

Risk Management of Forming Enterprises Integration Corporate Strategy

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Abstract – The content and features of the integration strategy in the system of strategic planning of the joint stock company are determined. The sequence of formation and implementation of the integration strategy of the joint-stock company is substantiated. Strategic alternatives for ensuring sustainable development of the joint-stock company are systematized. It is proposed to use the genetic algorithm method to solve the problem of choosing corporate integration association in order to optimize a certain set of clear corporate integration association parameters necessary for the implementation of an effective integration process. The method for calculating the synergistic effect is proposed, which is advisable to use immediately after the integration and the beginning of the operational activity of the corporate integration association, since it can be adjusted depending on the type of the corporate integration association being formed and the motives for its formation.

Keywords – integration, corporate integration association, joint-stock company, corporate culture, strategy.

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1. Introduction

Activation of integration processes is a characteristic feature of the current stage in the world of economic development [1]. The implementation of these processes greatly affects the competitiveness of enterprises and strengthens the position of the integrated structure in the market, reduces unproductive costs due to the effect of scale, access to new markets, reducing risks during operations and others.

The most common integration processes at this time are in the implementation of mergers and acquisitions of joint stock companies (JSC). However, one of the most difficult issues in planning JSC integration processes is determining the partner for the formation of a corporate integration association (CIO). This stage of planning integration processes is relevant due to the fact that the process of determining a partner is quite complex and diverse, covers all areas of activity of all participants in the integration process and requires a detailed comprehensive approach to justify the choice of a JSC to participate in CIO.

2. Materials and Methods

Methodological principles of planning integration processes were considered in the works of [2], [3], [4] and others. However, the issues of determining the essence of the integration strategy of the JSC and determining its place in the system of strategies of the joint-stock company are not sufficiently studied.

The purpose of the study in the article is to determine the essence of corporate integration strategy, substantiate its place in the system of strategies of the company, as well as to develop approaches to the formation of corporate integration strategy. To achieve this goal, the following research methods were used in the work: monographic – to study the theoretical foundations of the integration processes of joint stock companies; system analysis –

to justify the sequence of formation and implementation of the integration strategy within the company; analysis and synthesis – to generalize the composition of factors that determine the choice of strategic alternatives for the development of blood pressure; graphic – for a visual representation and schematic representation of theoretical and methodological material.

Suggesting the use of the genetic algorithm method, which allows to use objective and control the degree of subjective factors and their influence on the process of selecting potential participants in CIO, provides much greater opportunities to solve the problem of finding the optimal variant of CIO formation.

Table 1. Genetic Algorithm Process

Stage	Specification
1	Creation of the initial “population”
2	Determination of the most suitable of JSCs “population”
3	Integration of JSC
5	Changing parameters (mutation) of Integration
5	Attachment assessment of integration association

Genetic algorithms (GAs) allow simulating some of the integration processes of organizational structures.

3. Results and Discussion

The integration of a joint-stock company is a complex process, which includes organizational, structural, functional and other changes that affect all aspects of the activities of joint-stock companies that form the CIO. The implementation of integration processes is an important element of the overall process of socio-economic development of the company. From this point of view, the integration strategy of the JSC should be considered as a set of strategic decisions that determine the type and depth of interaction of the JSC with other joint stock companies or their associations.

The main provisions of the corporate integration strategy should follow and be fully consistent with other aspects of strategic planning within JSC development. The lack of such coherence and the lack of the necessary knowledge of JSC owners and managers responsible for the implementation of integration processes may lead to the use of a purely extensive approach to the creation of CIO.

When implementing this approach, the corporate strategy of the JSC (participants of the integration process) and their organizational structure, which is

not fully suitable for this kind of expansion, remain almost unchanged.

In this case, the creation is realized only by increasing the number of workers and subordinate structures. Also quite often the result of such a process is the formation of CIO, the structure which does not even meet the general requirements of economic efficiency [5].

Thus, the formation of the integration strategy within the JSC should be an integral part of the management process aimed at reducing uncertainty and risks in the implementation of the joint-stock company integration processes. If the system of strategies of a joint-stock company does not include an integration strategy, the JSC often acts "ex post facto", is responds to changes in the environment after they have been implemented.

In turn, the formulation and implementation of the integration strategy allows the company to anticipate a possible development option and make the necessary correction of its behavior, i.e. significantly limit the risks during integration. In addition, insufficient coverage of all key aspects of the implementation of the integration strategy can cause the loss of key customers and employees, lead to increased uncontrolled and unproductive costs, and thus result in lower cost of JSC and hinder the integration process as a whole. On the other hand, the success of integration depends on how successful the realization of the unique opportunities is, and that arise as a result of the integration of economic and social systems of different joint stock companies.

