Introduction and purpose of research. To ensure the development of integrated business structures, it is necessary to provide the efficiency of managing consolidation processes and raising the income of owners. For this purpose, a number of methodological approaches, tools and methods for forecasting and evaluating the results of integration are offered.

The hypothesis of consolidation processes lies in the theory of systems and management of owner’s income, which is reduced to the consideration of the impact of the integration process on the owner’s income, taking into account the functioning of the group as a system of mergers and acquisitions result.

Methods of research. The use of a pre-design analysis technique, which consists of individual procedures designed to assess the impact on: the strategic position – through the developed graph-mathematical model; production-economic efficiency – through the estimation of changes in cash flows of the integrated business structure (ISB) taking into account the synergistic effect determined by the cognitive map; propensity to risk – through simulation.

Results. The technology of strategic management of the integrated business structure in light industry was proposed, the description of its stages is presented in the form of interconnected procedures, it could be created by using the SADT methodology (Structured Analysis and Design Technique) in conjunction with the IDEF0-methodology. At the basis of the analysis procedures lies modeling of the financial and production activities of the group of companies before and after the consolidation on the base of the "cost–release" model adapted to the specifics of the consolidated accounting in textile companies. The final procedure for pre-project analysis of integration (merger or acquisition) is the assessment of consolidation projects by multi-criteria analysis of decision-making. The study also proposes a wider approach to integration – from the standpoint of project portfolios, maximizing utility under budget constraints.

Conclusions: the proposed approach of the creation of a regional cluster of light industry infrastructure on the basis of the project financing process of the integrated light industry’s business structure allows the formation of key links of the regional space as the basis of sustainable social and economic development of the regions.

Keywords: integrated business structures; light industry; textile industry; integration processes.
Вступ і мета дослідження: для забезпечення розвитку інтегрованих структур бізнесу необхідно забезпечити ефективність управління консолідаційними процесами і підвищення доходу власників. Для цього запропонована низка методичних підходів, інструментів і методів прогнозування та оцінки результатів здійснення інтеграції.

Гіпотеза консолідаційних процесів лежать теорії систем і управління доходом власників, що зводиться до розгляду впливу інтеграційного процесу на доход власників з урахуванням функціонування групи як системи як результату злиття та поглинання.

Методи дослідження: використання методика передпроектного аналізу, яка складається з окремих процедур, покликаних оцінити вплив на: стратегічне положення – через розроблену графо-математичну модель; виробничо-економічну ефективність – через оцінку зміни грошових потоків інтегрованої структури бізнесу (ІСБ) з урахуванням визначеного за когнітивною карткою синергетичного ефекту; щильність до ризиків – через імітаційне моделювання.

Результати: запропонована технологія стратегічного управління інтегрованою бізнес-структурою в легкій промисловості, опис етапів якого представляється у вигляді взаємопов’язаних між собою процедур, може бути створена за допомогою SADT-методології (Structured Analysis and Design Technique) в поєднанні з IDEF0- методологією. В основі процедуру аналізу лежить моделювання фінансово-виробничої діяльності групи компаній до і після проведення консолідації на основі адаптованої з урахуванням особливостей консолідованого обліку в текстильних компаніях моделі «витрати–випуск». Кінцевою процедурою перед проектного аналізу інтеграції (злиття або поглинання) є оцінка проектів консолідації методом багатокритеріального аналізу прийняття рішень. У дослідженні також пропонується більш широкий підхід до проведення інтеграції – з позиції портфелів проектів, максимізує корисність при бюджетному обмеженні.

Висновки: запропонований підхід до створення регіонального кластера інфраструктури легкої промисловості на основі реалізації процесу проектного фінансування інтегрованої бізнес-структури легкої промисловості дозволяє сформувати ключові ланки регіонального простору як бази сталого соціально-економічного розвитку регіонів.

