***ASSOCIAÇÃO DE POLITÉCNICOS DO NORTE* (APNOR)**
INSTITUTO POLITÉCNICO DE BRAGANÇA

Management and Development of Enterprise

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Bragança, June, 2016.

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Abstract

The research work is devoted to actual problems of development management of industrial enterprises. The general purpose of this work is the choice and justification of rational enterprise development evaluation model and subsequent application of it for assessment of enterprise development level and also forming of recommendations for enterprise management.

Theoretical aspects of development management of enterprises were generalized. The approaches to understanding the essence of development enterprise category and its types were considered. It was investigated the evaluation models of enterprise development, their advantages and disadvantages and the difficulties of their implementation. The requirements for formation of the evaluation system of the enterprise development were summarized. It was determined the features of the formation and application of an Index of Enterprise Development.

In the empirical part, data about investigated enterprises was collected from their official websites and also complemented with further data from other statistical websites. The analysis was based on the annual financial statements of companies. To assess the level of enterprise development were chosen model proposed by Feshchur and Samulyak (2010). This model involves the calculation of the Index of Enterprise Development using partial indicators, their reference values and weight. It was conducted an analysis of the development of Ukrainian enterprises that produce sauces.

OJSC “LZHK” had the highest value of Index of Enterprise Development, in 2013 and 2015, that consisted 0,78 and 0,76 respectively. In 2014 the highest value for the Index belonged to PJSC “Volynholdinh” and amounted 0,74. OJSC “LZHK” had the highest average value of Index of Enterprise Development by the result of 2013-2015 years, and it consisted 0,70. PJSC “Chumak” had the lowest average value of Index of Enterprise Development obtained the result 0,59. In order to raise the enterprise development level, it was suggested to reduce production costs and staff turnover, increase the involvement of employees.

Keywords: Enterprise development, Potential of enterprise, Management of enterprise development, Index of Enterprise Development, Evaluation system.

Resumo

O presente trabalho de investigação dedicada-se aos problemas reais de gestão de desenvolvimento das empresas industriais. O principal objetivo do presente trabalho assenta na escolha e justificação da racionalidade do modelo de avaliação de desenvolvimento de empresas e subsequente aplicação do mesmo para a avaliação do nível de desenvolvimento de empresas e também a indicação de recomendações para a gestão empresarial.

Neste sentido, foram generalizados aspectos teóricos da gestão de desenvolvimento das empresas. Consideraram-se as abordagens para a compreensão da essência da categoria de desenvolvimento de empresa e os diferentes tipos, modelos de avaliação de desenvolvimento empresarial, as vantagens e desvantagens e as dificuldades da sua implementação. Determinaram-se as características de formação e aplicação de um indicador integrado do nível de desenvolvimento empresarial. Para a parte empírica, recolheram-se dados das empresas com recurso aos seus *sites* oficiais e a outras instituições que publicam diferentes estatísticas. A análise teve por base as demonstrações financeiras anuais das empresas. Para avaliar o nível de desenvolvimento das empresas foram escolhidos modelo proposto por Feshchur e Samulyak (2010). Este modelo envolve o cálculo do Índice de Desenvolvimento Empresarial através de indicadores parciais, os valores de referência e respetiva ponderação. Assim, foi realizada uma análise do desenvolvimento das empresas ucranianas que produzem molhos.

OJSC "LZHK" apresentou o valor mais elevado para o Índice de Desenvolvimento Empresarial em 2013 e em 2015, 0,78 e 0,76, respetivamente. Em 2014, o valor mais elevado registou-se para *PJSC "Volynholdinh"* e atingiu o valor de 0,74. *OJSC "LZHK"* apresentou, para o mesmo indicador, o valor mais elevado para o período de 2013-2015, ou seja, de 0,70. *PJSC "Chumak"* registou o valor mais baixo tendo obtido uma valor de 0,59. No sentido de aumentar o nível de desenvolvimento empresarial sugere-se a redução de custos de produção, rotatividade do pessoal e o aumento da participação dos trabalhadores.

Palavras-chave: Desenvolvimento empresarial, Potencial da empresa, Gestão do desenvolvimento das empresas, , Índice de Desenvolvimento Empresarial, Sistema de avaliação.

Анотація

Дипломна робота присвячена актуальним проблемам управління розвитком промислових підприємств. Основною метою даної роботи є вибір і обґрунтування раціональності моделі оцінки рівня підприємства, її використання для оцінки рівня розвитку підприємств, а також формування рекомендацій щодо управління підприємством.

Узагальнено теоретичні аспекти управління розвитком підприємств. Розглянуто підходи до розуміння сутності категорії розвиток підприємства та його типи. Досліджено методи оцінки рівня розвитку підприємства, їх переваги і недоліки, а також труднощі їх впровадження. Узагальнено вимоги до формування системи оцінювання розвитку підприємства. Визначено особливості формування та застосування інтегрального показника оцінки рівня розвитку підприємства.

В практичній частині, дані про досліджувані підприємства були зібрані з їх офіційних веб-сайтів, а також доповнені додатковими даними з інших статистичних веб-сайтів. Проведений аналіз ґрунтувався на річній фінансовій звітності підприємств. Для оцінки рівня розвитку підприємств було обрано модель, запропоновану Фещуром і Самуляком (2010). Дана модель передбачає розрахунок інтегрального показника рівня розвитку підприємства з використанням часткових показників, їх еталонних значень та коефіцієнтів вагомості. Проведено оцінку рівня розвитку підприємств ринку соусів України.

ПАТ "ЛЖК" мав найвище значення комплексного показника розвитку у 2013 і 2015 роках. Він складав 0,78 і 0,76 відповідно. У 2014 році найвище значення інтегрального показника розвитку належало ПрАТ «Волиньхолдінг» і становило 0,74. ПАТ "ЛЖК" мало найвище середнє значення інтегрального показника розвитку за результатами 2013-2015 років, що склало 0,70. ПрАТ «Чумак» мало найнижче значення інтегрального показника розвитку, що становило 0,59. З метою підвищення рівня розвитку підприємства, було запропоновано знизити виробничі витрати і плинність кадрів, підвищити залученість співробітників.

Ключові слова: Розвиток підприємства, Потенціал підприємства, Управління розвитком підприємства, Інтегральний показник розвитку підприємства, Система оцінювання.

Resumen

Este trabajo de investigación se dedica a los problemas reales de la gestión del desarrollo de las empresas industriales. El propósito general de este trabajo es la elección y la justificación de la racionalidad del desarrollo de la empresa, modelo de evaluación y posterior aplicación del mismo para la evaluación del nivel de desarrollo de la empresa y también la indicación de recomendaciones para la gestión de la empresa.

En este sentido, los aspectos teóricos de la gestión de desarrollo de negocios se han generalizado. Se consideraron los enfoques para la comprensión de la esencia de la categoría de desarrollo de negocio y los diferentes tipos, modelos de evaluación del desarrollo empresarial, las ventajas y desventajas y dificultades de implementación. Se determinaron las características de la formación y la aplicación de un indicador integrado del nivel de desarrollo de negocios. Para la parte empírica, se recogieron datos de las empresas en sus sitios web oficiales y en otras instituciones que publican diferentes estadísticas. El análisis se basa en documentos financieros anuales de las empresas. Para evaluar el nivel de desarrollo de las empresas fue elegido el modelo propuesto por Feshchur y Samulyak (2010).). Este modelo se basa en el cálculo del Índice de Desarrollo Empresarial a través de indicadores parciales, puntos de referencia y el peso adecuado. Por lo tanto, se llevó a cabo un análisis de la evolución de las empresas ucranianas que producen salsas.

OJSC "LZHK" presentó el valor más elevado para el Índice de Desarrollo Empresarial en 2013 y en 2015, 0,78 e 0,76, respectivamente. En 2014, el valor más elevado se ha registrado para *PJSC "Volynholdinh"* y atingió el valor de 0,74. *OJSC "LZHK"* presentó, para el mismo indicador, el valor más elevado para el período de 2013-2015, o sea, de 0,70. *PJSC "Chumak"* registró el valor más bajo con el valor de 0,59. En el sentido de aumentar el nivel de desarrollo empresarial se sugiere una reducción de costos de producción, rotación de personal y el aumento de la implicación de los trabajadores.

Palabras clave: Desarrollo empresarial, Potencial de la empresa, Gestión del desarrollo de la empresa, Índice de Desarrollo Empresarial, Sistema de evaluación.

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Acronyms

BSC – Balanced Scorecard

CSR – Corporate Social Responsibility

D – Depreciation

EBIT – Earnings before Interest and Taxes

EUR – Euro

FA – Fixed Assets

LC – Labor Costs

MVA – Market Value of Equity

NI – Net Income

OJSC – Open Joint Stock Company

PJSC – Private Joint Stock Company

R&D – Research and Development

RE – Retained Earnings

S – Sales

SMIDA – Stock Market Infrastructure Development Agency of Ukraine

TA – Total Assets

TL – Book Value of Total Liabilities

UAH – Ukrainian Hryvnia

WC – Working Capital

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Introduction

The development of enterprises is an important subject of management because it contributes to get a competitive advantage in the strategic perspective and gain a leading position in the market. Managers especially need to pay attention to determine the potential for further development of the company. Such opportunities can be found by analysing the current state of development and major trends of its changes. Application of complex indicators that would provide an adequate and overall assessment of the development enterprise level have practical importance, as a basis for making recommendations for improvement of the company activity.

The main purpose of this thesis is to choose and justify an enterprise development evaluation model that will have further application as well as setting recommendations for companies based on it.

In the scientific literature are distributed such management concept as a "sustainable development of enterprise", "driven enterprise development", "organizational development". The object of conducted research was organizational development of the enterprise.

The organizational development is the process of formation, accumulation and the using of strategic abilities to provide external adaptation and internal integration on markets (labour, capital and goods) in according to the interests of different groups of market participants.

It was defended, that three concepts such as development, potential and competitiveness are interdepended and influenc each of the other positively.

The evaluation models of enterprise development were investigated. The system of indicators for the analysis and evaluation of industrial enterprises development have to appreciate such requirements as a minimum number of indicators; using financial and non-financial indicators; ensuring the possibility of quantitative and qualitative analysis and visual presentation the results of calculations.

To assess the level of enterprise development were chosen the model proposed by Feshchur and Samulyak (2010). The advantages of this model are including a small quantity of parameters that to be calculated consideration of indicators in dynamics, which more accurately describes the situation at the company, and the construction of a system of indicators into one integral indicator, that allows quality and quantify assessment of the enterprise development. According to this model, the evaluation scale of enterprise development provides 3 levels: high (Index is from 0.7 to 1); appropriate (Index is from 0.5 to 0.69) and limited (Index is from 0 to 0.49).

In the empirical part was conducted an analysis of the development of Ukrainian enterprises that produce sauces: PJSC “Volynholdinh”; PJSC “Chumak”; OJSC “LZHK”; OJSC “Lutsk Foods”.

in 2013 and 2015 OJSC “LZHK” had the highest value of Index of Enterprise Development, that consisted 0,78 and 0,76 appropriately. In 2014 the highest value of Index of Enterprise Development belonged to PJSC “Volynholdinh” and amounted 0,74.

OJSC “LZHK” had the highest average value of Index of Enterprise Development by the result of 2013-2015 years. It consisted 0,70. PJSC “Volynholdinh” and OJSC “Lutsk Foods” had the appropriate level of enterprise development in average during 2013-2015. PJSC “Chumak” had the lowest average value of Index of Enterprise Development by the result of investigated period, it amounted 0,59.

In general, all investigated enterprises during 2013-2015 years had an unsatisfactory value of such indicators as Return on labour costs, Production costs, Output per worker and Gross profit. It evidences about lack of effectiveness of resources usage and enterprise activity in general. Therefore, it was offered to reduce production costs and staff turnover, increased involvement of employees. These recommendations will help to increase level of development of enterprises.

To answer the main objective of this research this study was structured as follows: the first section provides the theoretical aspects of development management of enterprise; the description of used methodology is presented in the second section of thesis; the third section contains main characteristics of researched enterprises and results of the evaluation of their development level; all the results are summarised in the conclusion part, which presents the most important findings of this research.

1. Literature Review

1.1. Concept and types of enterprise development

Effective long-term functioning of the business is possible in condition of its development. The complexity and ambiguity of the definition of enterprise development cause the existence of different opinions as to its interpretation. According to Academic explanatory dictionary of the Ukrainian language[1] concept of development is treated as a process that affects to change quality of something, the transition from one qualitative state to another higher one. Some scholars present it as a leading process of change to increased resilience and vitality of the system, ability to resist destructive forces of the environment (Dunda, 2012).

Melnyk and Hense (2009) notes that the development process is different from other changes only when properties, such as irreversible, direction, and pattern change systems based on implementation of inherent mechanisms of self-organization are simultaneously presented.

Development equate with different concepts such as evolution, improvement, progress, growth and expansion, but these categories can characterize only certain types of development, so that even if the aforementioned properties and their content indicate changes in system's quality, which is considered as a development, always occurs at a rising trajectory (Gaponenko & Pankruhin, 2010). Nonetheless, Ivanchuk (2012) criticizes this approach, believing that this identity is not right because it contradicts to the possibility of stagnation development. Therefore, he considers the development of a general scientific category and treats it as a set of quantitative and qualitative changes in the system, which provide qualitative transition from one state to another, and it characterizes by irreversibility, directivity and regularity.

Currently, there are several definitions of enterprise development. Thereby, according to Korotkov (1997), the development of enterprise level is a set of changes that has possibilities to move to the new

[1] See at http://sum.in.ua/

level of quality and strengthening of the system vitality. It has ability to resist destructive forces of external environment. Zabrodskii and Kizim (2000) give a more expanded definition of development. They concretize it with regard to economic and production system. In their view, the development of economic and industrial systems is a process of transition economic and production system in a new, more qualitative status by accumulating quantify potential, changes and complexity of the structure and composition, which results in increasing its ability to resist of environment destructive effect and efficiency operation.

Considered definitions of "enterprise development" is presented in Appendix (Table A.1). It is possible to find out from the scientific literature about distributed management concept as a "sustainable development of enterprise", "driven enterprise development", "organizational development" (Popov, 2002).

According to Chernykh (2006), the sustainable development of the enterprise is a changing process that happens in the operation of the company and which is conditioned to the influence of factors internal and external environment and it is characterized by an increase in its capacity, demand for products, the scale of activity, the ability to provide continuous production process and maintain solvency over a long period of time. The scholar not only gives the concept of sustainable development, but also shows its relationship with enterprise features such as adaptability, flexibility, organization, sustainability, reliability, economic security, stability and so on. However, it should be noted that the causal nature of this connection remains unexplored and requires further analysis.

Kuznetsova and Balabash (2015) explore the origin of the concept of sustainable development and note, that it was proposed in 1987 by a group of scientists headed by the Prime Minister of Norway Gro Harlem Brundtland and acquired popularity after United Nations Conference about Environment and Development, it held in Rio de Janeiro in 1992. The results of the conference found out three areas that determine priorities of sustainable development (Chimitova, 2010):

– Environmental protection;

– Protection of the human genome and its health;

– The creation of social, economic, political and other mechanisms to ensure solving problems concerning the environment and human health.

Kuznetsova and Balabash (2015) collect and analyse existing approaches to the interpretation of the concept of "sustainable enterprise development" (Appendix, Table A.2).

There are 4 most common definitions of “sustainable development” that are identified (Dvořáková & Zborková, 2014, p. 692-693):

A. "Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

B. Sustainable development is the development that strikes a balance between three fundamental pillars: economic, environmental and social.
C. Sustainability is the ability of humanity to ensure the development of the knowledge and ethical potential in order to help to overcome global challenges.
D. Sustainable development at the level of an organization is fulfilled thanks to commercial success and profit achievement."

It should be noted that the most common and widespread is the first of listed definitions.

There are two levels of sustainable development: Macro-Level (country, cities) and Micro-Level (manufacturing enterprises and its town and regional areas) (Garbie, 2014). Exploring the concept of enterprise development in general, we should consider micro-level of sustainability. Often scientists describe the concept of corporate social responsibility. Considering this concept, it is necessary to recall the pyramid, designed by Carroll (Figure 1).

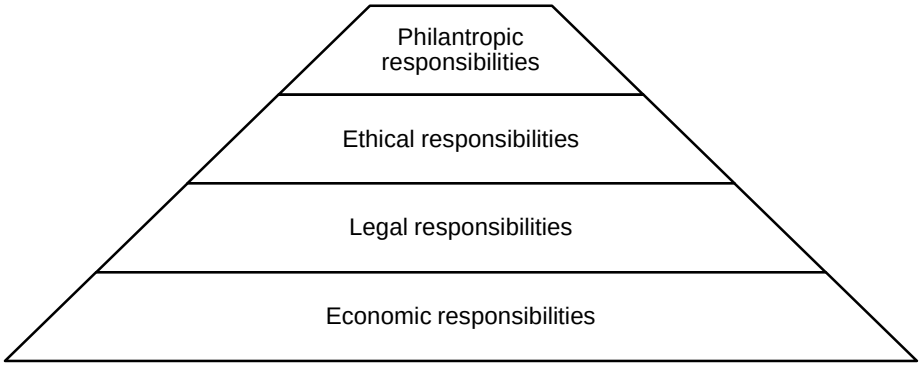

Figure 1. The pyramid of corporate social responsibility.

Source: Carroll (1991, p.42).

International Organization for Standardization has developed a standard ISO 26000 that summarizes attempts to form a universal concept of corporate social responsibility (Suprun, 2009). According to ISO 26000 CSR is defined by the following aspects:

- The responsible attitude of any company to its product or service, to customers, employees and partners;
- The active social position of the company, which is evident by harmonious coexistence, cooperation and constant dialogue with the community, participation in solving the most pressing social problems.

Accordingly, this concept encourages the company to consider the interests of society by taking responsibility for the company impact on consumers, stakeholders, employees, communities and the environment in various forms of its activity.

Important attributes of corporate social responsibility are a good corporate governance, high reputation, participation in social programs and a stable development of the company.

Controlled development of the company is an isolated part of the enterprise system, which combines process of restructuring and reengineering, innovation and investment processes leading to qualitative and quantitative changes in all functional areas of the company and contours management based on feedback, which solves the problem of strategic and tactical management and grows self-organization mechanisms of operational management development. The concept of organizational development emerged in the 60 years of the twentieth century (Pogorelov, 2006).

According to Korshunova (2004), the organizational development is the process of formation, accumulation and the using of strategic abilities to provide external adaptation and internal integration on markets (labour, capital and goods) in according to the interests of different groups of market participants. She emphasizes that development is not synonym of growth, because development is associated not only with quantitative changes in the enterprise activity such as a growth, but more with qualitative ones. That is, obtaining new skills and competencies is a feature of the organization. Moreover, the result of organizational development is to increase the potential of the organization from the perspective of forming new skills (Popov, 2002).

The dominant of the concept of organizational, controlled and sustainable developments is still a single concept of enterprise development, the essence of which is viewed from a different standpoint.

In addition, in the scientific literature is common the concept of strategic development of the enterprise. According to Dovgan, Karakay and Artemenko (2009), strategic development is a long-term direction of the amplification of organization, qualitatively defined and aimed to consolidating its position, customer satisfaction and achieve goals.

Kalynichenko (2010) points out that the essence of the strategic development of the company is for producing the available resources to the future possibilities by applying an expanded strategic analysis and elaboration strategic plans to achieve goals and obtain sustainable competitive advantage through timely response and quick adaptation to unpredictable changes of environment and develop products that will be recognized by the consumer.