The formation of the JSC development program should include a detailed consideration of all types of development, from internal to the formation of conglomerates and mergers and acquisitions. These processes are interrelated and need to be coordinated.

Thus, even if a joint-stock company does not implement an aggressive integration strategy, a necessary condition for sustainable and predictable development is the inclusion of integration opportunities in the strategic plan. The process of forming an integration strategy begins simultaneously with the development of a corporate strategy. According to the author, the sequence of formation of the integration strategy of the joint-stock company (Fig. 1) consists of six main stages: formulation of the corporate strategy of the JSC, its goals and objectives; analysis of the conditions of JSC activity; determination of the variant of development and type of CIO; determination of a partner for the formation of CIO; planning of the integration process and analysis of the general plan of realization with regard to integration processes.

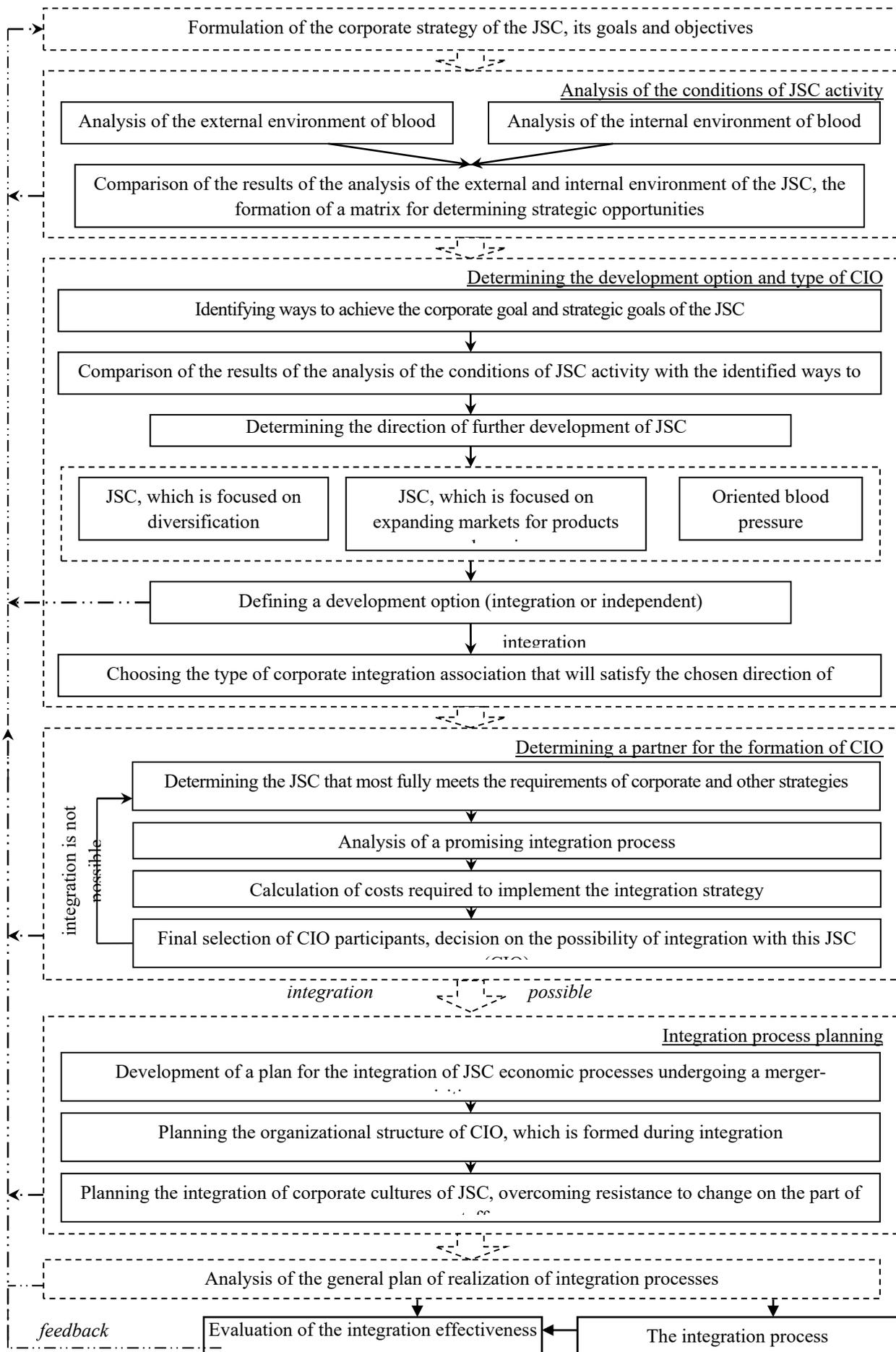


Figure 1. The sequence of formation and implementation of the integration strategy of the company [11]