Ключові слова: інтегровані структури бізнесу; легка промисловість; текстильна промисловість; інтеграційні процеди.
**Formulation of the problem.** Ukrainian light industry today is a powerful diversified complex of the production of consumer goods. It provides about 150 thousand working-places. This socially significant sector of the economy is focused on the final customer. The potential capabilities of light industry enterprises make it possible to produce a wide range of goods capable of satisfying all the demands of the domestic market. At the enterprises of the industry which are located in all regions of Ukraine, about 7% of the total number of industrial and production potential of industry and 2.4% of production assets are concentrated. There are more than 10 thousand enterprises in light industry, of which about 2.5 thousand are in the textile industry, about 6 thousand in the production of ready-made clothes and fur, about 1.5 thousand in leather and leather shoes. Practically all enterprises of light industry are privatized, and those in state ownership make up less than 1%. The industry consists of 17 sub-sectors, has a powerful production potential, capable of producing a wide range of widely used and industrial goods, at the same time, light industry is associated with a large number of related industries and serves the entire economic complex of the country, while having great potential, generates relatively low income and significantly is behind the leading exporters of the world. Such situation is due to a number of systemic problems that constrain the economic growth of production and the effective use of potential. The most significant of the problems is the insufficient level of the formation of integration processes of procurement and processing enterprises that provide an effective strategy for the development of the industry.

Regarding to this, it is advisable to develop new and adapt existing methods and models for the formation of integrated business structures and also suggest methodological approaches to assessing their economic viability from the standpoint of a development strategy. For the solvation of given tasks, it is necessary, first of all, to determine the main conditions for creating integrated business – structures in light industry (hereinafter referred to as IBSEL) using the methodology of resource-spatial analysis combined with model solutions for strategic planning and management. The problem of infrastructure support for the functioning of an integrated business structure in light industry based on a cluster approach requires its solution. The author's method of forming a portfolio of alternative strategies for the development of integrated business structures in light industry should be also justified. Moreover, it is necessary to develop modern methods for assessing the economic feasibility of the formation and functioning of integrated business structures in the light industry.

**Analysis of recent research and unresolved part of the problem.** Such foreign authors as D. Aaker, I. Ansoff, R. Akof, M. Bradley, D. Depumphilis, K. Kummer, E. Campbell, S. Myers, D. Miller, S. Reed, V. Steger, A. Strickland, A. Thompson, F. Evans, and others were engaged in the
management of consolidation processes. The works of both foreign and
domestic scientists are dedicated to the creation and functioning of integrated
business structures: D. Aaker, T. Ambler, L. Ganuschak-Efimenko, O. Nifatova,
M. Porter, J. Robinson, C. Stiles, D. Trout, P. Fatkhutdinov, E. Chamberlina,
S. Khaminich, V. Shcherbak, etc.

However, despite the enormous amount of research on the identified
problems, most of them are local in nature and are aimed at resolving individual
issues. The range of tasks in the area remains unresolved: creating conditions for
the development of integrated business structures, evaluating the effectiveness
of their functioning, choosing strategic directions for developing integrated
business structures, confirms the need for further research and solving
methodological problems.

The aim of research is to theoretically substantiate and develop scientific
and methodological conditions that adequately ensure the formation and
strategic development of the integrated business structures of Ukraine's light
industry and make it possible to evaluate their economic feasibility.

Results of the investigation. According to domestic and international
experts, the Ukrainian light industry has great potential. In the state there are
more than 2.3 thousand light industry enterprises, where about 85 thousand
employees work. The light industry of Ukraine is gradually increasing its
capacity and its performance has been steadily growing for several years in a
row. Ukraine is actively developing textile, clothing, knitwear, leather and
footwear, leather haberdashery, fur and other spheres. In 2016, clothing
production accounted for about 40% of the total quantity of products sold,
textile production – 37%, leather and footwear production – more than 20%. The
regional ranking of the production of light industry goods in 2016 was headed
by the Lviv region (14.4%), followed by Zhytomyr region (8.7%), Kharkiv
region (8.5%), Dnipropetrovsk region (7%) and Kiev (6.9%). Thanks to high-
quality tailoring and affordable prices, the clothing of the Ukrainian
manufacturer is gaining increasing popularity not only in the domestic, but also
in the international market. Ukrainian products of light industry are exported to
150 countries. The main export items are textile products – 68.2%
(171.5 million dollars), hats and shoes, fur and leather products – 31.8%
(80 million dollars). More than 83% of all products are supplied to EU
countries. According to the Ministry of Economic Development, the total export
growth in 2017 was 43%.

