



**ASSOCIAÇÃO DE POLITÉCNICOS DO NORTE (APNOR)**

**INSTITUTO POLITÉCNICO DE BRAGANÇA**

**Justification the strategy of enterprise development: PJSC  
«Elektrotermometriya» Case Study**

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To obtain the Master Degree in Management, Specialisation in Business  
Management

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**Valentyna Morokhova**

**Bragança, June, 2016.**



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## **Abstract**

The research is orientated to the actual issues of strategic management of industrial enterprises. The theoretical aspects of strategic management are generalized, its role is certain in organization development, methods and processes of strategic management are investigational. In this context the main objective of study is based on the strategic analysis of PJSC «*Elektrotermometriya*», formation ways to improve the strategic management of the company with regard to the readiness of the company to strategic changes and conducting of developments and recommendations for improvement activity of the enterprise.

To answer to the main objective it was conducted the strategic analysis of activity of PJSC «*Elektrotermometriya*».

The results proved the basic strategy to achieve the strategic goal of PJSC «*Elektrotermometriya*». According to the life cycle, and based on the current conditions of its functioning, is appropriate to use the strategy of gradual growth. Forecast implementing strategies defined by the optimistic, probable and pessimistic forecasts. According to the pessimistic forecast the company should use a strategy of stabilization, while to the optimistic and the most likely scenario - moderate growth strategy. Thus to achieve the main strategic goals according to each scenario PJSC «*Elektrotermometriya*» should use set of functional strategies and define the business strategy.

**Keywords:** Strategy, Strategic management, Methods of strategic management, Enterprise development, Strategic analysis.

## Resumo

O presente trabalho assenta essencialmente numa investigação aplicada a questões reais sobre a gestão estratégica de empresas industriais. Neste sentido o principal objetivo do estudo assenta na análise estratégica da PJSC «*Elektrotermometriya*», desenvolvimento de formas para melhorar a gestão estratégica da empresa no que respeita à disponibilidade da empresa para mudanças estratégicas e realização de desenvolvimentos e recomendações para a melhoria da atividade da empresa.

Para responder ao objetivo principal foi efetuada uma análise estratégica da atividade de PJSC «*Elektrotermometriya*».

Com base na pesquisa foi comprovada que com a estratégia básica alcança-se o objetivo estratégico da PJSC «*Elektrotermometriya*». De acordo com o ciclo de vida e com base nas condições atuais do seu funcionamento, torna-se apropriado utilizar a estratégia de crescimento gradual. Previsão implementa estratégias definidas pelas previsões otimistas, prováveis e pessimistas. De acordo com a previsão pessimista a empresa deve usar uma estratégia de estabilização e, para o otimista o cenário mais provável - estratégia de crescimento moderado. Assim, para alcançar os principais objetivos estratégicos de acordo com cada cenário da PJSC «*Elektrotermometriya*», a mesma deve utilizar um conjunto de estratégias funcionais e definir a estratégia de negócios.

**Palavras-chave:** Estratégia, Gestão estratégica, Métodos de gestão estratégica, Desenvolvimento empresarial, Análise estratégica.

## Анотація

Дослідження орієнтовано на актуальні проблеми стратегічного управління діяльністю промислових підприємств. Узагальнено теоретичні аспекти стратегічного управління, визначено його роль у розвитку організації, досліджено методи та процеси стратегічного управління. У цьому контексті основна мета дослідження ґрунтується на стратегічному аналізі ПАТ «Електротермометрія», формуванні шляхів вдосконалення стратегічного управління компанії відповідно до готовності компанії до стратегічних змін та проведенні розробок і рекомендацій щодо поліпшення діяльності підприємства.

Для обґрунтування основної мети він був проведений стратегічний аналіз діяльності ПАТ «Електротермометрія».

Результати дослідження виявили основну стратегію для досягнення стратегічної мети ПАТ «Електротермометрія». Відповідно до стадії життєвого циклу, на якому знаходиться досліджуване підприємство, а також виходячи з теперішніх умов його функціонування доцільним є застосування стратегії поступового зростання. Прогноз реалізації стратегій визначено за оптимістичного, ймовірного та песимістичного прогнозів. Відповідно до песимістичного прогнозу компанія повинна використовувати стратегію стабілізації, а до оптимістичного і найбільш ймовірного сценарю - помірну стратегію зростання. Таким чином, для досягнення основних стратегічних цілей по кожному сценарію ПАТ «Електротермометрія» повинно використовувати безліч функціональних стратегій і визначити бізнес-стратегії.

**Ключові слова:** Стратегія, Стратегічне управління, Методи стратегічного управління, Розвиток підприємства, Стратегічний аналіз.

## Resumen

Este trabajo es esencialmente una investigación aplicada a problemas reales en la gestión estratégica de las empresas industriales. En este sentido, el objetivo principal del estudio se basa en el análisis estratégico de PJSC «*Elektrotermometriya*», el desarrollo de formas de mejorar la gestión estratégica de la empresa con respecto a la disponibilidad de la empresa a los cambios estratégicos y la aplicación de los avances y recomendaciones para la mejora de la actividad de la empresa.

Para responder al objetivo principal se llevó a cabo un análisis estratégico de la actividad PJSC «*Elektrotermometriya*».

Los resultados han demostrado que con la estrategia básica PJSC «*Elektrotermometriya*» alcanza el objetivo estratégico. De acuerdo con el ciclo de vida y sobre la base de las condiciones actuales de su funcionamiento, es adecuado utilizar la estrategia de crecimiento gradual. Las estrategias de tiempo definidos por previsiones optimistas, probable y pesimista ejecución. De acuerdo con el pronóstico pesimista la empresa debe utilizar una estrategia de estabilización y para el optimista el escenario más probable - la estrategia de crecimiento moderado. Por lo tanto, para llegar a los principales objetivos estratégicos según cada escenario de PJSC «*Elektrotermometriya*», debe utilizar un conjunto de estrategias funcionales y definir la estrategia de negocio.

**Palabras clave:** Estrategia, Gestión estratégica, Métodos de gestión estratégica, Desarrollo de negocio, Análisis estratégico.

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## Acronyms

PJSC - Public Joint-Stock Company

SaO - Strength and Opportunities

SaT - Strength and Threats

WaO - Weakness and Opportunities

WaT - Weakness and Threats

“ETM” - «Elektrotermometriya»

DSS - Decision Support System

CO. - Company

LTD - Limited Company

SA - Anonymous Company

LLC - Limited Liability Company

Inc - Incorporation

SRL - Sociedad de Responsabilidad Limitada

OJSC - Open Joint-stock Company

R&D - Research and Development

SE - State Enterprise

STC - Science and Technology Center

SMMI - System of Management of the Marketing Information

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## Introduction

The concept of development strategy of a firm is crucial for the retention or conquest of the company's position in the industry, market behavior and sphere of business interests. Moreover, strategy is the basis for making important decisions in business: the selection of consumer groups or individual consumers to meet their needs; choosing the most effective from the given resources and costs of technologies and production processes; the determination of optimal volume of production; insurance of competitiveness of the enterprise; the use of new market alternatives and the like.

Considering the choice of specific development strategies today, the most important significance is the ability of the enterprises to adapt to technological, market and other changes. Thus the enterprise can choose one of four variants of behaviors: passive waiting, active waiting, preparation for changes and stimulate desired changes. The best option is to prevent changes and encourage them through innovations.

The study of the questions related to strategic management of the enterprises is paid a lot of attention to by native and foreign researchers.

However, despite the large number of scientific papers and research on the subject, it should be noted that there is no single approach of the implementing of an effective system of strategic development management of the industrial enterprises in the literature. Besides, insufficient attention is paid to the practical aspects of strategic management activities of the enterprises, particularly enterprises-manufacturers of the devices. It significantly complicates the production of concrete and practical recommendations from the organization of effective system of strategic management and thus adversely affects the final results of their activities.

The purpose of this research is deep theoretical substantiation of the essence of strategic management, identification of specific features of the formation of strategies for enterprises-manufacturers of the devices, as well as the development of applied provisions to the strategic management of these enterprises. Achieving of this goal has caused the solution of the following tasks:

- to consider the theoretical principles of strategic management and identify its role in the development of the organization;
- to analyze the trends of market development of instrument-making products;
- to diagnose the internal and external environment of the enterprise that is an object of research, identify the problems of strategic management;
- to determine the solutions of identified problems.

- to justify the choice of the development strategy of the company taking into account the degree of its readiness to strategic changes;
- to establish a system of information support of the formation and implementation of strategy of the enterprises-manufacturers of the devices.

The object of research is the process of strategic management.

The subject of research is theoretical and methodological principles and applied principles of strategic management of enterprises-manufacturers of the devices.

Theoretical basis of research are scientific works of native and foreign experts in the field of strategic management. In the process, was used methods of analysis and synthesis for the economic diagnostics of the enterprise; comparison and grouping for statistical data processing; system analysis to determine the impact of the factors on the enterprise efficiency; the graphic method for the presentation of research results in visual form. Information base of the research are materials of the State Statistics Committee of Ukraine, materials of my own observations, industrial information, information-analytical newsletters, the business press and financial statements of PJSC «Elektrotermometriya».

Scientific novelty of received results is in the following:

- systematized the theoretical principles of strategic management;
- conducted the analytical evaluation of the condition of the market of instrument production in Ukraine;
- implemented a comprehensive economic diagnosis of the researched company and identified specific factors that influence the formation of the development strategy of enterprises;
- identified the ways to improve the strategic management of PJSC «Elektrotermometriya» and justified the strategy of its development taking into account the degree of readiness to strategic changes;
- formed the mechanism of strategic management of innovative activity of PJSC «Elektrotermometriya»;
- proposed the integrated information system of the enterprise based on strategic approaches.

The practical value of the results of the research is to bring theoretical and methodological principles to the level of specific recommendations and to allow making informed decisions in the field of strategic management activities of the enterprises.

In this work will be discussed three sections: the theoretical basis of development strategy of enterprise, the methods of analysis and implementation of the strategy, and the main part – adoption of the active strategy and ways of its implementation.

In the first section will be considered the most complete description of the categories of strategic management, proposed the definition of strategic management based on the analysis of interpretations

of leading scientists, and will be proved that the stage of implementation of the strategy plays an important role in the strategic management of the organization.

In the second section will be discussed the main methods which this work based on. Namely there are the methods of data collection, like research and analysis of documents, monitoring the activities of the company and interviews with experts and management personnel, and also the methods of data analysis, like SWOT – matrix.

And In the third section the main topic will be improvement of the system of strategic management. In this case will be determined that the main strategic goal of enterprise, founded the degree of readiness of the company to strategic changes, improved the basic directions of the strategic transformation of innovative development and presented the recommendations to improve the information support of strategic management of the company.

# **1. Theoretical basis of formation of development strategy of the enterprise**

## **1.1. The essence of strategic management and its role in the development of the enterprises**

The internationalization of a business, the emergence of new needs and changes of the consumers' attitudes, increasing competition for the resources, emergence of new unexpected opportunities are offered for carrying on a business by the achievements of science and technology, the development of information networks. It makes possible quick dissemination and obtainment of the information, the wide availability of modern technologies, the changing role of human resources as well as a number of other reasons had led to the sharp increase of the meaning of strategic management. In recent years quite a lot have already been written about strategy, strategic planning and management.

In the Western and Eastern territories the management theory of strategic activities are recognized as a separate, prospective research subject. In Ukraine the theory and practice of strategic activities and management have not taken the proper place yet. The majority of opinions of business leaders about the need for the development and application of strategic management in the conditions of activity of native enterprises range from allegations of inability to use the experience of foreign corporations in the Ukrainian enterprises, to a very careful coordination so that the separate elements of strategic management will be useful in the near future.

The term «strategic management» has gained prevalence at the turn of the 70-ies years of the last century in order to show the difference between control that is carried out at the highest level from the current management at the production level. The need to fix such a distinction was primarily due to the changes in the business environment.

Analysis of the economic literature allows suggesting that there are different opinions of the definition of «strategic management».

Shershneva (2004) understands under the strategic management the implementation of the concept that combines target and integrated approaches to the activities of the organization that gives the ability to set development goals, compare them with existing capabilities (potential) of the organization and bring them into compliance through the development and implementation of system strategies.

Other researchers define «strategic management» as the set of decisions and actions with a formulation and execution of strategies designed to achieve the goals of the organization or as a management process to implement the mission of the organization by managing the organization's interface with its environment (Mintzberg, Kunin & Ghoshal, 2001; Mizyuk, 2009; Niemtsov & Dovgan, 2001).

Volodkina (2002) believes that strategic management is a multifaceted behavioural process aimed at the development and implementation of the business strategy taking into account changes that are held in the external environment.

Vikhansky and Naumov (1995) defined strategic management as such management of the organization that relies on human potential as the basis for the organization, directs production activities on the customers' demands, carries out flexible regulation and timely changes in the organization that meet the needs of the environment and allowing to achieve competitive advantages that in combination with a result allows the organization to survive and achieve its goals in the long term perspective.

To summarize the said above, it can be affirmed that strategic management is such area of management activity, the main purpose of which is to determine the optimal directions of development of the enterprise, setting goals, implementing flexible regulation and timely changes in the organization, allowing to achieve competitive advantages that allow the company to reach its goal in the long term perspective.

For understanding the essence of strategic management it should be noted that it is the management in the socio-economic systems in which it can be determined the following sides (Popov, 2000, p. 485):

«...- functional, aimed at achieving certain results in which management is regarded as a set of activities;

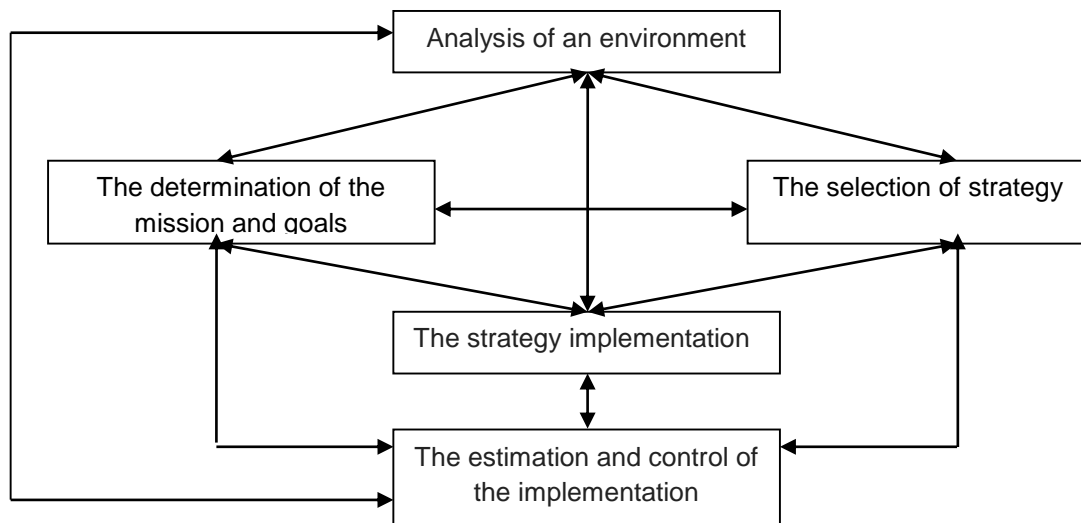
- process in which management is considered as actions to identify and solve problems, that is as the process of preparation and decision-making;

- elemental in which the management is considered as the activity from the organization of the relationships of determined structural elements».

Sladkevych (2008, p. 486) believes that «...the process of strategic management includes seven stages:

- 1) the determination of the intentions of the organization that are reflected in its mission and main objectives;
- 2) the analysis of business environment (internal and external factors);
- 3) the specification of common objectives in the immediate tasks;
- 4) the definition of the ways to accomplish tasks;
- 5) the analysis of alternative strategies, evaluation of options and selection of the best;
- 6) the implementation of the strategy;
- 7) monitoring and control, in case of necessity, the implementation of the corrective actions and revision of the strategy».

Russian authors Vikhansky and Naumov (1995) consider strategic management as a totality of five interrelated management processes (Figure 1).



**Figure 1.** Strategic Management Scheme.

Source: Vikhansky and Naumov (1995, p.416).

Strategic management gives the organization the following advantages:

- 1) the organization can minimize the negative effects of the uncertainty of the future;
- 2) the enterprise is able to focus on the study of the external environmental factors that form changes and accordingly adapt to them;

- 3) the company can obtain the necessary basis for making strategic and practical decisions;
- 4) the organization becomes more manageable because the strategic plans have the opportunity to compare achieved results with the objectives, specified in the form of scheduled tasks.