Within the framework of the first stage the formulation of the general corporate strategy of the joint-stock company is carried out, the priorities of activity are determined and the goals which it is desirable to achieve are formed. A necessary condition for this is an analysis of the conditions of the company, which assesses the current state and prospects of the internal environment (economic potential) and the external environment of the JSC, compares their characteristics and determines the possible consequences of external factors on the strategic position of the company. It should be noted that the transformation of the external environment can differ significantly in terms of direction, intensity, predictability, time interval of influence, etc. [6].

The internal environment of JSC is also heterogeneous; its components are able to demonstrate a very different response to changing market conditions [7].

The main criterion for differentiating the internal environment from this point of view is stability, and the ability of the elements of the internal environment and the relationships between them to maintain a certain level of stability (invariance of composition and structure) under the influence of environmental transformations. The degree of stability is associated with the degree of intensity, nature and direction of external influences, which does not require internal changes and maintains a certain level of internal efficiency (to maintain and develop adaptive properties) [8], [9].

The result of comparing the properties of the internal and external environment of the enterprise is to determine the specification of the corporate strategy of JSC, i.e. a set of the most common goals and cultural and ideological guidelines that characterize the purpose (existence) and principles of the enterprise. Such an analysis is necessary to determine the further direction of development and (in the case of choosing an integration alternative) - to form an integration strategy of the JSC. Such an analysis clarifies the prerequisites that determine the attractiveness of the choice including ways of integration, identifies the reasons why the JSC should abandon further independent development in favor of participation in the CIO. The content of the integration strategy, the tools of its implementation, as well as the organizational and legal form of the future corporate integration association, the type and degree of synergy that has to be formed to achieve the goals defined in the corporate strategy of the JSC depend on the prerequisites.

An important component of analytical research during this stage is also the analysis of the industry in which the company operates; its market position, technology, products, resources, its structure and

growth dynamics, definition and forecast of forces, the impact of macroeconomic factors, legislative and competitive changes, and fluctuations in demand. It is necessary to assess the driving forces and identify key success factors in this area, to assess its competitiveness and viability. Also, it is necessary to analyze the prospects of JSC for further development in the selected industry and analysis of industries in which the possible exit of this JSC through the formation of CIO.

Based on the results of the analysis of a wide range of factors that determine the choice of strategic alternatives for JSC development, recommendations on further development options (independent or integration) are summarized, as well as substantiation of strategic decisions to ensure further sustainable development of JSC, which include the following: new markets; achieving monopoly positions in the market; obtaining savings due to the effect of scale; the need to supplement or improve existing technologies; obtaining savings on expensive work on the development and creation of new products; cost reduction by expanding the network of suppliers or sales; the need to reduce risks, etc. Each of the strategic decisions of this direction determines the future orientation of the JSC, which will be able to meet the achievement of the required strategic results, namely: JSC, which is focused on the diversification of activities; JSC, which is focused on expanding markets for products and services; vertically oriented blood pressure [10].

The results of the analysis of the conditions of JSC activity, the establishment of a corporate strategy and the definition of the option of further development are a prerequisite for the formation of a set of strategies, which include integration. Based on the analysis of business conditions and comparison of its results with the corporate strategy, the growth strategy of this JSC is determined: strengthening the market position; market development; product development; reverse vertical integration; direct vertical integration; centered diversification; horizontal diversification; conglomerate diversification; harvesting; cost reduction; liquidation [11]. For the chosen strategy the main factors of ensuring competitiveness are determined. Determining the further variant of JSC development (integration or independent) is carried out in the following stages:

1. Assessment of internal factors shaping the competitiveness of JSC.
2. Assessment of external factors shaping the competitiveness of JSC.
3. Determining the amount of strategic resources required to ensure the required level of competitiveness of the JSC.

