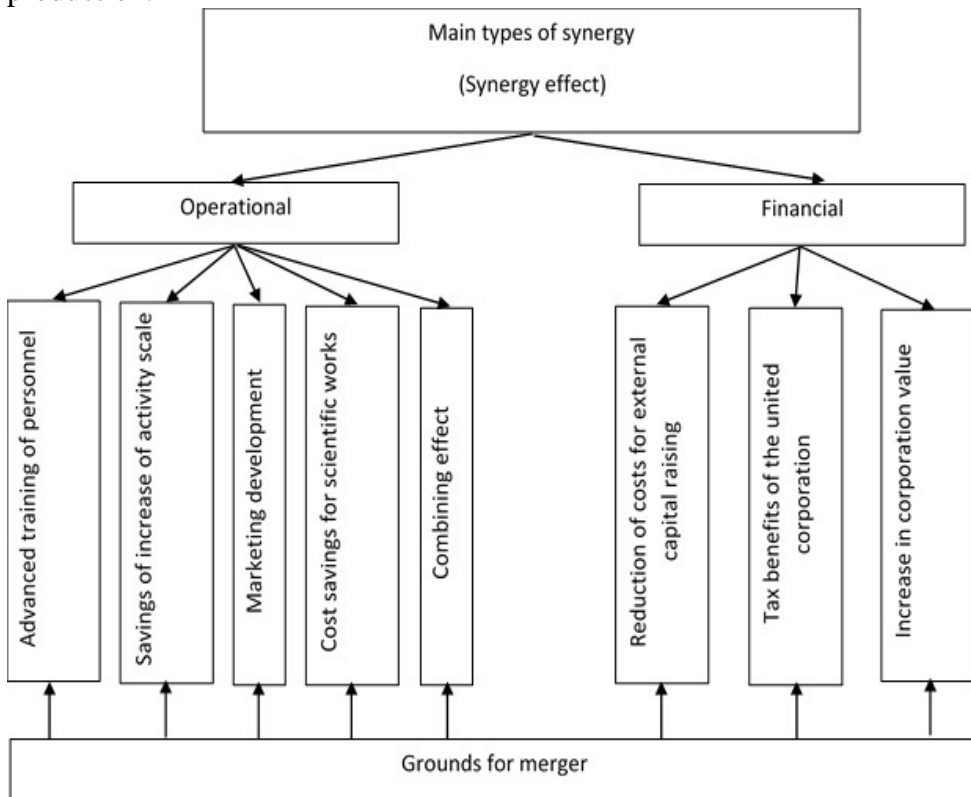


Fig. 1 Grounds for merger of the organizations

The mechanism of determining the benefits of association (merger) of some members of the corporation into a single structure was determined by Stewart Mayers in 1976. He proposed the principle of corporation (structure that was formed as a result of cooperation of several members of corporation) according to arithmetic sum of values of the members that created it (Braley & Myers, 2008).

$$PB > (PB_1 + PB_2 + PB_3 + \dots + PB_n) - B, \tag{1}$$

where: PB - market value of the corporation (unified structure);

PB_1, \dots, PB_n - market value of each member of the corporation;
B - costs for association (merger).

I. Ansoff proposes to assess the synergy effect as a consequence of increase of profit, reduce in costs for reducing the need for investment resources (I. Ansoff, 1979).

According to James K. van Horne and John M. Vakhovych the synergy - is the cost savings that results from the association, when the cost of production of the unified company exceeds simple arithmetic sum of their assets (as with S. Mayers) (van Horne & Vakhovych, 2008).

N.B. Rudyk and Ye.V. Semenкова believe that under the synergy theory the unified enterprise uses all advantages, arising from the pooling of resources.

In business the synergy means an advantage from the joint activity of several enterprises, organizations compared to their separate activities, where everyone defends its own interests.

This principle may be explained by the usual mathematical example. If, according to the laws of mathematics, two plus two equals four, then in a business - the result may be totally different, so that the actual result depends not only on strict methods of calculation or modern calculation techniques, but on the professionalism and character of interaction between managers (administrators) of particular company with the subcontractors.

At that, it is assumed that if the overall result of activities of several companies is below their algebraic sum, than such cooperation (synergy) is negative, and if the result is greater, then such synergy is positive.

This arises from the fact that the increase of system order (reduction of chaos) that was formed of several subsystems, is a result of purposeful activity (governance), and not a result of creation by its own, as random effect. Therefore, it may be both positive and negative.