Capital investment in the industry has grown up by more than 24%. The
total production in 2017 increased by 6.3%, the volume of goods sold amounted
to 23 billion hryvnia. However, despite the revitalization of the industry, a
number of problems still remain in this area. As noted in the Ukrainian
Association of Light Industrial Enterprises, in particular, these are not entirely
equal conditions of competition in the domestic market, instability in tax legislation, and an unimproved product safety control mechanism. In addition, there is low labor productivity, lack of personnel with the necessary qualifications and limited choice of raw materials. The list of leaders in the domestic market is headed by the diversified trade and production concern "Textile – Contact", its main activity is the production and sale of all types of fabrics, artificial fur, knitted fabrics, applied materials, accessories (more than 20 thousand items). Production of such a diverse range was made possible thanks to large budget orders for cotton wool and half-woolen fabrics, as well as clothing and bedding for departmental purposes for a number of ministries and departments.

Integration processes occurring between enterprises of various forms of ownership and activities of light industry are one of the promising models of economic development of Ukraine. An important direction in creating the effective and competitive IBSLDs is to provide organizational conditions for the formation of an integrated business structure in light industry on the base of systematic approach. Taking into account the organizational conditions for the development of IBSLDs discussed above, an organizational-logical model for the formation of integrated business structures, that is adequate to the modern development of light industry enterprises, has been proposed (Figure 1).

![Figure 1. Organizational-logical model of the formation of an integrated business structure in light industry](image-url)
From the author’s standpoint, the formation of an integrated business structure in light industry provides:

- the ability to create closed technological chains from the procurement of raw materials to the production of finished products (fabrics, shoes, clothing, etc.) and bring it to the consumer;
- flexible response to market fluctuations;
- cost savings on advertising, marketing, etc.;
- a unified investment, innovation and science and technology policy, which significantly reduces the cost of products and gives the possibility of introducing innovations in subsidiaries;
- a unified financial and credit policy, which allows accumulating free financial resources both for current economic activities and for investment purposes;
- the creation of a single commercial, sales, supply service and technical service, which leads to the creation of special units in Ukraine and trade missions abroad;
- a significant increase in capitalization compared with the total amount of funds of individual enterprises.

Based on this, it is proposed to use the SADT methodology in combination with the IDEF0 methodology for strategic management of an integrated business structure in light industry, which allows developing a single technology of strategic management and describe the stages in the form of interconnected procedures for the business structures of light industry, which participate in the integration. For this case the necessity of using a systematic approach to strategic management is justified, which is determined by the complexity of the organization of a business development program that includes legally independent firms in various industries, the diversity of links between its subsystems (subsidiaries, business units) with each other and with external partners, consumers, investors, multi-purpose character its functioning and development.

One of the options for the development of strategic planning, based on the balance of interests of the owner of resources – the state, the interests of business in light industry, is a resource-spatial analysis and modeling of the optimal parameters of the regional sector. The mandatory elements of strategic planning and management of the integrated business structure of light industry include:

- detailed study of the resource-spatial base of functioning of the business units of a particular branch of light industry;
- elaboration of legislative, regulatory and legal documents regulating and regulating production and economic activities on a regional scale and inter-regional cooperation;
- pre-project scientific study and pre-investment research to determine the real possibilities for the entry of a new business structure into the regional economic space;
- study of the existing infra-system at the regional and inter-regional level, elaboration of options for improving the activities of infrastructure industries;
- study of the institutional market environment, marketing analysis of target markets in the region, adjacent regions and neighboring countries.