Witek-Crabb (2014) attempts to determine the relationship between the growth of business and organizational development. Growth is generally associated with a quantitative external change, hence it is easy to observe and measure. Organizational growth is manifested through an increase in the number of employees, income, profit, or market share. The development encompasses change not only in size but also in the function. The development of an enterprise is described by the following criteria: organizational renewal, improved profitability and competitiveness, participatory changes of organizational culture, improved organizational well-being, increased processes of learning and adaptation.

Ivanchuk (2012), analyse different perspectives about the nature of the category of "enterprise development" distinguishes four groups of views on the economic context of this concept (Figure 2).

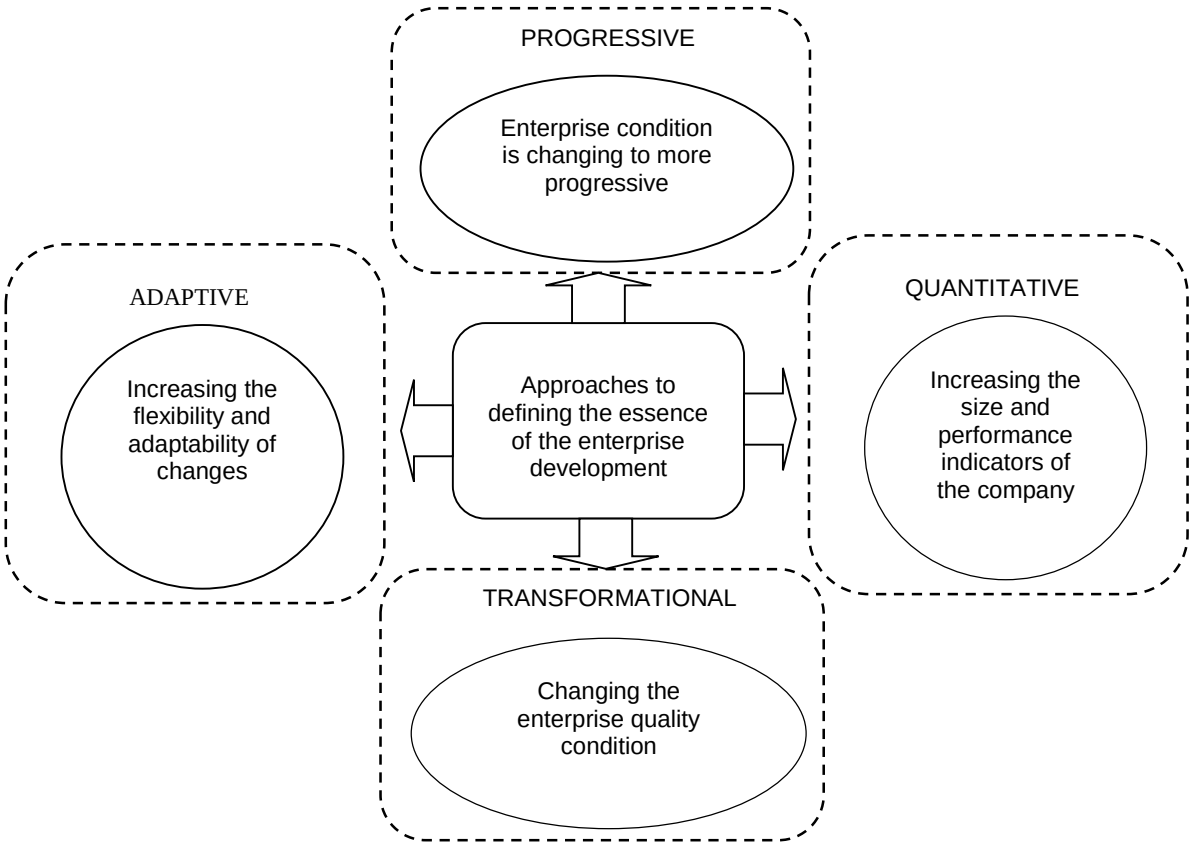

Figure 2. Approaches to defining the essence of the enterprise development.

Source: Ivanchuk (2012, p.4).

Thus, based on a synthesis of scientific approaches to determine the nature and content of the enterprise development, Ivanchuk (2012) treats this concept as a set of changes (qualitative, quantitative, structural) that lead to changes in the quality of enterprise on purpose to increase its flexibility and adaptability to economic conditions.

Pogorelov (2006) undertook a content analysis of current viewpoints on understanding the essence of development in general and especially the enterprise development. This analysis allowed selecting items or components of the definition of the enterprise. They are present in Figure 3.

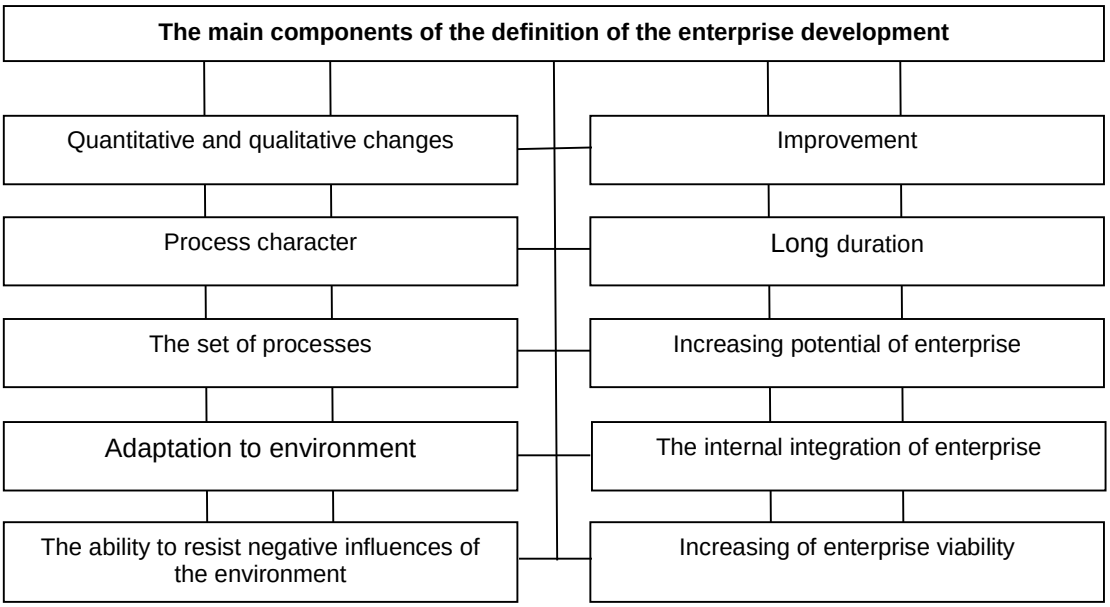

Figure 3. The components of the definition of the enterprise development.

Source: Pogorelov (2006, p.78).

Perhaps the abovementioned components have varying importance, but the issue needs further study, and therefore the first approach in understanding the concept of enterprise development is proposed to limit their easy enumeration, which will clarify and flesh out the concept of enterprise development.

According to the analysis of the resulted viewpoints, development of enterprise by its content is a set of processes that lead to an increase in total potential of the company. According to Pogorelov (2006), enterprise development is a long-term set of processes of quantitative and qualitative changes in the enterprise, leading to the improvement of his condition by increasing the potential enterprises, adapting to the external environment and internal integration that enhances the ability of enterprise to counteract the negative influences of the environment and its sustainability.

Dunda (2012) has analysed the current views on the interpretation of the concept of "development of enterprise", defined the main drawback of his predecessors - namely inconsistency of its definition. Therefore, enterprise development is a set of targeted, intensive and qualitative changes of economic nature, occurring in the enterprise owing to differences in the internal environment and the impact of environmental factors.

Pryima and Kulynyak (2012) highlight two aspects of the interpretation of "enterprise development" concept - in the narrow and broad sense. In the narrow sense, the enterprise development is considered as a condition or result of changes of enterprise activity (composition, properties), switching of a different quantitative and qualitative state influenced by factors internal and external environment. In broad terms, development of the company is treated as irreversible, directed, regular process that is continuous and

sequential change (the set changes) of results or state enterprise in time and space to quantitatively and qualitatively different than the previous influenced by factors internal and external environment.

According to Voronkova and Pogorelov (2009), three concepts such as development, potential and competitiveness are interdepended and influenced each of the other positively.

Having reviewed the existing types of enterprises should be noted that the object of further research is the organizational development of the enterprise.

1.2. Approaches to evaluation of enterprise development

New trends in management and marketing predetermine the changing of stages the selection strategy and justification of estimation method of enterprise development. The variety of indicators on which measure efficiency, performance and development of enterprises is not conducive to a quick solution of the abovementioned problems. In the scientific literature, these figures were called indicators.

Feshchur and Samulyak (2010) by summing up the views of various scientists, attribute to the basic principles of enterprise evaluation system are following:

- Communication indicators with the strategy of the company in the long term;
- Relevance (indicators should reflect clearly the main goal and its subordinate complementary targets of the enterprise);
- Limited number of indicators (maximum 25);
- Interdependence and balance of indicators;
- Integration into enterprise management system and information availability of indicators for all managers;
- A complete coverage of all areas of the company and all hierarchical levels of management;
- Consider both financial and non-financial indicators is required;
- Information transparency, visibility and availability indicators (the system includes the following indicators that can efficiently track and do not require significant resources for their formation, and is simple for the analysis and comparison of data);
- Formal presentation and quantified of indicator values (calculation of numerical values of indicators for unambiguous algorithms without subjective evaluations, transfer quality values in numerical scale).

System of indicators for the analysis and evaluation of industrial enterprises development in the unstable economic environment have to appreciate the following requirements (Yavorska, Feshchur & Shyshkovskyi, 2012):

- Requirement 1 - consist of a minimum number of indicators;
- Requirement 2 - using financial and non-financial indicators;

- Requirement 3 - ensuring the possibility of quantitative and qualitative analysis and visual presentation the results of calculations.

Yavorska, Feshchur and Shyshkovskyi (2012) made an effort to compare methods of analysing and evaluating the enterprise development taking into account the requirements for building a system of indicators. This comparison is presented in Appendix (Table A.3).

Boychenko (2015) share evaluation model of enterprise development on two groups: models of quantitative and qualitative evaluation. The scientist notes that the main advantages of qualitative evaluation models of enterprise development are comparable simplicity, speed of using and frequent high visibility of results.

Feschur and Samulyak (2008) distinguish 4 types of evaluation methods of enterprise development:

1. Evaluation of enterprise development in terms of competitiveness. (The feature of this method is that, when determining the competitiveness of enterprises could argue about the level of its development. Therefore, they are directly proportional).

Advantages:

It is possible to identify the advantages and untapped potential of the enterprise. It makes possible to qualitatively evaluate and compare the result with the average or leader. It deeply analyses the internal state of the company. You can evaluate the development dynamics and a significant number of indicators. The method is visual and complex during a comparison.

Disadvantages:

There is no definitive approach to the assessment of the competitiveness of enterprises. For most methods, except the matrix, characterized by a static assessment of the competitive position of the company when comparing with other business entities and that the results can be valid only for a relatively short period of time.

2. Evaluation of the enterprise development by the phase of the life cycle of the company.

Advantages:

The method allows determining the direction of the enterprise development for a specified period using qualitative and quantitative criteria: It allows interpreting graphically the dynamics of the enterprise development according to the phase of the life cycle of an enterprise.

Disadvantages:

The method gives only general results about situation of the company (growth, recession, etc.)

3*. Evaluation of enterprise development as a degree of potential realization* (a measure of correspondence between components of potential).

Advantages:

The method determines the actually used potential of the company, that is the measure of development and the necessary potential to become a leader. The method is not bulky in the calculations. It assesses the level of capacity of the enterprise and sets the extent of correspondence between components of potential. It determines the integrated assessment capacity and degree of opportunities of balanced development of the enterprise.

Disadvantages:

The method does not cover all the parameters during the evaluation the level of development. In analytics is often used predictive and not actual information. The considerable waste of time and resources spent on collecting and processing large amounts of information.

4. Evaluation of enterprise development using the integral index.

Advantages:

This method takes into account the impact of many different factors that have different ways of description. Estimates of the integral index formed mostly within the interval from 0 to 1. It allows to determine the phase of the life cycle of the company. It makes possible to build a path qualitative and quantitative assessments of changes.

Disadvantages:

Dynamics of qualitative characteristics integral indicator of the company for a specified period of time may not always give an objective assessment of change because it does not show the direction of flow of the process in the direction of degradation or improvement of the enterprise. The method is quite cumbersome.

Moreover, Verba (2010) identifies the following problems using integrated development indicators:

- Difficulty of prove clear link between improvement or deterioration of the value of integrated indicators and implemented activities for the development of the company;
- Presence of time gap between the implementation of activities for the enterprise development and the results, and improvement of selected integrated indicators;
- The possibility of eliminating some steps in the development of the company, due to their opposing effects on different elements of the system.

Efremova (2015) notes that the potential of the company characterizes not only its production resources and opportunities, but also the ability to satisfy the requirements of consumers.

The most common interpretation of the essence of the enterprise potential as a combination of natural conditions and resources, opportunities, reserves and values that can be used to achieve certain goals. Furthermore, the potential of the company is defined as the possibility of an economic system to make

products or as opportunities of productive forces provide certain effect. Thus, almost all definitions in varying degrees, based on the company's resources on the one hand, and the achievement of their goals through the other.

Krasnokutska (2005) identifies two main components of enterprise potential, namely resources as the basis for forming capacity and enterprise ability to mobilize these resources in the implementation of complex operations (business processes). Given the fact that the combination of such capabilities in the economic literature is called competencies, the potential of the company said researcher defines as the capabilities of enterprise resources and competencies to create results for stakeholders by implementing business processes.

Kuzmin and Melnyk (2011) considered the enterprise potential as its ability to create and ensure the prospects of functioning. Moreover, the aforementioned researchers based on the results of a study of Ukrainian enterprises have concluded that the potential of the enterprise depends on three interrelated factors: competitiveness, investment attractiveness and company development (Figure 4).

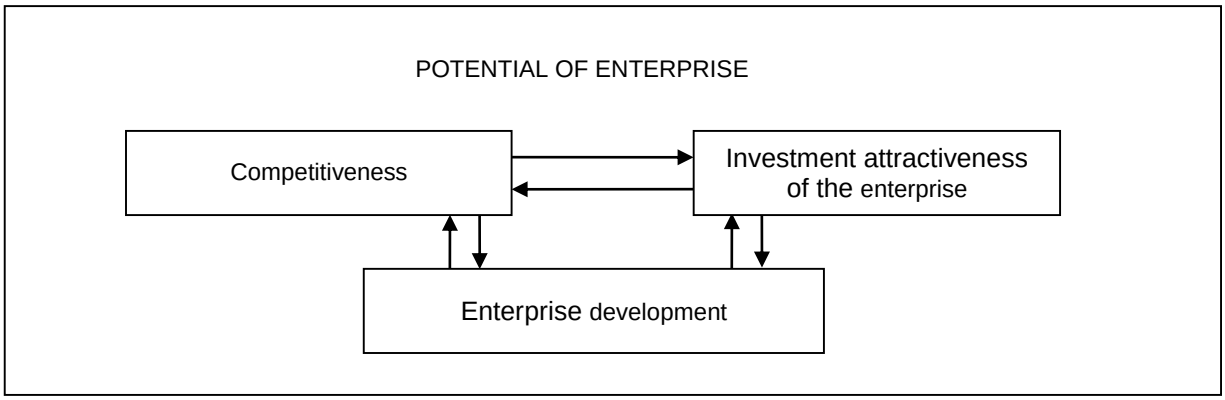

Figure 4. The main potential factors.

Source: Kuzmin and Melnyk (2011, p.157).

The presence of positive parameters in the company (competitiveness, investment attractiveness and development) shape the appropriate level of capacity that is the set of existing opportunities and reserves for future development. In addition, the interdependence of concepts such as capacity development and competitiveness emphasized by Voronkova and Pogorelov (2009), noting that the company investigated the characteristics of mutual influence is a stimulant, that each of them influences the other positively. In order to more detailed study of the impact of potential as the basis of enterprise development scientists appealed to the constituents of the concept of enterprise development and consider the potential of the company as a basis for the formation of each of these components is presented in Appendix (Table A.4). Summarizing the above written, it can be argued that the potential of the enterprise is the basis for its long-term development, and this relationship is causal and recursive.

Boronos (2015) analyzing the current point of view to determine the potential of the company, identifies three groups of treatment:

I. The potential is a collection of resources without regard to their relationships and participation in the process of reproduction.

II. The potential is a set of resources that are able to produce a certain amount of wealth.

III. The potential is the ability to complex economic system resources to carry out its task.

Nonetheless, all of the group views based on the resource approach to the essence of the company potential.

The most widely used are following evaluation models of enterprise development on the basis of indicators: Balanced Scorecard BSC; Model Dupont; Model Meysel; Model EP2M; Pyramid efficiency (Yavorska, Feshchur & Shyshkovskyi, 2012).

Balanced Scorecard is one of the most popular approaches in performance evaluation. It was introduced in 1996. Kaplan and Norton are one of the first scholars are focused on the necessity to incorporate non-financial indicators in the calculation of business performance (Zhao & Li, 2015). This model became the basis for further research. At present, many models developed by other scientists based precisely on the Balanced Scorecard.

'Balanced scorecard' displays a golden mean between financial and non-financial measure, short-term and long-term goals, take into account the state of the internal environment and the external performance perspectives (Chalmeta, Palomero & Matilla, 2012).

BSC was initially developed to evaluate business performance, however this method was realized in other different areas as information technology, materials processing, hospitals, safety, information management, e-commerce, e-business, supply chain management, R&D project, enterprise resource planning and so on (Asosheh, Nalchigar & Jamporazmey, 2010, Chan & Hiap, 2012).

The original balanced scorecard structure defined financial, customer, internal-business-process and learning and growth perspectives (Asosheh, Nalchigar & Jamporazmey, 2010). Nielsen and Nielsen (2015) presented BSC which includes five perspectives: financial, customer, process and supplier, employees, R&D. Table 1 describes the content of these perspectives and these indicators that reflect them.

The reasons for failure are mainly in the complexity and unclear to the establishment of responsibility levels, business prospects, time and adequate indicators that can be used as criteria of quality implementation of the strategy for each of the strategic directions (Pereverzeva & Zaitseva, 2011).

Considering non-financial indicators management provides a more complete and accurate information for managers (Chan & Hiap, 2012). Nielsen and Nielsen (2015) emphasize the importance of using BSC not only for business evaluation, but also for decision making, strategic planning and training.

The evaluation model of enterprise development designed by Ponomarenko and Gontareva (2012) is a system of integrated, comprehensive, generalized and partial indicators formed using parametric analysis. The advantages of this method include systematic calculations and fullness of display of the factors that influence the development of the company; measurability of criterion components; clarity of physical, economic and social contents. However, perhaps the only one, but a powerful disadvantage of this model is the excessive complexity of the calculations.

Table1. Details concerning the company's BSC.