However, strategic management has certain limitations, since it cannot be universal for any situations:

- 1) strategic management makes it impossible to predict accurately and in details the future;
- 2) strategic management cannot be reduced to the set of rules, procedures, activity diagrams, it doesn't give recommendations what and how to do, performing certain tasks in various situations;
- 3) the process of strategic management requires huge efforts, considerable expenses of time and resources;
- 4) sharply increase the negative consequences of the errors of strategic foresight and choice.

The constituent part of strategic management is strategic marketing that is a basic concept of activity orientation of the enterprise on the consumer that is the best way to achieve strategic competitive goals of the enterprise.

Krevens (2003) believed that strategic marketing is the process of strategy development taken into account the variability of the external environmental factors and aimed at the increasing the degree of satisfaction of consumer needs, he stated at the same time that strategic marketing focuses its efforts on improving the efficiency of the company work as a whole.

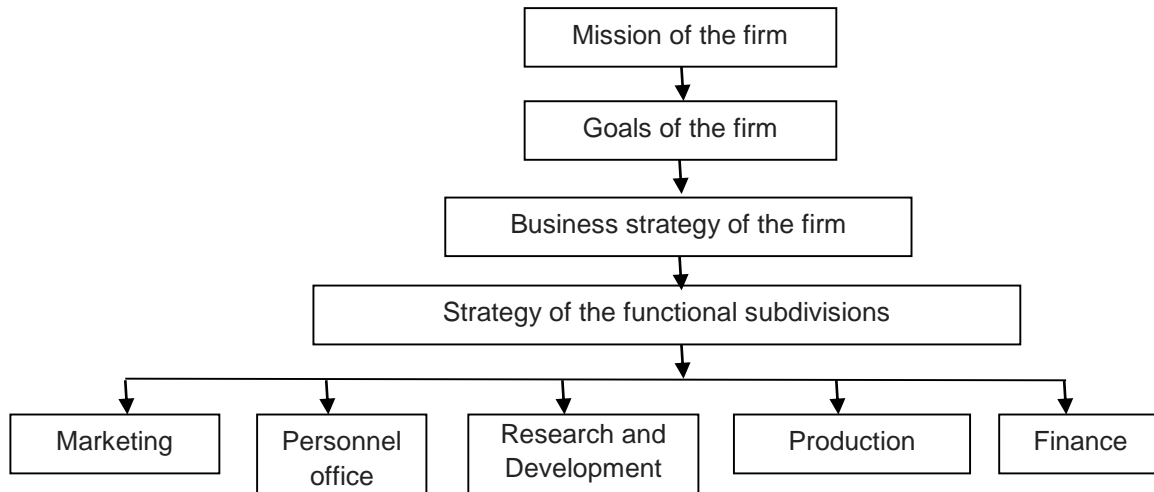
Strategic marketing is a continuous and systematic analysis of the market needs, the consequence of which is the development of effective products that are designed for particular groups of customers.

Strategic management together with strategic marketing on the basis of the effective dynamic strategic vision will ensure the promising development of the enterprises in the conditions of turbulent competitive marketing environment.

The main purpose of strategic marketing in the system of strategic management is the development of competitive marketing strategies to achieve strategic competitive goals of the enterprises taking into account market requirements and possibilities of the enterprises.

Defining the place of strategic marketing in the process of the firm management Figure 2 can be used. As it can be seen, the basic business strategy of the firm is developed based on the corporation mission and set of goals of the firm. It is divided into functional strategies according with an enumeration of services that are organizational constituents of the firm.

There is no unity of the ideas in the question of the definition the concept «strategy».



**Figure 2.** Place of strategic marketing in strategic management.

Source: Oberenchuk (2000, p. 117).

In general the word “strategy” comes from the Greek strategy (stratus – troops and ago – lead), so this is a military term that studies legalities and character of the war, develops the theoretical foundations of planning, preparation and execution of military operations, defines the strategic objectives. Borrowing of this category out of the military vocabulary is explained by the fact that enterprises in the developed countries have been found in the conditions close to the military actions in the late 50-ies of the last century related with market saturation, increasing competition when in order to survive, you’d have to fight (Oberenchuk, 2000).

All points of view of the scientists as to the concept of "strategy" can be divided into 3 groups.

The economists belonging to the first group interpret the strategy as a specific means of action that is used by the enterprise. Thus, in particular, Ansoph (2004) considered strategy as a set of rules for decision-making which the organization uses in its activity.

Porter (2000 p. 495) confirmed that «...strategy is a method of distribution of the enterprise resources in those areas that provide the most optimal conditions for the development, profitability and strengthening competitive advantages in the long term perspective».

Specialists that belong to the second group believe that a strategy is a planning document:

- a strategy is a specific management plan of actions directed to achieve the set goals (Thompson & Strickland, 1996);
- a strategy is a plan of the company’s actions to achieve market success and where possible the acquisition of competitive advantages over the firms-competitors (Utkin, 1996);

- a strategy is a general, comprehensive plan to achieve the objectives (Meskon, Albert & Hedouri, 1992);

The third group of scientists in the definition of «strategy» emphasizes the existence of goals and set of actions that have a defining character for the enterprise. Ukrainian scientist Nalyvayko (2001) considers the enterprise strategy as a set of activities (goals and ways to achieve them) to provide the renewable distinction and profitability.

Many foreign researchers believe that the relationship between the enterprise and the external environment is the main characteristic of the strategy. Bowman (2003) considers strategy as the institutional sphere that deals mainly with the relationships between the organization and its environment. Mintzberg et al. (2001, p. 476) believes that «...the formation of the strategy contains the interpretation of the environment and the development of consistent models in the stream of organizational decisions.

The strategy has the following characteristics:

- it passes in its development two phases (development and implementation);
- it consists of the decisions for making it is necessary to analyze the resources and form common goals and possible variants of their achievements but do not take into account the limitations that arise in the implementation phase;
- it mainly concerns the external environment of the organization activity.

The strategy can be considered in two aspects at this time:

- 1) in the broad sense, a strategy is considered as a complex of interrelated measures to improve the competitiveness of the organization;
- 2) in the practical aspect, a strategy is a general long-term program or mode of actions in relation to the choice of priorities and the distribution of resources of the organization to achieve its objectives; thought-out set of rules and regulations that are in the base of development and making of strategic decisions affecting the future state of the enterprise».

Taken into account all of considered above it can be believed that the enterprise strategy is a program of actions which determines the orientations of activity of the enterprise on the basis of an assessment of its own potential and forecasting the development of the external environment.

## **1.2. Strategic planning in the system of strategic management**

The strategic planning process takes a central place in the system of strategic management. The majority of Western and Eastern firms use strategic planning in order to strengthen themselves to get

out from the bad situations that formed inside and outside of the organization. Finding out the essence of strategic management let's consider strategic planning and its place in the system of strategic management.

Strategic planning is one of the management functions as a selection of one from several alternatives in the conditions of uncertainty due to the influence of various external and internal factors. It determines how the organization should operate in the modern conditions to achieve the desired goal in the future, on the assumption that the environment will be changing. The strategic planning process in this case is due to the uncertainty of the future and necessity of changes in the objectives of the enterprise is due to the influence of external and internal environment.

Other authors define strategic planning as an integral process of preparation and decisions making of a certain type as the formulation of goals and determining ways to achieve them and as ensuring the readiness of the enterprise to the competitive struggle (Malinowski & Maslak, 2009).

Planning in the modern conditions of management is the process where the intellectual, intuitive and rationalist techniques are matched that makes it possible to combine formal and informal aspects of management to ensure the orderliness of measures for implementation of strategies to achieve these goals. In connection with the functional approach to management, planning that is necessary to determine meaningful and organizational depending on the conditions of functioning of the organization and the views of the leaders on the place, role and importance for the development of the organization (Ivanchuk, 2014).

«Plans' development as a specific type of activity is a sequential iterative process consisting of several interrelated stages:

- setting goals;
- the definition of strategies and measures for their implementation;
- the prediction of the sequence of actions within a fairly long period of time and incorporating it into plans, projects and programs of various types that are tools to achieve the objectives and implementation of strategies;
- the organization of performance of the planned tasks;
- accounting, control and analysis of their performance.

The period (temporal characteristics) of strategic planning depends on the type of organization, industry sector, level of uncertainty and dynamic environment» (Dovgan, Karakay & Artemenko, 2009, p 440).

Enterprise strategy is a base of strategic planning through which the complex problems of the company are associated with deliberate purposeful reorientation of output of a new range of appellation and assortment, implementation and use of new technologies, marketing development, improvement of a

structure of the enterprise management, timely and quality training and retraining of the personnel (Sylenko & Monakhova, 2001).

Strategic planning today has been developed by many entrepreneurs. In the conditions of unstable external environment you have to use a more powerful tool that could have the ability not only to put the company on a new, more effective level of management but also take into account the main objectives that are in front of it. One of such tools is a mechanism of strategic planning (Krocus, 2014).

In the opinion of the outstanding scientist Dovgan (2009) strategic planning in a broad sense is a process in which rational analysis of the formed situation and future possibilities leads to the formation of long-term strategies, objectives, activities, priorities and risks.

Nikiforov (2015) believes that strategic planning is an adaptive process by the help of which a regular development and correction of the system of rather formalized plans are carried out, reviewing of the content, measures as to their implementation on the base of continuous monitoring and evaluation of changes inside and outside the enterprise.

Also it can be indicated that strategic planning has a rate of uncertainty, temporary orientation of the planning process and a certain horizon of planning. Exactly strategic planning is a mode of defining and estimation of goals, trend of the enterprise development, the basis for making substantiated managerial decisions (Herchanivska, 2012).

Strategic planning foresees the system determination of goals and tasks that are connected between them and mutually agreed with an existing volume of potential resources. Strategic planning is efficient even in the conditions of dynamic changes of the market environment because it takes ahead into account the opportunities and treats of the external environment and allows the development of the several variants of the scenarios that can be in the case of necessity adjusted and adapted to the changes (Zub, 2012).

Strategic planning must include (Vasylenko & Tkachenko, 2003, p 385):

«- forecast (prediction the results of development) that are implemented under the influence of the existing factors;

- the main line of the behaviour of the company (mission) and objectives of management;
- ahead planning;
- control;
- coordination and management by the help of which deviations are eliminated from the results of the set goal.

Strategic planning must perform the following functions:

- to establish, execute and implement in the activities of the enterprise the elements of the strategy;

- to define perspective directions of development of the company, its principal activities;
- to form specific goals for the company in general and for each structural unit, in particular that are coordinated with the corporate or overall strategy;
- to encourage managers to deeper assessment and maximum considerations of the opportunities and threats in the external environment and its own strong and weak sides of the company;
- to create a basis for the rational allocation of limited economic resources.

Prerequisites for the application of strategic planning are:

- the necessity of the reaction to the changes of conditions of the enterprises' functioning;
- the need to consolidate different trends of the enterprise activity in the conditions of development of processes of decentralization and diversification (first of all conglomerate);
- internationalization of the business, development of partnerships with enterprises that use the strategic planning system;
- the availability of highly qualified managers that are able to solve complex questions, using a system of strategic planning;
- the availability of distinctly expressed competitive advantages and the need of their support by the enterprises that have them;
- the development of the theory and practice of strategic planning that help to move from the method of "trials and errors" to scientific methods of predicting and preparing for the future;
- the availability of information (global information networks) to study the strong and weak sides of the enterprise, the external environment and competition conditions;
- the necessity of implementation of high management culture focused on the prevention of resistance to changes and encourage the development of the enterprise».

Strategic planning requires the observance of three major conditions (Cherevko, 2013):

- the management of the enterprise is based on the principles of investment portfolio management. Each of the trends of the enterprise activity has a certain potential for getting the profit, in accordance with each the resources are shared;
- a thorough assessment of the prospects of each kind of activity, the study of indicators of market growth and the company's position in a particular market;
- a strategy for each business, a plan is developed to achieve long-term goals by the company. Every enterprise develops its own strategy considering the profile of activity, objectives, opportunities, skills and resources.

Based on the aforementioned prerequisites of applying of strategic planning, it can be said that strategic planning is the formalized effort of the entire enterprise aimed at the development and organization of the implementation of strategic plans (Koretsky, Degtiar & Datsii, 2007).

The implementation of the concept of strategic management is possible only when the company is strategically focused. That is an enterprise where the staff has strategic thinking, the strategic planning system is applied that allows to develop and to use strategic plans (Romaniuk, 2010).

Regarding the trends of the organization activity, then it must be stable for a long time since all strategic planning is focused on long-term perspective (Selsky, 2012).

«...Specific indicators are typical for each of the chapters of the strategic plan. The main indicators of the plans:

- marketing plan - amount and increase sales, market share and its changes, expenses and efficiency of the work of marketing services, prices and their dynamics, etc.;
- a plan from the production - output in physical terms: the cost, the level of production expenses, production efficiency, level of utilization the production capacity, level of quality (including certification), technical and organizational level of production, etc.;
- financial plan - profitability, advanced capital in turnover, capital structure, ratios liquidity, financial stability, etc.;
- staff plan - the number, structure, turnover, level and dynamics of salary, skill levels, etc;
- plan of scientific-technical level of developments, expenses, research and development, patent "purity" of the developments, level of scientific and technological potential etc.

The strategic plan should be: a tool of the documental design establishment and implementation in the daily activity of the «strategic set» of the enterprise; determined in terms, focused in the future; determined by the expenses; flexible that responds to the changes in the environment; clear, easy to understand; easy to explain and feasible for execution» (Dolzhanskiy, 2006, p 384).

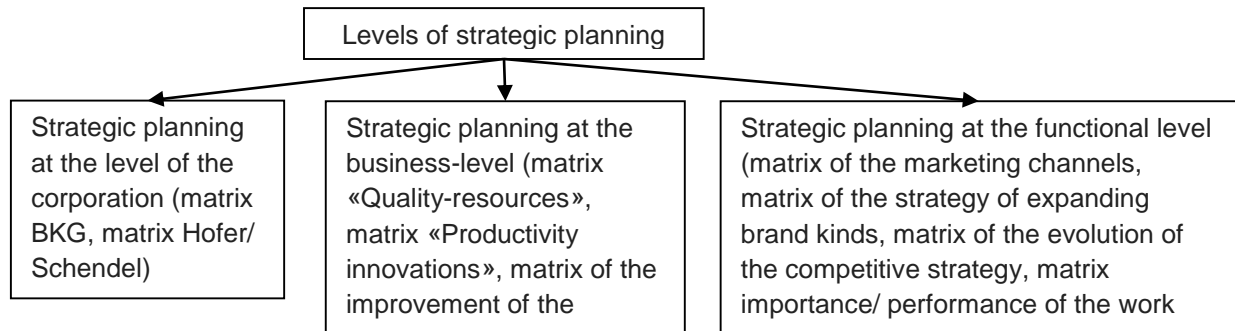
The sequence of development of the strategic plan of the enterprise is presented in (Table A.1, in Appendix).

The strategic plan must be justified by serious research and actual data. To compete effectively in today's business world, a firm must constantly collect a vast amount of information about industry, market, competition and other factors. The strategic plan gives to the firm definiteness, individuality and confidence in the future.

The firm defines and justifies the intention to achieve certain long term goals by strategic planning selecting an appropriate behaviour strategy and development. A strategic plan, in turn, acts as a tool

for identifying, documentation and implementation the activities of the enterprise the strategy elements (Kovtun, 2009).

Modern company has three administrative levels: corporate, business and functional levels (Figure 3).



**Figure 3.** Levels of strategic planning.

Source: Dovgan (2009, p. 399).

Such categories are widely used within the strategic planning: "product life cycle", the cycle of demand for the products that are manufactured, the period needed to achieve the goals and the like. All of this formed the need for more flexible approaches to the determination of planning horizons, the need for balancing of actions different duration to achieve the goals and also led to the need to enhance the role of strategic analysis in the enterprise activity. It is needed to identify clearly what areas and trends of the activity need long- and some medium-terms for their implementation in the specific conditions that have developed and will develop in the external environment. Thus the number available to the enterprise alternative options of development is increased resulting in a wider choice of activities in the long term perspective (Shershnova, 2004).

Benefits of strategic planning can be expressed as follows (Vasylenko & Tkacenko, 2003):

- 1) planning encourages managers to think in perspective;
- 2) it leads to better coordination of efforts that are undertaken by the firm;
- 3) strategic planning leads to the establishment of indicators for the following control;
- 4) it makes the firm more prepared for the sudden changes;
- 5) it demonstrates more clearly the relationships between governance and the responsibilities of all officials.

Strategic planning contains all main features and chapters – purchase, production, finance, marketing, human resources, research and developments.