4. Determining the needs of the JSC in attracting strategic resources (determining the gap).
 5. Identifying opportunities to attract strategic resources from external sources.
 6. Determining the composition of sources of relevant resources.
 7. Defining additional conditions and restrictions on the use of resources and ensuring the competitiveness of the JSC.
 8. The choice of option for the development of a joint stock company.
- 4) principles, rules and norms of choice of sources of financing of integration development;
 - 5) principles, rules and norms for determining partners for the formation of a corporate integration association.

Given the impossibility of increasing the absolute amount of available JSC strategic resources, any change in the consumption of these resources will be possible only through a change in the ratio of the use of interchangeable resources or their involvement from the outside. Thus, if the effective use of available strategic resources is not sufficient to achieve the corporate strategy of the JSC, it is necessary to acquire them or combine them with another JSC – the owner of the necessary resources.

For each JSC development strategy, the factors that determine the competitiveness of JSC will be different and different factors will determine the feasibility of choosing an integrated or independent path of development. Some of the above strategies do not provide the implementation of the integration development of JSC, these are strategies of reduction (harvesting, cost reduction, liquidation). For other strategies, there are certain factors and strategic resources that determine the effective implementation of activities, support competitiveness and determine the ways of further development (Table 2). After identifying the key factors that determine the choice of a particular path of development of JSC, and their importance, they are compared by experts and determine the general recommendations for choosing a particular path.

The results of the analysis of the conditions with regard to the joint-stock company and the definition of the main key factors in the implementation of a particular strategy allows the formation of specific strategic plans for the implementation of integration processes, which include the following elements:

- 1) a set of desired qualitative and quantitative parameters of the joint-stock company, the achievement of which is the goal of the corporate strategy of the JSC;
- 2) principles, rules and norms of coordination of interests of participants of integration processes;
- 3) methods and forms of regulating the implementation of integration processes, which should be mainly used in the implementation of the integration strategy;

Thus, the result of this stage is to determine the option of further development of the company and, in the case of the choice of integration development - the formation of a set of strategic recommendations on the principles, rules and sequence of development through integration processes.

Comparison of the corporate strategy and analysis of the external and internal environment allows to identify specific sources of synergy effects necessary for the development of JSC and to establish the probability of their achievement. Ensuring the formation of all possible desired synergy effects and obtaining CIO with ideal indicators is often impossible. This is due to the principle of optimality of Pareto. The principle of efficiency of functioning of any economic system according to Pareto, states that in effective economic system it is impossible to make any improvement without corresponding deterioration of other parameters of this system [12]. Thus, achieving all the synergistic effects that are desirable in accordance with the corporate strategy is impossible. This is due to different directions of their possible receipt, contradictions between them, lack of resources for the simultaneous implementation of all desired effects, and the mismatch of some of the synergies to the chosen overall corporate strategy and identified development priorities. Therefore, the overall synergistic effect will not simply be the result of all the desired effects. The relationship between these effects is determined by the function, the value of which will change as its components change.

However, this effect is the most predictable that can be obtained during the implementation of all measures provided for in the integration strategy of the company. That is, this is the effect that will be obtained as a result of the most effective implementation of the integration strategy of the company, which is formed on the basis of the prerequisites that were identified during the analysis of the JSC. In the case where the integration with the joint-stock company is carried out for its further sale, the level of overall synergy will not have a significant impact. This is due to the goals of such integration and the ephemerality of the integration process [13], [14].

All of the above applies to individual business strategies of a joint stock company or a corporate integration association as a whole. It should be noted that during the activity, the JSC or CIO may have several different business strategies that may interfere with each other.

Table 2. Factors determining the choice of strategic alternatives for the development of JSC