Synergy occurs both in nature (phenomena, development, processes - physical, chemical, etc.) and in society, biosphere, noosphere, business, etc. Modern realias provide evidence of crises, emergencies, phenomena and processes in various fields of animate and inanimate materia, different fields of life and activity of man and society, in science, economy, politics, culture, etc. Such crises and phenomena become mostly systemic. Nowadays scientists around the world consider it necessary to study such phenomena on an interdisciplinary level.

The principles of synergy in the economy (business), activity of both small and large enterprises, industries, and today even further effective and optimal development of society is a driving force for the continued existence of life. The process of unification (cooperation) of individual members of the corporation that shall be created, becomes the main task of their continued existence. After all, they (members of the corporation) shall associate in such

a way to ensure further effective development not only in the field, in which they exist and work, but also in adjacent fields. There are also mentioned social and natural conditions, which surround them.

The main feature of synergy (social, ecological and economic) efficiency is the manufacture of use values with an aim to meet social needs on the one hand, and to focus on meeting the specific needs in appropriate ecological conditions on the other hand. That is, the enterprise, nature and society shall be considered as equal parts of social, ecological and economic system at the regulatory action of the social factor.

Modern development of the productive forces of humanity takes place in terms of the ecological crisis. Resource sharing between society and nature has reached enormous proportions, all natural and industrial, social and economic components of human life have become so intertwined that any impact on one or another natural component leads to unpredictable consequences.

The course of social development showed that the market economy that had generated a consumer attitude towards natural resources, became unable to overcome global environmental problems. In this regard, a criticism of the basic concepts of classical macroeconomics, the basic principles of which form the basis of modern economic relations, becomes more and more argued (Daly,2000; Tunitsya,2006).

Measurement of true prosperity comes across difficulties of the economic evaluation of natural capital: "There is a very big problem that now stands in the way of integrating of environmental accounting in the accounts of the national income and product. It is the problem of monetary valuation" (Goodwin, Nelson, Harris, p. 9).

At that, ecological and economic situation in Ukraine is crucial to study the problem, and cooperation of enterprises is considered as one of the key measures that positively affect both the economic and the environmental condition.

Complex of measures related to cooperation of enterprises, from a perspective of environmental protection, shall ensure the maximum effect, which consists of both economic and ecological, and also social result.

Ecological result (effect) is caused by a decrease in negative environmental impact and is reflected in the reduction of quantity (amount) of pollutants, harmful emissions and increase in the number of natural resources.

Social result (effect) involves raising the population living comfort, including improvement of health, reduce of incidence rate, maintaining ecological balance, increase of national wealth and prosperity (Tsarenko, 2004).

Analysis of recent researches concerning synergy effect in different areas and fields of human life and nature demonstrates the need for further study and application of synergy principles, as a science, in all areas, and we believe, in the processes of further improvement of production of human needs - material, natural, social.

Under the material needs shall be understood those benefits and consumer values, which ensure the material welfare of human, such one that makes no harm neither nature nor society.

Natural needs - are the processes of human interaction with wildlife that would not only make any harm to each other, but would ensure the most optimal common development.

Under social needs shall be understood the development of society as such.

One of the main objectives of our research is to determine the synergy effect of activity of enterprises (corporations), taking into account the above mentioned processes.

At that the process of association (merger, cooperation) of companies is the main object of research.

The problem of integration (vertical and horizontal), including merger (association) of companies is not new, but in terms of synergy principles (obtaining a synergy effect) it has some features, sometimes so unexpected and unpredictable, which have unexpected consequences in the long result.

Precisely this approach to integration (association) of enterprises causes a particular scientific interest and dominates in our research.

Evaluation of the synergy effect is a difficult and very important task, but nowadays, there is given less attention to its resolution than it is necessary, especially in the work of industrial enterprises, trade organizations, social institutions, etc. This issue becomes particularly relevant at the integration (merger) of some structures (enterprises, departments, etc.) into one large complex, which will include various institutions, both according to their main activity and for their intended purpose (for example, industrial enterprise, trade organization, scientific department, social and other institutions).

According to the theory of integration (merger) in the united structure, where it is expected the synergy effect, the welfare of shareholder shall increase.

One of the main problems is that the synergy effect is enough badly predictable and it is not always easy to achieve the expected result in practice. According to statistics, only 65% of agreements on integration (association) lead to the expected optimal results.

Consequently, the merger (association) as opposed to collaboration (cooperation) - is a development strategy, which is used nowadays by the most successful enterprises (institutions, organizations) to enhance efficiency of their activity. Then the synergy effect becomes the driving force (stimulus) of such actions. The main advantages of enterprises that associate include real opportunities in the new marketing outlets, improvement of product quality, access to various resources and investments, reduce of potential risks.