Perspectives	**Objectives**	**Outcome measures**	**Short-run average interaction time frame originating from previous perspective (assumptions)**	**Long run time expectations frame with respect to full impact of effects originating from an earlier perspective**
(5) Financial	To be able to satisfy the preferential creditors before demands for dividends to owners are met	EVATM, profit, and RoCE	"Cause(4) →Effect(5)" ≈ 6 months on average	"Cause(1) →Effect(5)" ≈ 3–5 years in full
(4) Customer	To offer the best products timely so that the customer wishes to remain a customer	Active customers, customer loyalty, and customer recommendations	"Cause(3) →Effect(4)" ≈ 17 months on average	"Cause(3) →Effect(4)" ≈ 2 years in full
(3) Process & supplier	To have access to the right resources at any time. To improve the flow from procurement to shipment	Finished inventory, product work in process, and machine capacity	"Cause(2) →Effect(3)" ≈ 6 months on average	"Cause(2) →Effect(3)" ≈ 1 year in full
(2) Employees	To have well-motivated and competent employees and let the employees be aware of the importance of competition	Staff utilization and staff capacity	"Cause(1) →Effect(2)" ≈ 3 months on average	"Cause(1) →Effect(2) ≈ 1 year in full
(1) R&D	To ensure strong competitiveness and be able to grow steadily, continuously developing products and services	Rate of innovations	"Cause(5) →Effect(1)" ≈ 12 months on average	

Source: Nielsen and Nielsen (2015, p.8).

Feshchur, Samulyak and Shyshkovskyi (2012) offered to analyse the development of enterprises using the indirect method, it is based on two indicators - gross income and the level of company potential that corresponds to listed above requirements. A number of indicators enables a visual graphical interpretation of the enterprises. The scholars (Feshchur et al., 2012) modified Mc Kinsey matrix for graphic of enterprise development areas (Figure 5).

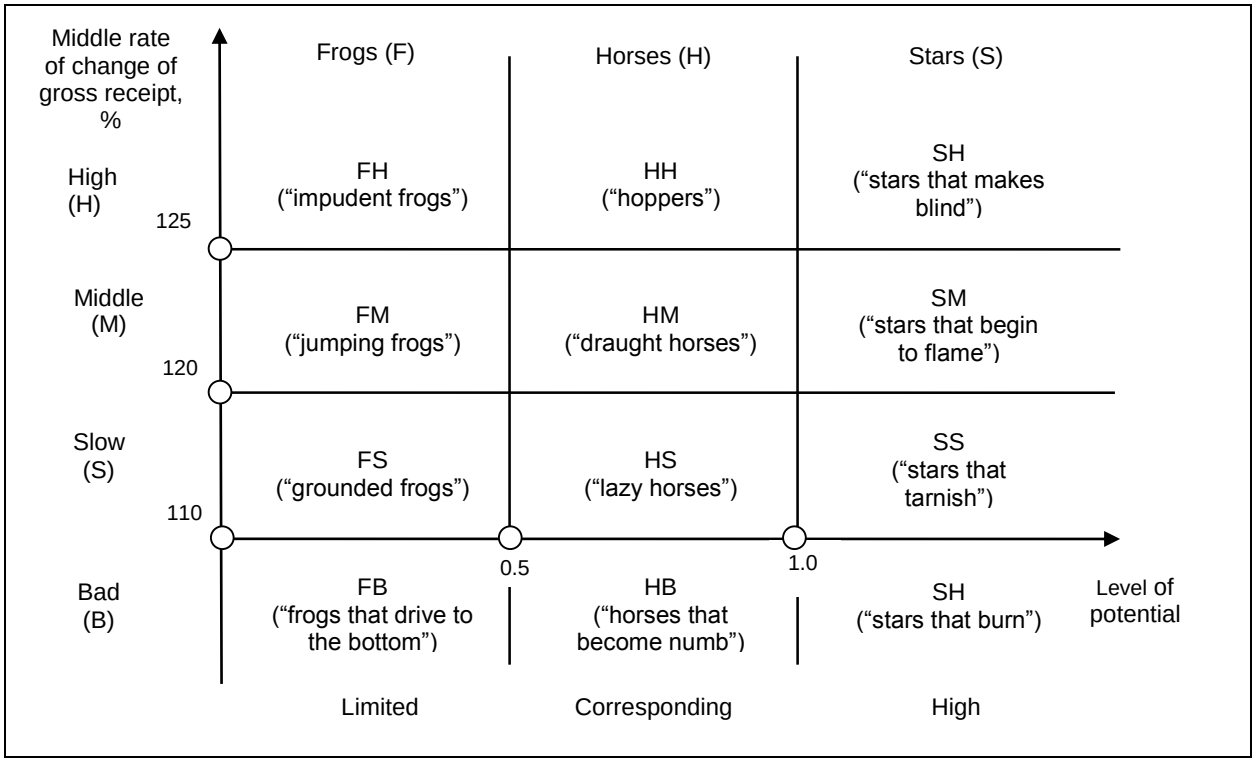

Figure 5. Graphic presentation of areas of the enterprise development.

Source: Feshchur et al., (2012, p. 20).

The approach to evaluation of development companies celebrated validity and accessibility and allows logically justify the allocation of development for their graphic image to determine the trajectory of retrospective and forecast perspective direction. If you put aside the value of both indexes (average rate of change, the level of potential) for several years, we get an opportunity to depict the direction of development the company over time. However, the main limitation of using of this method is the necessity to assess potential enterprise by the integrated indicator. The assessment methodology of an Index of enterprise potential requires further study and justification.

According to Wu and Sun (2007), the evaluation index system model of enterprise development should include 10 indicators that can combine into 3 groups: base index, index of development capacity and achievement index (Table 2). It should be noted that the authors propose to use this model to study the high-tech enterprises.

Table 2. The index system for the development evaluation.

Rank 1	Rank 2	Remarks
Base index	Total assets	The index to show the capacity of technical investment
	Fluid assets	The key index to show risk dodging
	Total liabilities	The index to show operation cost and profit
Capacity Index	The number of technical employees	The index to show R&D capacity
	Intangible assets	The index to show the capacity of technology transformation and reservation
	Long term payment	The index to show the investment of R&D equipment
Achievement Index	Growth volume of total assets	The index to show operation results
	Sales revenue	The index to show core power
	Growth of owner`s equity	The index to show profit and distribution
	Cost of goods sold	The index to show management capacity and efficiency

Source: Wu and Sun (2007, p. 46).

The main disadvantage of these models is the discrepancy of previously established requirements.

This model does not include a qualitative analysis. There is only partially implemented another requirement with regard to incorporating both financial and non-financial indicators. The model takes into account only one financial measure as the number of technical employees. Moreover, the model does not foresee construction of indicators for integrated assessment, which would allow to demonstrate the level of the enterprise.

The enterprise development evaluation method proposed by Feshchur and Samulyak (2010) based on the basic principles of scorecard (Table 3).

As shown in Table 3, mentioned factor assessments system of enterprise development has three target groups: indicators of using resources (financial, fixed assets, human, material, energy and information), products indicators and indicators of economic efficiency.

Table 3. The system of factor assessments of enterprise development.

Indicators of resource usage (R)	*1.1. Financial*
	R1. Integrated financial ratio
	R2 Index of the probability of bankruptcy
	1.2. Fixed assets
	R3. Availability indicator of fixed assets
	1.3. Labour (human)
	R4. Index of staff quality (intellectual component)
	R5. The level of motivation
	1.4. Material
	R6. Production costs (average rate of decline)
	R7. Specific weight material costs in operating costs
	R8. Material efficiency(Average annual growth rate)
	1.5. Energy
	R9. The energy intensity of production (average rate of change)
	1.6. Information
	R10. Index of information provision
Indicators of products (P)	P1. Index of Quality Products
	P2. Specific weight products for export
	P3. Factor of production upgrade
Indicators of economic efficiency (E)	E1. Profitability of products (average growth rate)
	E2. Output per worker (average annual growth rate)
	E3. Sales (average annual growth rate)
	E4. The average growth rate of gross profit
	E5. Assets return

Source: Feshchur and Samulyak (2010, p.235).

The advantages of the approach proposed by Feschur and Samulyak (2010) include a small quantity of parameters that to be calculated, consideration of indicators in dynamics, which more accurately describes the situation at the company, and the construction of a system of indicators into one integral indicator, that allows quality and quantify assessment of the enterprise development. It should be noted that this model corresponds to the 3 main requirements for scorecard. The main disadvantage of this model is the difficulty in calculating of reference score.

2. Research Methodology

2.1. Objective of the study

The management development is an important aspect of the company towards gaining competitive advantage and gaining a leadership position in the market.

A clear understanding of managers, owners, specialists of the enterprise potential opportunities for enterprise development provides the basis for making strategic and tactical decisions to maximize the use and sale of business opportunities.

The first priority of managers in the management development process is to determine the potential for further development of the company, which is possible with the cognition of current development level and trends by using hidden opportunities.

The possibility of generalizing the findings to make strategic decisions necessitated the design and application of integrated indicators that would provide an adequate, comprehensive and overall assessment of the enterprise development level.

The variety of indicators based on which measure the enterprises performance is not conducive to a quick solution of the abovementioned problems.

Therefore, the main objective of this study is the choice an evaluation model of enterprise development and the subsequent application of it for assess the major participants of Ukraine sauces market.

2.2. Population vs. Sample

Ukrainian enterprises that produce sauces were selected to study in this work. In general, in Ukraine more than 100 companies produce mayonnaise, tomato and other types of sauces. At the same time, major manufacturers (which produce over 1,000 tons per year) are not more than 10 companies (Volynchik, 2011).

In this study we investigated the following largest companies relating to Ukraine sauces market which are the main competitors and have the largest market shares[2]:

- Private Joint Stock Company “Volynholdinh”;
- Private Joint Stock Company “Chumak”;
- Open Joint Stock Company “LZHK”;
- Open Joint Stock Company “Lutsk Foods”.

Other large enterprises such as JSC “Agroecoproduct”, PE "Viktor & K", “Prime product Ltd”, “OLIS Ltd”, were not investigated by the information closeness and absence of publication annual reporting.

2.3. Description of Data Collection

The research was based in the scientific articles, the official accounting and statistical reporting of investigated companies for the previous three years and official websites of companies[3,4,5,6].

The information about the companies and their annual financial statements have been taken on the official site of Stock Market Infrastructure Development Agency of Ukraine (SMIDA)[7].

2.4. Description of Data Analysis

As noted earlier the basic requirements for the evaluation model of enterprise development are consist of a minimum number of indicators; using financial and non-financial indicators and ensuring the possibility of quantitative and qualitative analysis and visual presentation the results of calculations. The model proposed by Feshchur and Samulyak (2010), fits the bill and provides an integrated assessment of the enterprise. Therefore, this model was chosen for application in this work.

[2] See at https://inventure.com.ua
[3] See at http://www.nestle.ua/brands/culinary/torchin
[4] See at http://chumak.com/
[5] See at http://lgk.com.ua/
[6] See at http://www.runa.com.ua/index.php/ua/
[7] See at http://smida.gov.ua/

The primary scorecard of this model presented in Table 3. The non-availability of initial data to calculate such indicators as an Index of quality staff, the level of motivation, the energy intensity of production (average rate of change), specific weight products for export necessitated change the structure of the evaluation model (Table 4).

Table 4. The evaluation system of enterprise development.

Indicators of resource usage (R)	*1.1. Financial*
	R1 Index of the probability of bankruptcy
	1.2. Fixed assets
	R2. Availability indicator of fixed assets
	1.3. Labour (human)
	R3. Return on labour costs
	1.4. Material
	R4. Production costs (average rate of decline)
	R5. Specific weight material costs in operating costs
	R6. Material efficiency (Average annual growth rate)
	1.5. Information
	R7. Index of information provision
Indicators of products (P)	P1. Index of Quality Products
Indicators of economic efficiency (E)	E1. Profitability of products (average growth rate)
	E2. Output per worker (average annual growth rate)
	E3. Sales (average annual growth rate)
	E4. The average growth rate of gross profit
	E5. Assets return

Source: Author's own elaboration based on Feshchur and Samulyak (2010, p.235).

As shown in the Table 4, it was offered to evaluate human resources by using the return on labour costs.

Integrated assessment of enterprise development based on this method looks like this:

$$I_{ED} = \sum a_i * f(P_i;\ P_{ri}\ ), \qquad (0 < a_i \leq 1;\ 0 < f\ (P_i;\ P_{ri}) \leq 1); \qquad [4]$$

Where:

a_i - weight coefficient of an i-th indicator of the enterprise development;

P_i - value of the i-th indicator of the enterprise development;

P_{ri} - reference grade of an i-th indicator of the enterprise development.

The evaluation scale of enterprise development provides 3 levels (Feshchur & Samulyak, 2010):

I. High level of development - if Index is from 0.7 to 1.
II. Appropriate level of development - if Index is from 0.5 to 0.69.
III. Limited level of development - if Index is from 0 to 0.49.

Equations for calculating partial indicators, that needed to calculate the Index of Enterprise Development, are presented in the Table 5.

Table 5. Equations for calculating of partial indicators.

Indicator	Equation	Marking
R1. Index of the probability of bankruptcy (Altman's Z-score)	$Z = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$ $A = \frac{WC}{TA}$ $B = \frac{RE}{TA}$ $C = \frac{EBIT}{TA}$ $D = \frac{MVE}{TL}$ $E = \frac{S}{TA}$	WC – Working Capital TA – Total Assets RE – Retained Earnings EBIT – Earnings Before Interest and Taxes, S – Sales MVA – Market Value of Equity TL – Book Value of Total Liabilities
R2. Availability indicator of fixed assets	$R3 = 1 - \left(\frac{D}{FA}\right)$	D – Depreciation FA – Fixed Assets
R3. Return on labour costs	$R4 = \left(\left(\frac{LC_{n+1} * S_n}{S_{n+1} * LC_n}\right) - 1\right) * 100$	LC – Labor Costs S – Sales
R4. Production costs (rate of decline)	$R5 = \left(\frac{C_{n+1} - C_n}{C_n}\right) * 100$	C – Costs n – previous year n+1 – current year
R5. Specific weight material costs in operating costs	$R6 = \frac{MC}{OC}$	MC – Material Costs OC – Operating Costs
R6. Material efficiency (annual growth rate)	$R7 = \left(\left(\frac{S_{n+1} * MC_n}{MC_{n+1} * S_n}\right) - 1\right) * 100$	S – Sales; MC – Material Costs
R7. Index of information provision	$R8 = \sum b_i$	b_i – assessment of factor
P1. Index of Quality Products	$P1 = \sum \frac{a_i}{n}$	a_i – assessment of factor n – number of factors
E1. Profitability of products (growth rate)	$E1 = \left(\left(\frac{NI_{n+1} * S_n}{S_{n+1} * NI_n}\right) - 1\right) * 100$	NI – Net Income S – Sales
E2. Output per worker (annual growth rate)	$E2 = \left(\left(\frac{S_{n+1} * N_n}{N_{n+1} * S_n}\right) - 1\right) * 100$	S – Sales N – Number of Employees
E3. Sales (annual growth rate)	$E3 = \left(\frac{S_{n+1} - S_n}{S_n}\right) * 100$	S – Sales
E4. Gross profit (annual growth rate)	$E4 = \left(\frac{GP_{n+1} - GP_n}{GP_n}\right) * 100$	GP – Gross Profit
E5. Assets return	$E5 = \frac{S}{FA}$	S – Sales FA – Fixed Assets

Source: Salimi (2015), Samulyak (2009).

The Z-Score Model determine the company is in danger of bankruptcy or not. Depending on the values of the bankruptcy ratio, the company belong to one of three zones (Salimi, 2015): "Safe" Zone (Z > 2.99)

- a minimal chance of falling into bankruptcy; “Grey” Zone (1.8 < Z < 2.99) - a moderate chance of bankruptcy; “Distress” Zone - < 1.80 - are in danger of going bankrupt.

An Index of information provision and Index of Quality Products calculated using qualitative assessment.

An initial assessment model of enterprise development involves calculation of Index of information provision in terms of availability and completeness of the information needed for decision making. However, only managers of companies may assess this indicator. Therefore, it was proposed to assess the Index of information provision in terms of the efficiency of communication with consumers.

To calculate this indicator will be counted the following parameters: official website availability; website's Multilanguage interface; website's information completeness; additional useful information on the website; information completeness on packaging; additional useful information on packaging; adjusted feedback from consumers. Evaluation of parameters made according to the following scale: 1 - characteristic is inherent for the enterprise; 0 - characteristic is not inherent for the enterprise. An Index of information provision calculated as the sum of the partial parameters. Accordingly, this index can range from 0 to 7.

To calculate an Index of Quality Products were considered such parameters as packaging; brand popularity; food value; expiration date and price. Assessment of these factors was performed using a comparative rating scale from 1 to 4, where 4 is the best value of factor, 1 is the worst value of factor. If two or more companies have the same factor values, then they assign the higher score among possible. The Index of Quality Products is calculated as the average of factors value. Accordingly, this index can range from 1 to 4.

Calculation of indicators weight is present in Figure 6.

As Feshchur and Samulyak (2010) identified, Indicators of resource usage, Indicators of products Indicators of economic efficiency have an equally important impact on enterprise development. As shown in Figure 6, the coefficients were calculated in such a way that the total weight of each of three groups is 0.33.

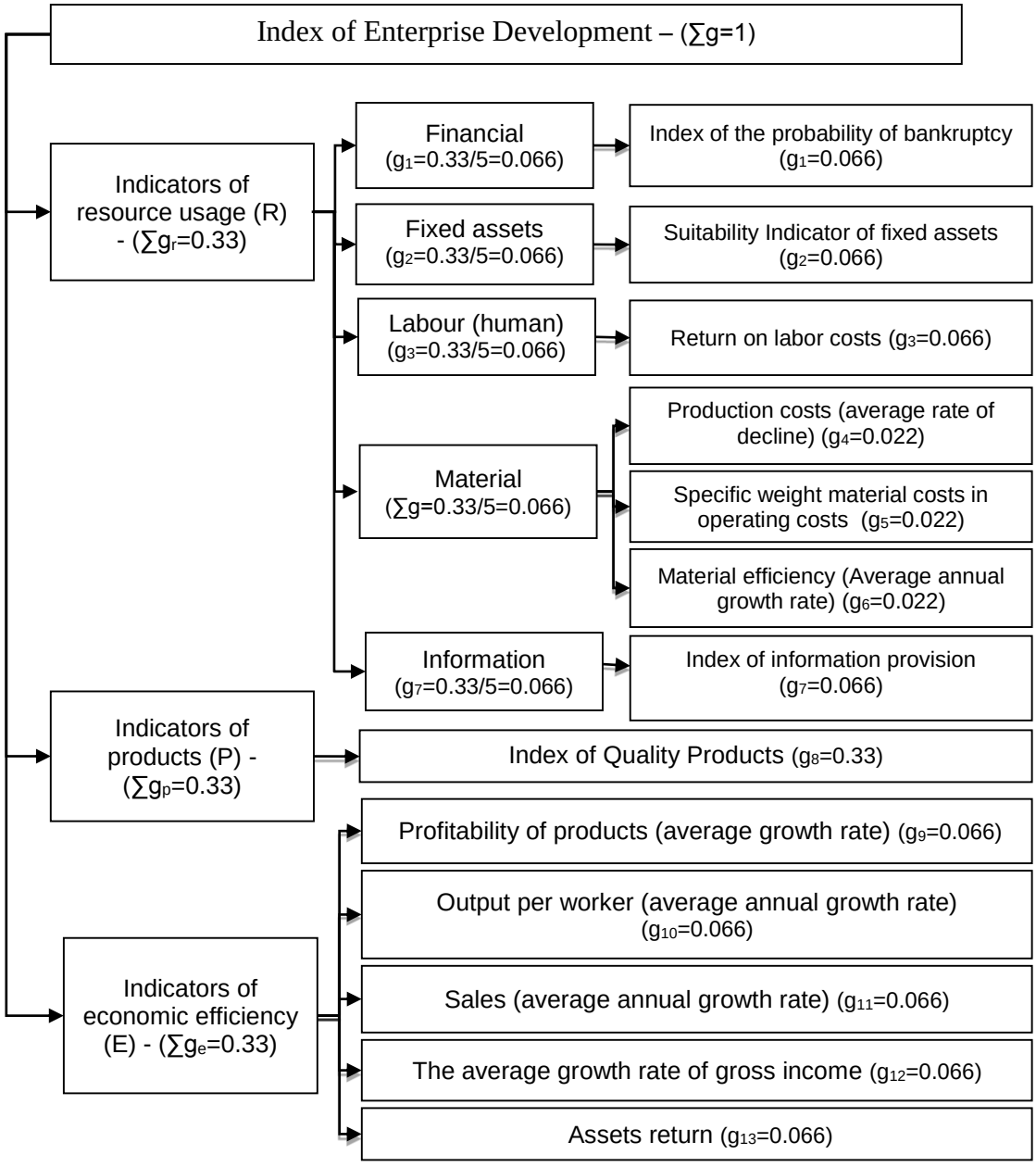

Figure 6. Calculation of indicators weight.