Orientation	Factors	Characteristics of the influence of the factors on the choice of alternatives	
		Independent	Integration
Strengthening market position	Availability of strategic resources to strengthen the position	There are	They do not exist
	The cost of expanding the network or building a new one	Low	High
	The cost of integration	High	Low
	Availability of unused reserves to expand the sales network	Exist	Does not exist
	The estimated cost of merging with the owner of such a network	High	Low
	Risks of self-development	Low	High
Market development	Availability of unused reserves of the sales network of this product in other markets	Exist	Does not exist
	The cost of building a new sales network in a new market	Low	High
	The estimated cost of merging with the owner of such a network to enter new markets	High	Low
Product development	Availability of untapped opportunities for the production of a new type of product	There are	They do not exist
	The cost of introducing production facilities for the production of a new type of goods	Low	High
	The estimated cost of combining with the owner of such facilities	High	Low
Reverse vertical integration	Possibility and cost of acquiring existing capacities to implement the strategy of reverse vertical integration	There is / low	Does not exist / high
	The cost of construction of such facilities	Low	High
	The cost of combining with own suppliers or their competitors	High	Low
	Terms of implementation of such independent construction	Short	Long
	Possible risks of the integration process	There are / high	None / low
Direct vertical integration	Opportunity and cost of purchasing existing capacity from consumers	There is / low	Does not exist / high
	The cost of self-development of consumer infrastructure	Low	High
	Cost and possibility of association with consumers	Low / exists	High / does not exist
	Terms of such development and integration	Short	Long
	Possible risks of the integration process	None / low	There are / high
Centered diversification	This strategy involves the use of existing opportunities of JSC and the development of new products based on them. During the implementation of this development strategy, the integration path is not promising. This is due to the specifics of this strategy.		
Horizontal diversification	Possibility and cost of introducing new production facilities or technologies that are necessary for further diversification	There is / low	Does not exist / high
	Existing experience with these technologies	Exist	Does not exist
	Possibility and cost of association with their owner	Does not exist / high	There is / low
	Probable risks of independent introduction of new technologies	None / low	There are / high
Conglomerate diversification	Cost and general possibility of introduction of new production and its development by own forces	Low / exists	High / does not exist
	Possibility and cost of association with the owner of production facilities, which is necessary	Does not exist / high	There is / low
	Probable risks of realization of an integration way of development	High	Low
Harvesting	Due to the specifics do not provide an integration path of development		
Cost reduction			
Elimination			

Therefore, it is important to optimize the business portfolio of the corporate integration association that is being formed [15]. At this stage, it is necessary to form a certain register of synergies that are needed to achieve previously formulated strategic results. It should include all synergy effects, the receipt of which is necessary for the further development of JSC and are consistent with the corporate strategy.

When selecting such possible synergies, it is necessary to take into account the results of the analysis of the external and internal environment of the blood pressure. This is necessary in order to eliminate synergies that cannot be achieved by the company due to certain features of the JSC or its environment.

For each required strategic result, conclusions are formed on the overall possibility of achieving it using the above synergies and certain difficulties that may be encountered by the company. For each strategic effect, conclusions are also formed on the possibility of its implementation with notes on the general features of such an effect [16].

At the next stage (selection of potential participants in the integration process) the possibilities of integration of JSC with other business entities or with certain corporate integration associations are determined on the issue of obtaining certain synergies, the selection that best meets the requirements of such synergies. The generalization of the prospects of integration involves a comprehensive analysis, which consists of analysis, in fact, the process of formation of the association; the expected results of the formation of CIO and the risks of integration processes. At this stage, the calculation of possible costs for the implementation of the integration strategy is also carried out, after which the final verification of the selected candidate is carried out according to the following parameters.

1. Development strategy. It is necessary to find out what development strategy the candidate has; in which area it is planned to work in the strategic perspective; due to which resources it is planned to achieve strategic goals. After that, the results obtained have to be compared with the strategic plans of the joint-stock company - the initiator of the formation of CIO.

2. The scale of operations and business turnover. It is necessary to determine how the blood pressure differs from each other in terms of overall performance. This is due to the fact that a large gap in the size or performance indicators will significantly affect the position of future participants in the negotiations and the dynamics of relations between them in the implementation of the agreement.

3. Current customers. It is necessary to find out how the clients of joint-stock companies differ in their characteristics; whether the methods of promotion and servicing of current clients of future participants of CIO contradict; how an association can affect customer loyalty.

4. Potential customers. At this stage, it is clarified who is a potential client of the joint-stock company, whether it is contrary to the strategic goals of the joint-stock company to enter this market and to what extent it is consistent with the investment strategy of the JSC.

5. Organizational structure. It is necessary to determine the principle of organized work of potential partners - functional, divisional or matrix; how many positions are duplicated with those of the initiating joint-stock company and who holds them;

6. Control systems. It is also important to determine the accepted procedures and standards used by future participants of the CIO and how formalized the information flows in the middle.

7. Personnel policy. At this stage, it is necessary to determine how potential participants in the CIO position themselves in the labor market, what is the system of personnel selection, training, development, motivation and rewards, as well as who makes key decisions on issues related to staff.