The Ukrainian economists allocate the following features of strategic planning (Malinovskiy & Maslak, 2009):

1. The adaptive nature means that strategic planning should be rather flexible, easily adapt to unpredictable changes of the external factors. Overall strategic plan should be considered as a program that manages the activities of the company for a long time.
2. Subjective nature is based on assumptions, opinions associated with some degree of uncertainty and risk. The strategic plan should be supported by research and actual data. In order to compete effectively in the business world, a firm must constantly collect and analyze large amounts of market information activities.
3. The strategic plan should be developed from the point of view of prospects of the development of the entire organization but not a specific department.
4. The strategic plan should be supported by a strategic database».

To develop the right strategy you need to observe all the rules at each stage. Every employee of the enterprise must be familiar with the strategy of its activities and make maximum efforts for its implementation and the governance has to encourage employees for effective performance of strategic plans.

Basic approaches to strategic planning at the enterprise have a common goal – active adaptation to the environment, adaptation of the environment to the needs of the enterprise and also a few general stages of planning.

Strategic planning assesses the prospects of the organization, identifies the opportunities and threats of the external environment, the strong and weak sides of the internal environment and also analyzes changes in the competitive position of the organization in the market.

Strategic planning is directly related to the strategic management, it is characterized by the accounting priority of the external environment behaviour and gaining and maintaining a competitive advantage are considered as a means to achieve strategically significant results. The strategic planning process is a tool that helps to raise the reliability of management decisions.

Strategic decisions also in the sphere of planning are made and implemented in several stages, namely: setting objectives, developing of alternative solutions, selection (acceptance) of the decision and its implementation. The organization of this process requires the accurate technology that foresees setting objectives and the learning of the environment (this is the essence of strategic analysis), the development, acceptance and implementation of the strategy.

A detailed comparative table of the models of strategic planning (Kotovska, 2011) is used in planning at the manufacturing enterprise is presented in Table A.2, in Appendix.

A conceptual approach to strategic planning is based on the implementation of the five-level planning system. At the first level you can find the market and financial stability of the enterprise as a prerequisite for ensuring effective strategic development. According to the results of the carried financial analysis, the existing state of the enterprise can be characterized as critical, unstable and stable. Crisis or unstable states of the enterprise can lead to bankruptcy, so in the process of strategic management of the enterprises with unstable financial condition it is necessary to estimate the probability. The well-known models of bankruptcy forecasting are: methods of Altman, Biver, Pratt, Fulmer, Springate, five-factors model, four factors model of Taffler, methods of fuzzy sets, neural networks. On the second level the potential and the potential opportunities of the enterprise development are determined. The third level is characterized by the making choices of the strategic direction of the enterprise development. The fourth level is corresponded to the strategy implementation process. On the fifth and final level, the process of the realization of the strategy is implemented (Bondarenko, Panteleev & Dzhaparov, 2014).

Therefore, one of the most important reasons that limit the possibilities of regular strategic planning is the uncertainty of the market environment. The experience shows that organizations endeavor to establish control over the external environment that leads to the monopolization of the markets, inefficient pricing policy, the deficit, ignoring of the consumers' interests, etc.

At the same time the competitors begin to operate to oppose monopoly control over the market and demand. The organizations have to balance between the impact of unpredictable changes and threats from new competitors and the state.

Limitations are due to the expenses for organizing of planning and implementation of the strategy, in particular, on market research and the implementation of strategic changes. Obviously, any additional funds should be spent only when they create an additional positive effect. However, the problem is that the result obtained from the development strategy cannot be always quantified (Kindratska, 2006).

### **1.3. The role and importance of the implementation stages in the strategic management process**

The stage of the strategy implementation plays an important role in the implementation of the strategic management of the organization.

«...Among the main reasons that lead to failure are:

- inability to carry out the necessary changes through resistance of the workers;
- objectives, strategies and plans have not been brought to employees, so that they won't understand the tasks set before the firm and weren't involved to the process of implementation of the strategies;

- a failure of governance of timely receipt of all required resources to implement the strategy;
- imperfection of the system of monitoring the achievements of strategic decisions and timely making necessary changes;
- the lack of motivation system and proper environment responsibility;
- unconformity of the organizational structures to that changes that are planned by the strategic set.

The implementation of the strategy is aimed at achieving the following three objectives.

The first one is setting priority among administrative tasks so that their relative importance corresponded to that strategy that will be implemented by the organization.

The second is establishing correspondence between the chosen strategy and processes within the organization in order to orient the activity of the organization at the implementation of the chosen strategy.

The third is the choice and coordination with the ongoing strategy of leadership style and approach to the management of the organization.

All these three tasks are solved by the help of the changes. They are the core of the implementation of the strategy. The need and degree of changes depend on how the organization is ready to the effective implementation of the strategy. There are cases when the implementation of the strategy foresees very deep transformations» (Dovgan & Niemtsov, 2001, p 560).

The results of the activity of most firms depend on the efficiency of the taken actions and choice or rejection of determined strategies (Table 1).

**Table 1.** The matrix of results obtained depending on the type of actions and strategies.

| <b>The types of actions</b> | <b>Defined strategy</b>  | <b>Uncertain strategy</b>   |
|-----------------------------|--|---|
| Effective actions           | Defined strategy and effective actions have led to success in the past and will ensure success in the future.                  | Uncertain strategy but effective actions have led to success in the past but future success is in doubt.                      |
| Ineffective actions         | Defined strategy but ineffective actions sometimes worked in the past but the increased competition is expected in the future. | Uncertain strategy and ineffective actions have led to the failure in the past and the same result is expected in the future. |

Source: Sokyrynyk (2010, p. 114).

To the difficulties of strategic planning it can be attributed the stereotypical thinking of the old leaders, lack of information, complexity of foresight strikes, crises, political problems, etc.

Considering the implementation of the strategy in the context of the resource approach Kolles and Montgomery given in Sokyrynyk's article (2010) noted that the complexity of this process is associated with the coherence of an organizational configuration with the critical elements of the strategy. Special emphasis is given to the role of the head office of the corporation, the distribution of the resources and coordination of the actions among different businesses.

As components of successful implementation of the strategy these scientists identify the formation of an administrative environment that is defined by two basic principles: internal coordination and creation of the opportunities. It is also important to ensure the implementation of control strategies through the use of monitoring results, controlling behaviour or mixed control system.

Actions aimed at the successful implementation of the strategy are the coordination of work of the business units, moving resources and skills (rotation of the highly-qualified managers, purchase of raw materials, combining the distribution systems).

The implementation of the strategy with all the factors is necessary for its success. Directly the realization of the strategy includes implementation of the chosen strategy in practice, resourcing of the strategy, changes of the organizational structure and culture and such important part as management changes. As important constituent of the implementation strategy management changes are considered by Zaitseva and Sokolova. Directly to the content of this process they include preparations for the implementation of the strategy, creation of the infrastructure transition to a new state of research and readiness for changes, transition planning, and adequate use of the plan and management methods by the changes to achieve the objectives of the project, assessment of achieving changes. According to Johnson, Scholes key moments of the organizational work for the success of the strategy is to control, knowledge management and firm response to globalization, combining formal and informal structures and processes: relations to organization configuration where the listed items are agreed among themselves and meet key strategic objectives (Sokyrynyk, 2010).

Here are presented several «...strategies that predict a set of complex actions and their implementation contributes to socio-economic development of the enterprises:

1. Survival strategy or limited growth. It is chosen by those businessmen who have already entered to the occupied market niche with a certain business concept which provided better way to satisfy existing customers' needs than the competitors.

2. Growth strategy. It is possible under conditions of a finding by businessman a free market niche where the demand is only formed, and the stability of it will depend on the product unique and severity of the consumers' needs in it. If the unicity of the product has led to a natural monopoly to the owner of the business, the development strategy of an enterprise will depend primarily on his ambitions and financial capabilities. If they match, the business has a reasonable basis for the development and business plans are adjusted by the businessman towards the expansion of the scale.

3. The strategy of innovative growth. The entrepreneur strives to make his business more efficient, increasing return on invested capital through the creation and implementation of innovations. But mostly it needs considerably more funds than is in small businesses. Under these circumstances, the entrepreneur is looking for a way to increase his resource potential and reduce risks associated with implementation of innovations.

4. Dependent strategy. It is chosen when the entrepreneur cannot implement the innovative variant of development because he is not able to create innovations that provide significant competitive business advantages. At the same time, the products manufactured by such businessman, is an important resource for the operation of powerful enterprises, making possible a continued cooperation» (Oprysok, 2001, p 13-14).

«...Work on the implementation of the strategy at first refers to the sphere of administrative tasks which includes the following highlights (Thompson & Strickland, 1998, p 576):

1. The creation of the organizational capacities for successful implementation of the strategy.
2. The budget management with a view to profitable allocation of funds.
3. The definition of the company policy, ensuring the implementation of the strategy.
4. The motivation of employees to work more effectively; if necessary, modification of their duties and the nature of the work to achieve the best results in the implementation of the strategy.
5. The creation of a positive atmosphere within the company for successful execution of the set goal.
6. The creation of internal conditions that provide for the company staff daily conditions for the effective performance of their strategic roles.
7. The use of the best practices for continuous improvement of the work.
8. The providing of the internal governance necessary to promotion towards the way of strategy implementation and control over how the strategy should be implemented».

In the process of implementation of the strategy, each level of management solves its own specific tasks and performs assigned to them functions. The most important role belongs to the senior management. Its activity at the implementation of the strategy can be represented in the form of five successive stages.

The first phase is an in-depth study of the environment, goals and developed strategies. At this stage the following main tasks are solved:

- the final elucidation of the essence of certain goals, strategies, their correctness and conformity to each other, as well as the state of the environment. So the final approval for the implementation of the strategies is given;

- wider bring of the ideas of strategies and contents of the goals to the employees of the company to prepare the soil for in-depth involvement of employees in the process of implementing the strategies.

The second stage is that the senior management must decide on the effective use of existing in the company resources. At this stage the estimation of the resources is being carried out, decisions are made about their distribution, as well as involving of the employees in the process of implementing the strategies. The important task which is being solved at this stage is to bring the resources in accordance with the strategies implemented.

In the third stage, the top management makes decisions about the organizational structure. It turns out the conformity of the current organizational structure accepted to implementation by the strategies and, if necessary to make appropriate changes to the organizational structure of the firm.

The fourth stage involves the performance of the necessary changes in the firm without which it is impossible to proceed to the implementation of the strategy. Changes cannot be carried out without accounting of the objective factors that specify the conditions and opportunities of carrying out such changes. Often it is required several years in order to carry out a serious change at the company.

For successful carrying out the changes the senior management, regardless of type, nature and content of the changes should:

- make the scenario of possible resistance to the changes;
- carry out activities with the aim of weakening the desire for resistance to the changes;
- eliminate or reduce to a minimum real resistance;
- consolidate the carried out changes.

The fifth stage of the participation of the top management in the implementation of the strategy is that it must carry out the revision of the plan of implementation of the strategy in that case, if it is required by the circumstances. Strategic plan of course can and should in certain circumstances be subject to modification.

When measures are developed for the implementation of the selected strategies management must:

- set the priorities among administrative tasks in order that their relative importance corresponded to the strategy which will be implemented by the organization. This concerns primarily such tasks as distribution of the resources, establishing organizational relationships, creating supported systems, etc.;
- establish correspondence between the chosen strategy and the internal organizational processes in order to orient the activities of the organization at the implementation of the chosen strategy. The accordance must be achieved by such characteristics of the organization as its structure, system of motivation and stimulation, norms and rules of behaviour, values and beliefs, qualification of employees and managers, etc.;

- make a choice and bring into accordance to the chosen strategy of leadership style and approaches to the management of the organization. All three objectives are solved by the changes that are in fact the core of the implementation of the strategy.

The restructuring of the organization suggests a fundamental change of the organization with regard to its mission and organizational culture. In the case of restructuring the organization the greatest difficulties arise with the implementation of the strategy. The most serious attention deserves the work on creation of a new organizational culture. Big changes occur also in the technological area as well as in the sphere of workforce.

A radical transformation of the organization is carried out at the stage of implementation of the strategy in that case if the organization does not change the industry but the fundamental changes caused by, for example, its merger with a similar organization.

Moderate conversion occurs when the organization enters a new product into the market and tries to win for its buyers. In this case the changes are related to the production process and also marketing, particularly in that part of it which is related to drawing attention to the new product.

Typical changes are related to the transformations in the marketing field in order to maintain interest in the product organization. These changes are not substantial and have little effect on the activity of the organization as a whole.

Indispensable operation of the organization is when it constantly implements one and the same strategy. In this case at the stage of implementation of the strategy any changes are not required to carry out because under certain circumstances an organization can get good results on the basis of experience. However this approach is very important to monitor closely for the possible undesirable changes in the external environment (Niemtsov & Dovgan, 2001).

«...Strategic management must create the prerequisites for the successful strategy implementation and monitoring, performed of its controlling function. The main factors of the default management strategies are: lack of transforming strategic goals of the businesses into distinct individual planned objectives; focusing on short-term results; uncertainty of the key processes - the drivers of profitability and market value of the enterprise; inconsistency of personal goals, wages, training, creation of knowledge, competence level and skills with the implementation of the strategy; orientation of the estimation system at the control of the short-term production efficiency and only at the financial Indices» (Mozenkov, 2009, p 121).

Thus, the objectives of the implementation the strategy are the most complex and consuming part of strategic management. This goal is almost across all levels of management and should be included in the most of the enterprise departments. The specific implementation of the strategy begins with a thorough analysis of what the company should do differently and better for the successful implementation of the strategic plan.

## **2. Research Methodology**

### **2.1. Objective of the study**

Considering the priority of instruments and equipment construction as a strategically important area of industry of Ukraine, the market for instrumentation requires continuous monitoring and identification of key factors of influence.

The main objective of study is strategic analysis of PJSC «Elektrotermometriya», formation ways to improve the strategic management of the company with regard to the readiness of the company to strategic changes and conducting of developments and recommendations for improvement activity of the enterprise. And also the results of developments can be applied in practical activity of enterprise.

The form of the development and presentation of economic strategy of the firm that is a form of identifying strategic aspect of its activity that assesses the economic opportunities of the firm in achieving the long-term goals based on a certain (chosen) strategy behavior and the development is the planning.

Enterprise strategy is a base of strategic planning through which the complex problems of the company are associated with deliberate purposeful reorientation of output of a new range of appellation and assortment, implementation and use of new technologies, marketing development (Sylenko & Monakhova, 2001).

Nowadays strategic planning is one of the most important managerial technologies, the usage of which gives the opportunity to achieve the coordination of the actions of the enterprise departments with an implementation of strategic goals, raise the opportunities in the providing necessary information, promote the rational distribution of the resources, improve the activity control (Malinovskiy & Maslak, 2009).

## 2.2. Description of Data Collection

The information base for the study are materials of the State Statistics Committee of Ukraine, materials of own observations, industry information, business press and financial and economic reporting of PJSC «Elektrotermometriya».

In the process of data collection, it was used:

- Research and analysis of documents;
- Monitoring the activities of the company;
- Interviews with experts and management personnel, between 10 of July and 21 of August 2015.

The value of documentary sources for the study and the need for their use are determined by the fact that the flow of documentary information includes all areas of activity of the modern enterprise, describes the processes at different levels of government and their dynamics.

Through observation it has been studied and recorded the situation without communications, visited office space, observed the procedures, operations and processes. A special attention was paid to activities related to innovations and operation of the department of marketing and foreign economic activity.

Using the surveys it can be received information that is not always reflected in the available documentary sources or direct observation. It is easier to processing and analysis that makes possible its usage. That's why this method was the main in our research. Results of the survey of experts and scoring are widely used as a source of data collection and analysis.

These experts' surveys helped to analyze the environment and identify threats and opportunities that arise during the activity, and assess the impact of factors on the enterprise in points.

As for direct impact to the environment, the comparative expert assessment of qualitative and quantitative indicators of enterprise and compiled on the basis of it profile of polarities helped identify advantages PJSC «Elektrotermometriya» over major competitors.

Management staff defined the strengths and weaknesses of the company long time ago. Expanding and evaluating them through observation and study of documentation it is concluded that this company should maximize the effectiveness their strengths to improve the final results of its functioning.

The main object of gathering information was department of marketing and foreign economic activity. Management of department reported that marketing information is the basis for making decisions concerning the development of new or improvement of existing products and introduction of other innovations to improve the competitiveness of production of PJSC «ETM» in the market.

Also, received information gives reason to upgrade product, expanding the range, development and introduction of new products which can significantly improve the competitive position of PJSC «ETM» in the market in the future that is the source for the introduction of product innovations.

### **2.3. Description of Data Analysis**

The basis for building of recommendations for the implementation of strategic decisions and long-term goals it was used a SWOT - analysis. It allows a detailed study of external and internal environment. The result of SWOT - analysis, aimed at the formation of a generalized information potential became the effective decisions regarding the reaction of enterprise to the environment.

SaO field (strength and opportunities) suggests strategies that use the strengths of the company to realize opportunities that appeared in the external environment.

