

Potential and the Possibility of Using Synergies in Construction.

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Abstract

This article is devoted to studying properties of integrity in the economic system, including the construction industry, which contribute to the appearance of additional emergent effects, fundamentally changing the balance of costs and benefits, and makes many modern business structures, ranging from large to medium and small in a well-functioning production.

Keywords: improving institutional linkages, construction industry enterprises, economic relations, integrated system, facility construction, emergent properties, organizational complexity, large systems, nonlinearity indicators, control actions, Association of enterprises, the management levels.

INTRODUCTION

It is considered that qualitative changes in the economy occur as a result of the implementation of major technical innovations, which typically involve significant capital costs.

We unjustly forget the existence of another constant source of qualitative changes — improvement of institutional ties and economic relations between participants of reproductive process, the unification of disparate producers in the economic system and the transformation of simple systems to complex integrated system.

It should be borne in mind that the organization of holistic systems, as well as the identification of more advanced forms of organization of production and development of new and effective economic relations require a much lower cost than the implementation of technical innovations.

This article focuses on the consideration of properties of integrity in the economic system, that is, those properties which provide the appearance of quality improvements, so necessary to society.

Analyzing the changes occurring in the domestic economy, can be concluded about the growing importance for all kinds and forms of production systems, the formation of productive synergies.

The main difficulties, thus, lies in finding and setting up economic mechanisms to balance the economic interests of all elements and participants in such systems.

The most important irritant, stimulating the development of effective synergies, is the competition. The economic system, not linked to closer economic relations with the unresolved economic contradictions between its members, cannot be

considered a holistic and can not function effectively. Therefore, an essential condition of the maintenance of integrity is a constant adjustment and dealing with the economic interests of individual system elements (subsidiaries and parent companies; General contractors and subcontractors; of related companies, etc.). It is necessary to consider that in the conditions of a free economy in developed

countries with established economic relations the benefits inherent in a large and well-organized production, by themselves, do not automatically manifest themselves not be realized. They are constantly engaged and only a clear knowledge of the laws and conditions leading to the appearance of the effects of integrity, ensures their sustained and effective use.

Now, after the collapse of the centrally planned economy in our country, it has become evident that the efficiency of any economic system is formed as the algebraic difference between significantly increased from the activities available and interested in increasing the profit of economic entities additional effect and the inevitable social losses caused by the reduced ability of Central planning and management of human and material resources.

At the same time it is necessary to note the very limited research in the use of the properties of integrity in the economic system, which typically considers only system-wide approaches.

A qualitative shift in enhancing the efficiency of social production will largely depend on the extent to which the emerging system-wide effects of integrity are really involved in the domestic economy. However, if the mechanisms of their mobilization is unknown, not disclosed and are not used by the head of the company, then the chances of widespread use of these mechanisms be minimal. Appears to be integration of resource efficiency into the strategy for economic growth and sustainable development will largely be determined by the density of saturation of the economic system of the country synergistic relationships.

METHODS

The cybernetic notion of integrity or functional emergence was first introduced by W. Ross Ashby suggests this type of internal interaction of the elements of the system, in which system properties can not be reduced to the total properties of its parts.

The development of the problem of integrity is reflected in the writings of R. Ackoff, V. Arnold, S. Optner, A. Lurie. Considerable interest and further impetus to this direction of research given the fundamental work of Kantorovich L. V., the Creator of the theory of linear programming and one of the founders of the theory of optimal planning of the national economy and resource usage. Some generalizations are contained in the works of L. I. Abalkina, in the writings of P. V. Kamaeva, Ya., Radaev and some other economists.[1,3,4]

As sources, contributing to the appearance of emergent effects, the scientific literature generally indicate the concentration of production, its specialization, cooperation and combination, as the major forms of social division of labor and organization of social production.

I would like to mention that in reality as the analysis, sources of additional emergent effects can become and become the control system, the use of economic-mathematical methods and models in the formation and creation of integrated programs of capital investments, economic sectoral and regional programs; modern forms and mechanisms of economic relations associated with the changing economic relations, economic incentives for participants and others.

Manifestations of the resulting emergent effects as a result of synergies are very diverse. They can be expressed in growth of volume and growth of qualitative indicators.

Group volume indicators most commonly encountered include the following: growth of production, saving the total cost of production, saving time, reducing transport costs, increase revenue and profits, reduction in capital expenditures and financial resources, including working capital and other.

To the group of quality — improving capacity utilisation, lower unit costs, increase productivity, improve product quality, increase of turnover of working capital, improving service levels and many others.