Source: Author's own elaboration.

The main difficulty of the model is to establish reference values adequate indicators and comparing them with the values of the indicators. To avoid difficulties in calculating the indicator of the enterprise development it was used Excel functions that take into consideration specifics of indicators and reference values (Table 6).

Table 6. The description of functions.

Indicators	Function $f\ (P_i;\ P_{ri})$	Excel equation
R1; R2; R7; P1; E5	$f = \begin{cases} 1, \frac{P_i}{P_{ri}} \geq 1, \\ \frac{P_i}{P_{ri}}. \end{cases}$	=IF(P_i/P_{ri}>=1;1; P_i/P_{ri})
R3	$f = \begin{cases} 1, \frac{P_i}{P_{ri}} \geq 1, \\ 0. \end{cases}$	=IF(P_i/P_{ri}>=1;1; 0)
R4	$f = \begin{cases} 0, \quad P_i \geq 0, \\ \frac{P_i}{P_{ri,i}}, P_i > P_{ri,} \\ 1. \end{cases}$	=IF(P_i>=1;1; IF(P_i>P_{ri}; P_i/P_{ri}; 1)
R5	$f = \begin{cases} 1, P_i \leq P_{ri}, \\ \frac{P_i}{P_{ri}}. \end{cases}$	=IF(P_i<=P_{ri};1;P_{ri}/P_i)
R6; E1; E2; E3; E4	$f = \begin{cases} 0, \ P_i \leq P_{ri} \\ 1, \ \frac{P_i}{P_{ri}} \geq 1 \\ \frac{P_i}{P_{ri}}. \end{cases}$	=IF(P_i<=0;0; IF(P_i/P_{ri}>=1;1; P_i/P_{ri})

Sourse: Author's own elaboration based on Salimi (2015), Samulyak (2009).

Reference grades for partial indicators of the Integrated assessment of enterprise development are present in Appendix (Table A.5).

The considered above approach to the evaluation of enterprise development is reasonable and affordable.

In the study were used the following methods: analysis and synthesis, grouping, index method and comparison method.

3. Presentation and Analysis of Results

3.1. Description and general characteristics the investigated enterprises

The subject of this study is Ukrainian enterprises that produce sauces.

The main trend in the market is changing sauces structure: smaller companies leave it because of underdeveloped marketing policy and dubious quality of products. The quantity of producers of white sauces in Ukraine decreased from 90 in 2009 to 66 in 2011 (Volynchik, 2011).

The structure of sauces in terms of product categories by results of 2013 in Ukraine is presented in Appendix (Figure A.1)[1]. In the structure of sauces in terms of product categories, mayonnaise segment occupies more than 60%. A large proportion also belongs to ketchup and tomato sauces, while the production of mustard and other sauces occupies less than 10% of total production.

Shares of major Ukrainian producers of ketchup and mayonnaise by results of 2012 in Ukraine presented in Appendix (Figures A.2 and A.3). PJSC "Volynholdinh" is a leader in the production of mayonnaise and other sauces in Ukraine (Volynchik, 2011). Its major competitors in the market are the following companies: PJSC “Chumak”, OJSC “LZHK” and OJSC “Lutsk Foods”. Basic information about studied enterprises is presented in Table 7.

Table 7. The description of enterprises.

Characteristic	PJSC "Volynholdinh"	PJSC "Chumak"	OJSC "LZHK"	OJSC "Lutsk Foods"
Foundation year	1994	1996	1995	1945
Registered address	Franko, str. 4, Torchyn, Lutsk district, Volyn region, 45612, Ukraine	Kozatska str. 3, Kakhovka, Kherson region, 74800, Ukraine	Horodotska str. 132, Lviv, 79015, Ukraine	Kovelska str. 150, Lutsk, 43001, Ukraine
Code	20134889	24106105	00377163	00333598
Types of products	Ketchup, Mayonnaise, Tomato sauces, Sauces, Marinades, Mustard, Condiments	Ketchup, Mayonnaise, Pasta, Tomato paste, Tomato sauces, Peas and corn, Juice, Cucumbers marinated, Sunflower seeds	Ketchup, Mayonnaise, Tomato sauces, Sauces, Mustard, Margarine	Ketchup, Tomato paste, Tomato sauces, Mustard, Adjika, Vinegar, Mineral water.
Trade marks	"TORCHYN"	"Chumak"	"Schedro"	«Runa»; «Ridnyi Krai»; «Sribnyza»
Countries of export	Germany, Poland	Belarus, Estonia, Georgia, Germany, India, Israel, Kazakhstan, Latvia, Lithuania, Moldova, Poland, Russia, Spain, Tajikistan, United Kingdom, United States	Armenia, Russia	Belarus, Estonia, Georgia, Germany, Kazakhstan, Lithuania, Moldova, Russia
Compliance to international quality standards	ISO 9001; ISO 22000	ISO 9001; ISO 22000	ISO 9001; ISO 22000	ISO 9001; ISO 22000

Source: Author's own elaboration [8,9,10,11].

PJSC "Volynholdinh" was created in 1994. It is Ukrainian leader in cold sauces. The company manufactures products under the brand "Torchyn". After joining the Nestlé Group in Ukraine in 2003 "Volynholdinh" received new prospects for development. The company automated existing production processes, improved marketing policies and distribution system. The production of company is certified, meets international quality standards.

PJSC "Chumak" is a national-wide company, one of the biggest food producers of Ukraine. The company serves consumers with ketchup and other varieties of sauces, mayonnaise, tomato paste, juice, sunflower oil, canned vegetables and pasta. PJSC "Chumak" has been one of the industry-shaping entities in the Ukrainian food market. The corporative slogan of PJSC "Chumak" is "From Field to Table". Production facilities of company are located next to the fields, so it is able to deliver the gathered raw

[8] See at http://www.nestle.ua/brands/culinary/torchin
[9] See at http://chumak.com/
[10] See at http://lgk.com.ua/
[11] See at http://www.runa.com.ua/index.php/ua/

material for processing in an hour only. The unique location of the company in the environmentally sound area of Southern Ukraine secures the high quality of products.

OJSC “LZHK” was founded in 1948. Nowadays LZHK is a modernized plant that has preserved all the long lasting traditions of manufacturing. LZHK pays particular attention to the quality of finished products and in order to ensure it, plant equipment was upgraded. But the main thing is an invaluable experience of workers and technologists of the plant, whose skills and knowledge are passed on from generation to generation of new employees. Factory production complex consists of modern systems of storage and processing of raw materials. The main equipment is lines of English and German production[12].

PJSC «Lutsk Foods» is a Ukrainian producer of groceries that specializes in producing high-quality food products since 1945. During its existence «Lutsk Foods» managed to get the domestic recognition as a producer of healthy and safe food products of consistently high quality and gain the reputation of a responsible and reliable partner. The company’s history goes back over 70 years, during which the latest trends were always closely followed and new technologies were introduced. In 2008-2010, a complete reconstruction and modernization of the enterprise were carried out. They made it possible to extend the range of high-quality and exclusive in their formulation products of PJSC «Lutsk Foods». The company's products are fully certified, are made out of only natural raw materials, without genetically modified organisms (GMOs) or food coloring agents.

All studied enterprises implemented management system of food safety in accordance with international standard ISO 22000 and Quality Management System according to ISO 9001. This shows the quality of products, professional competence of employees of companies and their competitiveness.

3.2. Evaluation of enterprise development

The basis for the development assessment is the annual financial statements of investigated enterprises for 2013-2015 years (Appendix, Tables A.6 - A.13).

The first stage of the evaluation was the calculation of the resources usage indicators. The first indicator is Index of the probability of bankruptcy (Altman’s Z-score). Calculation of partial indicators needed to determine this indicator is presented in Appendix (Table A.14 - A.17). The assessment of Altman’s Z-score for the surveyed enterprises in the dynamics presented in Tables 8.

[12] See at http://schedro.ua/combinats-en.html

Table 8. The Index of the probability of bankruptcy.

	2013	2014	2015
PJSC “Volynholdinh”	4,63	5,17	6,21
PJSC “Chumak”	1,19	0,06	0,21
OJSC “LZHK”	2,95	1,58	4,10
OJSC “Lutsk Foods”	2,84	3,65	4,35

As it is showed in the Table 8, during 2013-2015 years PJSC “Volynholdinh” had the best values of score of Altman’s Z-score. The company belong to “Safe” Zone. It is mean that PJSC “Volynholdinh” has a financial strength and a minimal chance of falling into bankruptcy. It should be noted, that during the analysed period raising trend of Index of the probability of bankruptcy was presented, what is a positive phenomenon. OJSC “Lutsk Foods” also belong to “Safe” Zone.

OJSC “LZHK” only in 2014 year had a low value of this indicator, it was 1,58, therefore enterprise company was attributed to “Distress” Zone. However, in the next 2015-year indicator increased to 4,10.

The lowest values of bankruptcy indicator belonged to PJSC “Chumak” and reported threat of bankruptcy.

Availability indicator of fixed assets was calculated to assess a company’s provision of facilities (Table 9).

Table 9. The assessment of Availability indicator of fixed assets of companies, in thousand UAH[13] and ratio.

Parameters and indicators	2013	2014	2015
PJSC “Volynholdinh”			
Fixed Assets	187 627	190 983	194 891
Depreciation	16 036	17 159	14 732
Availability indicator of fixed assets	0,91	0,91	0,92
PJSC “Chumak”			
Fixed Assets	103 992	114 463	137 728
Depreciation	72 277	46 226	41 984
Availability indicator of fixed assets	0,30	0,60	0,70
OJSC “LZHK”			
Fixed Assets	123 893	121 405	132 701
Depreciation	5 209	5 328	5 898
Availability indicator of fixed assets	0,96	0,96	0,96
OJSC “Lutsk Foods”			
Fixed Assets	22 806	20 895	21 274
Depreciation	3 057	2 503	2 625
Availability indicator of fixed assets	0,87	0,88	0,88

[13] 1 UAH = 0,035 EUR as at 04.06.2016

It is presented in Table 9, which on the end of 2015 year all investigated enterprises had a high level of Fixed Assets provision. The best value of this indicator behave to OJSC “LZHK”. The availability indicator of fixed assets of this enterprise during last three years consisted 0,96. PJSC “Chumak” had the lowest value of this indicator in 2013 year, it was equal 0,3. However, on the next year enterprise increased thus value. It can be explained by the implementation of new equipment and plant modernization that indicated the presence of company development.

A growth rate of return on labour costs is an indicator that showed efficiency of human resources. Calculation of this indicator present in Tables 10-13.

Table 10. The assessment of Return on labour costs of PJSC “Volynholdinh”, in thousand UAH and ratio.

Parameters and indicators	Years				Growth rate		
	2012	2013	2014	2015	2013-2012	2014-2013	2015-2014
Sales	606 022	619 799	829 712	996 657	2,27	33,87	20,12
Labour Costs	44 851	44 183	49 291	58 186	-1,49	11,56	18,05
Return on labour costs	0,07	0,07	0,06	0,06	-3,68	-16,66	-1,73

As Table 10 shows, PJSC “Volynholdinh” in the last three years annually increased its sales. In the same time labour costs grew. Labour costs was equal to 44851 thousand USD in 2012 year; in 2013 year it consisted 44851 thousand USD; in 2014 year it increased to 49291 thousand USD or for 11,56 % in comparison with the previous year; in 2015 its value grew to 58186 thousand USD and this change consisted 18,08%. Return of labour costs remained almost unchanged in coefficient view during analysed period and consisted 0,07 in 2012-2013 years and 0,06 in 2014-2015 years. Nonetheless, growth rate of this indicator demonstrated, that in 2013 year return on labour costs decline on 3,68 % in comparison with the previous year; in 2014-2015 years decline rate consisted 16,66 % and 1,73 % in accordance. These values indicate decreasing of efficiency of human recourses.

Table 11. The assessment of Return on labour costs of PJSC “Chumak”, in thousand UAH and ratio.

Parameters and indicators	Years				Growth rate		
	2012	2013	2014	2015	2013-2012	2014-2013	2015-2014
Sales	383 424	468 132	322 602	659 383	22,09	-31,09	104,4
Labour Costs	24 004	22 623	22 070	27 977	-5,75	-2,44	26,76
Return on labour costs	0,06	0,05	0,07	0,04	-22,81	41,56	-37,9

As presented in the Table 11, coefficient of return on labour costs was equal 0,06 in 2012; in the next year its value decreased to 0,05 or to 22,81 %; in 2014 this coefficient increased for 41,56 % and consisted 0,07; in 2015 value decrease again and consisted 0,04. The growth rate of this indicator in last year was equal -37,9%. The main reason of this change is increasing labour costs in 2015.

Table 12. The assessment of Return on labour costs of OJSC "LZHK", in thousand UAH and ratio.

Parameters and indicators	Years				Growth rate		
	2012	2013	2014	2015	2013-2012	2014-2013	2015-2014
Sales	92 485	79 198	102 075	158 381	-14,37	28,89	55,16
Labour Costs	8 662	7 459	7 937	9 911	-13,89	6,41	24,87
Return on labour costs	0,09	0,09	0,08	0,06	0,56	-17,44	-19,52

OJSC "LZHK" had a high values of return on labour costs. The growth rate of this indicator was 0,56 % in 2013 year. The next years return on labour costs decreased. The growth rate of this indicator was -17,44 % and -19,52 % in 2014-2015 in accordance.

Table 13. The assessment of Return on labour costs of OJSC "Lutsk Foods", in thousand UAH and ratio.

Parameters and indicators	Years				Growth rate		
	2012	2013	2014	2015	2013-2012	2014-2013	2015-2014
Sales	606 022	619 799	829 712	996 657	2,27	33,87	20,12
Labour Costs	44 851	44 183	49 291	58 186	-1,49	11,56	18,05
Return on labour costs	0,07	0,07	0,06	0,06	-3,68	-16,66	-1,73

It should be noted, that during the analysed period declining trend of Return on labour costs of OJSC "Lutsk Foods" was presented, what is a negative phenomenon. It indicates that increasing of labour costs is inefficient.

The next indicator of resources usage was declining rate of production costs (Table 14).

Table 14. Production costs.

Enterprise	Values of production costs, thousand UAH				Growth rate		
	2012	2013	2014	2015	2013-2012	2014-2013	2015-2014
PJSC “Volynholdinh”	718 313	686 917	713 671	1017 938	-4,37	3,89	42,63
PJSC “Chumak”	423 788	442 404	589 888	685 733	4,39	33,34	16,25
OJSC “LZHK”	375 036	404 252	320 380	627 735	7,79	-20,75	95,93
OJSC “Lutsk Foods”	68 622	56 089	77 617	114 151	-18,26	38,38	47,07

As it is showed in Table 14, PJSC “Volynholdinh” had the highest level of production costs. In general, during the analysed period production costs of companies was increasing. PJSC “Volynholdinh” had rate of decline of products costs only in 2013 year. OJSC “LZHK” decreased production costs on 20,75 % in 2014 year in comparison with previous year. OJSC “Lutsk Foods” had rate of decline of products costs in 2013 year, this rate consisted 18,26 %.

Calculation of specific weight material costs in operating costs is given in Table 15.

Table 15. Calculation of specific weight material costs in operating costs, in thousand UAH and ratio.

Enterprise	Measures	2013	2014	2015
PJSC “Volynholdinh”	Material Costs	622 486	645 395	947 107
	Operating Costs	716 475	758 998	1 062 343
	Specific weight material costs in operating costs	0,87	0,85	0,89
PJSC “Chumak”	Material Costs	291 469	469 934	642 593
	Operating Costs	552 054	752 685	964 117
	Specific weight material costs in operating costs	0,53	0,62	0,67
OJSC “LZHK”	Material Costs	300 392	254 857	549 720
	Operating Costs	348 179	298 259	603 925
	Specific weight material costs in operating costs	0,86	0,85	0,91
OJSC “Lutsk Foods”	Material Costs	53 240	68 057	103 824
	Operating Costs	95 806	110 031	188 251
	Specific weight material costs in operating costs	0,56	0,62	0,55

The average value of specific weight material costs in operating costs is 70 % for Ukrainian enterprises. As it is shown in Table 15, investigated enterprises had values of this ratio that corresponded to the reference grade. This specific weight of PJSC “Volynholdinh”and OJSC “LZHK” was a bit more than 0,7, that indicated about probability of inefficient usage of material resources.

The annual growth rates of material efficiency are presented in Table 16.

Table 16. The annual growth rates of material efficiency.

	2013	2014	2015
PJSC “Volynholdinh”	0,62	5,44	-10,42
PJSC “Chumak”	6,02	-16,97	-12,15
OJSC “LZHK”	42,41	-18,77	-5,24
OJSC “Lutsk Foods”	-16,19	0,83	1,71

As it is represented in Table 16, in 2015 year only OJSC “Lutsk Foods” had a positive growth rate of material efficiency. PJSC “Volynholdinh” had a positive value of its indicators in 2013-2014 years.

Calculation of Index of information provision is presented in Table 17. The companies' websites and information provided on the packaging of ketchup were used as basis for information index. Merely PJSC “Volynholdinh” had additional useful information presented on packaging and website. On the website presents the following topics as career, nutrition, research and development, creating shared values. On the packaging of products of TM "Torchyn" are presented Nutritional Compass. It is a tool developed by Nestle, which helps consumers choose products, based on information that indicated on the package. In the center of the compass - logo of the Nestle, which is surrounded by a following information blocks: Energy and nutritional value; Good question; Good to remember; Good to know and Good to talk.

Table 17. Calculation of Index of information provision.

Parameters of information provision	PJSC “Volynholdinh”	PJSC “Chumak”	OJSC “LZHK”	OJSC “Lutsk Foods”
Official website availability	1	1	1	1
Website's multilanguage interface	0	1	1	1
Website's information completeness	1	1	1	1
Additional useful information on website	1	0	0	0
Information completeness on packaging	1	1	1	1
Additional useful information on packaging	1	0	0	0
Adjusted feedback from consumers	1	0	1	1
R8. Index of information provision	6	4	5	5

The previous table demonstrate, that PJSC “Volynholdinh” has the highest level of information completeness and usefulness in terms of customer satisfaction.

Comparative characteristics of enterprises products are shown in Table 18.

Table 18. Characteristics of products.