SaT field (strength and threats) suggests strategies that use the strengths to eliminate threats in the external environment.

Field WaO (weakness and opportunities) suggests strategies that minimize the weaknesses of the company, using the opportunities in the market.

Field WaT (weakness and threats) suggests strategies that minimize the weaknesses of the company as well as threats that appeared in the external environment.

Based on a SWOT matrix, to formulate strategic problems of the enterprise and strategic alternatives for its development, we will establish and analyze paired combinations of all the strengths and weaknesses of the company with the opportunities and threats in the external environment, focusing on the assessment of the significance of these factors in points.

According to this data PJSC «ETM» has many alternatives in the formation and implementation of the strategy of the activity. Thus each alternative is explained by a combination of strengths, weaknesses, threats and opportunities for the company in its matrix of SWOT-analysis.

Based on conducted research it is justified the basic strategy for achieving the strategic goal of PJSC «ETM». Thus, using expert assessment was chosen primary strategy by the optimistic, most likely, and pessimistic forecasts. The highest scores experts put those strategies, which they prefer at each forecast. Adds up evaluation, was chosen the main strategy of the enterprise and innovation, marketing, production, finance and business strategy within the base.

Further, the experts were given the proposed questionnaire (Table 2), and by the answers was identified the readiness of the company to changes.

**Table 2.**Questionarie of experts.

| The evaluation criteria  | The scale of assessments, points                     |   |   |   |   |   |   |   |   |          |    |
|--|--|---|---|---|---|---|---|---|---|----------|----|
|  | 0  | 1 | 2 | 3 | 4 | 5   | 6 | 7 | 8 | 9        | 10 |
| 1. Objectives of activity  | Undefined  |   |   |   |   |   |   |   |   | Defined  |    |
| 2. Development strategy  | Absent   |   |   |   |   |   |   |   |   | Present  |    |
| 3. Methods of strategies forming   | Used incomplete                                      |   |   |   |   | Used regularly, based on analysis and forecasts                       |   |   |   |          |    |
| 4. Identification of priority of strategic approach to management              | Priority of operational management                   |   |   |   |   | Priority of strategic management                                      |   |   |   |          |    |
| 5. Strategic thinking of managers  | Unformed   |   |   |   |   |   |   |   |   | Formed   |    |
| 6. Competence of personnel in strategic management                             | Low  |   |   |   |   |   |   |   |   | High     |    |
| 7. Plans and their implementation  | Absent or unsystematic, unfinished                   |   |   |   |   | Developed by research, forecasts, interrelated, strategic             |   |   |   |          |    |
| 8. Flexibility and adaptability of enterprise                                  | Don't meet the requirements the external environment |   |   |   |   | Meets the requirements the external environment                       |   |   |   |          |    |
| 9. The desire of enterprises for innovations                                   | Traditional style of behavior                        |   |   |   |   | The business behavior style   |   |   |   |          |    |
| 10. The answer to the actions of competitors                                   | Absent   |   |   |   |   |   |   |   |   | Present  |    |
| 11. The nature of the action in a situation which is identified as the crisis  | The atmosphere is tense, paralyzed work              |   |   |   |   | Working in normal mode, the maximum consolidated activity of managers |   |   |   |          |    |
| 12. Compliance of the organizational structure with strategic management tasks | Doesn't comply                                       |   |   |   |   |   |   |   |   | Complies |    |

Source: Author's own elaboration.

Thus the conclusions regarding the readiness to changes it is offered to formulate using the following scale:

- 0-40 - low readiness;
- 41-80 - medium readiness;
- 81-120 - high degree of readiness.

Then, combining the results of SWOT - analysis and the readiness for changes was identified basic strategy of enterprise development and achievement the long-term goals.

And the final step was the establishment of recommendations for implementation of the enterprise DSS in accordance with submitted by leadership information due existing subsystems of the service and its functions.

### **3. Presentation and Analysis of Results**

#### **3.1. Estimation of market trends of instruments and equipment construction development**

To research the market trends it is needed to make frequent monitoring, identification of key impact factors to identify the basic laws of instruments construction development and enable the prediction of changes in the industry.

It is appropriate to say that demand for products of instruments construction has mostly secondary character, that's why sales volumes depend on effective demand of the chemical, metallurgical, machine-building industries enterprises, of the general market conditions and the economic situation in the country. As market conditions are constantly changing, there becomes a necessity to periodically analyze the current situation and prospects of the industry development.

In the research of the main trends of the machine-building industry development it is necessary to note, that during last years domestic instruments construction had a significant influence by financial crisis, indices of industrial products of absolutely all industries of Ukraine significantly decreased (Table 3).

From Table 3 it could be seen that engineering grows slightly faster than the industry as a whole. In particular industry in 2009-2014 increased by 8.1 points and engineering - by 29 points, which is a positive for the industry.

The main consumers of industrial of control devices and systems are metallurgy, engineering, chemical, food, nuclear power enterprises, fuel and energy sector, water utilities etc.

**Table 3.** Indices of industrial output by types of activities (In constant prices, per cent).

| Types of activities   | Year  |       |       |       |      |       |
|---|-------|-------|-------|-------|------|-------|
|   | 2009  | 2010  | 2011  | 2012  | 2013 | 2014  |
| Industry  | 103.1 | 106.2 | 107.6 | 94.8  | 78.1 | 111.2 |
| Engineering   | 107.1 | 111.8 | 119.0 | 100.3 | 55.1 | 136.1 |
| Machine-building  | 112.2 | 102.9 | 103.0 | 98.2  | 62.4 | 121.1 |
| Manufacture of electrical, electronic and optical equipment | 90.8  | 110.7 | 129.1 | 93.2  | 71.8 | 124.2 |
| Production of vehicles and equipment                        | 112.4 | 119.1 | 130.0 | 105.7 | 42.1 | 161.9 |

Source: (ukrstat.gov.ua).

The main consumers of industrial of control devices and systems are metallurgy, engineering, chemical, food, nuclear power enterprises, fuel and energy sector, water utilities etc. There are widely using thermometry devises are used not only in everyday life, but also provide control of processes in all types of industrial activities, such as chemical, metallurgy, machine-building and others. The volume of product sales by main consumers is presented in Table 4.

**Table 4.** The volume of product sales by main consumers, mil. UAH.

| Industries  | Years    |          |          |          |          |
|---|----------|----------|----------|----------|----------|
|   | 2010     | 2011     | 2012     | 2013     | 2014     |
| Food Industry   | 109959.9 | 139892.4 | 159550.1 | 192154.1 | 166608.8 |
| <i>Increase %</i>   | 28.1%    | 27.2%    | 14.1%    | 20.4%    | -13.3%   |
| Chemical and petrochemical industry                       | 43911.4  | 55576.4  | 48473.6  | 62303.9  | 79397.1  |
| <i>Increase %</i>   | 24.6%    | 26.6%    | -12.8%   | 28.5%    | 27.4%    |
| Metallurgy  | 157450.5 | 202034.6 | 141498   | 199901.3 | 226842.2 |
| <i>Increase %</i>   | 30.5%    | 28.3%    | -30.0%   | 41.3%    | 13.5%    |
| Engineering   | 98339.9  | 121780.4 | 85833    | 116348.5 | 134815.2 |
| <i>Increase %</i>   | 43.1%    | 23.8%    | -29.5%   | 35.6%    | 15.9%    |
| Production and distribution of electricity, gas and water | 130565.4 | 162813.7 | 180041.5 | 227630.4 | 200994.3 |
| <i>Increase %</i>   | 29.0%    | 24.7%    | 10.6%    | 26.4%    | -11.7%   |

Source: (ukrstat.gov.ua).

Control devices market development is dependent by gasification of the country, what causes demand for gas meters and pressure control devices for gas, which provide a transition from the high pressure to the low pressure of gas, what then is using directly by consumers.

The negative factor of influencing the development of the industry of gas control devices and systems is a significant increasing in natural gas prices and leading the hard regime of saving gas in the Ukraine. It should be noted, that big term of exploitation of gas control devices and systems promotes slowing of demand.

Considering the dynamics of the main indicators of the market (Figure A.1, in Appendix).it should be said, that it can be seen the negative trend of all the Indices only in 2012, when volumes of consumption and personal incomes of population decreased. In 2013 it can be seen the decreasing of volumes of export, import and market capacity. But the volumes of production in natural terms increased in 10.3%.

Looking at market trends in terms of money (Figure A.2, in Appendix) it is recognized, that the decreasing of volumes was only in 2012, when market capacity decreased in 22.8%, import in 24.2% and production in 3.7%. But volumes of export increased in 46.4%. After all, in 2011 owing to increasing of volumes in terms of money it can be seen the increasing of prices of devices and instruments. In 2014 volumes of production increased in 4.3%, import in 55.2%, export in 29.6% and market capacity in 23.5%.

Exploring the market capacity of control instrumentation it can be seen of the target groups of goods on the Table 5.

The segment of gas meters and electricity character characterize by increasing of capacity in 2014 to 73873 thousands UAH and 397590 thousands UAH concordantly. Market capacity of water meters, conversely, decreased from 201163 to 181846 thousands UAH. Decreasing of the prices of gas pressure regulators also contributed to decreasing of their capacity to 10667 thousands UAH.

The market of control devices and instrumentation consists of the following main segments: thermometry segment, the segment of gas pressure regulators, gas meter segment, the segment of water meters, electricity meters segment.

**Table 5.** Capacity of instruments and equipment construction market of Ukraine in 2012-2014 in terms of product groups, in terms of money, UAH thou.

| Devices                 | Years   |         |         |
|-------------------------|---------|---------|---------|
|                         | 2012    | 2013    | 2014    |
| Thermometers            | 18485   | 85026   | 102979  |
| Gas counters            | 53070   | 31424   | 73873   |
| Water meters            | 123090  | 201163  | 181846  |
| Electricity meters      | 345321  | 351400  | 397590  |
| Gas pressure regulators | 6463    | 12394   | 10667   |
| Other                   | 2394066 | 2726692 | 3442316 |
| Total                   | 2940495 | 3407798 | 4209269 |

Source: (ukrstat.gov.ua).

In the segment of devices thermometry the market leader is a domestic producer PJSC «Skloprylad», which in 2014 took a part of market of 16.1%. The second place in the ranking of the major operators takes the Chinese company Wuxi HongGuang Medical Equipment Co., Ltd with a part of market of 12.9%. Top three closes also the Chinese company Ningbo Yonggang Instrument Co., Ltd. (11.1%).

Also among the major operators in the segment of thermometry devices should identify such companies, as Medicare Trade Limited, PJSC «Termoprylad», HONGQI INSTRUMENT CO. LTD, PJSC «Elektrotermometriya».

The market of gas pressure regulators is represented by the small number of operators. Herewith, the undoubted leader is a domestic producer PJSC «Elektrotermometriya», which takes 68% of market.

The leaders of gas meters segment are domestic enterprises: state-owned enterprise «Novator» with 36.5% of market, PJSC «Aktarys-Ukrigas Meters Company» with the market part of 28% and PJSC «Instruments construction plant of Yampil» with 14.9% of market.

The leaders of water meters market are also Ukrainian enterprises, which in total take a part of 81.7%: PJSC «Elektrotermometriya» (40.8%), state-owned enterprise «Novator» (26%) and state-owned enterprise «Association Komunar» (14.9 %).

Among the foreign producers the largest are PRECEDENCE INDUSTRY CO., NINGBO YONGGANG INSTRUMENT CO and APATOR POWOGAZ SA.

At the electricity meters market the leaders are «Nik-Electronics» LLC (28.9%), which is the leader of a market. The second place takes the state-owned enterprise «Association Komunar», with the part of market – 25.7%. «Telekart-Prylad» LLC, PJSC «Merydian» and «Telecommunication technologies» LLC take parts of 8.3%, 6.9% i 6.4% accordingly.

Among the foreign producers the largest are ADD PRODUCTION SRL, EMH Metering GmbH & Co. KG, Itron Inc. The part of other operators is 10.8% of the market.

The market of control devices and instrumentation can be divided for two segments: market of household instrumentation and industrial equipment market.

There are some risks at the market of control devices and instrumentation, which can cause the negative situations at the market:

1. Risks of consumption: Development and growth of the market of devices depends on the growth of consumer markets. Thereby, decrease in demand for products, produced by major industries, can have an influence to decrease in demand for control equipment.

2. Currency risks: Currency fluctuations, the unstable situation at the foreign exchange market have a negative effect on the market of control equipment of Ukraine. Thus, there is a risk of price volatility.

3. Custom risks: So, as the main products, which are represented in the market era imported, there are risks of delayed deliveries of devices and instrumentation to Ukraine, what can cause the unforeseen expenses for Ukrainian participants.

All factors of influence at the control equipment market are shown in Table A.3, in Appendix.

The main methods to solve all problems and risks in industry development are to increase the volumes of production by expansion of sales markets of the current products and to explore the new products and innovations.

### **3.2. Analytical research of the strategic management system of PJSC «Elektrotermometriya»**

PJSC «Elektrotermometriya» is working in the instruments and equipment construction area and makes contact thermometry devices based on platinum and copper thermocouples, devices for water accounting in diameters 15, 20, 40 mm, gas pressure regulators. Since the question of the limitation of resources is very appropriate, it is obvious the perspective of production equipment, which are directed at economical use of water resources. Also the gasification continues in the country, but namely the gas pressure regulation devices, which provide a transition from the high pressure to the low pressure of gas, which then is using directly by consumers.

Thereby, the main products which are produced by PJSC «ETM» are:

- contact thermometry;
- cold and hot water meters;
- gas pressure regulators.

The object of activity is the development, production, sale and service of contact thermometry devices for all sectors of the economy, energy metering, metrology and testing equipment.

The management structure of PJSC «ETM» is linear –functional (Figure A.3, in Appendix).

The main technical and economic indicators of activity are represented at the Table 6.

After analyzing the main technical and economic indicators of activity PJSC «ETM» in 2012-2014 it can be made some conclusions. Production output in 2013 increased comparing with 2012 in 12.52%, but in 2014 this index decreased in 17.14% because of decreasing of meters production. As a result of decreasing in production and sales there was decreasing in costs of sales in 2014 in 16.72% comparing with 2013. Also it can be seen increasing in revenue from sales in 7.47% in 2013 to compare with 2012. But in 2014 there was the decreasing in revenue from sales in 18.73%, instead of 2013, which resulted the increase of net loss. Due to the decreasing of the value of the gross profit in 2013 in 3.62% comparing with 2012, there was a reduction of product profitability in 12.28%. And in 2014 instead of 2013 due to the decreasing of gross profit value in 47.37%, the profitability of production decreased in 36.0%, and now it is only 3.2%.

At the same time it can be seen gradual increase of the average value of fixed assets of PJSC «ETM» in 2012-2014. However, the negative trend is the growth of the coefficient of their depreciation, which value in 2014 was 61.66%, what indicates the physical and moral obsolescence of fixed assets, which influencing on productivity and product quality.

**Table 6.** The main indicators of economic activity of PJSC «ETM» in 2012-2014.

| Indices  | Units of measure | 2012    | 2013    | 2014    | growth rates (downturn), % |           |
|--|------------------|---------|---------|---------|----------------------------|-----------|
|  |                  |         |         |         | 2013/2012                  | 2014/2013 |
| 1. Production output                           | thousand. UAH.   | 578867  | 65136.4 | 53972   | 112.52                     | 82.86     |
| 2. Cost of sales                               | thousand. UAH.   | 59626   | 64453   | 53313   | 108.10                     | 82.72     |
| 3. Net revenue from sales                      | thousand. UAH.   | 62999   | 67704   | 55024   | 107.47                     | 81.27     |
| 4. Gross profit                                | thousand. UAH.   | 3373    | 3251    | 1711    | 96.38                      | 52.63     |
| 5. Net income                                  | thousand. UAH.   | -427    | -1810   | -2619   | x                          | x         |
| 6. Return on sales                             | %                | 5.7     | 5.0     | 3.2     | 87.72                      | 64.00     |
| 7. The average value of assets                 | thousand. UAH.   | 47182   | 48525.5 | 50489   | 102.85                     | 104.05    |
| 8. Coefficient of depreciation of fixed assets | Coef.            | 0.60    | 0.627   | 0.616   | 104.50                     | 98.34     |
| 9. Number of employees                         | people           | 1125    | 1039    | 947     | 92.36                      | 91.15     |
| 10. Payroll fund                               | thousand. UAH.   | 19226.1 | 19937.5 | 19307.0 | 103.70                     | 96.84     |
| 11. The average salary per employee            | UAH.             | 1424.2  | 1599.2  | 1697.8  | 112.29                     | 106.24    |
| 12. Average receivables per year               | thousand. UAH.   | 3566.5  | 2720    | 1681    | 76.27                      | 61,80     |
| 13. Average payables per year                  | thousand. UAH.   | 3983.5  | 1237    | 4859    | 31.05                      | 392.81    |

Source: <http://smida.gov.ua>.