8. Corporate culture. Combined JSCs always have some differences in corporate governance systems. Such differences can lead to conflicts and failures in the integration process. Therefore, it is especially important to agree on how the CIO management will be organized during the integration period, what corporate governance system will be formed as a result of the CIO integration, personal distribution of positions and functional duties and responsibilities, etc. In addition, the management of the JSC that manages the CIO, usually has its own vision of the desired corporate culture in the subordinate JSCs or divisions, which should link all the companies in the group.

Assessment of the state of corporate culture should be carried out in three main areas: qualitative characteristics of corporate culture; the power of corporate culture; management's attitude to corporate culture. Each of the main areas of analysis of corporate culture involves certain stages. During the study of the qualitative characteristics of corporate culture it is necessary to assess the following issues: material business environment, JSC symbols (appearance of employees, design of office space, working conditions, use of corporate symbols, language, history); employee behavior (models of work performance, interaction with clients, interaction between managers and subordinates, formal and informal interaction between employees, traditions); declared values, norms and rules, regulations (mission and goals of the JSC, principles of conduct and corporate values, internal regulations of the joint-stock company) [17].

During the analysis of the strength of corporate culture it is necessary to determine the presence of a dominant culture and the presence of subcultures, their number and relationship, the presence of contradictions [16], [18]. In turn, the analysis of the attitude of management to corporate culture involves determining the position of JSC management in relation to corporate culture, the impact of management on culture and tools for such influence.

It is equally important to pay attention to the cultural differences of the merging joint stock companies. At the moment, domestic companies are at very different stages of development, using different styles and cultures of management. The

problem of cultural mismatch between future members of the CIO is often one of the reasons for the loss of specialists of joint stock companies, which cannot only stop the integration process, but also lead to difficulties in the further functioning of individual JSCs. All this necessitates the formulation of the image of CIO and inform all employees.

9. Ownership structure. It is necessary to find out who owns the shares, what are the intentions of other shareholders. It is also important to clarify the relationship between minority shareholders. When formulating an integration strategy, it should be borne in mind that shareholders who have small stakes may unite to counter an undesirable merger.

10. Checking the legitimacy of privatization. During the integration of domestic joint-stock companies formed in Soviet times, there is a test of the legitimacy of privatization. Part of the shares may not be registered, and the register, contrary to the law, may not be with an independent registrar, but at the enterprise itself. Sometimes some provisions of the statute contradict the law and, as a result, are invalid.

11. Preferences. One should also find out if any local authorities have any preferences from competitors. In this case, integration may not be beneficial.

12. Financial evaluation of the candidate. At this stage, the cost of the JSC, with which it is planned to integrate, is assessed, using indicators that characterize both the internal and external components of the conditions of the JSC. It should also be borne in mind that a joint stock company may have serious debts that actually depreciate the benefits of integration with it. There may also be obligations that interfere with the business (an exclusive agreement with a distributor under which the company is obliged to supply most of the products at a reduced price). It is just as important to study the debts, fines, penalties, penalties that a JSC has. Thus, it is important to determine the dynamics of such indicators as: margin, balance sheet and net profit of JSC; product cost structure; accounts payable, including principal debts and penalties to budgets of all levels and extra-budgetary funds; receivables; excess stocks; indicators that characterize the turnover of money; delay in payment of wages; product structure.

Conclusions on all stages of this analysis are considered together. After that, a decision is made on the attractiveness or unattractiveness of the joint-stock company as a participant in the integration relationship, on the continuation of work with this JSC opportunity or the need for more in-depth analysis.

Thus, the definition of a partner for the formation of CIO is the selection of certain JSCs with clear optimal characteristics that should contribute to the achievement of the strategic goals of the initiator of the integration process – in the case of merging these joint stock companies [11]. The existence of a JSC, the characteristics of which would fully satisfy the system of JSC strategies for the formation of CIO is almost impossible: the achievement of optimal values of certain characteristics of JSC may make it impossible to achieve the optimum of another. Thus, the task of JSC selection is to optimize a certain set of clear JSC parameters that are necessary for the implementation of an effective integration process. Uncertainty and vagueness of these parameters necessitates the assignment of this problem to the class of optimization problems, the solution of which can be carried out on the basis of full search methods, analytical optimization, Neld-Mead method and others. However, the possibilities of using these methods in substantiating integration processes are quite limited. This is due to the peculiarities of these methods, which require significant time to implement, a large number of expert estimates of the objective function in order to find the optimum, a large number of mathematical calculations and unable to find the global maximum or minimum of the objective function. Optimal choice of blood pressure is based on objective indicators. From the author's point of view, the use of the method of genetic algorithm, which allows to use objective and control the degree of subjective factors and their influence on the process of selecting potential participants in CIO, provides much greater opportunities to solve the problem of finding the optimal variant of CIO formation [18]. The great potential of using the method of genetic algorithm for such problems is due to its main features: it is optimized by continuous parameters; does not require derived information; does not require the calculation of the derivative of the objective function; simultaneously searches among a wide area of the target plane; has the ability to work with a large number of parameters; used for parallel components; optimizes the parameters of a complex target plane; parameters can appear from local optimization; finds the only optimal solution; has the ability to encode parameters to perform calculations of encoded parameters; has the ability to work with a large amount of generated, experimental data and analytical functions.