Quality parameters	PJSC "Volynholdinh"	PJSC "Chumak"	OJSC "LZHK"	OJSC "Lutsk Foods"
Packaging	Doy-pack	Doy-pack	Doy-pack	Glass
Brand popularity	13	25	12	-
Food value	96 kcal	80,4 kcal	89 kcal	65,2 kcal
Expiration date	9 months	9 months	6months	3 years
Price, UAH	5,2	4,9	5,8	7,41

Popularity of the brand assessed according to the rating of "Focus" - "Top 50 Ukrainian brands 2012". Brand evaluation corresponds to the ranking of companies. As it is demonstrated in the Table 18, the most popular brands of sauces in Ukraine is TM "Shchedro" (OJSC "LZHK") and TM "Torchyn" (PJSC "Volynholdinh"). The ketchup was selected to assess the products quality. The sauces of TM "Torchyn" have a highest caloricity. The products of TM "Runa" (PJSC "Lutsk Foods") have the longest expiration date. It is 3 years, that indicates about increased content of preservatives. The products of OJSC "LZHK" have the shortest expiration date – 6 months. The products of PJSC "Volynholdinh" and PJSC "Chumak" have the expiration date in duration of 9 months. It should be noted, that prices of the conditional packaging volume of 100 ml took into account.

Transformation from qualitative characteristics of the product in quantitative measures is presented in Table 19.

Table 19. Quantitative assessment of Quality Products.

Quality parameters	PJSC "Volynholdinh"	PJSC "Chumak"	OJSC "LZHK"	OJSC "Lutsk Foods"
Packaging	3	3	3	4
Brand popularity	3	2	4	1
Food value	1	3	2	4
Expiration date	2	2	4	1
Price, USD	3	4	2	1
P1. Index of Quality Products	**2,4**	**2,8**	**3**	**2,2**

As it is shown in Table 19, the products of PJSC "Chumak" have the highest value of Index of Quality Products.

Calculation of such indicators of economic efficiency as profitability of products, output per worker, growth rates of sales and gross profit for investigated enterprises is shown in Tables 20-23.

Table 20. Indicators of economic efficiency of PJSC “Volynholdinh”.

Measure	Values				Growth rate, %		
	2012	2013	2014	2015	2013-2012	2014-2013	2015-2014
Sales, thousand UAH	799 383	760 170	831 041	1 092 412	-4,91	9,32	31,45
Gross Profit, thousand UAH	81 070	73 253	117 370	74 474	-9,64	60,23	-36,55
Net Income, thousand UAH	40 650	43 430	77 025	50 313	6,84	77,35	-34,68
Number of Employees, persons	877	842	842	705	-3,99	0,00	-16,27
Profitability of products, ratio	5,09	5,71	9,27	4,61	12,35	62,23	-50,31
Output per worker, thousand UAH	911,50	902,81	986,98	1 549,52	-0,95	9,32	57,00

PJSC “Volynholdinh” had a positive value of growth rate of Gross Profit in 2014. It consisted 60,23 %. A sales of company decreased in 2013 for 4,91 % in comparison with 2012, however, in next years it had a positive value of growth rate: 9,32 % in 2013 and 31,45 % in 2015.

The enterprise increased output per worker during analysed period. In money terms this measure was 902,81; 986,98 and 1549,89 thousand hryvnias per one worker in 2012-2015 in accordance. The growth rate of outut per worker consisted 9,32 % in 2014 and 57 % in 2015. The growth of this indicator occurred due to decrease in number of employees.

Table 21. Indicators of economic efficiency of PJSC “Chumak”.

Measure	Values				Growth rate, %		
	2012	2013	2014	2015	2013-2012	2014-2013	2015-2014
Sales, thousand UAH	606 022	619 799	829 712	996 657	2,27	33,87	20,12
Gross Profit, thousand UAH	182 234	177 395	239 824	310 924	-2,66	35,19	29,65
Net Income, thousand UAH	-18 671	-2809	-269 787	-336 602	84,96	-9504	-24,77
Number of Employees, persons	842	841	841	795	-0,12	0,00	-5,47
Profitability of products, ratio	-3,08	-0,45	-32,52	-33,77	85,39	-7126	-3,84
Output per worker, thousand UAH	719,74	736,98	986,58	1253,66	2,40	33,87	27,07

PJSC “Chumak” had a decline rate of Gross Profit only in 2013, it equaled -2,66 %. The enterprise had a growth rate of Gross Profit in 2014-2015, its value was 33,87 % and 20,12 % in the respective years.

The growth rate of output per worker of PJSC “Chumak” amounted 2,39 %, 33,87 % and 27,07 % in 2013-2015 in compliance. The increasing of output per worker was due to reduction in number of employees. The last measure decrease from 842 persons in 2012 to 795 persons in 2015.

Table 22. Indicators of economic efficiency of OJSC "LZHK".

Measure	Values				Growth rate, %		
	2012	2013	2014	2015	2013-2012	2014-2013	2015-2014
Sales, thousand UAH	383 424	468 132	322 602	659 383	22,09	-31,1	104,4
Gross Profit, thousand UAH	8 388	63 880	2 222	316 48	661,56	-96,5	1324,3
Net Income, thousand UAH	-35 565	18 910	-1 838	8 918	153,17	-109,7	585,2
Number of Employees, persons	579	544	507	463	-6,04	-6,80	-8,68
Profitability of products, ratio	-9,28	4,04	-0,57	1,35	143,55	-114,1	337,4
Output per worker, thousand UAH	662,22	860,54	636,30	1 424,15	29,95	-26,1	123,8

As it is presented in Table 22, OJSC "LZHK" had a negative value of Net Income in 2012 and 2014 years. It impacted on value of Profitability of products.

Output per worker raised for 29,95 % in 2013, decreased for 26,06 % in 2014. In next year this measure increased for 123,82 % in comparison with 2014 and consisted 1424,15 thousand hryvnias per one worker in money terms. It is necessary to note, that during analysed period OJSC "LZHK" had declining trend of Number of Employees. This measure decreased from 579 persons in 2012 to 463 persons in 2015.

Table 23. Indicators of economic efficiency of OJSC "Lutsk Foods".

Measure	Values				Growth rate, %		
	2012	2013	2014	2015	2013-2012	2014-2013	2015-2014
Sales, thousand UAH	92 485	79 198	102 075	158 381	-14,37	28,89	55,16
Gross Profit, thousand UAH	23 863	23 109	24 458	44 230	-3,16	5,84	80,84
Net Income, thousand UAH	-8 003	-6 368	295	2 486	20,43	104,6	742,71
Number of Employees, persons	344	278	277	274	-19,19	-0,36	-1,08
Profitability of products, ratio	-8,65	-8,04	0,29	1,57	-7,08	103,6	443,12
Output per worker, thousand UAH	719,74	736,98	986,58	1253,66	2,39	33,87	27,07

As it is illustrated in Table 23, in 2015 OJSC "Lutsk Foods" had high values of economic efficiency indicators. The enterprise increased all of presented indicators except Number of Employees. OJSC "Lutsk Foods" had declining trend of this values. Number of Employees reduced from 344 persons in 2012 to 274 persons in 2015. This trend and growth of Sales in 2014-2015 had impact on increasing of Output per worker. The growth rate of Output per worker amounted 5,96 % in 2013, 29,35 % in 2014 and 56,86 % in 2015. In general, the changes of economic efficiency indicators are a positive phenomenon for OJSC "Lutsk Foods".

Fixed assets return was last indicator that was used to evaluate economic efficiency of enterprises. Assessment of this indicator is given in Table 24.

Table 24. Assessment of Fixed Assets Turnover of enterprises.

Enterprise	Measures	2013	2014	2015
PJSC "Volynholdinh"	Sales, thousand UAH	760 170	831 041	1 092 412
	Fixed Assets, thousand UAH	187 627	190 983	194 891
	Assets return, ratio	4,05	4,35	5,61
PJSC "Chumak"	Sales, thousand UAH	619 799	829 712	996 657
	Fixed Assets, thousand UAH	103 992	114 463	137 728
	Assets return, ratio	5,96	7,25	7,24
OJSC "LZHK"	Sales, thousand UAH	468 132	322 602	659 383
	Fixed Assets, thousand UAH	22 806	20 895	21 274
	Assets return, ratio	3,78	2,66	4,97
OJSC "Lutsk Foods"	Sales, thousand UAH	79 198	102 075	158 381
	Fixed Assets, thousand UAH	22 806	20 895	21 274
	Assets return, ratio	3,47	4,89	7,44

The average value of Fixed Assets Turnover is 2,7 for Ukrainian enterprises. As it is shown in Table 24, investigated enterprises had higher values of this ratio than reference grade during last three years that is a positive phenomenon. Merely assets return of OJSC "LZHK" in 2014 amounted 2,66, that a bit less than average value.

Comparison of indicators value of 2015 year and their reference grades are present in Table 25.

Table 25. Values of indicators for development evaluating of 2015.

Indicator	PJSC "Volynholdinh"	PJSC "Chumak"	OJSC "LZHK"	OJSC "Lutsk Foods"	Reference grade
R1. Index of the probability of bankruptcy	6,21	0,21	4,10	4,35	3,00
R2. Availability indicator of fixed assets	0,92	0,70	0,96	0,88	0,50
R3. Return on labour costs (annual growth rate)	-0,18	0,06	0,04	0,06	0,001
R4. Production costs (rate of decline)	42,63	16,25	95,93	47,07	-5,00
R5. Specific weight material costs in operating costs	0,89	0,67	0,91	0,55	0,70
R6. Material efficiency (annual growth rate)	-10,42	-12,15	-5,24	1,71	2,50
R7. Index of information provision	6	4	5	5	7,00
P1. Index of Quality Products	2,2	2,6	2,8	2,2	4,00
E1. Profitability of products (growth rate)	-50,31	-3,84	337,38	443,12	10,00
E2. Output per worker (annual growth rate)	57,00	27,07	123,82	56,86	5,00
E3. Sales (annual growth rate)	31,45	20,12	104,40	55,16	5,00
E4. Gross profit (annual growth rate)	-36,55	29,65	1324,30	80,84	10,00
E5. Assets return, ratio	5,61	7,24	4,97	7,44	2,70

It is necessary to note that such indicators as specific weight material costs in operating costs and Production costs should have descending character. PJSC “Volynholdinh” had the best value of the next indicators by the results of 2015 year: Index of the probability of bankruptcy; Index of information provision.

PJSC “Chumak” had the highest values of Availability indicator of fixed assets. OJSC “LZHK” had the best measure of Availability indicator of fixed assets and Index of Quality Products. PJSC “Chumak” and OJSC “Lutsk Foods” had the same high value of Return on labour costs. The annual growth rates of this indicator consisted 0,06 %. The enterprises had a positive values of growth rate of production costs. These values did not conform to reference grade.

The comparison of indicators value by the result of 2013-2014 years are presented in Appendix (Tables A.19 – A.20).

The calculation of Index of Enterprise Development by the result of 2015 are presented in Tables 25-28. The calculation of development level of investigated enterprises by the result of 2013-2014 are presented in Appendix (Tables A.21-A.28).

Table 26. Calculation of Index of Enterprise Development of PJSC “Volynholdinh” by the result of 2015.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	6,21	3,00	1,000	0,066	0,066
R2. Availability indicator of fixed assets	0,92	0,50	1,000	0,066	0,066
R3. Return on labour costs (annual growth rate)	-0,18	0,00	0,000	0,066	0,000
R4. Production costs (rate of decline)	42,63	-5,00	0,000	0,022	0,000
R5. Specific weight material costs in operating costs	0,89	0,70	0,785	0,022	0,017
R6. Material efficiency (annual growth rate)	-10,42	2,50	0,000	0,022	0,000
R7. Index of information provision	6,00	7,00	0,857	0,066	0,057
P1. Index of Quality Products	2,20	4,00	0,550	0,330	0,182
E1. Profitability of products (growth rate)	-50,31	10,00	0,000	0,066	0,000
E2. Output per worker (annual growth rate)	57,00	5,00	1,000	0,066	0,066
E3. Sales (annual growth rate)	31,45	5,00	1,000	0,066	0,066
E4. Gross profit (annual growth rate)	-36,55	10,00	0,000	0,066	0,000
E5. Assets return, ratio	5,61	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,59**

As it is presented in Table 26, the Index of Enterprise Development of PJSC “Volynholdinh” constituted 0,59 in 2015, that is mean this enterprise had appropriate level of development. The value of function f (Pi; Pri) of the following indicators amounted to 1,0: Index of the probability of bankruptcy, Availability

indicator of fixed assets, annual growth rate of Output per worker, annual growth rate of Sales and Assets return. It is mean that these indicators were factors that lead to development.

The value of function f (Pi; Pri) of the next indicators consisted 0,0: Return on labour costs, rate of decline of Return on labour costs, annual growth rate of Material efficiency, annual growth rate of Profitability of products and annual growth rate Gross profit. It is mean that values of these indicators were inappropriate to reference grades. PJSC “Volynholdinh” could not get a higher level of development through the low values of these indicators.

Table 27. Calculation of Index of Enterprise Development of PJSC “Chumak” by the result of 2015.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	0,21	3,00	0,072	0,066	0,005
R2. Availability indicator of fixed assets	0,70	0,50	1,000	0,066	0,066
R3. Return on labour costs (annual growth rate)	-0,02	0,00	0,000	0,066	0,000
R4. Production costs (rate of decline)	16,25	-5,00	0,000	0,022	0,000
R5. Specific weight material costs in operating costs	0,67	0,70	1,000	0,022	0,022
R6. Material efficiency (annual growth rate)	-12,15	2,50	0,000	0,022	0,000
R7. Index of information provision	4,00	7,00	0,571	0,066	0,038
P1. Index of Quality Products	2,60	4,00	0,650	0,330	0,215
E1. Profitability of products (growth rate)	-3,84	10,00	0,000	0,066	0,000
E2. Output per worker (annual growth rate)	27,07	5,00	1,000	0,066	0,066
E3. Sales (annual growth rate)	20,12	5,00	1,000	0,066	0,066
E4. Gross profit (annual growth rate)	29,65	10,00	1,000	0,066	0,066
E5. Assets return, ratio	7,24	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,61**

As it is illustrated in Table 27, the Index of Enterprise Development of PJSC “Chumak” amounted 0,61, that is mean this enterprise had appropriate level of development in 2015. The value of function f (Pi; Pri) of the following indicators amounted to 1,0: Availability indicator of fixed assets, Specific weight material costs in operating costs, annual growth rate of Output per worker, annual growth rate of Sales, annual growth rate Gross profit and Assets return. It is mean that these indicators were factors that lead to development.

The value of function f (Pi; Pri) of the next indicators consisted 0,0: Return on labour costs, rate of decline of Return on labour costs, annual growth rate of Material efficiency and Profitability of products (growth rate). It is mean that values of these indicators were inappropriate to reference grades. PJSC “Chumak” could not get a higher level of development through the low values of these indicators.

Table 28. Calculation of Index of Enterprise Development of OJSC “LZHK” by the result of 2015.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	4,10	3,00	1,000	0,066	0,066
R2. Availability indicator of fixed assets	0,96	0,50	1,000	0,066	0,066
R3. Return on labour costs (annual growth rate)	-0,38	0,00	0,000	0,066	0,000
R4. Production costs (rate of decline)	95,93	-5,00	0,000	0,022	0,000
R5. Specific weight material costs in operating costs	0,91	0,70	0,769	0,022	0,017
R6. Material efficiency (annual growth rate)	-12,15	2,50	0,000	0,022	0,000
R7. Index of information provision	5,00	7,00	0,714	0,066	0,047
P1. Index of Quality Products	2,80	4,00	0,700	0,330	0,231
E1. Profitability of products (growth rate)	337,38	10,00	1,000	0,066	0,066
E2. Output per worker (annual growth rate)	123,82	5,00	1,000	0,066	0,066
E3. Sales (annual growth rate)	104,40	5,00	1,000	0,066	0,066
E4. Gross profit (annual growth rate)	1324,30	10,00	1,000	0,066	0,066
E5. Assets return, ratio	4,97	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,76**

As it is shown in Table 28, the Index of Enterprise Development of OJSC “LZHK” constituted 0,76 in 2015, that is mean this enterprise had high level of development. The value of function f (Pi; Pri) of the following indicators amounted to 1,0: Index of the probability of bankruptcy, Availability indicator of fixed assets, annual growth rate of Profitability of products, annual growth rate of Output per worker, annual growth rate of Sales, annual growth rate Gross profit and Assets return. It is mean that these indicators were factors that lead enterprise to development.

The value of function f (Pi; Pri) of the next indicators consisted 0,0: Return on labour costs, rate of decline of Return on labour costs and annual growth rate of Material efficiency. It is mean that values of these indicators were inappropriate to reference grades. OJSC “LZHK” could not get a high level of development through the low values of these indicators.

Table 29. Calculation of Index of Enterprise Development of OJSC "Lutsk Foods" by the result of 2015.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	4,35	3,00	1,000	0,066	0,066
R2. Availability indicator of fixed assets	0,88	0,50	1,000	0,066	0,066
R3. Return on labour costs (annual growth rate)	-0,20	0,00	0,000	0,066	0,000
R4. Production costs (rate of decline)	47,07	-5,00	0,000	0,022	0,000
R5. Specific weight material costs in operating costs	0,55	0,70	1,000	0,022	0,022
R6. Material efficiency (annual growth rate)	-12,15	2,50	0,000	0,022	0,000
R7. Index of information provision	5,00	7,00	0,714	0,066	0,047
P1. Index of Quality Products	2,20	4,00	0,550	0,330	0,182
E1. Profitability of products (growth rate)	443,12	10,00	1,000	0,066	0,066
E2. Output per worker (annual growth rate)	56,86	5,00	1,000	0,066	0,066
E3. Sales (annual growth rate)	55,16	5,00	1,000	0,066	0,066
E4. Gross profit (annual growth rate)	80,84	10,00	1,000	0,066	0,066
E5. Assets return, ratio	7,44	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,71**

As it is presented in Table 29, the Index of Enterprise Development of OJSC "Lutsk Foods" constituted 0,71 in 2015, that is mean this enterprise had high level of development. The following indicators were factors that lead enterprise to development: Index of the probability of bankruptcy, Availability indicator of fixed assets, Specific weight material costs in operating costs, annual growth rate of Profitability of products, annual growth rate of Output per worker, annual growth rate of Sales, annual growth rate Gross profit and Assets return. The value of function f (Pi; Pri) of the Return on labour costs and Material efficiency amounted 0,0. It indicates that OJSC "LZHK" could not get a high value of Index of Enterprise Development because of the unconformity of these indicators to reference grades.

Values of Index of Enterprise Development of studied enterprises during 2013-2015 years are presented in Table 30.

Table 30. Values of Index of Enterprise Development.

	PJSC "Volynholdinh"	PJSC "Chumak"	OJSC "LZHK"	OJSC "Lutsk Foods"
2013	0,61	0,56	0,78	0,60
2014	0,74	0,61	0,55	0,69
2015	0,59	0,61	0,76	0,71
Average value	0,65	0,59	0,70	0,67

As it is shown in the Table 6, in 2013 and 2015 OJSC "LZHK" had the highest value of Index of Enterprise Development, that consisted 0,78 and 0,76 appropriately. In 2014 the highest value of Index of Enterprise Development belonged to PJSC "Volynholdinh" and amounted 0,74.