Because of streamlining and automating of production it can be observed the annual decrease in the number of employees in 7.64% in 2013 comparing with 2012, and in 8.85% in 2014 instead of 2013. At the same time the salary of employees at the plant is growing, in particular in 2014 it grew in 6.24% comparing with 2013.

One of the most effective directions to increase the efficiency of enterprise activity is to ensure its active and continuous innovative development. Herewith, innovation is a basis of competitiveness of industry enterprises, and their products and services.

*Product innovations:* During 2007-2014 the best activity in introducing of product innovations is shown in 2009. At this period PJSC «ETM» mastered production of two new products (A and B<sup>1</sup>):

- «A-10» - gas pressure regulator for buildings gas supply, destined to reduce medium pressure gas to low, and automatically support the output pressure at a given level.

<sup>1</sup> A is a code of product.

- «B-20/6» - combined gas pressure regulator.

In 2008 enterprise introduced the protector for «ПТГБ-10» against adverse external conditions, which improved its exploitation characteristics.

In 2009 PJSC «ETM» mastered 2 new types of devices: counter «C-1.5» with plastic body and filter «D-20». Production of water meters with plastic body allowed the decrease of their cost and, as a result, their price. Herewith, the enterprise expanded the assortment of water meters.

In 2010 the enterprise conducted work of for the mastering the heat energy counter «E-1».

In 2011 PJSC «ETM» continued to work of the development of heat energy meter. The cost of production preparation totaled 100 thousand UAH.

During 2012-2014 because of a crisis in the company and the scarcity of financial resources enterprise didn't explore new types of products.

*Process innovations:* PJSC «ETM» made and developed some innovations, such as:

- in the last 5 years enterprise put in exploitation foundry station, what is valued in more than 5 million UAH.<sup>2</sup>

- in 2008 PJSC «ETM» organized line of details sealing. The cost of implementation of this scientific and technological activity was 53.25 thousand UAH. But economic effect because of this innovation reached 73.4 thousand UAH.

In the period from 2009 to 2014 company didn't provide new improvement of technological processes.

*Organizational Innovations:* Last time PJSC «ETM» implemented organizational Innovations in 2008. Their introduction was related with organization of sealing details line. At the same time there were changes in the organization of work places, caused by transition from manual processing of devices to automatic with using liquid glass.

Also in 2012 were implemented some changes, but they were mostly formal. PJSC «ETM» removed their representative offices in cities of Ukraine. Actually, sale of products is carried by the same offices, but now they work as sales intermediaries.

*Mission and strategic goals of the enterprise:* The process of strategic management in PJSC «ETM» includes the following elements: definition of the mission, elaboration of main goals, analysis of the external and internal environment and establishment the strategy of activity. Grouping and supplementing these positions according to current requirements of market economy there is the general mission of the company - increasing the economic power of instruments and equipment construction area of Ukraine through the production and realization of quality products to satisfy the needs of the population.

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<sup>2</sup> B, C, D, E are the codes of products.

Considering, that at this moment in activity of PJSC «ETM» are observed crisis, as evidenced by the deterioration of the financial activity, the main strategic goal of the enterprise in the near future have to be the gradual increasing of profitability.

Based on the goal of enterprise it is formulated its main targets. To achieve the target it's necessary to prove it to each level and performer in the enterprise, to determine the contribution of each employee in the strategic success of the enterprise. It can be achieved by decomposition of targets and objectives, building «targets tree», where will be set the concrete tasks, which are the basis of specific types of work.

*Characteristics of macro factors influence in the enterprise:* All macroeconomic factors, influencing on the activity of PJSC «ETM» can be combined into the following groups:

A - Economic factors:

- a) the expected price dynamics: unstable prices, trend to growth.
- b) level of welfare of the people is low;
- c) rate of inflation: expecting increase in 7-10%;
- d) tariffs: limitations on import or export (excise);
- e) the amount of taxes: 20-25%.

B - Political and law factors:

- a) political stability: noted as uncertainty;
- b) laws of the country in relation to the product;
- c) necessity to adapt to the country: measurement system, size, presence of toxic elements, using the various materials.

C - Socio-demographic situation:

- a) social situation: noted as complexity;
- b) demographic situation;
- c) peculiarities of cultural environment during adaptation the products: cultural environment hasn't an influence.

D - Scientific and technical environment is the scientific and technical progress, which is manifested in new technologies and equipment.

Summary results of assessing the impact of macro factors to PJSC «ETM» are represented in Table A.4, in Appendix. Herewith, assessment of the nature of influence performed by the following scale: +1 point is positive effect, -1 point is negative effect. Assessment of degree of influence of factor to the

enterprise performed by an expert way according to the following a scale: 3 points – strong influence; 1 point – a weak influence; 2 points – medium influence; 0 – lack of influence.

During the analysis was identified a number of opportunities and threats from the external environment, which requires mobilization of efforts the enterprise. It will be presented a list of these opportunities and threats, and also possible variants of actions of enterprise, directed to maximize the efficiency of using the possibilities of enterprise and minimizing the negative influence of threats at the Table 7.

Unfortunately, most threats of macro environment are not exposed to regulation by the enterprise. However, PJSC «ETM» should take some actions to decrease the negative impact of these threats.

*Analysis of the immediate environment (microenvironment):* Research of the immediate environment is appropriate to make by the following areas: analysis of consumers, suppliers analysis, analysis of competitors.

The main customers of products of PJSC «ETM» are:

- enterprises of water and gas;
- companies and organizations which are consumers of water and gas and require its accounting;
- individuals - consumers of gas and water;
- enterprises of the chemical, machine building industries, metallurgy/

Very important issue during organization of production in PJSC «ETM» is to establish an uninterrupted supply of raw materials. This enterprise depends on the speed and quality of supplies, because the absence of high quality raw materials creates downtime. That's why PJSC «ETM» pays great attention to establishing the long-term mutually beneficial relationships with its suppliers.

To ensure the constant delivery of raw materials and avoid the price pressure from suppliers, company signs with all suppliers long-term contracts for five years, and at the end of the term, if the suppliers can be considered as reliable, continues to work with them.

Suppliers of PJSC «ETM» are Ukrainian and foreign metal processing enterprises and producers of spare parts. The main ones are: PJSC «Colourmetprokat» (Kharkiv); PJSC «Dnipropetstal» (Zaporizhzhia); PJSC «Trading house KKPK» (Obuhiv).

It was analyzed the main competitors of PJSC «ETM»:

*Contact thermometry:* In Ukraine, the main competitors in this type of products are: AOZT «TERA», Chernigiv; PJSC «Termoprylad», Lviv. Among foreign competitors should say about the following companies from Russia: LLC «Termoavtomatyka» (Moscow); OJSC «Teplopribor» (Chelyabinsk).

**Table 7.** The list of opportunities and threats of macro environment of PJSC «ETM».

| <b>Factors of macroenvironment</b>  | <b>Degree of influence of factor</b> | <b>Possible courses of action the enterprises</b>   |
|---|--------------------------------------|---|
| <i>1. Possibilities</i>   |                                      |   |
| 1.1. Increase the scale of government support the industry                            | 1                                    | Active participation in the implementation of relevant government programs to support the industry            |
| 1.2. The stabilization of market conditions   | 3                                    | Contracts with new customers and suppliers, to increase production  |
| 1.3. Increasing the level of control and regulation by the government                 | 2                                    | Lawful activities   |
| 1.4. The proper level of state policy in the field of training for the industry       | 2                                    | Attraction of qualified employees   |
| 1.5. Increase in the number of potential customers                                    | 3                                    | Access to new market segments   |
| 1.6. Availability of necessary labor force  | 3                                    | Ensuring the personnel in the required quantity   |
| 1.7. Compliance with qualifying characteristics of employees                          | 2                                    | Ensuring appropriate qualification of employees   |
| 1.8. The probability of the appearance of technological innovations                   | 3                                    | The introduction of new production and control technologies   |
| 1.9. Increase the proportion of high technologies in production                       | 2                                    | Increasing the level of quality and competitiveness of products   |
| 1.10. Increased the requirements for scientific and technological level of production | 2                                    | Production in accordance with the growing demands from the side of the innovation environment                 |
| 1.11. The advantageous territorial location of raw materials                          | 3                                    | Saving of resources and reduction of production costs   |
| <i>2. Threats</i>   |                                      |   |
| 2.1. Increasing the tax pressure  | 3                                    | This macroenvironment factor is uncontrolled by the enterprise  |
| 2.2. Limitation of internal market growth   | 2                                    | Active participation in discussions concerning improvement of mechanisms for protecting the domestic producer |
| 2.3. Low investment attractiveness of the country                                     | 2                                    | Innovative activities and cooperation with scientific research institutions                                   |
| 2.4. Rising of inflation  | 2                                    | Keeping the assets of an enterprise in forms that are relatively less exposed to depreciation                 |
| 2.5. Political instability in the country   | 2                                    | This macroenvironment factor is uncontrolled by the enterprise  |
| 2.6. The ambiguity of the law   | 2                                    | Permanent monitoring of normative documents   |
| 2.7. The unsatisfactory condition of the environment                                  | 1                                    | Compliance with environmental law participate in environmental protection projects                            |

Source: Author's own elaboration.

*Water counters:* Domestic competitors: State Enterprise «Novator», Khmel'nitsky; Enterprise «Komunarschetmash» Kharkiv. Foreign competitors: PKF «Betar», Chistopol (Russia); NP LLC «Grand-C System». Minsk (Belarus).

*Gas pressure regulators:* The main competitors in this type of product are such domestic producers as: Machine-building plant «Vizar» Juliani, Kiev region; Firm «Armavir», Kyiv.

To determine the competitive position of PJSC «ETM» let's make a comparative characteristic of the company and its competitors in the context of the main groups of products, in the following parameters: the level of prices for the products, payment system and the possibility of discounts; an assortment; the level of service; using of advanced technologies and others.

The results of the analysis of main competitors of PJSC «ETM» presented in the Table A.5, in Appendix.

After analyzing the competitors it can be concluded that there is the especially hard competition in the market contact thermometry and water meters. Water meters, what PJSC «ETM» makes, take 53% of the market, and contact thermometry – 67%.

Summary of the results of the analysis of direct environmental factors is presented in Table 8. As can be seen on this table, during the analysis of the influence of these factors PJSC «ETM» founded, that this influence has positive and negative sides.

**Table 8.** Evaluation of factors of direct environment of PJSC "ETM".

| Group of factors | Factors   | The manifestation (condition factor)  | Character of influence (+;-) | Degree of influence the factor |
|------------------|---|---|------------------------------|--------------------------------|
| Consumers        | 1. Status and trends of development of target market                    | The low growth rate of the market   | -1                           | 2                              |
|                  | 2. Status and trends in demand for goods                                | There isn't significant growth in demand  | -1                           | 3                              |
|                  | 3. The degree of variability of needs, demands, tastes of customers     | Increasing of requirements concerning the quality of production of the enterprise     | +1                           | 1                              |
|                  | 4. The degree of commitment of customers to enterprise and its products | There are a number of regular customers (metallurgical plants, water utilities, etc.) | +1                           | 2                              |
| Suppliers        | 1. Competitive power of suppliers                                       | Moderate  | +1                           | 2                              |
|                  | 2. The degree of attractiveness of suppliers                            | The main attraction factors - price and quality.                                      | +1                           | 2                              |
|                  | 3. Availability of local suppliers                                      | Absent  | -1                           | 1                              |
|                  | 4. Access to foreign suppliers  | There is access to Russian suppliers  | +1                           | 2                              |
| Competitors      | 1. Competition in the area of enterprise activity                       | Moderate  | +1                           | 3                              |
|                  | 2. The power of competitive pressures                                   | Medium  | +1                           | 2                              |
|                  | 3. Difficulties to enter into the industry                              | High  | +1                           | 2                              |

Source: Author's own elaboration.

Let's make a list of opportunities and threats to the enterprise by the microenvironment, and possible courses of action of the company (Table 9).

**Table 9.** The list of opportunities and threats macro environment PJSC «ETM».

| <b>Factors</b>  | <b>Assessment of degree of influence of factor, in points</b> | <b>Possible courses of action</b>   |
|---|---|---|
| <i>1. Opportunities (favorable impact factors)</i>                                |   |   |
| 1.1. Increasing of demands concerning the quality of production of the enterprise | 2   | Using the advantages of the company concerning the product quality, upgrade equipment                     |
| 1.2. the presence of a certain amount of regular customers                        | 3   | Keep in touch with reliable customers, deep the cooperation with them, increase sales of products         |
| 1.3. Moderate competitive power of suppliers                                      | 2   | Forming the base of reserve providers making the additional initial conditions for contracts of supplying |
| 1.4. The main factors of suppliers attractiveness are price and quality           | 2   | Coordination of the procurement process of raw materials, searching for best conditions                   |
| 1.5. Company has the access to foreign suppliers                                  | 2   | Improvement of product quality, improving the company image abroad  |
| 1.6. Moderate competition in the area of enterprise activity                      | 2   | Using the image of a reliable producer in the area of instrumentation (moderate price - high quality)     |
| 1.7. The average power of competitive pressures                                   | 2   | Using the advantage of market conditions in order to reach new markets                                    |
| 1.8. High barriers of entrance to the industry                                    | 2   | Preventing the emergence of new equal competitors at the market   |
| <i>2. Threats (group factors of adverse effects)</i>                              |   |   |
| 2.1. The low growth rate of the market  | 2   | Systematic monitoring of market conditions, identification problems in activity                           |
| 2.2. There is no significant increase in demand                                   | 3   | Conducting marketing policy to increase demand, and effective ad campaign                                 |
| 2.3. Lack of local suppliers  | 1   | Purchase theraw materials from more remote areas  |

Source: Author's own elaboration.

Increasing in demands concerning the products quality of the enterprise stimulates it to permanent improvement, which will supply competitive advantages of PJSC «ETM» in perspective.

The most significant threat to activity of PJSC «ETM» is quite slow growth of demand for the products of the company. To stimulate demand for its the products, the company should more actively use marketing tools.

*Analysis of the internal environment of enterprise:* Internal environment is a combination of all internal factors of the company that determine the processes of its life.

The internal environment has several aspects, each of them includes a set of key processes and elements of the organization: assessment current strategies, identifying strengths and weaknesses; identifying the competitive advantages.

*Determining the strengths and weaknesses of the company:* Strengths and weaknesses of the internal environment of the enterprise, as well as opportunities and threats in the external, determine conditions of successful functioning at the market. That's why in the final stage of the analysis of the internal environment it is necessary to evaluate its impact factors. This evaluation of environmental factors

requires the next scale: 3 points indicate the strong side of enterprise activity; 1 point indicates its weakness.

The evaluation results are shown in the profile of enterprise activity (Table A.6, in Appendix.). As shown in this table, the main strengths of the company are: well matched organizational structure of the enterprise; good communication relations inside the enterprise; a large market share; nomenclature of production (with over 100 positions); flexible pricing policy; effective system of sales, presented by a lot of offices in different cities of Ukraine and others.

According to the results of evaluation of factors of internal environment of enterprise it was made a list of actual strengths and weaknesses of the PJSC «ETM» (

Table 10).

**Table 10.** The list of strengths and weaknesses of the company.

| The aspect of internal environment  | Strengths  | Assessment of influence of factor, in points | Weaknesses   | Assessment of degree of influence of factor, in points |
|-------------------------------------|--|--|--|--|
| Organization of management          | 1.1. The high degree of expediency of the organizational structure.                            | 3  | 1.1. Style of control is too authoritarian.<br>1.2. Big information overload of managers.  | 2  |
|                                     | 1.2. The high level of communications in the enterprise.                                       | 3  |  | 3  |
|                                     | 1.3. Fast decision making.   | 3  |  |  |
|                                     | 1.4. Clear functional responsibilities at different levels of management.                      | 3  |  |  |
| Marketing                           | 2.1. A large share of the market.  | 3  | 2.1. Imperfect system of stimulation the customers.<br>2.2. Moderate level of marketing activity.<br>2.3. Insufficient level of service. | 2  |
|                                     | 2.2. A reliable system of quality control.   | 3  |  |  |
|                                     | 2.3. A large assortment.   | 3  |  | 3  |
|                                     | 2.4. Flexible pricing policy.  | 2  |  |  |
|                                     | 2.5. Feasibility of contracting policies.  | 3  |  | 2  |
|                                     | 2.6. An effective system of sales.   |  |  |  |
| Research and development            | 3.1. Constant research and development.  | 3  | 3.1. The rate scientific progress exceeds the rate of development in the enterprise.   | 3  |
| Technology                          | 4.1. Availability of significant material and technical base.                                  | 3  | 4.1. Complexity of the production process.<br>4.2. The high degree depreciation of fixed assets  | 1  |
|                                     | 4.2. The possibility of manufacture nonstandard devices according to the demands of consumers. | 2  |  | 3  |
| Personnel                           | 5.1. Availability of highly qualified personnel.   | 3  | 5.1. Poor motivation of employees  | 2  |
| Finance                             | 6.1. The high cost of assets.  | 3  | 6.1. Presence of losses  | 3  |
| Organizational culture and position | 7.1. High level of organizational culture.   | 1  | -  |  |
|                                     | 7.2. The positive position of the company.   | 2  |  |  |

Source: Author's own elaboration.