Thus, the result of this stage of the sequence of formation within the integration strategy of the joint-stock company is to determine a specific candidate for the formation of CIO, integration with which is consistent with the corporate strategy of the company and synergy from the merger with which will be

maximum [19], [20]. After that, an initial agreement is reached on the value of the agreement, its structure and the integration process is initiated, including negotiations with antitrust authorities, internal preparations for the integration process, assessment of the size and sources of synergies.

The synergy effect increases revenue and increases the cash flow of the corporate integration association. In general, the magnitude of the synergistic effect formed within the CIO will be determined as follows [21]:

$$E_n = (\Delta(IA)_n + \Delta(ID)_n + (EC)_n) - (\Delta I_n + \Delta P_n + I_0) \quad (1)$$

where n – settlement period; C_n – overall synergistic effect; $\Delta(IA)_n$ – estimated additional income from the expansion of activities; $\Delta(ID)_n$ – estimated additional profit from risk reduction due to diversification of CIO activities; $(EC)_n$ – saving current production costs; ΔI_n – additional investments in reconstruction and expansion; ΔP_n – increase (savings) of tax payments; I_0 – investment at the time of acquisition.

The method of calculating the synergistic effect can be adjusted depending on the type of CIO formed and the motives for its formation. However, this method has a significant disadvantage, which in some cases may prevent its use or even lead to distortion of the evaluation results – it is not taking into account changes in the value of money over time [22]. This method of calculating the synergy effect can be used immediately after the integration and the beginning of the operational activities of the CIO. If it is necessary to analyze the synergy effect after a certain period of time, it is necessary to calculate the discount rate. In this case, the overall synergistic effect will be calculated as follows [21]:

$$C_t = \sum_{t=1}^T \frac{\Delta CF_t}{(1+r)^t} \quad (2)$$

where ΔCF_t – the difference to time t between the cash flows of the consolidated firm and the amount of cash flows of each company separately; r – mathematical expectation of the discount rate, calculated taking into account the planned rate of return on equity of the company that was not the initiator of the integration process.

The increase in cash flows should be defined as follows [21]:

$$\Delta CF_t = \Delta R_t - \Delta C_t - \Delta T_t - \Delta I_t \quad (3)$$

where ΔR_t – increase integration income; ΔC_t – increase costs; ΔT_t – increase in tax deductions; ΔI_t – increase additional investments in working capital and fixed assets.

Based on this formula, it is possible to divide the sources of synergy into four main categories: increase revenue, reduce costs, reduce tax deductions and reduce additional investment, and on the basis of which, if necessary, conduct a factor analysis to determine the degree of achievement of strategy, integration goals and, if possible, identify reserves to increase the synergistic effect.

4. Conclusions

The implementation of integration processes is an important element of the overall process of socio-economic development of the company. The main provisions of the integration strategy of the joint-stock company should follow and be fully consistent with other aspects of strategic planning of JSC development. The formation of the integration strategy of the JSC is an integral part of reducing uncertainty and risks in the implementation of the joint-stock company integration-type processes. The sequence of formation of the integration strategy of the JSC consists of six main stages: formulation of the general corporate strategy of the JSC, its goals and objectives; analysis of the conditions of JSC activity; determination of the variant of development and type of CIO; determination of a partner for the formation of CIO; planning of the integration process and analysis of the general plan of realization of integration processes. Defining a partner for the formation of CIO is the selection of certain JSCs with clear optimal characteristics that should contribute to the achievement of the strategic goals of the initiator of the integration process - in the case of combining JSC data. Thus, the task of JSC selection is to optimize some set of clear JSC parameters that are necessary for the implementation of an effective integration process. To solve this problem, it is proposed to use the method of genetic algorithm.

Areas of further research in this area should be considered the justification of methodological approaches to justify the choice of partners for the formation of CIO using the method of genetic algorithm.