The common technology of strategic management of an integrated business structure in light industry, the description of the stages of which is represented as interconnected procedures, can be created using the SADT – methodology (Structured Analysis and Design Technique) in combination with the IDEF0-methodology.

When applying the IDEF0 methodology it is advisable to build a basic block of strategic management of the CSBLP, consisting of internal and external mechanisms for its implementation. The initial parameter, that is, the output, under the direct influence of the factors of macroenvironment, mesoenvironment and microenvironment will be the achievement of the goals set for the enterprise.

Later on, the base unit should be divided into five stages (Figure 2), each of which is a subsystem that is subject to the main consideration and description using the IDEF0-methodology. A description of the technology of strategic management using IDEF0-motodology allows us to apply several scientific approaches to it at once, namely: system (strategic management is considered as a system), marketing (technology orients the enterprise’s activities to the needs of consumers), process (description of interrelated functions of strategic management is given), directive (technology is fixed in the form of documented schemes). The presence of specific characteristics and conditions of implementation laid down in the nature of timber complex substantially changes typical strategic scenarios, requiring the management to use adapted analytical and management tools.

A methodical approach to the formation of a regional cluster of light industry infrastructure was developed based on the implementation of the project financing process of an integrated business structure. The proposed infrastructural support for the functioning of an integrated business structure in light industry makes it possible to form key links of regional light industry enterprises as the basis for the sustainable socio-economic development of Ukraine and its regions.

The creation of large integration formations, especially concentrated mainly in one region, inevitably leads to the need of infrastructure’s optimization, turning it into an infra-system complex of regional scale, which is designed to ensure, above all, the smooth operation of enterprises that are included in the integrated structure.
Figure 2. Strategic management of the integrated business structure in light industry
From the author’s standpoint, it is advisable to create the infrastructure type cluster based on the implementation of the project financing process, which includes the following steps:

1) Pre-selection of objects, amounts of funding and presentation of ideas in the format of a business plan. Ranking of projects based on the compliance of the mission of the integrated business structure, strategy and performance criteria.

2) Formation of a portfolio of projects, summation of the required resources (human, material, industrial, financial, etc.).

3) Optimization of financing schedules and project implementation on the principle of balanced cash flows.

4) Determination of the total shortage of funds and re-selection of projects.

5) Determination of the amount of additional financial resources for the implementation of projects and sources of financing.

In this case, it is also necessary to take into account the peculiarities of the spatial development and location of the sectoral production of the region's light industry. Based on the cluster method of organizing a regional space, into which the development of the region fits, it is advisable to create and develop infrastructure sectors in a complex – as an interdepartmental information system. The cluster type of formation of the complex of infrastructure industries for the integrated business structure of light industry is presented on Figure 3.

<table>
<thead>
<tr>
<th>Production infrastructure</th>
<th>Integrated timber industry business structure complex</th>
<th>Market infrastructure</th>
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<tbody>
<tr>
<td>Information and communication infrastructure</td>
<td>Social infrastructure</td>
<td></td>
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</table>

*Figure 3. Infrastructure shell cluster type of light industry*

The proposed approach for the creation of a regional cluster of light industry infrastructure based on the implementation of the project financing process of an integrated business structure of light industry allows you to form key links in the regional space as the basis for sustainable socio-economic development of the regions. At the same time, integrated timber industry business structures that develop in a multidisciplinary area act as "growth points" – organizing elements of spatial business structures that increase the indicators of the contribution of light industry to the country's economy.

A new method for assessing economic feasibility in the operation and development of integrated business structures of light industry is proposed. A system of indicators has been developed to evaluate the synergistic, multiplicative and joint (symmetric) effects.
It has been established that the assessment of the systemic effect of emergence in formation of integrated business structures in light industry, as well as the multiplicative effect in the sphere of business structures, should be built on the basis of a "chain of added values". From the author’s standpoint, the assessment of the economic feasibility of the functioning of the integrated business structures of light industry includes the following conditions:

1) When combining integration processes, the effects of synergism and multiplicativeness are "intertwined" to such an extent that their separation within the framework of one alliance is impractical. It is more important to assess the joint impact on the growth of the effectiveness of integrated activities.