As shown in the

Table 10, PJSC «ETM» has a lot of strengths, and the degree of their influence on the activity of the company is quite significant (most of the factors have the highest mark).

However, among the most influential weaknesses it is needed to tell about: big information overload of managers; moderate level of marketing activity, characterized by lack of efficiency of marketing communications.

Moreover, should separately allocate such indicator of internal environment as «research and development». Currently, R&D is extremely important and actual for any company, because development and innovation ensures the formation of long-term competitive advantage for the company.

To identify competitive advantages of PJSC «ETM», it will be made comparative assessment of the company and one of the competitors in the production of water meters - SE «Novator». Comparative evaluation is carried out using data from profile of activity. Was founded the information of competitor on the website smida.gov.ua and compared with the same type of information of the PJSC «ETM». It was subtracted each indicator of enterprise activity and each indicator of activity of the competitor. Results of comparative evaluation are shown in the Table 11.

**Table 11.** Profile of polarities (competitor - State Enterprise «Novator», Khmelnytsky).

| Indices  | Points |   |     |     |   |
|--|--------|---|-----|-----|---|
|  | «+»    |   | «0» | «+» |   |
|  | 2      | 1 | 0   | 1   | 2 |
| Risk level (Z - factor)                                  |        |   | X   |     |   |
| The degree of expediency of the organizational structure |        |   | X   |     |   |
| The level of communications of enterprise                |        | X |     |     |   |
| Style of management                                      |        |   | X   |     |   |
| The profitability rate                                   |        |   | X   |     |   |
| The market share   | X      |   |     |     |   |
| The quality system of products                           |        | X |     |     |   |
| Assortment   |        | X |     |     |   |
| Flexibility of pricing policy                            |        |   |     | X   |   |
| The feasibility of contracting policy                    |        |   | X   |     |   |
| The system of sales                                      |        |   | X   |     |   |
| The level of service                                     |        |   |     | X   |   |
| The system of stimulation the customers                  |        |   |     | X   |   |
| The degree of marketing activity                         |        |   | X   |     |   |
| Research and development (R&D)                           |        |   | X   |     |   |
| Condition of the material and technical base             |        |   | X   |     |   |
| Qualification of personnel                               |        |   | X   |     |   |
| Motion estimation of personnel                           |        |   |     | X   |   |
| The degree of motivation of personnel                    |        |   | X   |     |   |
| The financial opportunities of enterprise                |        | X |     |     |   |
| Organizational culture                                   |        |   | X   |     |   |
| Rating evaluation of enterprise                          |        |   | X   |     |   |

Source: Author's own elaboration, based on expert evaluation.

The result with the sign «+» indicates a competitive advantage, and with the sign «-» indicates the weaknesses of the PJSC «ETM».

### **3.3. Analysis of marketing support of strategic management**

The functions of marketing at PJSC «ETM» is performed by department of marketing and foreign economic activity, which is subordinated to vice-director of commercial affairs. The organizational structure of the department is presented in Figure A.4, in Appendix. Specialists of this department organize a system of marketing research, analysis of the marketing environment, markets of individual consumers and enterprises, determination of demand and so on.

One of the most important and responsible elements of marketing in PJSC «ETM» is to conduct market research.

In general, PJSC «ETM» carries market research in two main areas: analysis of customers and competitors. To assess consumer needs this specialist makes survey of consumers to identify motives on which they prefer products of competitors.

Research of competitors and determination of competitive position is made by conducting characteristics of the company and the competitors in the context of the main groups of products.

Another no less important element of marketing support of strategic management of PJSC «ETM» is its product policy.

The most important, in our opinion, part of a marketing product policy of PJSC «ETM» is the development of innovative products, because creating new products allow the company to win competitors, maintain and expand market, increase revenue and profit.

At present an assortment of production of the company represented by the following items:

1. Contact thermometry. The contact thermometry includes such products as: thermal converters of resistance, made of platinum, which are about 38 types, thermal converters of resistance, made copper (15 types), thermoelectric converters (38 types), electrical detectors of pressure.
2. Gas pressure regulators: «F-10», «G-10», «I-10/6».<sup>3</sup>
3. Cold and hot water counters, in diameter 15, 20 and 40 mm, with mounting kit, and also impulse water meters.

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<sup>3</sup> F, G, I are the codes of products.

4. Other (installation, details, assembly kits for gas pressure regulators, mounting kits for water meters and so on).

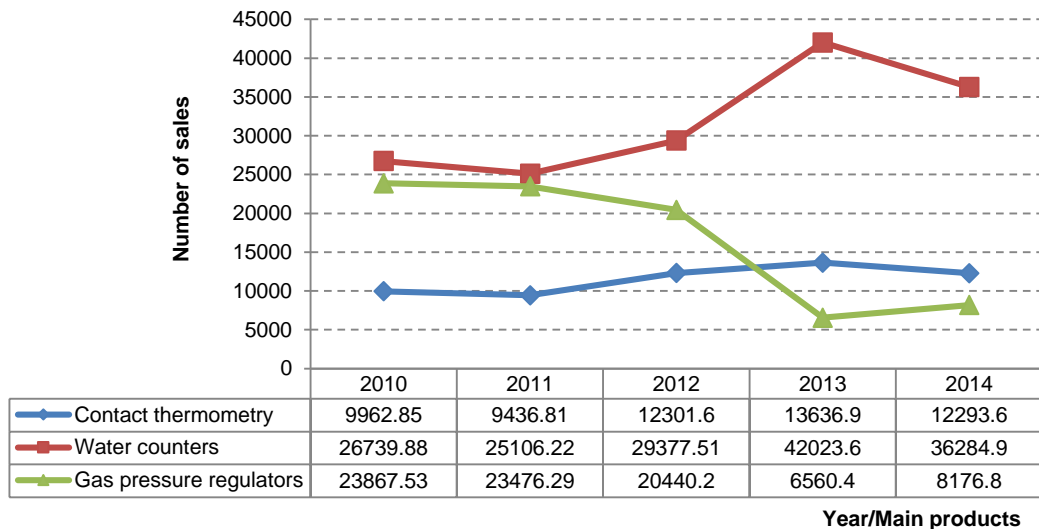
The structure of main products of PJSC «ETM» for the past two years is on the Table 12.

**Table 12.** Analysis of the structure of production of PJSC «ETM».

| Type of product         | The output      |                    |                 |                    | Deviation                |               |                  |
|-------------------------|-----------------|--------------------|-----------------|--------------------|--------------------------|---------------|------------------|
|                         | 2013            |                    | 2014            |                    | Absolute, thousand. UAH. | Relative, %   | The structure, % |
|                         | Thousand . UAH. | Specific weight, % | Thous and. UAH. | Specific weight, % |                          |               |                  |
| Contact thermometry     | 13792           | 21.17              | 12879           | 23.86              | -913                     | -6.62         | 2.69             |
| Water counters          | 45695.7         | 70.15              | 33765           | 62.56              | -11930.7                 | -26.11        | -7.59            |
| Gas pressure regulators | 5648.7          | 8.67               | 7328            | 13.58              | 1679.3                   | 29.73         | 4.91             |
| <b>Total</b>            | <b>65136.4</b>  | <b>100</b>         | <b>53972</b>    | <b>100</b>         | <b>-11164.4</b>          | <b>-17.14</b> | <b>-</b>         |

Source: <http://smida.gov.ua>.

However, despite the rather large assortment of products of PJSC «ETM», not all of its varieties have stable and high demand. Therefore, to determine the possible directions of innovations it is appropriate to analyze the dynamics of sales of products by main assortment groups. The analysis conducted on the basis of short-term reviews of markets during 2010-2014 (Figure 4).



**Figure 4.** The dynamics of implementation of the main groups of products of PJSC «ETM».

Source: <http://smida.gov.ua>

As it shown from in figure, during the study period it can be seen an increase in sales of water meters that has a place an increase of demand for this type of product.

Demand for products of contact thermometry has some variations, first upwards, then – downward, so it should be stabilized. Thus it is necessary to make decisions for improving existing products to stabilize supply, decrease its prices.

As for gas pressure regulators and other products of PJSC «ETM» it should be noted the fact, that during 2010-2014 the demand for it goes down, so this product need be updated, using remarketing.

Significant attention in the product innovation policy PJSC «ETM» pays to quality. From the qualitative characteristics of new products depends the image of the company, which was formed for a long period. That's why department of marketing and foreign economic activity is working closely with the department of technical control. Regular work over improvement of quality made it possible to significantly reduce the number of complaints received from clients (Table 13).

As for the products of PJSC «ETM», recently, despite the overall decline in its realization, is observed a slight increase in sales of impulse water meters «A-2.5». This needs an analysis of the competitiveness of this type of product.

**Table 13.** Analysis of the quality of products.

| Indices   | Years   |         |        |
|---|---------|---------|--------|
|   | 2012    | 2013    | 2014   |
| 1. The volume of commodity production, thousand. UAH.               | 57886.7 | 65136.4 | 53972  |
| 2. The number of complaints received, units.                        | 16      | 13      | 12     |
| 3. The total value of rejected by buyers products thousand. UAH.    | 2461.2  | 2121.7  | 1463.6 |
| 3.1. % To the volume of commodity output                            | 3.87    | 3.67    | 2.24   |
| 4. The number of complaints recognized by enterprise, units.        | 9       | 7       | 5      |
| 5. The total cost of claims recognized by enterprise thousand. UAH. | 1640.8  | 1414.5  | 1325.6 |
| 5.1. % To the volume of commodity output                            | 2.58    | 2.44    | 2.04   |
| 6. Fines paid for the supply of low-quality products, thous. USD.   | 820.4   | 707.25  | 731.8  |

Source: <http://smida.gov.ua>.

Competitive analysis is made concerning the similar production of main competitor of PJSC «ETM» at the market of water meters - State Enterprise «Novator». For this was conducted an expert evaluation of such indicators as compliance of <sup>4</sup>these products of enterprise to standards, reliability, accuracy and durability, level of after-sales service, price and guarantee period by 10 points scale. The analysis results are shown in Table 14.

Based on the results of calculations given in the table, it can be concluded that estimated product of PJSC «ETM» is more competitive compared with State Enterprise «Novator», because integral index

<sup>4</sup> A is a code of product.

of competitiveness is bigger than 1. However, products SE «Novator» have also very strong competitive position, because this ratio greater than one only at 0.0125.

To evaluate the pricing policies it will be analyzed price level for the main types of production of the enterprise compared with the prices of products analogs of key competitors. The results of this analysis are presented in Table A.7, in Appendix.

**Table 14.** Evaluation of competitiveness of production of PJSC «Elektrotermometriya».

| Parameters                          | Water meter A-2.5 (PJSC "ETM") | Water meter A-2.5 (SE «Novator») | Weight ratio | Indices |        |          |
|-------------------------------------|--------------------------------|----------------------------------|--------------|---------|--------|----------|
|                                     |                                |                                  |              | Single  | Group  | Integral |
| Technical parameters:               |                                |                                  |              |         |        |          |
| 1. Compliance with standards        | 10                             | 10                               | 0.2          | 1       | 1.0125 | 1.0125   |
| 2. Reliability                      | 9                              | 8                                | 0.2          | 1.125   |        |          |
| 3. Accuracy                         | 9                              | 9                                | 0.2          | 1       |        |          |
| 4. The durability                   | 9                              | 9                                | 0.2          | 1       |        |          |
| 5. The level of after-sales service | 7                              | 8                                | 0.1          | 0.875   |        |          |
| 6. Guarantee term                   | 7                              | 7                                | 0.1          | 1       |        |          |
| Economic parameters:                |                                |                                  |              |         |        |          |
| Price per unit, UAH.                | 8                              | 8                                | 1            | 1       | 1      |          |

Source: Author's own elaboration. based on <http://www.ukrstat.gov.ua>.

The main competitors of PJSC «ETM» in the market are water meters are PJSC «Novator», Khmel'nitsky and «Kommunarschetmash», Kharkiv. The difference in price of meters, comparing with competitors, is small ( $\pm 2-5\%$ ).

Quite important issue in the conduct of marketing analysis is to evaluate the main distribution channels of its products. Information about the main channels of production of PJSC «ETM» is given in Table 15.

**Table 15.** Analysis of the main distribution channels of enterprise, %.

| Distribution channel                                       | Types of products   |      |                |      |                         |      |       |      |
|--|---------------------|------|----------------|------|-------------------------|------|-------|------|
|  | Contact thermometry |      | Water counters |      | Gas pressure regulators |      | Other |      |
|  | 2013                | 2014 | 2013           | 2014 | 2013                    | 2014 | 2013  | 2014 |
| 1. Indirect distribution channels, total                   | 32                  | 26   | 43             | 39   | 19                      | 20   | 27    | 25   |
| 1.1. Wholesale traders (dealers)                           | 12                  | 9    | 21             | 19   | 7                       | 8    | 17    | 16   |
| 1.2. Representative offices                                | 20                  | 17   | 22             | 20   | 12                      | 12   | 10    | 9    |
| 2. Direct sales channels, total                            | 68                  | 74   | 57             | 61   | 81                      | 80   | 73    | 75   |
| 2.1. Department of marketing and foreign economic activity | 68                  | 74   | 36             | 37   | 62                      | 68   | 64    | 67   |
| 2.2. Store, owned by JSC «ETM»                             | -                   | -    | 21             | 24   | 19                      | 12   | 11    | 8    |

Source: Documentation of enterprise.

As the table shows, the majority of the products are sold by direct channels. It should be noted also, that in 2012 there were some changes in the organization of sales at the company. Earlier service of marketing and sales of the company included 6 representative offices, which were involved in the organization of sales. And from 2012 these representative offices are functioning as dealers, which are independent from the company.

For the effective functioning at the market under current conditions, to implement the strategy of innovative development of any company, including PJSC «ETM» is becoming increasingly important system of marketing communications.

To market introduction of innovations PJSC «ETM» widely uses personal selling.

Also the important methods for PJSC «ETM» of the products promotion to the target market are also advertising and PR. The enterprise also uses the method of information over the Internet. Among the promotional tools an important role has the direct advertising.

Another channel promoting the products of PJSC «ETM» is sales promotion, and it is used primarily by stimulating resellers and end users by providing discounts, based on the number of purchased goods.

So it could be concluded, that PJSC «ETM» widely uses marketing methods during its activity.

### **3.4. Strategic approaches to development of PJSC «ETM» as a result of the diagnostic analysis of its condition**

To make the integrated estimation of activity of PJSC «ETM», all factors of influencing should be attributed to the opportunities and threats regarding the environment, and the strengths and weaknesses of the company regarding internal environment. To determine the relations let's make a matrix of SWOT - analysis.

After analyzing the external and internal environment and compilation a list of strengths and weaknesses as well as threats and opportunities (I stage of SWOT-analysis) we will establish paired combinations between them. To determine the relations let's make a matrix of SWOT-analysis.

Let's generalize evaluation results in a matrix of SWOT-analysis (Table 16).

On the left side of the SWOT matrix it will be written the discovered strengths and weaknesses of the company with the assessment of their significance, and to the top of matrix enter detected opportunities and threats of the external environment with the assessment of their significance for the company.

Based on a SWOT matrix, to formulate strategic problems of the enterprise and strategic alternatives for its development, it be established and analyze paired combinations of all the strengths and weaknesses of the company with the opportunities and threats in the external environment.