OJSC “LZHK” had the highest average value of Index of Enterprise Development by the result of 2013-2015 years. It consisted 0,70. PJSC “Volynholdinh” and OJSC “Lutsk Foods” had the appropriate level of enterprise development in average during 2013-2015. PJSC “Chumak” had the lowest average value of Index of Enterprise Development by the result of investigated period, it amounted 0,59. These results confirmed that studied enterprises are major competitors on the market, that constantly vying for obtaining of competitive advantages.

3.3. Recommendations for enterprise development management

Consideration of Index of Enterprise Development in dynamics by the result of 2013-2015 years for each of investigated companies are presented in Tables 31-34.

Table 31. The dynamics of Index of Enterprise Development of PJSC “Volynholdinh”.

Indicator	gi* f(Pi; Pri)		
	2013	**2014**	**2015**
R1. Index of the probability of bankruptcy	0,066	0,066	0,066
R2. Availability indicator of fixed assets	0,066	0,066	0,066
R3. Return on labour costs (annual growth rate)	0,066	0,000	0,000
R4. Production costs (rate of decline)	0,019	0,000	0,000
R5. Specific weight material costs in operating costs	0,018	0,018	0,017
R6. Material efficiency (annual growth rate)	0,005	0,022	0,000
R7. Index of information provision	0,057	0,057	0,057
P1. Index of Quality Products	0,182	0,182	0,182
E1. Profitability of products (growth rate)	0,066	0,066	0,000
E2. Output per worker (annual growth rate)	0,000	0,066	0,066
E3. Sales (annual growth rate)	0,000	0,066	0,066
E4. Gross profit (annual growth rate)	0,000	0,066	0,000
E5. Assets return	0,066	0,066	0,066
Index of Enterprise Development	**0,61**	**0,74**	**0,59**

As it is present in Table 31, Index of Enterprise Development of PJSC “Volynholdinh” increased from 0,61 in 2013 to 0,74 in 2014 by the improvement such partial indicators as annual growth rate of Material efficiency annual growth of Sales, Output per worker and Gross profit. Index of Enterprise Development of PJSC “Volynholdinh” reduced to 0,59 in 2015. It occurred under the influence of deterioration of Material efficiency, Profitability of products and Gross profit.

Table 32. The dynamics of Index of Enterprise Development of PJSC “Chumak”.

Indicator	gi* f(Pi; Pri)		
	2013	2014	2015
R1. Index of the probability of bankruptcy	0,026	0,001	0,005
R2. Availability indicator of fixed assets	0,040	0,066	0,066
R3. Return on labour costs (annual growth rate)	0,000	0,000	0,000
R4. Production costs (rate of decline)	0,000	0,000	0,000
R5. Specific weight material costs in operating costs	0,022	0,022	0,022
R6. Material efficiency (annual growth rate)	0,022	0,000	0,000
R7. Index of information provision	0,038	0,038	0,038
P1. Index of Quality Products	0,215	0,215	0,215
E1. Profitability of products (growth rate)	0,066	0,000	0,000
E2. Output per worker (annual growth rate)	0,032	0,066	0,066
E3. Sales (annual growth rate)	0,030	0,066	0,066
E4. Gross profit (annual growth rate)	0,000	0,066	0,066
E5. Assets return	0,066	0,066	0,066
Index of Enterprise Development	**0,56**	**0,61**	**0,61**

As it is shown in Table 32, Index of Enterprise Development of PJSC “Chumak” increased from 0,56 in 2013 to 0,61 in 2013-2014. It occurred under the influence of improvement such indicators as Availability of fixed assets, Output per worker, Sales and Gross profit.

Table 33. The dynamics of Index of Enterprise Development of OJSC “LZHK”.

Indicator	gi* f(Pi; Pri)		
	2013	2014	2015
R1. Index of the probability of bankruptcy	0,065	0,035	0,066
R2. Availability indicator of fixed assets	0,066	0,066	0,066
R3. Return on labor costs (annual growth rate)	0,000	0,066	0,000
R4. Production costs (rate of decline)	0,000	0,022	0,000
R5. Specific weight material costs in operating costs	0,018	0,018	0,017
R6. Material efficiency (annual growth rate)	0,022	0,000	0,000
R7. Index of information provision	0,047	0,047	0,047
P1. Index of Quality Products	0,231	0,231	0,231
E1. Profitability of products (growth rate)	0,066	0,000	0,066
E2. Output per worker (annual growth rate)	0,066	0,000	0,066
E3. Sales (annual growth rate)	0,066	0,000	0,066
E4. Gross profit (annual growth rate)	0,066	0,000	0,066
E5. Assets return	0,066	0,065	0,066
Index of Enterprise Development	**0,78**	**0,55**	**0,76**

As it is represented in Table 33, Index of Enterprise Development of OJSC “LZHK” mitigated from 0,78 in 2013 to 0,55 in 2014. It occurred by the influence of deterioration such indicators as Index of the probability of bankruptcy, Material efficiency, Profitability of products, Output per worker (annual growth rate), Sales (annual growth rate) and Gross profit (annual growth rate). Index of Enterprise Development of OJSC “LZHK” raised to 0,76 in 2015 by the improvement the same partial indicators except Material efficiency.

Table 34. The dynamics of Index of Enterprise Development of OJSC “Lutsk Foods”.

Indicator	gi* f(Pi; Pri)		
	2013	2014	2015
R1. Index of the probability of bankruptcy	0,062	0,066	0,066
R2. Availability indicator of fixed assets	0,066	0,066	0,066
R3. Return on labour costs (annual growth rate)	0,066	0,000	0,000
R4. Production costs (rate of decline)	0,022	0,000	0,000
R5. Specific weight material costs in operating costs	0,022	0,022	0,022
R6. Material efficiency (annual growth rate)	0,000	0,007	0,000
R7. Index of information provision	0,047	0,047	0,047
P1. Index of Quality Products	0,182	0,182	0,182
E1. Profitability of products (growth rate)	0,000	0,066	0,066
E2. Output per worker (annual growth rate)	0,066	0,066	0,066
E3. Sales (annual growth rate)	0,000	0,066	0,066
E4. Gross profit (annual growth rate)	0,000	0,039	0,066
E5. Assets return	0,066	0,066	0,066
Index of Enterprise Development	**0,60**	**0,69**	**0,71**

As it is illustrated in Table 34, Index of Enterprise Development of OJSC “Lutsk Foods” increased from 0,60 in 2013 to 0,69 in 2014 by the improvement such partial indicators as Index of the probability of bankruptcy, annual growth rate of Material efficiency, annual growth of Profitability of products, Sales and Gross profit. Index of Enterprise Development of OJSC “Lutsk Foods” raised to 0,71 in 2015. It occurred under the influence of changing of annual growth rate of Gross profit.

In general, during 2013-2015 years all enterprises had unsatisfactory value of such indicators as Return on labour costs, Production costs, Output per worker and Gross profit. It evidences about ineffectively resources usage and problems with economic efficiency. Therefore, it was offered some recommendations to increase level of development of enterprises.

1. Reducing production costs

Lower costs lead to lower production costs, that will let to decrease price of products. Reducing production costs affect the performance of the main goals of the enterprise - increasing sales. It is

important to reduce costs did not affect the quality of products. It should be made by improving the efficiency of raw including energy and by reducing of wastes.

One possible way to avoid resources losses is to use technology. It allows automation of certain production processes, resulting in greater consistency and reduced costs, and companies can use it to analyze their production work flow. Many companies already use a high degree of automation but have considerable scope for work flow optimization. Software analyzes the production processes and identifies waiting times and their causes. It shows where material and components are not available when needed and allows companies to streamline production, increasing efficiency and reducing costs.

A significant reduction in production costs resulting from the application of advanced methods of production. An example is developed in Japan and received widespread use worldwide system of production "just in time". It reduces production costs by manufacturing defect-free products. Its essence lies in the fact that components, parts are delivered to consumers in a particular place, at the right time in the right amounts. Manufacturing process stops when defective components come across because of lack of reserves.

2. Increased involvement of employees

Increased involvement of employees is a factor in increasing efficiency and profitability of the enterprise. When employees are given independence and expected to be more self-sufficient, they become more efficient over time, as they learn to navigate their responsibilities with minimal interference and relying less on managerial staff for direction. This allows managerial staff more time to attend to responsibilities other than giving assignments to subordinates and decreases micromanagement, which retards productivity.

Although employees empowerment is largely designed to give each employee autonomy, it likewise fosters better relationships between employees and with their managers, because employees that are given more independence tend to form better working relationships. Each sees the other as mutually benefiting from their working relationship. In addition, more self-governance in the workplace lessens dependence on managers and supervisors and redirects that reliance laterally to coworkers.

3. Reducing staff turnover

The most popular ways to reduce staff turnover are communicating with employees, improving recruitment, increasing benefits, offering praise, carrying out of social events and continuous execution of staff training and development.

Conclusions, Limitations and Future Research Lines

Management development is a prerequisite for the effective functioning of the company. There is a significant amount of theoretical work of this issue. However, most of them are not implemented and not verified. It should be noted, that Ukrainian companies pay not enough attention to management development and its evaluation.

To assess the level of enterprise development were chosen model proposed by Feshchur and Samulyak (2010). This model provides calculation of Index of Enterprise Development based on the definition of partial indicators of resource usage, production and economic efficiency.

Index of Enterprise Development calculates as sum of value of function f (Pi; Pri) multiply to partial indicator weights. The main difficulty of the model is to establish reference values adequate indicators and comparing them with the values of the indicators. To avoid difficulties in calculating the indicator of the enterprise development it was used Excel functions that take into consideration specifics of indicators and reference values.

Coefficients weights was calculated in such a way that each group had the same significance indicators.

In the empirical part was conducted an analysis of the development of Ukrainian enterprises that produce sauces: “Volynholdinh”; PJSC “Chumak”; OJSC “LZHK”; OJSC “Lutsk Foods”.

Index of Enterprise Development of PJSC “Volynholdinh” increased from 0,61 in 2013 to 0,74 in 2014 by the improvement such partial indicators as annual growth rate of Material efficiency annual growth of Sales, Output per worker and Gross profit. Index of Enterprise Development of PJSC “Volynholdinh” reduced to 0,59 in 2015. It occurred under the influence of deterioration of Material efficiency, Profitability of products and Gross profit.

Index of Enterprise Development of PJSC “Chumak” increased from 0,56 in 2013 to 0,61 in 2014-2015. It occurred under the influence of improvement such indicators as Availability of fixed assets, Output per worker, Sales and Gross profit. It should be noted, that at the same time PJSC “Chumak” had deterioration of such indicators as Material efficiency and Profitability of products.

Index of Enterprise Development of OJSC “LZHK” mitigated from 0,78 in 2013 to 0,55 in 2014. It occurred by the influence of deterioration such indicators as Index of the probability of bankruptcy, Material efficiency, Profitability of products, Output per worker (annual growth rate), Sales (annual growth rate) and Gross profit (annual growth rate). Index of Enterprise Development of development of OJSC “LZHK” raised to 0,76 in 2015 by the improvement the same partial indicators except Material efficiency.

Index of Enterprise Development of OJSC “Lutsk Foods” increased from 0,60 in 2013 to 0,69 in 2014 by the improvement such partial indicators as Index of the probability of bankruptcy, annual growth rate of Material efficiency, annual growth of Profitability of products, Sales and Gross profit. Index of Enterprise

Development of OJSC “Lutsk Foods” raised to 0,71 in 2015. It occurred under the influence of changing of annual growth rate of Gross profit.

In general, during 2013-2015 years all researched enterprises had unsatisfactory value of such indicators as Return on labour costs, Production costs, Output per worker and Gross profit. It evidences about lack of effectiveness of resources usage and enterprise activity in general. Therefore, it was offered to reduce production costs and staff turnover Increased involvement of employees. These recommendations will help to increase level of development of enterprises.

Limitation of using the original model caused by the non-availability of initial data to calculate such indicators as Index of quality staff, the level of motivation, the energy intensity of production (average rate of change), specific weight products for export, factor of production. Therefore, some indicators were changed in aim to implement the model in practice. The updated model has previous properties and meets the identified requirements.

As a final remark, it is necessary to mention that used model can be implemented in the activities of the company in both initial and updated version. Implementation the primary model will let to get a more comprehensive and adequate assessment of the company development as it will increasingly take account of internal factors of development. The implementation of this model in practice will help to reveal gaps in management process and facilitate cascading of responsibility for the results of activity.

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Appendix

Table A.1. The definitions of enterprise development.

Authors	The definition of concept "enterprise development"
Bogatyrev (2013)	The changes set different economic nature, focus, intensity, objectively occur in social and economic system by external and internal factors, lead to the transfer and fixing businesses in different organizational and economic conditions.
Korshunova (2004)	The process of formation, accumulation and using strategic capabilities to provide external adaptation and internal integration on labour, capital and goods markets in accordance with the set targets.
Kyfyak (2011)	The dynamic system of interacting subsystems, preconditions, factors and principles which form the vector of quantitative and qualitative changes of enterprise functioning to achieve priorities.
Nadtoka & Kakunina (2011)	The process of total change in the socio-economic system of the company, aimed at its transition to a new qualitative and quantitative condition over time influenced by factors internal and external environment, moreover the development direction can be both positive and negative.
Plugina (2011)	Qualitative transformation in the enterprise by changes in the quantitative and structural characteristics of technical and technological, organizational and communication, financial and economic resources through efficient using of intellectual and human resources and information technology.
Poberezhnyi (2012)	Directional change of quality condition of organization, its structure, composition or properties, quantitative or qualitative changes of its elements.
Rayevnyeva (2006)	The unique process of transforming an open system in space and time, which is characterized by permanent change in the global goals of its existence by creating new dissipative structures and transition it into the new functioning vector.
Shved (2013)	An appropriate and continuous process of quality and quantity changes of condition of enterprise functioning in direction of achievement of higher or lower level, which is influenced by factors internal and external environment, precondition for this process is the existing potential of the company, and its result is the achieved level of competitiveness of the entity.
Yankovets & Nahornaya (2015).	Continual long term process of enterprise improvement is due to structural, quantitative and qualitative changes influenced by factors internal and external environments, allowing the company to become more flexible and adaptive, that is, to improve their viability.
Zathei (2001)	The process of purposeful changes of economic, technical, organizational or social parameters of organizational and economic system that provides a set of specific actions to ensure the goal.

Source: Author's own elaboration based on Bogatyrev (2013), Korshunova (2004), Kyfyak (2011), Nadtoka & Kakunina (2011), Plugina (2011), Poberezhnyi (2012), Rayevnyeva (2006), Shved (2013), Yankovets & Nahornaya (2015), Zathei (2001).

Table A.2. The definition of "sustainable enterprise development".

Authors	The definition of "sustainable development"
Sustainable development is activity that builds up indices and achieves certain benchmarks operation of the business	
Arefyeva	This is balanced combination of build-up of material riches with the protection of the environment and abidance by social equity and justice.
Kolocheva & Titova (2010)	This is development that assist the long term growth of economic, environmental and social indicators in various changes of internal and external factors.
Shandova (2013)	This is development under fixed path of achieving set benchmarks in economic, environmental and social aspects, its result is value growth of potential and change of competitive status.
Sustainable development is a process of qualitative changes, transformations	
Vasilenko (2005)	This is functional dependence on such variables as the stability of functioning, the ability to make the necessary changes, potential of the enterprise and environmental conditions.
Homyachenkova (2011)	This is the way of its functioning that provided with transformation of internal enterprise environment for self-preservation and reproduction of social and economic processes by harmonizing the relationship with the external environment.
Hryshakov (2013)	This is a constant dynamic qualitative change of qualitative and quantitative indicators by introducing new technologies and improving business processes, its main condition is existence of static and dynamic stability of the company and qualitative management.

Source: Kuznetsova and Balabash (2015, p.51).

Table A.3. Attempting to compare methods of analysing and evaluating of the enterprise development.

Methods of analysing and evaluating of the enterprise development	Groups of indicators, which are base of methods									Inclusion of the indicators requirements		
	Financial	Production and technology	Staffing	Socioeconomic	Property	Sales and service	Goods	Investment	Innovative	Requirement 1	Requirement 2	Requirement 3
Data Envelopment Analysis DEA	-	+	-	-	-	-	-	-	-	-	-	+
PMSB	+	+	-	-	-	+	-	-	+	-	+	+
Balanced Scorecard BSC	+	+	+	-	-	+	+	-	+	-	+	+
Dupont Model	+	-	-	-	-	-	-	-	-	-	-	-
Maysles Model	+	+	+	-	-	+	-	-	-	-	+	-
EP2M Model (Adams & Roberts)	+	-	+	-	-	+	-	+	-	-	+	-
Stakeholders Model	+	-	+	-	-	-	+	+	-	-	+	-
Economic Value Added (EVA)	+	-	-	-	-	-	-	-	-	-	+	-
Performance Pyramid System (Lynch and Cross)	+	+	+	-	-	+	+	-	+	-	+	-
Quantum Profit Management QPM	-	+	-	-	-	+	-	-	-	-	-	-
Evaluation of the company "Ernst & Young"	+	+	+	-	-	+	-	-	-	-	+	+
Scorecard (J.I. Case)	+	+	-	-	-	+	-	-	-	-	+	-
Model "Caterpillar"	+	+	+	-	-	+	+	-	-	-	+	+
The system of the internal market "Hewlett-Packard"	+	+	-	-	+	-	-	-	-	-	+	+
Indirect method of evaluating the level of development enterprises (Samulyak)	+	+	-	-	+	-	-	-	-	+	+	+

Source: Yavorska, Feshchur and Shyshkovskyi (2012, p.231).

Table A.4. Potential as the basis for enterprise development.

A component of enterprise development	The impact of potential on part of enterprise development
Quantitative and qualitative changes	Increasing of company potential provides quantitative and qualitative changes in its structure and individual opportunities, particularly industrial and financial, intellectual and labour. In addition, the potential of a set of specified opportunities is the resource base and field for change.
Improvement	Increasing of company potential is a prerequisite for improving its condition in a future. Present potential is pre-condition of improvement of the state of enterprise due to the increase of possibilities or their more quality use.
Long duration	The company potential increases during a certain period of time, but the presence of potential facilitates to enterprise development not instantaneous, but in the long run.
Process character Long duration	Potential -building enterprises represented by a set of processes by which increasing resources and capabilities of enterprise.
Increasing potential of enterprise	Increasing of company potential is recursively promotes to enterprise development.
Adaptation to environment and ability to resist its negative influences. Increasing the viability of enterprise	Increasing of company potential, growing its resources and possibilities, assists the greater margin of safety and possibilities to counteract to negative influences of environment that positively influences on absolute and relative viability of enterprise, including due to possibility more ambulance and complete adaptation of the system of enterprise to the changes in an environment.
The internal integration of enterprise	Potential-building of enterprise leads to complications of internal connections and helps not just the accumulation of resources and opportunities for businesses, but also their structuring according to certain criteria, which promotes internal integration.

Source: Voronkova and Pogorelov (2009, p.83).

Table A.5. The Reference grades of indicators.

Indicator	R1	R2	R3	R4	R5	R6	R7	P1	E1	E2	E3	E4	E5
Reference grades	3,0	0,5	0,001	-5,0	0,7	2,5	7,0	4,0	10,0	5,0	5,0	10,0	2,7

Source: Salimi (2015), Samulyak (2009).