References

- [1]. Baklanova, O., Petrova, M., & Koval, V. (2020). Institutional Transmission in Economic Development. *Economic Studies journal*, (1), 68-91.
- [2]. Alekseev, I. V., Kolesnik, N. K., & Moroz, A. S. (2007). Resource Management software financial-industrial groups. *Lviv: Vydavnytsvto National University" Lviv Polytechnic*, 132.
- [3]. Burn, J., Marshall, P., & Barnett, M. (2002). *E-Business Strategies for Virtual Organizations*. Routledge.
- [4]. Dussauge, P., & Garrett, B. (2002). Стратегические альянсы.
- [5]. Kubeš, V., & Rančák, J. (2018). Sustainability of organization performance via management techniques. *Entrepreneurship and Sustainability Issues*, 5 (4), 1031-1042. [https://doi.org/10.9770/jesi.2018.5.4\(23\)](https://doi.org/10.9770/jesi.2018.5.4(23))
- [6]. Kostetska, K., Khumarova, N., Umanska, Y., Shmygol, N., & Koval, V. (2020). Institutional qualities of inclusive environmental management in sustainable economic development. *Management Systems in Production Engineering*, 28(1), 15-22. <https://doi.org/10.2478/mspe-2020-0003>
- [7]. Sherman Andrew, J. (1998). Mergers and Acquisitions from A to Z: strategic and practical guidance for small and middle-market buyers and sellers.
- [8]. Boohene, R., & Williams, A. A. (2012). Resistance to organisational change: A case study of Oti Yeboah Complex Limited. *International Business and Management*, 4(1), 135-145. <https://dx.doi.org/10.3968/j.ibm.1923842820120401.1040>
- [9]. Rusu, G., & Avasilcai, S. (2013). Human resources motivation: an organizational performance perspective. *Annals of the Oradea University. Fascicle of Management and Technological Engineering*, 22(12), 331-334.
- [10]. Pogodayev, S. E. (2013). Marketing of works as a source of the new hybrid offerings in widened marketing of goods, works and services. *The Journal of Business and Industrial Marketing*, 28(8), 638-648. <https://doi.org/10.1108/JBIM-04-2012-0069>
- [11]. Ilchenko, S., & Glushko, A. (2017). Formation And Implementation Of Market Strategy In The Structure Of The Port'S Business Mechanism. *EUREKA: Social and Humanities*, (2), 40-48.
- [12]. Zhytar, M., & Nemsadze, G. (2018). Economic content and components of the financial architecture of the corporation. *Fundamental and applied researches in practice of leading scientific schools*, 26(2), 215-218.
- [13]. Romanenko, Y. O. (2016). Place and role of communication in public policy. *Актуальні проблеми економіки*, (2), 25-31.
- [14]. Aguado, R., Retolaza, J. L., & Alcañiz, L. (2017). Dignity at the level of the firm: Beyond the stakeholder approach. In *Dignity and the Organization* (pp. 81-97). Palgrave Macmillan, London.
- [15]. Milner, B. Z. (1999). Theory of organization [Teorija organizacii].
- [16]. Bhatia, A., & Thakur, A. (2017). Choice of diversification strategies in an emerging market environment: An empirical evaluation. *International Journal of Business and Globalisation*, 19(1), 52-78. <https://dx.doi.org/10.1504/IJBG.2017.085108>
- [17]. George, J.M., & Jones, G.R. (2007). *Understanding and Managing Organizational Behavior*. New York: Pearson Education, Inc.
- [18]. Young, C., & Ghoshal, S. (2016). *Organization theory and the multinational corporation*. Springer.
- [19]. Stout, L. A. (2017). The economic nature of the corporation. In *Oxford handbook of law and economics* (Vol. 2, Ch. 14). Oxford, U.K.: Oxford University Press.
- [20]. Hutsaliuk, O., Yaroshevska, O., Shmatko, N., Kulko-Labyntseva, I., & Navolokina, A. (2020). Stakeholder approach to selecting enterprise-bank interaction strategies. *Problems and Perspectives in Management*, 18(3), 42-55.
- [21]. Kokhno, P., & Kokhno, A. (2017). Modeli i pokazateli opredeleniya sinergeticheskogo efekta integrirovannykh promyshlennykh kompaniy. *Obshchestvo i ekonomika*, (1), 5-26.
- [22]. Finkelstein, C. (2006). *Enterprise architecture for integration*. Artech House.