However, it should be noted that the end is not known and not disclosed the sources of synergies, the potential of different economic systems different levels of control: very controversial and is not perfect existing ideas about the methods of determining their effectiveness, and about methods of reflection of these effects in the plans and forecasts of enterprises at different levels of management.

The collapse of the system, weakening or changing communication patterns of its members can lead to negative consequences, in connection with the maintenance of synergy is independent, but yet poorly understood problem. Its disregard has already led to negative consequences as the scale of the national economy during the transition to market relations, and large governmental and joint structures during the transition period.

To distinguish between systems with weak links, strong and complete system. Since we are particularly interested in the latter, we note that the system recognizes the integral, if it has the following set of criteria:

- functionality, i.e. the ability to perform certain functions;
- integrity, which involves the unity of the system substrate,

the continuity of development and functioning of the system in time and space;

- the emergence, which is determined by the inequality of the whole to the sum of its parts. In other words, it is the presence of system-specific properties not inherent in its parts or elements;
- autonomy, which means its relative isolation, ogranichennosti from other systems, the allocation within the overall environment or supersystem;
- integration that reflects the character, the completeness and intensity of linkages in the system. When the perturbation of one of the parts normally subject to change and other parts and sometimes the whole system.

When talking about the integrity of the system, that understand the fundamental irreducibility of the system properties to the sum of properties of its constituent elements and nevinovnosti of the last properties of the whole. The dependence of each object, its properties and relations from its place within the whole. [5]

In dynamics this means that the impact of one element of the system or a number of which necessarily causes a reaction in the form of changes to other elements. Properties the integrity of the system or the emergent properties characteristic of such systems.

n the economy as emergent properties is seen, for example, the state's ability to implement major scientific and technical programmes that cannot be implemented by individual organizations. Therefore, it is an effect of organization, which is a result of the occurrence between the elements of synergies. [8]

In Cybernetics and General systems theory under the synergistic relationships usually refer to such regard, that with the joint efforts of independent elements of the system increase the overall result of their activities to a value greater than the sum of the results of these elements acting independently. This can be seen as a qualitative leap. [10]

The organizational effect is a manifestation of the fundamental aspects of holistic systems that have the qualities or character traits, not reducible to the characteristics or qualities of the components is an element. [11]

The effect of collective organizational activities is the additional useful result that gives a well-organized economic system. This result increases with growth of level of the organization declining as the weakening or severance of organizational ties.

As holistic systems at different levels of management there are additional effects, they are somehow should be considered so that they, first, did not disappear, and second, that they can be reflected in economic forecasting, corporate planning.

It also appears the quality and effectiveness of management systems it makes sense to evaluate from the point of view of the additional contribution that they make their organizational and managing actions in the efficiency of operation of the respective business objects. Therefore, this contribution needs

consideration and reflection.

In the scientific literature, the conventional wisdom that the indicators upper levels of management are total or weighted average indices of the lower levels. [9]

Characteristics of technical-economic indicators that reflect important factors (input – output; capital costs – operating costs, time cost, etc.) and methods of aggregation of primary factors and indicators are the subject of lively debate.

A number of specialists at first proceeded from their relative constancy in large systems. Others thought that the result of aggregation of not get constant and variables. To such conclusion V. Leontiev.

Of considerable interest is the analysis of the determinants of such volatility.

These factors can be divided into two groups: conditions for static systems and for dynamic processes in implementing such systems.[7]

If talking about static States, for them is characteristic:

- the dependence of the aggregates and ratios of composition elements to be included in the system. Because each item has its own technical indicators, and therefore the average value depends on the composition of the elements;
- The impact of the investment component. Aggregates can be different depending on the order in which capital investments are made during the composition of business in connection with the optimal order of implementation of technical solutions adopted by each enterprise in the preceding years, which give the impact in the year under review, with adequate from an economic point of view the optimization criteria.

However, it should be noted that when considering the static States one of the researchers did not connect the change of these parameters with nonlinear dependencies caused by the emergence of synergies, their density and productivity during the period under review.

The nonlinearity is characterized by the fact that some or all of the transformation linking the input values, parameters, state and output values are non-linear, i.e. do not satisfy the conditions of direct proportionality.[12]

Now consider what has caused the aggregation in the dynamics.

Dynamics of production, usually accompanied by structural changes.

On the dynamics of indicators is influenced by the fact that the cost of materials and labor, investments in productive assets – in other words, the outputs of each subject of aggregation are dependent on specialization and concentration of production.

But even if we assume the technical parameters of each entity aggregation constant, the indicators relating to individual businesses, can be variable, because, for example, each technical reconstruction is being implemented gradually, that is, stretched in time.