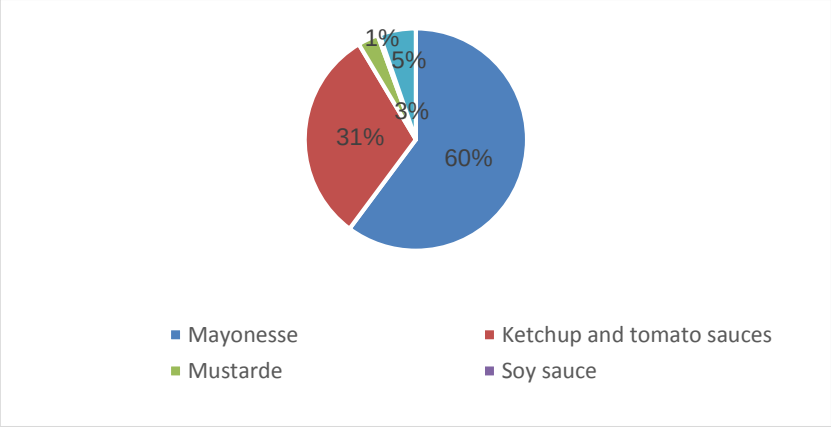

Figure A.1. Structure of sauce production by results of 2013 in Ukraine.

Sourse: https://inventure.com.ua.

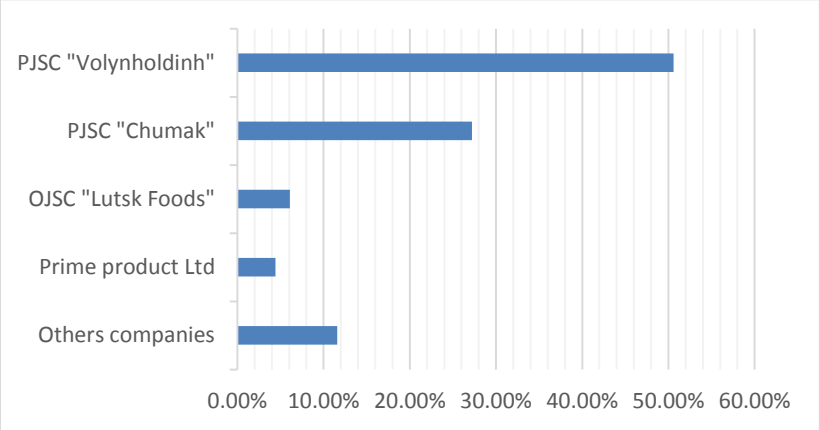

Figure A.3. Shares of major Ukrainian producer of ketchup by results of 2012.

Sourse: https://inventure.com.ua.

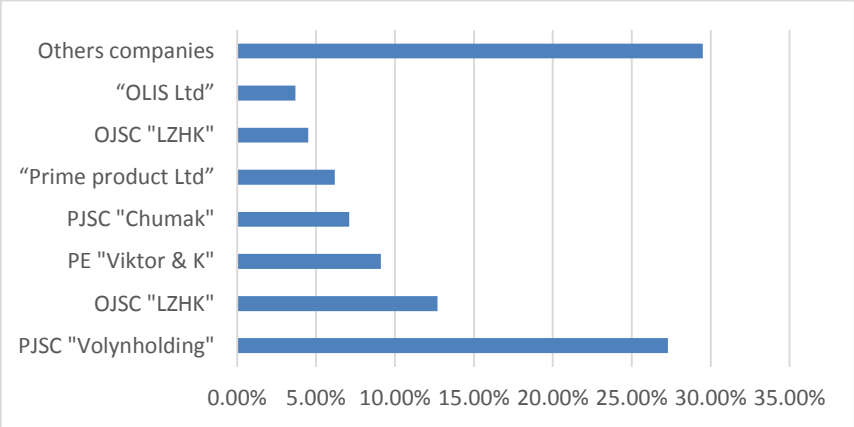

Figure A.3. Shares of major Ukrainian producer of mayonnaise by results of 2012.

Sourse: https://inventure.com.ua.

Table A.6. Balance Sheet Statement of PJSC "Volynholdinh" (2012-2015) (continues).

Assets	Code	2012	2013	2014	2015
I. Fixed Assets					
Intangible assets	1000	137	43	22	19
Original cost	1001	1242	1283	1270	1286
Amortization	1002	-1105	-1240	-1248	-1267
Incomplete capital investments	1005	37301	37743	39716	46696
Fixed Assets	1010	192900	187627	190983	194891
Original cost	1011	280465	291093	311600	326783
Depreciation	1012	-87565	-103466	-120617	-131892
Long-term financial investments	1030				
Other financial investments	1035	394	259	125	0
Long-term receivables	1040	0	0	0	0
Total section I	1095	230732	225672	230846	241606
II. Current assets					
Inventories	1100	53422	55654	63137	69644
Production supplies	1101	53213	55448	61835	69266
Work-in-process inventory	1102	0	0	0	0
Finished goods	1103	209	206	1302	378
Merchandise	1104	0	0	0	0
Promissory notes received	1120	0	0	0	0
Accounts receivable for merchandise, work and services	1125	157469	154050	184539	245974
Accounts receivable:					
Staff receivables	1130	9968	2860	9467	46920
budget receivables	1135	1401	704	995	8338
including income tax	1136	0	676	973	6755
from internal settlements	1145	7	1	3	0
Other current receivables	1155	77	38	92	42
Current financial investments	1160	11	11	11	0
Cash and Equivalents	1165	1170	76390	85440	13621
Cash	1166	0	0	0	0
Payment account	1167	1170	76390	85440	13621
Deferred expenses	1170	14	20	18	438
Other current assets	1190	131	87	36	100
Total section II	1195	223670	289815	343738	385077
Total	**1300**	**454402**	**515487**	**574584**	**626683**

Liabilities and shareholders' equity	**Code**	**2012**	**2013**	**2014**	**2015**
I. Owner's Equity					
Authorized capital	1400	100	100	100	100
Capital surplus	1405	0	0	0	0
Additional capital	1410	0	0	0	0
Share premium	1411	0	0	0	0
Reserves	1415	25	25	25	25
Retained earnings	1420	405467	448897	482492	456892
Unpaid capital	1425	0	0	0	0
Withdrawn capital	1430	-10	-10	-10	-10
Other reserves	1435	0	0	0	0
Total section I	1495	405582	449012	482607	457007
II. Non-current Liabilities					
Long-term bank debt	1510	0	0	0	0
Other long-term liabilities	1515	0	0	0	0
Long-term provision	1520	0	0	0	399
Long ensuring staff costs	1521	0	0	0	399
Total section II	1595	0	0	0	399

Table A.6. Balance Sheet Statement of PJSC "Volynholdinh" (2012-2015) (continuation).

Liabilities and shareholders' equity	Code	2012	2013	2014	2015
III. Current Liabilities					
Short Term Financial Debt	1600	0	0	9616	0
Payables					
for long-term liabilities	1610	0	0	1272	0
For merchandise, goods and services	1615	44155	66120	78653	86992
Taxes payable	1620	2774	52	972	1
including income tax	1621	0	0	0	0
Insurance payables	1625	0	0	0	0
Back pay	1630	34	52	78	22
Advance payments	1635	0	0	9	23
payments to participants	1640	0	0	0	77025
from internal settlements	1645	0	1	3	1
Current provision	1660	0	0	0	0
Other short-term liabilities	1690	1857	250	1374	5213
Total section III	1695	48820	66475	91977	169277
Total	**1900**	**454402**	**515487**	**574584**	**626683**

Table A.7. Income Statement of PJSC "Volynholdinh" (2012-2015).

Financial results					
	Code	**2012**	**2013**	**2014**	**2015**
Sales	2000	799383	760170	831041	1092412
Cost of Sales	2050	-718313	-686917	-713671	-1017938
Gross Profit	2090	81070	73253	117370	74474
Other operating income	2120	2594	10637	32404	53871
Administrative expenses	2130	-13213	-8510	-8881	-10448
Selling expenses	2150	-8319	-8528	-6488	-3376
Other operating expenses	2180	-2863	-11280	-37696	-44201
Total profits and losses	2190	59269	55572	96709	70320
Other financial income	2220	47	0	0	0
Other income	2240	923	3	1182	3095
Financial expenses	2250	-47	-9	-39	-83
Other expenses	2270	-7128	-293	-1938	-11962
EBIT	2290	53064	55273	95914	61370
Tax	2300	-12414	-11843	-18889	-11057
Net Income	2350	40650	43430	77025	50313
Elements of operating expenses					
Material Costs	2500	658675	622486	645395	947107
Labour Costs	2505	31391	33262	33080	35805
Deductions for social events	2510	11119	12474	13484	12922
Depreciation & Amortization	2515	16697	16036	17159	14732
Other operating expenses	2520	25070	32217	49880	51777
Total operating expenses	**2550**	**742952**	**716475**	**758998**	**1062343**

Table A.8. Balance Sheet Statement of PJSC "Chumak" (2012-2015) (continues).

Assets	Code	2012	2013	2014	2015
I. Fixed Assets					
Intangible assets	1000	89685	79382	63760	48303
Original cost	1001	143269	151628	155784	160359
Amortization	1002	53584	72246	92024	112056
Incomplete capital investments	1005	6279	3878	31455	4326
Fixed Assets	1010	140945	103992	114463	137728
Original cost	1011	810811	821018	850096	894817
Depreciation	1012	669866	717026	735633	757089
Long-term financial investments	1030	16631	17552	17552	0
Other financial investments	1035	15	15	15	15
Long-term receivables	1040	0	0	0	0
Total section I	1095	253555	204819	227245	190372
II. Current assets					
Inventories	1100	109407	113316	145913	248123
Production supplies	1101	73242	57882	81535	168339
Work-in-process inventory	1102	0	0	0	0
Finished goods	1103	30424	39360	42734	63230
Merchandise	1104	5741	16074	21644	16554
Promissory notes received	1120	0	0	0	0
Accounts receivable for merchandise, work and services	1125	112700	111998	167246	160258
Accounts receivable:					
Staff receivables	1130	16426	23929	28399	36164
budget receivables	1135	9419	5718	20117	31068
including income tax	1136	0	427	799	942
from internal settlements	1145	0	0	0	0
Other current receivables	1155	979	10190	9274	12237
Current financial investments	1160	0	0	0	0
Cash and Equivalents	1165	7327	6654	7100	944
Cash	1166	2	2	1	2
Payment account	1167	7325	6652	7099	942
Deferred expenses	1170	370	370	370	370
Other current assets	1190	2441	5892	9115	9596
Total section II	1195	259069	278067	387534	498760
Total	**1300**	**512624**	**482886**	**614779**	**689132**

Liabilities and shareholders' equity	**Code**	**2012**	**2013**	**2014**	**2015**
I. Owner's Equity					
Authorized capital	1400	349093	349093	349093	349093
Capital surplus	1405	176805	123277	69750	26683
Additional capital	1410	48414	48414	48414	48414
Share premium	1411	0	0	0	0
Reserves	1415	0	0	0	0
Retained earnings	1420	-438604	-388752	-605012	-898547
Unpaid capital	1425	0	0	0	0
Withdrawn capital	1430	0	0	0	0
Other reserves	1435	0	0	0	0
Total section I	1495	135708	132032	-137755	-474357
II. Non-current Liabilities					
Long-term bank debt	1510	185554	171098	312422	532573
Other long-term liabilities	1515	79375	79274	178425	250385
Long-term provision	1520	0	0	0	0
Long ensuring staff costs	1521	0	0	0	0
Total section II	1595	264929	250372	490847	782958

Table A.8. Balance Sheet Statement of PJSC “Chumak” (2012-2015) (continuation).

Liabilities and shareholders’ equity	Code	2012	2013	2014	2015
III. Current Liabilities					
Short Term Financial Debt	1600	15020	0	29872	50248
Payables					
for long-term liabilities	1610	0	0	0	0
For merchandise, goods and services	1615	83687	86076	200216	285501
Taxes payable	1620	675	698	109	395
including income tax	1621	464	432	0	0
Insurance payables	1625	634	764	791	899
Back pay	1630	1199	1541	1368	1692
Advance payments	1635	7615	5889	18567	26429
payments to participants	1640	0	0	0	0
from internal settlements	1645	0	0	0	0
Current provision	1660	3140	2165	4082	7413
Other short-term liabilities	1690	17	3349	6682	7954
Total section III	1695	111987	100482	261687	380531
Total	**1900**	**512624**	**482886**	**614779**	**689132**

Table A.9. Income Statement of PJSC “Chumak” (2012-2015).

Financial results					
	Code	**2012**	**2013**	**2014**	**2015**
Sales	2000	606022	619799	829712	996657
Cost of Sales	2050	-423788	-442404	-589888	-685733
Gross Profit	2090	182234	177395	239824	310924
Other operating income	2120	16339	54946	41994	49198
Administrative expenses	2130	-45733	-45325	-44712	-49987
Selling expenses	2150	-119480	-125243	-171765	-202322
Other operating expenses	2180	-23155	-43552	-44111	-83221
Total profits and losses	2190	10205	18221	21230	24592
Other financial income	2220	0	79	79	915
Other income	2240	3284	531	53376	251647
Financial expenses	2250	-26799	-20494	-32778	-70212
Other expenses	2270	-4897	-256	-311694	-543544
EBIT	2290	-18207	-1919	-269787	-336602
Tax	2300	-464	-890	0	0
Net Income	2350	-18671	-2809	-269787	-336602
Elements of operating expenses					
Material Costs	2500	302143	291469	469934	642593
Labour Costs	2505	44851	44183	49291	58186
Deductions for social events	2510	13143	14028	15611	17279
Depreciation & Amortization	2515	35456	72277	46226	41984
Other operating expenses	2520	128715	130097	171623	204075
Total operating expenses	**2550**	**524308**	**552054**	**752685**	**964117**

Table A.10. Balance Sheet Statement of OJSC "LZHK" (2012-2015) (continues).

Assets	Code	2012	2013	2014	2015
I. Fixed Assets					
Intangible assets	1000	17	98	121	101
Original cost	1001	94	129	168	169
Amortization	1002	77	31	47	68
Incomplete capital investments	1005	0	0	0	0
Fixed Assets	1010	127904	123893	121405	132701
Original cost	1011	350493	351518	354258	365899
Depreciation	1012	222589	227625	232853	233198
Long-term financial investments	1030				
Other financial investments	1035	0	0	0	0
Long-term receivables	1040	0	0	0	0
Total section I	1095	127921	123991	121526	132802
II. Current assets					
Inventories	1100	36266	30472	25838	70096
Production supplies	1101	20666	23905	22637	56792
Work-in-process inventory	1102	4130	5306	1827	9761
Finished goods	1103	2861	1257	1371	3540
Merchandise	1104	8609	4	3	3
Promissory notes received	1120	0	0	0	0
Accounts receivable for merchandise, work and services	1125	65275	5513	24251	135050
Accounts receivable:					
Staff receivables	1130	4209	12379	5251	1497
budget receivables	1135	1437	634	3422	3548
including income tax	1136	0	614	600	315
from internal settlements	1145	2998	0	0	0
Other current receivables	1155	1617	1679	2365	35
Current financial investments	1160	0	0	0	0
Cash and Equivalents	1165	54	4733	2617	4341
Cash	1166	0	0	0	0
Payment account	1167	54	4733	2617	4341
Deferred expenses	1170	0	8	11	15
Other current assets	1190	0	554	229	7914
Total section II	1195	111856	55972	63984	222496
Total	**1300**	**239777**	**179963**	**185510**	**355298**

Liabilities and shareholders' equity	**Code**	**2012**	**2013**	**2014**	**2015**
I. Owner's Equity					
Authorized capital	1400	63735	63735	63735	63735
Capital surplus	1405	0	0	99729	96834
Additional capital	1410	106078	102368	0	0
Share premium	1411	0	0	0	0
Reserves	1415	1855	1855	1855	1855
Retained earnings	1420	-153962	-131976	-129897	-118550
Unpaid capital	1425	0	0	0	0
Withdrawn capital	1430	0	0	0	0
Other reserves	1435	0	0	0	0
Total section I	1495	17706	35982	35422	43874
II. Non-current Liabilities					
Long-term bank debt	1510	151867	32	0	0
Other long-term liabilities	1515	0	37825	0	0
Long-term provision	1520	0	0	0	0
Long ensuring staff costs	1521	0	0	0	0
Total section II	1595	151867	37857	0	0

Table A.10. Balance Sheet Statement of OJSC "LZHK" (2012-2015) (continuation).

Liabilities and shareholders' equity	Code	2012	2013	2014	2015
III. Current Liabilities					
Short Term Financial Debt	1600	0	0	0	0
Payables					
for long-term liabilities	1610	0	0	0	0
For merchandise, goods and services	1615	43441	74000	121789	231267
Taxes payable	1620	286	0	0	417
including income tax	1621	0	0	0	0
Insurance payables	1625	669	615	490	930
Back pay	1630	1725	1728	1603	2796
Advance payments	1635	0	3326	1375	47494
payments to participants	1640	0	0	0	0
from internal settlements	1645	0	0	0	0
Current provision	1660	378	498	657	122
Other short-term liabilities	1690	23705	25957	24174	28398
Total section III	1695	70204	106124	150088	311424
Total	**1900**	**239777**	**179963**	**185510**	**355298**

Table A.11. Income Statement of OJSC "LZHK" (2012-2015).

Financial results					
	Code	**2012**	**2013**	**2014**	**2015**
Sales	2000	383424	468132	322602	659383
Cost of Sales	2050	-375036	-404252	-320380	-627735
Gross Profit	2090	0	0	0	0
Other operating income	2120	5670	6184	34685	37149
Administrative expenses	2130	-11078	-10742	-11395	-14173
Selling expenses	2150	-3916	-5173	-2228	-3175
Other operating expenses	2180	-17221	-18904	-25072	-42531
Total profits and losses	2190	-18157	35245	-1788	8918
Other financial income	2220	115	0	0	0
Other income	2240	-16666	-15855	-50	0
Financial expenses	2250	-857	0	0	0
Other expenses	2270	-35565	19390	-1838	8918
EBIT	2290	0	-480	0	0
Tax	2300	-35565	18910	-1838	8918
Net Income	2350	383424	468132	322602	659383
Elements of operating expenses					
Material Costs	2500	350379	300392	254857	549720
Labour Costs	2505	24004	22623	22070	27977
Deductions for social events	2510	8953	8128	8206	10332
Depreciation & Amortization	2515	2375	5209	5328	5898
Other operating expenses	2520	10316	11827	7798	9998
Total operating expenses	**2550**	**39602**	**348179**	**298259**	**603925**

Table A.12. Balance Sheet Statement of OJSC "Lutsk Foods" (2012-2015) (continues).