Unfortunately, statistics shows that in practice, in entrepreneurial activity and business in Ukraine the problem of integration (association) is in the making, it has not received sufficient attention and practice of its implementation. This means the loss of many opportunities that has a threatening prospect in these realias.

And here appears the issue concerning strategic planning of further development of enterprises in Ukraine, its business and optimization of the economy in a whole, precisely from the position of synergy approach - that is, getting the synergy effect in their further activities.

Strategic planning of entrepreneurial activity (business) shall be based on the following grounds:

- detailed studies of the situation;
- analysis of capabilities of enterprises that cooperate for the sake of synergy effect;
- realistic and fundamental forecasts;
- short-term results that may be objectively obtained in the nearest future.

At such planning the comprehensive data (specifications) of all members of the association, including their development risks and many others, individual characteristics inherent in new, associated company, are very necessary.

Particular attention shall be paid to those expenses that arise during the integration (association).

In order to compare the expected costs and benefits of integration (association) it is necessary to evaluate the following key factors:

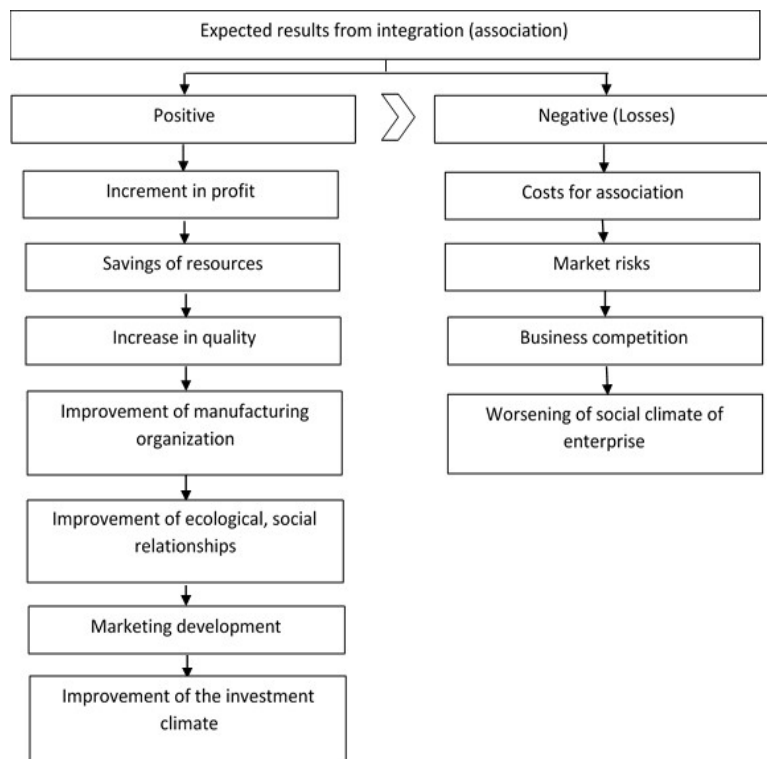


Fig. 2. Results from integration (association)

If positive results are more than negative ones, than the synergy effect will be positive, and any enterprise shall try to achieve such a result, if the negative results prevail, than the synergy effect will be negative. In the future, it appears the question on the assessment of the above mentioned results-factors, which shall be analysed during the strategic development of enterprises in order to obtain the synergistic effect by them.

Conclusion

Synergy approach - is a system of views on the world around, both in its physical and social, ecological manifestation (i.e. in close contact with nature, space, etc.) that allows to investigate the process and get new, generalized and specific results in multidimensional way, from all sides. Such researches make it possible to describe the processes, phenomena from different sides, levels, components, to explain their interaction and identify the peculiarities of the macroeconomic structures.

In economy the synergy researches have an objective to determine the "synergy effect", which usually differs from the economic effect. After all, it is the result of interaction of several coordinated systems - or rather, a large number of such components-systems. As in the economy at the organization of production of one or another type of product, the question is

about improving the system of combination of production factors, than the definition of synergy effect becomes crucially important.

In the field of business management (business economics) the synergy effect shall become a driving force at the creation of concerns, cooperation of enterprises, etc.

In marketing - it is the improvement of market relations according to the classical scheme "supply-demand", where the market as such is considered as an open economic system that organizes by itself, has extra-wide forward and backward contacts, etc.

To identify and calculate, much less to realize the synergy effect taking into account all the combinations of various factors - is an extremely complicated task and, at some times, impossible, primarily because of the limited possibilities of determining all factors, that are, components of influence the overall result (system). By using methods of non-linear mathematical analysis, a possibility of computer analysis of complicated tasks, basing on the laws of synergy, all or even most of the tasks may be solved.

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