2) Initially, the effect of horizontal integration is assessed for each horizontally integrated business structure that is part of the light industry. After evaluating the horizontal integration, the effect should be evaluated taking into account the effect assessment by the vertical integration vector.

The obtained indicator of the integral effect is compared by a specific value with a similar indicator for each business unit before its entry into the integrated business structure. Evaluation of the integral effect is performed by the formula:

\[
R = \sum_{i=1}^{7} k_i \cdot B,
\]

where
- \( R \) – final effect score, in relative magnitude;
- \( B \) – weight value indicator;
- \( k_i \) – value reflecting cost savings \((i = 1, 2, ..., 7)\).

The developed methodological approach was tested on the example of the trade and production concern "Textile – Contact", which made it possible to carry out a study of a number of manifestations of synergism and symmetry effects (multiplicativeness). Based on the results of the accounting and analysis of the information necessary for evaluating the effect of information, the values of the integral indicators for each of the six industry-specific joint-stock companies were obtained. At the same time, it is necessary to take into account the fact that cost savings, estimated by each of the seven factors are, in essence, an increase (effect) in the chain of added values of a vertically and horizontally integrated business structure.

Accounting and evaluation of integration processes in the textile industry are proposed to be carried out according to the following procedure:

1. The calculation of average cost of company’s capital (KCC):

\[
KCC = W_0 \cdot K_0 + (1-T_0) \cdot (1-W_0) \cdot i_0,
\]

where
- \( W_0 \) – capital structure in the form of equity;
- \( K_0 \) – average cost of equity;
\( T_0 \) – income tax rate;
\( i_0 \) – average interest rate on borrowed funds.

2. Determining the cost of capital in a real assessment:

\[
KCC_p = \frac{1 + KCC}{1 + h_0} - 1,
\]

where \( h_0 \) – the inflation rate.

3. Finding the average annual cash flow (CF):

\[
CF = BPI \cdot (1 - T_0),
\]

where \( BPI \) – balance sheet profit and interest payments attributable to income tax.

4. Calculation of the value of the firm of all assets (PV):

\[
PV = CF / KCC_p.
\]

5. Finding net present value from a merger (acquisition) operation (NPV):

\[
NPV = PV - I_{nv},
\]

where \( I_{nv} \) – additional investments at merge (absorption).

This calculation adequately illustrates the profitability or the effect of the ongoing processes of combining vertical and horizontal integration of a textile corporation, since the absorption or merger of integrated business structures is the result of the combined action of oppositely directed vectors. The return on investment (ROI), in this case, is defined as:

\[
ROI = \frac{CF \cdot (1 - T_0)}{I_{nv}},
\]

The economic value added (EVA) at the time of the transaction will be:

\[
EVA = (ROI - W_0) \cdot I_{nv}.
\]

The method of evaluation of integration processes developed by the author was successfully tested within the framework of the trade and production concern "Textile – Contact" with the intended merger (takeover) of PrAT "Cherkasy knitwear company" Lyubava" of the Ukramtex company (Brovary). The estimated net present value from a merger (acquisition) operation in the amount of $28,835.3 thousand in multiple times exceeds the value added, which makes it possible to obtain a real increase in value added one month after the implementation of this operation.
Conclusions and suggestions. The developed tools and techniques for practical use can be implemented in industrial corporate structures for:

- forecasting and system analysis of consolidation: on individual business units and on the group as a whole – which provides an increase in the accuracy of assessing the effectiveness of the consolidation process – the creation of a sectoral integrated business structure

- making the choice of a consolidation process from the standpoint of increasing competitive advantages and achieving economic efficiency in conditions of market uncertainty – different from the existing methods by the complexity and objectivity of the analysis;

- comparison of alternative projects of consolidation and compilation of their most useful combinations – which allows to make a wider analysis than in the currently popular toolkit.

References