Assets	Code	2012	2013	2014	2015
I. Fixed Assets					
Intangible assets	1000	33	18	8	7
Original cost	1001	595	595	590	590
Amortization	1002	562	577	582	583
Incomplete capital investments	1005	1066	47	30	178
Fixed Assets	1010	21966	22806	20895	21274
Original cost	1011	42620	45677	44682	47332
Depreciation	1012	20654	22871	23787	26058
Long-term financial investments	1030				
Other financial investments	1035	1259	1259	1259	0
Long-term receivables	1040	3328		0	0
Total section I	1095	27652	24130	22192	21459
II. Current assets					
Inventories	1100	19151	14606	11603	14018
Production supplies	1101	17330	11696	9906	9675
Work-in-process inventory	1102	280	162	105	141
Finished goods	1103	1457	2638	1573	4202
Merchandise	1104	84	110	19	
Promissory notes received	1120	63	399	206	411
Accounts receivable for merchandise, work and services	1125	13848	12560	18955	27460
Accounts receivable:					
Staff receivables	1130				
budget receivables	1135	1653	318	366	240
including income tax	1136		318	334	232
from internal settlements	1145				
Other current receivables	1155	6004	5881	5070	5058
Current financial investments	1160				
Cash and Equivalents	1165	158	968	68	950
Cash	1166		1	1	
Payment account	1167		967	67	950
Deferred expenses	1170				
Other current assets	1190		17	26	43
Total section II	1195	40877	34749	36294	48180
Total	**1300**	**68529**	**58879**	**58486**	**69639**

Liabilities and shareholders' equity	**Code**	**2012**	**2013**	**2014**	**2015**
I. Owner's Equity					
Authorized capital	1400	16000	16000	16000	16000
Capital surplus	1405				
Additional capital	1410	1248	1248	1248	1248
Share premium	1411	1007	1007	1007	1007
Reserves	1415	11	11	11	11
Retained earnings	1420	-3563	-9931	-9636	-7150
Unpaid capital	1425				
Withdrawn capital	1430				
Other reserves	1435				
Total section I	1495	13696	7328	7623	10109
II. Non-current Liabilities					
Long-term bank debt	1510	21500	24000	23856	4080
Other long-term liabilities	1515				200
Long-term provision	1520	0	0	0	
Long ensuring staff costs	1521	0	0	0	
Total section II	1595	21500	24000	23856	4280

Table A.12. Balance Sheet Statement of OJSC "Lutsk Foods" (2012-2015) (continuation).

Liabilities and shareholders' equity	Code	2012	2013	2014	2015
III. Current Liabilities					
Short Term Financial Debt	1600	2500	3540	12675	38920
Payables					
for long-term liabilities	1610	0	0		
For merchandise, goods and services	1615	29899	23031	12151	12448
Taxes payable	1620	34	52	75	406
including income tax	1621				
Insurance payables	1625	182	204	175	243
Back pay	1630	322	325	379	520
Advance payments	1635				
payments to participants	1640				
from internal settlements	1645				
Current provision	1660				
Other short-term liabilities	1690	396	399	1552	2713
Total section III	1695	33333	27551	27007	55250
Total	**1900**	**68529**	**58879**	**58486**	**69639**

Table A.13. Income Statement of OJSC "Lutsk Foods" (2012-2015).

Financial results					
	Code	**2012**	**2013**	**2014**	**2015**
Sales	2000	92485	79198	102075	158381
Cost of Sales	2050	-68622	-56089	-77617	-114151
Gross Profit	2090	23863	23109	24458	44230
Other operating income	2120	7377	10736	14148	35644
Administrative expenses	2130	-3955	-3234	-3867	-5101
Selling expenses	2150	-19579	-15316	-15750	-18813
Other operating expenses	2180	-11659	-15452	-11957	-46165
Total profits and losses	2190	-3953	-157	7032	9795
Other financial income	2220	39	1	2	62
Other income	2240				
Financial expenses	2250	-3719	-6122	-6344	-7519
Other expenses	2270	( )	( )	-1	( )
EBIT	2290	-7633	-6278	689	2338
Tax	2300	-370	-90	-394	148
Net Income	2350	-8003	-6368	295	2486
Elements of operating expenses					
Material Costs	2500	52105	53240	68057	103824
Labour Costs	2505	8662	7459	7937	9911
Deductions for social events	2510	3151	2698	2887	3603
Depreciation & Amortization	2515	3842	3057	2503	2625
Other operating expenses	2520	30909	29352	28647	68288
Total operating expenses	**2550**	**98669**	**95806**	**110031**	**188251**

Table A.14. The partial ratios of Z-score evaluation of PJSC "Volynholdinh".

Parameters and indicators	2013	2014	2015
Total Assets, thousand UAH	515 487	574 584	626 683
Total Liabilities, thousand UAH	66 475	91 977	169 676
Retained Earnings, thousand UAH	448 897	482 492	456 892
Working Capital, thousand UAH	223 340	251 761	215 800
Market Value of Equity, thousand UAH	37 620	37 620	37 620
Sales, thousand UAH	760 170	831 041	1 092 412
EBIT, thousand UAH	55 273	95 914	61 370
2.1. A =WC/TA	0,43	0,44	0,34
2.2. B = RE/TA	0,87	0,84	0,73
2.3. C = EBIT/TA	0,11	0,17	0,10
2.4. D = MVE/TL	1,77	2,44	4,51
2.5. E = S/TA	1,47	1,45	1,74
Index of the probability of bankruptcy	**4,63**	**5,17**	**6,21**

Table A.16. The partial ratios of Z-score evaluation of PJSC "Chumak".

Parameters and indicators	2013	2014	2015
Total Assets, thousand UAH	482 886	614 779	689 132
Total Liabilities, thousand UAH	350 854	752 534	1 163 489
Retained Earnings, thousand UAH	388 752	605 012	898 547
Working Capital, thousand UAH	177 585	125 847	118 229
Market Value of Equity, thousand UAH	349 093	349 093	349 093
Sales, thousand UAH	619 799	829 712	996 657
EBIT, thousand UAH	-1 919	-269 787	-336 602
2.1. A =WC/TA	0,37	0,20	0,17
2.2. B = RE/TA	-0,81	-0,98	-1,30
2.3. C = EBIT/TA	0,00	-0,44	-0,49
2.4. D = MVE/TL	1,01	2,16	3,33
2.5. E = S/TA	1,28	1,35	1,45
Index of the probability of bankruptcy	**1,19**	**0,06**	**0,21**

Table A.17. The partial ratios of Z-score evaluation of OJSC “LZHK”.

Parameters and indicators	2013	2014	2015
Total Assets, thousand UAH	179 963	185 510	355 298
Total Liabilities, thousand UAH	143 981	150 088	311 424
Retained Earnings, thousand UAH	131 976	129 897	118 550
Working Capital, thousand UAH	-50 152	-86 104	-88 928
Market Value of Equity, thousand UAH	63 735	63 735	63 735
Sales, thousand UAH	468 132	322 602	659 383
EBIT, thousand UAH	19 390	-1838	8918
2.1. A =WC/TA	-0,28	-0,46	-0,25
2.2. B = RE/TA	-0,73	-0,70	-0,33
2.3. C = EBIT/TA	0,11	-0,01	0,03
2.4. D = MVE/TL	2,26	2,35	4,89
2.5. E = S/TA	2,60	1,74	1,86
Index of the probability of bankruptcy	**2,95**	**1,58**	**4,10**

Table A.18. The partial ratios of Z-score evaluation of OJSC “Lutsk Foods”.

Parameters and indicators	2013	2014	2015
Total Assets, thousand UAH	58 879	58 486	69 639
Total Liabilities, thousand UAH	51 551	50 863	59 530
Retained Earnings, thousand UAH	-9 931	-9 636	-7 150
Working Capital, thousand UAH	7 198	9 287	-7 070
Market Value of Equity, thousand UAH	16 000	16 000	16 000
Sales, thousand UAH	79 198	102 075	158 381
EBIT, thousand UAH	-6 278	689	2 338
2.1. A =WC/TA	0,12	0,16	-0,10
2.2. B = RE/TA	-0,17	-0,16	-0,10
2.3. C = EBIT/TA	-0,11	0,01	0,03
2.4. D = MVE/TL	3,22	3,18	3,72
2.5. E = S/TA	1,35	1,75	2,27
Index of the probability of bankruptcy	**2,84**	**3,65**	**4,35**

Table A.19. Values of indicators for development evaluating of 2013.

Indicator	PJSC "Volynholdinh"	PJSC "Chumak"	OJSC "LZHK"	OJSC "Lutsk Foods"	Reference grade
R1. Index of the probability of bankruptcy	4,63	1,19	2,95	2,84	3,00
R2. Availability indicator of fixed assets	0,91	0,30	0,96	0,87	0,50
R3. Return on labour costs (annual growth rate)	0,04	0,07	0,05	0,09	0,001
R4. Production costs (rate of decline)	-4,37	4,39	7,79	-18,26	-5,00
R5. Specific weight material costs in operating costs	0,87	0,53	0,86	0,56	0,70
R6. Material efficiency (annual growth rate)	0,62	6,02	42,41	-16,19	2,50
R7. Index of information provision	6	4	5	5	7,00
P1. Index of Quality Products	2,2	2,6	2,8	2,2	4,00
E1. Profitability of products (growth rate)	12,35	85,29	143,55	-7,08	10,00
E2. Output per worker (annual growth rate)	-0,95	2,39	29,95	5,96	5,00
E3. Sales (annual growth rate)	-4,91	2,27	22,09	-14,37	5,00
E4. Gross profit (annual growth rate)	-9,64	-2,66	661,56	-3,16	10,00
E5. Assets return, ratio	4,05	5,96	3,78	3,47	2,70

Table A.20. Values of indicators for development evaluating of 2014.

Indicator	PJSC "Volynholdinh"	PJSC "Chumak"	OJSC "LZHK"	OJSC "Lutsk Foods"	Reference grade
R1. Index of the probability of bankruptcy	5,17	0,06	1,58	3,65	3,00
R2. Availability indicator of fixed assets	0,91	0,60	0,96	0,88	0,50
R3. Return on labour costs (annual growth rate)	-0,09	0,06	0,07	0,08	0,001
R4. Production costs (rate of decline)	3,89	33,34	-20,75	38,38	-5,00
R5. Specific weight material costs in operating costs	0,85	0,62	0,85	0,62	0,70
R6. Material efficiency (annual growth rate)	5,44	-16,97	-18,77	0,83	2,50
R7. Index of information provision	6	4	5	5	7,00
P1. Index of Quality Products	2,2	2,6	2,8	2,2	4,00
E1. Profitability of products (growth rate)	62,23	7 074,52	-114,10	-103,59	10,00
E2. Output per worker (annual growth rate)	9,32	33,87	-26,06	29,35	5,00
E3. Sales (annual growth rate)	9,32	33,87	-31,09	28,89	5,00
E4. Gross profit (annual growth rate)	60,23	35,19	-96,52	5,84	10,00
E5. Assets return, ratio	4,35	7,25	2,66	4,89	2,70

Table A.21. Calculation of Index of Enterprise Development of PJSC "Volynholdinh" by the result of 2013.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	4,63	3,00	1,000	0,066	0,066
R2. Availability indicator of fixed assets	0,91	0,50	1,000	0,066	0,066
R3. Return on labor costs (annual growth rate)	0,11	0,001	1,000	0,066	0,066
R4. Production costs (rate of decline)	-4,37	-5,00	0,874	0,022	0,019
R5. Specific weight material costs in operating costs	0,87	0,70	0,806	0,022	0,018
R6. Material efficiency (annual growth rate)	0,62	2,50	0,249	0,022	0,005
R7. Index of information provision	6,00	7,00	0,857	0,066	0,057
P1. Index of Quality Products	2,20	4,00	0,550	0,330	0,182
E1. Profitability of products (growth rate)	12,35	10,00	1,000	0,066	0,066
E2. Output per worker (annual growth rate)	-0,95	5,00	0,000	0,066	0,000
E3. Sales (annual growth rate)	-4,91	5,00	0,000	0,066	0,000
E4. Gross profit (annual growth rate)	-9,64	10,00	0,000	0,066	0,000
E5. Assets return	4,05	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,61**

Table A.22. Calculation of Index of Enterprise Development of PJSC "Volynholdinh" by the result of 2014.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	5,17	3,00	1,000	0,066	0,066
R2. Availability indicator of fixed assets	0,91	0,50	1,000	0,066	0,066
R3. Return on labor costs (annual growth rate)	-0,09	0,001	0,000	0,066	0,000
R4. Production costs (rate of decline)	3,89	-5,00	0,000	0,022	0,000
R5. Specific weight material costs in operating costs	0,85	0,70	0,823	0,022	0,018
R6. Material efficiency (annual growth rate)	5,44	2,50	1,000	0,022	0,022
R7. Index of information provision	6,00	7,00	0,857	0,066	0,057
P1. Index of Quality Products	2,20	4,00	0,550	0,330	0,182
E1. Profitability of products (growth rate)	62,23	10,00	1,000	0,066	0,066
E2. Output per worker (annual growth rate)	9,32	5,00	1,000	0,066	0,066
E3. Sales (annual growth rate)	9,32	5,00	1,000	0,066	0,066
E4. Gross profit (annual growth rate)	60,23	10,00	1,000	0,066	0,066
E5. Assets return	4,35	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,74**

Table A.23. Calculation of Index of Enterprise Development of PJSC “Chumak” by the result of 2013.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	1,19	3,00	0,396	0,066	0,026
R2. Availability indicator of fixed assets	0,30	0,50	0,610	0,066	0,040
R3. Return on labor costs (annual growth rate)	-0,04	0,00	0,000	0,066	0,000
R4. Production costs (rate of decline)	4,39	-5,00	0,000	0,022	0,000
R5. Specific weight material costs in operating costs	0,53	0,70	1,000	0,022	0,022
R6. Material efficiency (annual growth rate)	6,02	2,50	1,000	0,022	0,022
R7. Index of information provision	4,00	7,00	0,571	0,066	0,038
P1. Index of Quality Products	2,60	4,00	0,650	0,330	0,215
E1. Profitability of products (growth rate)	85,39	10,00	1,000	0,066	0,066
E2. Output per worker (annual growth rate)	2,39	5,00	0,479	0,066	0,032
E3. Sales (annual growth rate)	2,27	5,00	0,455	0,066	0,030
E4. Gross profit (annual growth rate)	-2,66	10,00	0,000	0,066	0,000
E5. Assets return	5,96	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,56**

Table A.24. Calculation of Index of Enterprise Development of PJSC “Chumak” by the result of 2014.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	5,17	3,00	1,000	0,066	0,066
R2. Availability indicator of fixed assets	0,91	0,50	1,000	0,066	0,066
R3. Return on labor costs (annual growth rate)	-0,09	0,001	0,000	0,066	0,000
R4. Production costs (rate of decline)	3,89	-5,00	0,000	0,022	0,000
R5. Specific weight material costs in operating costs	0,85	0,70	0,823	0,022	0,018
R6. Material efficiency (annual growth rate)	5,44	2,50	1,000	0,022	0,022
R7. Index of information provision	6,00	7,00	0,857	0,066	0,057
P1. Index of Quality Products	2,20	4,00	0,550	0,330	0,182
E1. Profitability of products (growth rate)	-7126	10,00	0,000	0,066	0,000
E2. Output per worker (annual growth rate)	9,32	5,00	1,000	0,066	0,066
E3. Sales (annual growth rate)	9,32	5,00	1,000	0,066	0,066
E4. Gross profit (annual growth rate)	60,23	10,00	1,000	0,066	0,066
E5. Assets return	4,35	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,61**

Table A.25. Calculation of Index of Enterprise Development of OJSC “LZHK” by the result of 2013.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	2,95	3,00	0,984	0,066	0,065
R2. Availability indicator of fixed assets	0,96	0,50	1,000	0,066	0,066
R3. Return on labor costs (annual growth rate)	-0,23	0,00	0,000	0,066	0,000
R4. Production costs (rate of decline)	7,79	-5,00	0,000	0,022	0,000
R5. Specific weight material costs in operating costs	0,86	0,70	0,811	0,022	0,018
R6. Material efficiency (annual growth rate)	42,41	2,50	1,000	0,022	0,022
R7. Index of information provision	5,00	7,00	0,714	0,066	0,047
P1. Index of Quality Products	2,80	4,00	0,700	0,330	0,231
E1. Profitability of products (growth rate)	143,55	10,00	1,000	0,066	0,066
E2. Output per worker (annual growth rate)	29,95	5,00	1,000	0,066	0,066
E3. Sales (annual growth rate)	22,09	5,00	1,000	0,066	0,066
E4. Gross profit (annual growth rate)	661,56	10,00	1,000	0,066	0,066
E5. Assets return	3,78	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,78**

Table A.26. Calculation of Index of Enterprise Development of OJSC “LZHK” by the result of 2014.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	1,58	3,00	0,527	0,066	0,035
R2. Availability indicator of fixed assets	0,96	0,50	1,000	0,066	0,066
R3. Return on labor costs (annual growth rate)	0,42	0,00	1,000	0,066	0,066
R4. Production costs (rate of decline)	-20,75	-5,00	1,000	0,022	0,022
R5. Specific weight material costs in operating costs	0,85	0,70	0,819	0,022	0,018
R6. Material efficiency (annual growth rate)	-18,77	2,50	0,000	0,022	0,000
R7. Index of information provision	5,00	7,00	0,714	0,066	0,047
P1. Index of Quality Products	2,80	4,00	0,700	0,330	0,231
E1. Profitability of products (growth rate)	-114,10	10,00	0,000	0,066	0,000
E2. Output per worker (annual growth rate)	-26,06	5,00	0,000	0,066	0,000
E3. Sales (annual growth rate)	-31,09	5,00	0,000	0,066	0,000
E4. Gross profit (annual growth rate)	-96,52	10,00	0,000	0,066	0,000
E5. Assets return	2,66	2,70	0,984	0,066	0,065
Index of Enterprise Development					**0,55**

Table A.27. Calculation of Index of Enterprise Development of OJSC "Lutsk Foods" by the result of 2013.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	2,84	3,00	0,946	0,066	0,062
R2. Availability indicator of fixed assets	0,87	0,50	1,000	0,066	0,066
R3. Return on labor costs (annual growth rate)	0,01	0,00	1,000	0,066	0,066
R4. Production costs (rate of decline)	-18,26	-5,00	1,000	0,022	0,022
R5. Specific weight material costs in operating costs	0,56	0,70	1,000	0,022	0,022
R6. Material efficiency (annual growth rate)	-16,19	2,50	0,000	0,022	0,000
R7. Index of information provision	5,00	7,00	0,714	0,066	0,047
P1. Index of Quality Products	2,20	4,00	0,550	0,330	0,182
E1. Profitability of products (growth rate)	-7,08	10,00	0,000	0,066	0,000
E2. Output per worker (annual growth rate)	5,96	5,00	1,000	0,066	0,066
E3. Sales (annual growth rate)	-14,37	5,00	0,000	0,066	0,000
E4. Gross profit (annual growth rate)	-3,16	10,00	0,000	0,066	0,000
E5. Assets return	3,47	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,60**

Table A.28. Calculation of Index of Enterprise Development of OJSC "Lutsk Foods" by the result of 2014.

Indicator	P_i	P_{ri}	f (P_i; P_{ri})	gi	gi* f(Pi; Pri)
R1. Index of the probability of bankruptcy	3,65	3,00	1,000	0,066	0,066
R2. Availability indicator of fixed assets	0,88	0,50	1,000	0,066	0,066
R3. Return on labor costs (annual growth rate)	-0,17	0,00	0,000	0,066	0,000
R4. Production costs (rate of decline)	38,38	-5,00	0,000	0,022	0,000
R5. Specific weight material costs in operating costs	0,62	0,70	1,000	0,022	0,022
R6. Material efficiency (annual growth rate)	0,83	2,50	0,330	0,022	0,007
R7. Index of information provision	5,00	7,00	0,714	0,066	0,047
P1. Index of Quality Products	2,20	4,00	0,550	0,330	0,182
E1. Profitability of products (growth rate)	103,60	10,00	1,000	0,066	0,066
E2. Output per worker (annual growth rate)	29,35	5,00	1,000	0,066	0,066
E3. Sales (annual growth rate)	28,89	5,00	1,000	0,066	0,066
E4. Gross profit (annual growth rate)	5,84	10,00	0,584	0,066	0,039
E5. Assets return	4,89	2,70	1,000	0,066	0,066
Index of Enterprise Development					**0,69**