In addition, it should be noted the influence of several factors on this process, which are not directly connected with established ideas about specialization, cooperation, combination, and anyone not previously taken into account.

Such factors can include such as the reallocation of resources; changes of the economic mechanism; the selection of the different optimization criteria that lead to system change. This is due to the transformation of the individual, independently of economic agents in a coherent system, i.e. it is about their unification. Here we have in mind not only the formal unification by transformation into a single company, joint stock company or other legal structure.

Although unfortunately, it must be noted that a characteristic feature of some new business structures ranging from large to medium to small is the gap effective communication between the various parties of their activities (production, marketing, development, personnel management, analytical work, etc.) that transforms companies, concerns, holdings and enterprises in a set of poorly connected elements.

It is usually accompanied by loss of control and unity of groups of employees of these structures, separating each of them, both vertically and horizontally.

Not United by common goals and aspirations, often do not know the ultimate goals, not familiar with the General state of Affairs, divided by parochial interests – the aggregate of such workers is difficult to recognize teams. Count on the fact that in this state, without consistent measures of their Association and restoration of integrity to mobilize the reserves is not necessary.

Economic confrontation, control centers, and economic interests of subsidiaries, the unresolved contradictions inevitably leads to the loss of the ability to receive emergent effects.

In addition, it should also be noted that without a holistic view and understanding of patterns and relationships between needs, consumer demand, activities of competitors, the quality of their products and services and matching them with the capabilities of its own company, its ability to satisfy customers ' needs, effective management is impossible. Such enterprises may be different, the motives of voluntary associations can vary considerably. [6]

Methods and techniques reflect those winnings among the various stakeholders of the reproductive process are different. However, all of them are based on one fundamental position: the division of the total gain between economic entities involved in its creation must be exercised in proportion to their contribution.

As a result, there are new productive economic relations, change of important technical and economic indicators: the duration of the cycle of creation of products, specific capital costs, the capital intensity of production, unit costs, rates of consumption of material resources, productivity.

Thus the characteristic non-linear manifestations of these changes:

In modern conditions the rational determination of duration of

construction is particularly important in establishing investor starting conditions in the tendering process, as the construction periods are an integral part of competitive bidding. It is very essential for participating in the auction to assess the degree of tension to the investor's requirements and the possibility of reducing the duration of construction in the framework of competitive struggle for the receipt of the order.

Studies show that with the increase of the size of the object or construct duration of construction increases non-linear when compared with such factors as the design capacity, the area of the object or its value, etc., even though the cost is also increasing disproportionately to the physical size of the objects.

RESULTS

The detected irregularities are formed under the influence of the following factors:

first, with increasing size of projects under construction and expanding the scope of work, which increases the possibility of overlapping in time of the various works, as well as increase the intensity of their exercise due to the attraction of like construction, and specialized units;

secondly, with the increase in the size of the building, the physical volume of construction works especially the pre-increase as well, but to a lesser degree;

thirdly, in the construction of larger objects, there are objectively great opportunity to eliminate, within the boundaries of the longer cycles, the negative effects of destabilizing factors and risks, their impact on the construction industry significantly.

Thus, the nonlinearity of the length of construction for larger buildings under construction manifests the effectiveness of concentration of production, manifested in the reduction of the time required to create units of production capacity, area, or cubic capacity of the buildings.

You can also select another way a substantial reduction in the cycle of asset creation. It is directly linked to the organization and coordination of all participants in the investment process – investors and customers, designers, builders and organizations involved in the commissioning and development of input objects.

DISCUSSION

With this purpose, in recent years more and more finds managing the process of capital construction in the framework of the management of the company or one leader which concentrated the management of all participants of investment process. [2]

Non-linear dependence are observed in the indicators of capital intensity and fundaments this same trend is for the consumption of material resources.

At first glance there are no prospects of economy of materials due to the cooperation or combination of the transition to a higher level promises. In fact, the possibility of reducing the

loss of materials during transportation, storage and processing in small firms compared to larger not the same.

CONCLUSION

The examples prove that the above enterprises are not simple sums of objects at lower levels. Streamlining and optimization of the activities of such associations if it is not formally and administratively, and creatively and professionally allows you not only to use new technologies and production methods, typical for the lower levels, but also to introduce new, improved and economical methods of management.

Additional efficiency is manifested only under the condition that they operate within a structure of a higher level, which takes into account economic interests both of the business entities and their employees. Then increase their productivity or efficiency becomes a reality.

These transformations are specific to different kinds of associations, holding companies, corporations and other organizational forms.

Combining objects or entities at a higher level should be seen as a qualitative leap and to describe the relevant models and algorithms of transition of quantity in quality.

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