**Table 16.** Matrix of SWOT-analysis of PJSC «ETM».

|  |  |  |
|--|--|--|
| <b>External<br/>environment</b>  | <i>Opportunities:</i>  | <i>Threats:</i>  |
|  | <ul style="list-style-type: none"> <li>- An increase in market share;</li> <li>- Access to new markets;</li> <li>- Increase in demand for products;</li> <li>- Attracting investors to finance the innovations.</li> </ul>   | <ul style="list-style-type: none"> <li>- Increase in competition in the industry;</li> <li>- Growth of inflation;</li> <li>- Unstable political and economic situation in the country;</li> <li>- Changes in legislation.</li> </ul>   |
| <b>Internal<br/>environment</b>  |  |  |
| <i>Strengths:</i> <ul style="list-style-type: none"> <li>- Highly qualified personnel;</li> <li>- High market share;</li> <li>- A large assortment of products;</li> <li>- The gradual modernization of the equipment;</li> <li>- Improving the product quality;</li> <li>- pricing policy;</li> <li>- Effective distribution system;</li> <li>- Effective contract with suppliers;</li> <li>- A positive image of the company.</li> </ul> | <ul style="list-style-type: none"> <li>- Development and introduction of innovative products for enterprise and the conquest new markets;</li> <li>- Increase in market share by high quality products, using the price advantage;</li> <li>- increase in sales of products using effective system of distribution;</li> <li>- Attraction of investments due to the positive image of the company.</li> </ul>  | <ul style="list-style-type: none"> <li>- Enhancement of the competitive position by high quality products and affordable prices;</li> <li>- Support the stable activity of the company during the changes in political and economic instability due to highly skilled personnel;</li> <li>- The possibility of postponing of payments by close cooperation with suppliers.</li> </ul>  |
| <i>Weaknesses:</i> <ul style="list-style-type: none"> <li>- High level of depreciation of fixed assets;</li> <li>- Inefficient use of resources of the enterprise;</li> <li>- Low level of preparedness of workers to changes;</li> <li>- Crisis financial condition;</li> <li>- Limited usage of advertising media;</li> <li>- High power consumption of output.</li> </ul>   | <ul style="list-style-type: none"> <li>- Modernization of equipment as by its own funds and by attracting investors;</li> <li>- More efficient using of advertising, information about the company in new markets increase awareness of consumers in existing markets;</li> <li>- Due to increased product sales the company could exit from the crisis and increase profitability;</li> <li>- By increasing of profitability and by attracting funds of investors, company will improve technology of production and implement energy-saving technologies.</li> </ul> | <ul style="list-style-type: none"> <li>- Create reserves for insurance from risk;</li> <li>- Searching for opportunities to expand sales of products;</li> <li>- Support the equipment in working condition;</li> <li>- Investment of borrowed funds in equipment upgrades and introducing energy saving technologies for improving the situation of the company in the future;</li> <li>- regular monitoring of macro environment for timely reaction to changes;</li> <li>- Constant monitoring of competitors.</li> </ul> |

Source: Author's own elaboration.

Identified paired combinations of strengths and weaknesses of PJSC «ETM» with the opportunities and threats are systematized in Table 17.

**Table 17.** Initial data for the compilation of the list of strategic enterprise development alternatives.

| <b>Field of SWOT matrix</b> | <b>Strategic alternatives, which are formulated based on the detection of paired combinations of strengths and weaknesses of the company with opportunities and threats in the external environment</b>        | <b>Evaluation of the factors in points</b> |
|-----------------------------|--|--|
| SaO                         | 1. The development and introduction of innovative products for the enterprise and the conquest her new markets.  | 3  |
|                             | 2. The increase in market share by high quality products, which at this time produces the company, using the price advantage.  | 3  |
|                             | 3. The increase in sales of products using effective distribution system.  | 2  |
|                             | 4. Attracting investment resources due to the positive image of the company.   | 3  |
| WaO                         | 1. Improving the indicators of activity of the enterprise by upgrading equipment as by its own funds as well as by attracting investors.   | 3  |
|                             | 2. Improving the indicators of activity of the enterprise by more effective using of advertising, information about the company in new markets, increasing awareness of consumers on existing ones.            | 2  |
|                             | 3. Increasing of profitability by improving production technology (introduction of energy saving technologies).  | 3  |
| SaT                         | 1. Strengthening the competitive position by high quality products and reasonable prices.  | 3  |
|                             | 2. Support for of stable activity of enterprises during the changes in legislative, political and economic instability due to highly skilled personnel and high professionalism of the managers of PJSC «ETM». | 2  |
|                             | 3. Supporting the financial stability through the use postponing of payments by close cooperation with suppliers.  | 2  |
| WaT                         | 1. Establishment of reserves for insurance from risk.  | 2  |
|                             | 2. Searching of opportunities to expand sales.   | 3  |
|                             | 3. Targeting efforts to support the equipment in working condition for the continuation enterprise activity at the same level.   | 1  |
|                             | 4. Investment borrowed funds in equipment upgrading and introducing energy saving technologies for improving the situation of the company in the future.   | 3  |
|                             | 5. Constant monitoring of the political and legal environment in the country and the economic situation in order to timely reacting to changing of market conditions and avoiding losses;                      | 2  |
|                             | 6. Monitoring the competitors.   | 3  |

Source: Author's own elaboration.

Based on these alternatives, and also, considering the fact, that at this moment in PJSC «ETM» is observed crisis, the main strategic goal of the company in the short term should be a gradual increase in profitability of the enterprise.

To achieve this goal it is necessary to set specific targets of PJSC «ETM». To achieve this goal it was set specific targets of PJSC "ETM" and built their "tree of objectives" (Figure A.5. in Appendix). As can be seen from the picture, to increase the profitability PJSC «ETM» must constantly increase the volume of sales, introduce technical, technological and product innovations increase competitiveness.

The objectives of the second order are the following: increase in sales of products of PJSC «ETM» in existing and new markets, the intensification of market research to find new needs of consumers, searching for sources of financing innovation, improve product competitiveness, reduce costs.

According to the stage of life cycle and based on the current conditions of its functioning it is appropriate to use the strategy of gradual growth.

Thus the company should use the product market development strategy (implementation of innovative products) under the strategy of concentrated growth.

To justify the basic strategy of functioning of PJSC «ETM» within the corporate and functional business development strategies, it will be used the method of expert assessments on the admissibility of the implementation of these strategies to achieve the strategic goals of PJSC «ETM» (Table 18).

As the table shows, according to optimistic forecasts for the enterprise is advisable to choose the strategy of concentrated growth; marketing strategy of market development, aggressive innovation strategy, manufacturing strategy based on progressive changes in the technological process, the financial strategy of self-financing, and strategies of minimizing the costs of production within the business strategy.

According to pessimistic forecast appropriate is the choice of corporate strategy of stabilization, the marketing strategy of preserving of market share, traditional innovation strategy, manufacturing strategy, which would be based on using of existing potential, use lending strategies, based on the fact that the activity of the company in recent times has been unprofitable, and business strategy of minimizing production costs.

The basic strategies for the most probable forecast of development should be the following: corporate strategy of concentrated growth; marketing strategy of market development, offensive innovation strategy, production strategy, based on the progressive changes in the technological process, financial strategy that provides partial crediting, and business strategy of minimizing production costs.

It is proposed to implement the assessment of level of readiness of the enterprise to strategic changes by interviewing experts - employees of top and middle links of management using specially developed system of criteria. It was asked the experts to provide estimates for each criterion on a ten-point scale (0 - minimum value 10 - maximum). The content of questionnaire for assessment the readiness of the enterprise to strategic changes is shown in Table 2 (Chapter 2).

**Table 18.** Justification of the choice of the basic strategy of PJSC «ETM».

| Strategy   | Forecast of probabilities implementation of strategies taking into account the external environment and internal opportunities |          |            | The amount of probabilities |
|--|--|----------|------------|-----------------------------|
|  | Pessimistic  | Probable | Optimistic |                             |
| 1. Corporate strategies:                                       |  |          |            |                             |
| 1.1. Growth strategy   | 0.3  | 0.5      | 0.6        | 1.4                         |
| - Diversification strategy                                     | 0.03   | 0.04     | 0.05       | 0.12                        |
| - Integration Strategy   | 0.03   | 0.04     | 0.05       | 0.12                        |
| - Concentrated growth strategy                                 | 0.24   | 0.42     | 0.5        | 1.16                        |
| 1.2. The strategy of stabilization                             | 0.5  | 0.4      | 0.3        | 1.2                         |
| 1.3. Reduction strategy  | 0.1  | 0.1      | 0.1        | 0.3                         |
| 1.4. The restructuring strategy                                | 0.1  | 0        | 0          | 0.1                         |
| 2. Functional strategies:                                      |  |          |            |                             |
| 2.1. Marketing strategy  |  |          |            |                             |
| - Market development strategy                                  | 0.2  | 0.5      | 0.7        | 1.4                         |
| - Strategy of market penetration                               | 0.2  | 0.2      | 0.2        | 0.6                         |
| - Strategy of preservation of market share                     | 0.6  | 0.3      | 0.1        | 1                           |
| 2.2. Innovation strategy                                       |  |          |            |                             |
| - The traditional strategy                                     | 0.5  | 0.4      | 0.3        | 1.2                         |
| - An opportunistic   | 0.1  | 0        | 0          | 0.1                         |
| - Imitative  | 0.1  | 0.1      | 0.1        | 0.3                         |
| - Defense  | 0.1  | 0        | 0          | 0.1                         |
| - Offensive  | 0.2  | 0.5      | 0.6        | 1.3                         |
| 2.3. The production strategy                                   |  |          |            |                             |
| - Using the existing potential                                 | 0.5  | 0.4      | 0.3        | 1.2                         |
| - The creation of new production                               | 0.1  | 0        | 0          | 0.1                         |
| - A strategy of changes in the technological process           | 0.4  | 0.6      | 0.7        | 1.7                         |
| 2.4. Financial strategy  |  |          |            |                             |
| - Self-financing strategy                                      | 0.4  | 0.4      | 0.6        | 1.4                         |
| - A strategy of partial crediting                              | 0.6  | 0.6      | 0.4        | 1.6                         |
| 3. Business Strategy   |  |          |            |                             |
| 3.1. Strategy of minimizing the costs of production            | 0.8  | 0.8      | 0.8        | 2.4                         |
| 3.2. The strategy of specialization                            | 0.1  | 0.1      | 0.1        | 0.3                         |
| 3.3. The strategy of concentration at a certain market segment | 0.1  | 0.1      | 0.1        | 0.3                         |

Source: Author's own elaboration. expert evaluation of PJSC «ETM».

Conducted questioning at PJSC «ETM» showed that the company has a medium degree of readiness for strategic changes.

In the event of discrepancies between target and actual condition of enterprises there is a need to revise the chosen strategy.

Analysis and synthesis of strategies of successful domestic companies helped to develop and propose a matrix, in which the systematic strategy based on company size and degree of readiness for strategic changes (Table 19).

Strategy of adaptation consists in the fact that the company analyzes the external environment and plans its action matching these conditions. Strategy of active formation of market (active strategy) means trying of the company to change the environment, due to their own interests. This strategy potentially provides the greatest gains, however, is associated with the highest risk. Strategy of preserving the right to act occupies an intermediate position between the two strategies below. The chosen strategy of company can be changed by transforming the external environment.

**Table 19.** The matrix of recommended strategies.

| <b>Level of readiness to strategic changes</b>                         |  |   |
|--|--|---|
| Low  | Medium   | High  |
| <b>Depending on the development of alternatives</b>                    |  |   |
| Strategy of support  | Strategy of limited growth                         | Growth strategy   |
| <b>Depending on the activity of the market position of the company</b> |  |   |
| Strategy of adaptation   | Strategy of preserving the right to act            | Strategy of active formation of market                            |
| <b>Depending on the possibilities of enterprise</b>                    |  |   |
| The strategy based on the normal possibilities                         | The strategy based on the additional possibilities | The strategy based on the fundamental or additional opportunities |

Source: Usyk (2009).

The proposed matrix allows determine key components of enterprise strategy, such as alternative to development, market position and opportunities. Taking into account the results of the study, it is proposed for PJSC «ETM» to use such options of strategies:

1. If the evaluation of readiness for strategic changes shows that the company goes into the zone «low readiness» is appropriate for the enterprise to use a strategic set, which contains support strategy, strategies of adaptation and strategy based on normal opportunities.
2. If the evaluation of readiness for strategic changes shows that the company goes into the zone «medium readiness» is appropriate to use the next strategic set: limited growth strategy, the strategy of preserving the right to act and the strategy based on additional opportunities.
3. In the case where level of preparedness of the enterprise to strategic changes assessed as high, the company has to include into the strategic set: growth strategy, a strategy of active market development and strategy based on the using the fundamental opportunities.

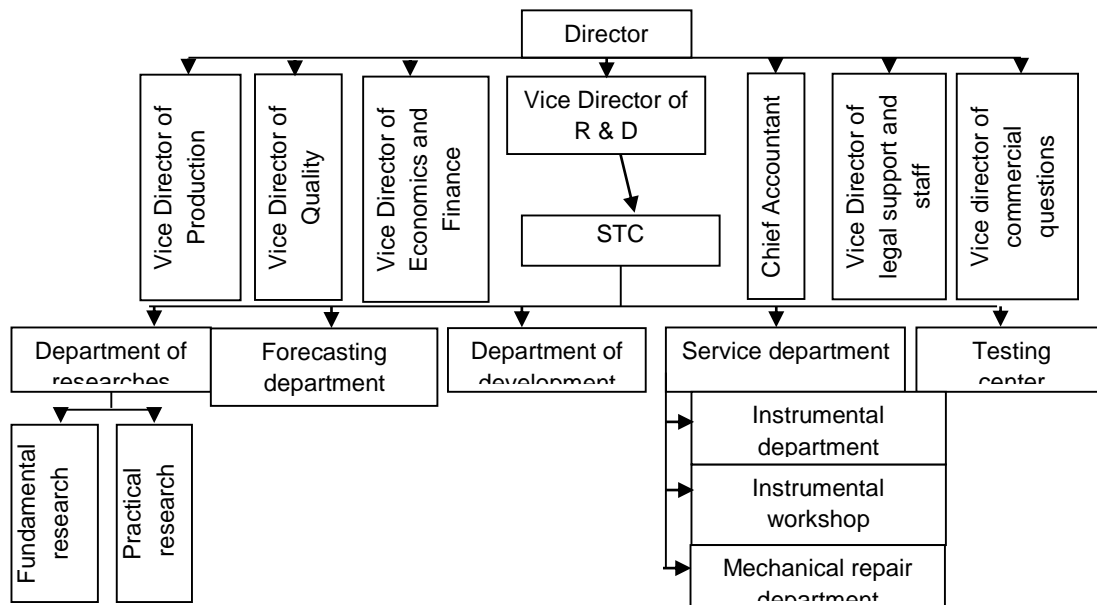
### 3.5. Formation of the strategy of innovative development of enterprise

Another problem related to the strategic management of PJSC «ETM» is the absence of an effective strategy of innovative development of the company and its inflexibility. It is known that most domestic industrial enterprises, including PJSC «ETM» keep the centralized administrative system of innovation management, not realizing that its usage threatens with significant decrease in competitiveness. Another objective of marketing is timely introduction of innovations into the market.

The main components of the innovation policy should include:

- Marketing policy - intended to form a strategy and tactics of behavior at the market;
- Policy in the area of research and development activity - its task is to determine the scientific potential of industrial enterprises;
- Policy of structural changes - focused on establishment of adequate innovative strategies organizational structure.
- Investment policy - focused on cash management in the company to accumulate funds necessary to implement innovative projects.

Together with improvement of the mechanism of formation of innovative strategies for more effective innovation management it is considered that is appropriate to organize a specialized department of innovation of Science and Technology Center (STC), which will perform strategic and operational management of innovation. It is proposed to organize R&D center by the scheme shown in Figure 5.



**Figure 5.** Scheme of the Science and Technology Center and its place in the organizational structure of the enterprise.

Source: Author's own elaboration.

Such Science and Technology Center (STC) will conduct fundamental research, carry out the general scientific control over the activities of industrial departments, will provide advice and so on. In addition, the range of tasks STC will include:

- Selection of subjects of research and development work;
- The choice of directions of innovative activity of PJSC «ETM» for the future;
- Organization and coordination of all services of improving the plan of organizational and technical development of enterprise and innovations of the company;
- Organization of collection of innovative ideas;
- Preparation and presentation to the management of company the costs, estimates for the development and exploration of advanced technologies, control costs within the approved budget;
- Calculation of economic effects of innovations;
- Providing an innovative plan of progress of production and so on.

### **3.6. Information support of strategic management based on marketing**

Process of decision-making requires a systematic approach to collecting and analyzing the necessary marketing information.

According to the concept, that system of management of the marketing information (SMMI) in the enterprise should be seen as a combination of personnel, equipment, procedures and methods, organized for the collection, analysis and dissemination in a minimum term of quality and accurate information, necessary for the preparation and making the management decisions.

Taking into account international experience and the characteristics and conditions of instrument-making enterprises and in particular the research object, it is proposed to form a system of information providing of management of marketing information based on two subsystems: a decision support system (DSS) and marketing research system.

Thus, the decision support system (DSS) within the information management of industrial enterprises, in our opinion, should include four functional subsystems:

- 1) subsystem «Strategic planning and management of the enterprise»;
- 2) subsystem «Management of marketing»;
- 3) subsystem «Market Analysis»;
- 4) subsystem «Business Planning».

A list of functions performed by each of the selected subsystems is in Table A.8, in Appendix.

In order to practical implementation of these functions, it is offeres to form a DSS based on three structural components: a data bank or fund of marketing information, expert system of models and interactive system that can be used by managers.

Main task of the fund of marketing information is to collect necessary marketing data with a reasonable degree of their reliability and present them in a form easy to access and use.

An expert system is intended primarily to perform analytical functions. The expert system is a computerized system of artificial intellect, appointed for modeling of actions of experts of information analysis in order to solve the problems.

Interactive (linguistic) system allows the company employees who are not programmers to work with databases using system of models to produce reporting information that satisfies their specific needs.

DSS provides information for strategic decision-making, allowing managers to keep abreast of developments in the external environment, and is an early warning system.

The main general destination software products that are included in the SMMI of the organization of marketing activities, including: text editors (for example, Microsoft Word), tabular processor (e.g. Microsoft Excel), database of management system. In addition to these, the software can include: translation software, software packages and other workflow.

The process of organization and implementation of the enterprise decision support system (DSS) and marketing research system according to the proposed methodology should include a number of stages (Table 20).

It should be noted that the main factor that hinders the implementation of software products for enterprises, is their relatively high cost.

Thus, in our view, effective implementation of the management mechanism of marketing information will give the company the following advantages:

- reduction of time for decision. In the long term it will reduce downtime, accelerate the turnover of current assets, and reduce the number of managerial staff;
- receipt of previously unavailable information. As a result, it is possible to make more long-term solutions.
- optimization of business. Simplifying and improving the efficiency of business processes and gain of management control will affect the cost reduction by reducing activities and related costs;
- optimizing performance of marketing functions, primarily research, planning and forecasting, promotions.

**Table 20.** The main stages of organization and implementation of the company DSS.

| Name of the stage   | The constituent elements of stage  |
|---|--|
| 1. Analysis of marketing in the enterprise                                    | 1.1. The study of structure of enterprise management.<br>1.2. Determination of the main objectives, tasks, rights and responsibilities of marketing services company.<br>1.3. Assessment of actual marketing departments.<br>1.4. Formulation of SMMI goals.<br>1.5. Determination of the main tasks of the SMMI:<br>- collecting marketing information about the condition of the environment, the market, behavior of customers and suppliers, actions of competitors;<br>- collecting marketing information inside the firm;<br>- generating reports about market research for the transfer to the management of company;<br>- control of management of marketing activities;<br>- sharing of information between the marketing departments of the company. |
| 2. Preliminary assessment of available and required resources                 | 2.1. Assessment the current level of enterprises information (existing information systems, qualified specialists hardware and software) as well as the possible development of these resources in the coming years.<br>2.2. Resources assessment (financial, human, technical, etc.), that are intended to provide for the development and exploitation of information systems.   |
| 3. Determining the needs of managers by marketing information                 | 3.1. Determination of groups of potential users of SMMI within the enterprise and their information needs the detection range of common interests of different professionals and departments.<br>3.2. Development of the scheme of information flow between services of marketing and other business units.  |
| 4. Identification of the sources of marketing information                     | 4.1. Analysis of internal and external sources of secondary marketing information.<br>4.2. Formulation of the requirements for secondary information (character, frequency, probability and degree of completeness, possible sources of receiving).  |
| 5. Development of procedures and tools of receiving and analyzing information | 5.1. Providing quick access to existing enterprise databases, commercial databases and international networks.<br>5.2. Formation of the application package to perform the required operations.  |
| 6. Development of methods of forming of own database                          | 6.1. Development of a mechanism of accumulation, preservation and restoration of information.<br>6.2. Development of forms of information.   |
| 7. Determination of the criteria for evaluating the efficiency of SMMI        | 7.1. Efficiency indicators of used marketing information.<br>7.2. Efficiency indicators of movement and processing of information flows.<br>7.3. Efficiency indicators of specific marketing measures.   |

Source: Author's own elaboration.

The effectiveness of marketing information management system: The efficiency of the functioning and usage of marketing information management system at the industrial enterprise is appropriate, in our view, to determine the complex. Indicators that can characterize the effectiveness SMMI we offer to group as follows:

- 1) performance indicators of using the marketing information;
- 2) the performance indicators of the movement and processing of information flows;
- 3) performance indicators of specific marketing activities.

## Conclusions and Strategic Orientations

In this research on the basis of the studies of theoretical and practical aspects of research of instrument-making enterprises development strategies it was outlined theoretical generalizations, conducted detailed analysis and proposed solutions to complex of topical issues for improving the strategic management of PJSC «ETM» in an unstable market environment. The main conclusions and the results, which are obtained in the study, are the following:

1. Research of different approaches prominent scientists allowed to determine the most complete description of the categories of strategic management, which is an implementation of the concept, which combines targeted and integrated approaches to the company, which allows to set development goals, compare them with the available opportunities (potential) of the enterprise and lead them into compliance through the development and implementation of strategies;
2. The results of theoretical research made it possible to conclude that the determination of the strategy for the company essentially depends on the situation in the company, and in the external environment. Analysis of selection of strategies shows that there are common approaches to the formulation of strategy and general frameworks, which fit the strategy;
3. Was detected that strategic planning is one of the most important management techniques, the using of which makes it possible to achieve coordinated of actions of enterprise divisions with the implementation of its strategic goals, increase opportunities in providing the necessary information promote the efficient allocation of resources, improve the control activities;
4. Based on the study of regularities of functioning of instrumentation industry in Ukraine it was detected a number of positive and negative trends in the market, caused by the crisis in the economy, which is leading to a deterioration of the efficiency of the instrument-making enterprises, including PJSC «ETM»;

5. Consideration of basic principles of functioning of PJSC «ETM» and key aspects of its operations made it possible to determine a number of problems in strategic management, including:

- the lack of a balanced system of strategic management; slow technology update;
- problems associated with the formation and implementation of innovative development strategies;
- resistance to change within the company;
- lack of adequate promotion of creative activity staff;
- lack of financial software of company development.

6. Analysis the marketing management activity of PJSC «ETM» allowed to find out that despite the widespread usage of marketing tools, the enterprise has problems with organization of the process of innovation management based on marketing that at market conditions are particularly dangerous;

7. Was established that in terms of building an innovative model of development in Ukraine, actualized problems of strategic management of industrial enterprises. It was exposed basic ways of improving the system of strategic management of activity of the company.

8. The analysis of the external and internal environment of PJSC «ETM» allowed to generalize the evaluation in a matrix of SWOT – analysis. The analysis showed that the PJSC «ETM» has a lot of alternatives in the formulation and implementation of the strategy of the activity. Thus each alternative is explained by a combination of strengths and weaknesses, threats and opportunities of the company;

9. On the basis of the research was proved the basic strategy to achieve the strategic goal of PJSC «ETM». According to the life cycle, and based on the current conditions of its functioning, is appropriate to use the strategy of gradual growth. Forecast implementing strategies defined by the optimistic, probable and pessimistic forecasts. According to the pessimistic forecast the company should use a strategy of stabilization, while to the optimistic and the most likely scenario – moderate growth strategy. Thus to achieve the main strategic goals according to each scenario PJSC «ETM» should use set of functional strategies and define the business strategy.

In view of the identified problems, which associate administrative and informational aspects of effective management of the strategic development of the company, in this research work it proposes to develop a decision support system.

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Websites consulted:

<http://smida.gov.ua>

<http://www.ukrstat.gov.ua>.

## Appendix

**Table A.1.** The sequence of development of a strategic plan for enterprise.

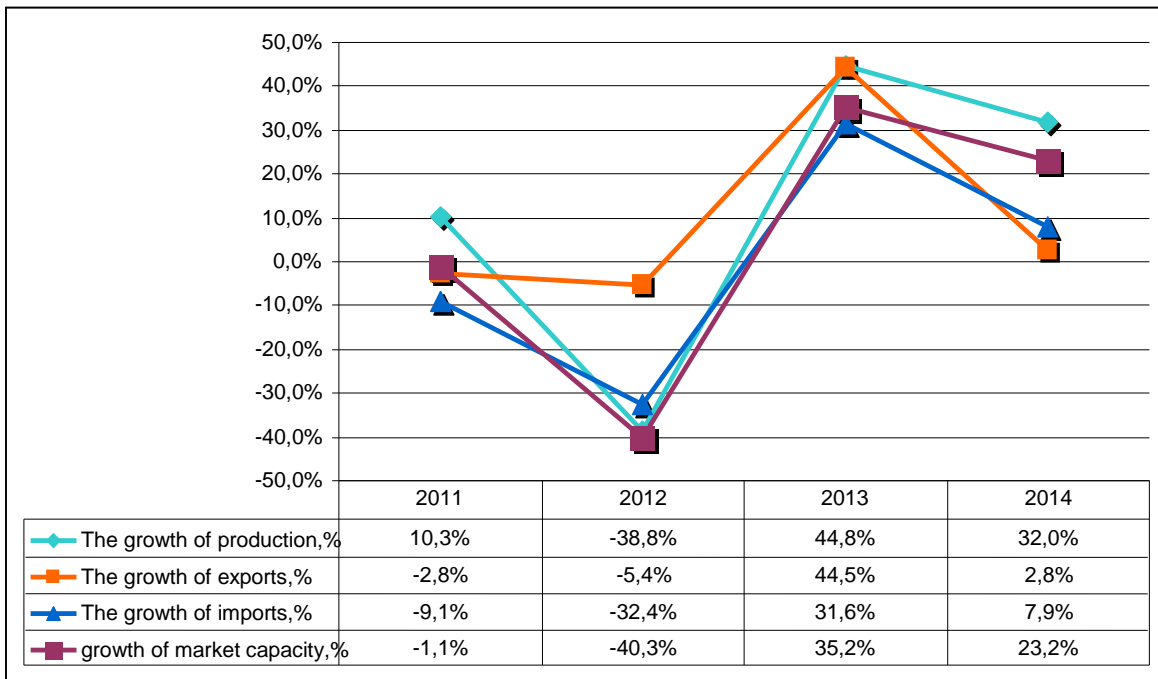
| The term of providing information | The content of the information  | Performer that provides information  |
|-----------------------------------|---|--|
| I quarter                         | Forecasts and scenarios of the external and internal conditions (based on SWOT analysis).   | Department of Strategic Analysis and Development.  |
| II quarter                        | Indicators of external and internal economic conditions of the enterprise.  | Office of Strategic Planning.  |
|                                   | Forecast sales by product groups.   | Department of marketing.   |
|                                   | Cost estimates for modernization (technical re-equipment, reconstruction of existing production or purchase a new production).    | Technical Department in conjunction with the accounting.   |
| III quarter                       | The analysis of funding and investment forecast. Development of the budget forecast.  | The financial department.  |
| IV quarter                        | Summary calculations of strategic plan with the comments of all participants. The development of operational plans for next year. | Office of Strategic Planning.  |
|                                   | Adoption of strategic and operational plans. Organizational plans development (schedules).  | Higher government of the enterprise together with the Department of Strategic Planning and performers. |

Source: Kovtun (2009, p. 680).

**Table A.2.** Comparing models of strategic planning.

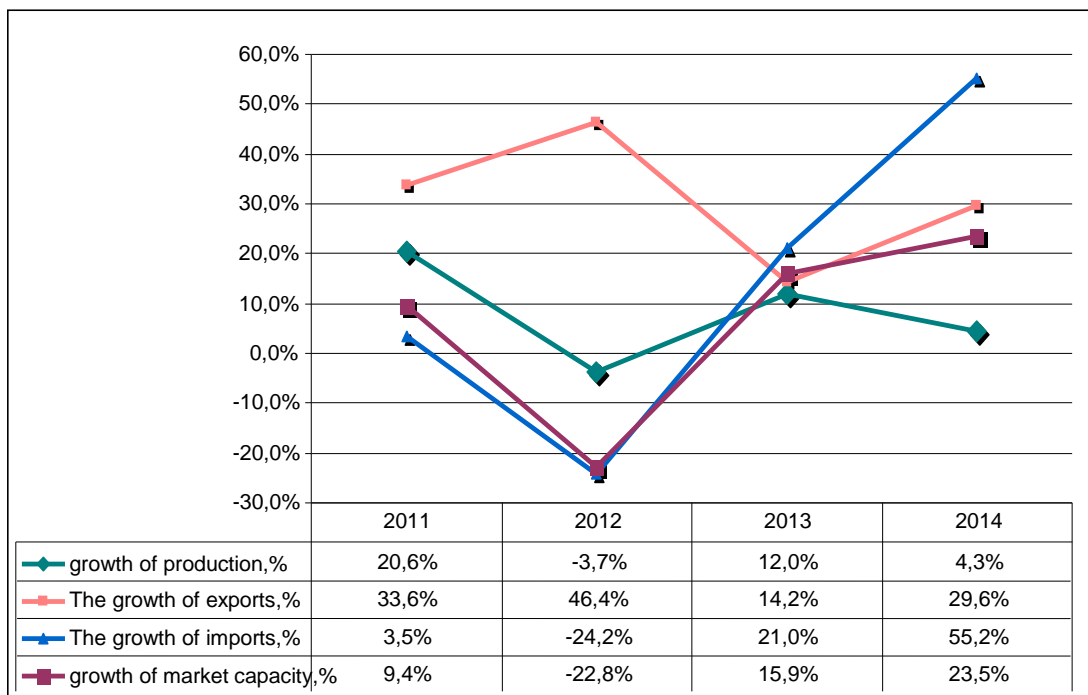
| Characteristic signs    | Models   | A model based on the “strategic gap”   | The model, based on consideration of market preferences  | The model focused on creating and maintaining the competitiveness of enterprises  | The model is aimed at creating a positive image  | The model which takes into account the size enterprise |
|-------------------------|--|--|--|---|--|--|
| What emphasis is placed | <ul style="list-style-type: none"> <li>- The current development trends</li> <li>- The performance indicators</li> </ul>   | <ul style="list-style-type: none"> <li>- To take account of the interests of shareholders</li> </ul>   | <ul style="list-style-type: none"> <li>- The long-term competitiveness</li> </ul>  | <ul style="list-style-type: none"> <li>- The strong reputation</li> <li>- To create a “good name”</li> </ul>  | <ul style="list-style-type: none"> <li>- The size of the enterprise</li> </ul>   |  |
| Methodology of analysis | <ul style="list-style-type: none"> <li>- Calculation of the upper and lower limits of “strategic gap”</li> </ul>   | <ul style="list-style-type: none"> <li>- SWOT-analysis</li> <li>- Decisions by shareholders</li> </ul>   | <ul style="list-style-type: none"> <li>- Identify key success factors and measures for their implementation</li> </ul>   | <ul style="list-style-type: none"> <li>- development and implementation of measures to create quality products</li> <li>- The use of mechanisms PR</li> </ul>                           | <ul style="list-style-type: none"> <li>- Implementation of the strategic management</li> <li>- Diagnosis environment</li> </ul>              |  |
| Advantages              | <ul style="list-style-type: none"> <li>- Comply “what is possible” with “with what should be achieved”</li> <li>- Development of the field of strategic decisions</li> </ul> | <ul style="list-style-type: none"> <li>- taking into account the interests of shareholders</li> <li>- Defining market benefits business</li> </ul>                   | <ul style="list-style-type: none"> <li>- Increasing innovation of of the enterprise</li> <li>- Detailed analysis of competitors</li> <li>- Development of international relations</li> </ul> | <ul style="list-style-type: none"> <li>- Using corporate social responsibility to the community</li> <li>- A variant of investment in software-term Long-term functioning of</li> </ul> | <ul style="list-style-type: none"> <li>- Taking into account the size of the company – reducing the cost of analysis and planning</li> </ul> |  |
| Disadvantages           | <ul style="list-style-type: none"> <li>- Waste of time</li> <li>- Costs money to develop options for filling the “strategic gap”</li> </ul>                                  | <ul style="list-style-type: none"> <li>- Restrictions because of the difficulty in defining and balancing the interests of a large number of shareholders</li> </ul> | <ul style="list-style-type: none"> <li>- A complex multifaceted process</li> <li>- Requires detailed information about competitors</li> </ul>  | <ul style="list-style-type: none"> <li>- Focus all attention only on the enterprise’s image</li> <li>- Consideration of the competitors</li> </ul>                                      | <ul style="list-style-type: none"> <li>- The cost of funds for the formation of the planning system</li> </ul>                               |  |

Source: Kotovska (2011,



**Figure A.1.** Dynamics of indicators of market of instruments and equipment construction enterprises of Ukraine in 2011-2014, %.

Source: (ukrstat.gov.ua).



**Figure A.2.** Dynamics of indicators of market of instrumentation Ukraine in 2011-2014 in money terms,%.

Source: (ukrstat.gov.ua).

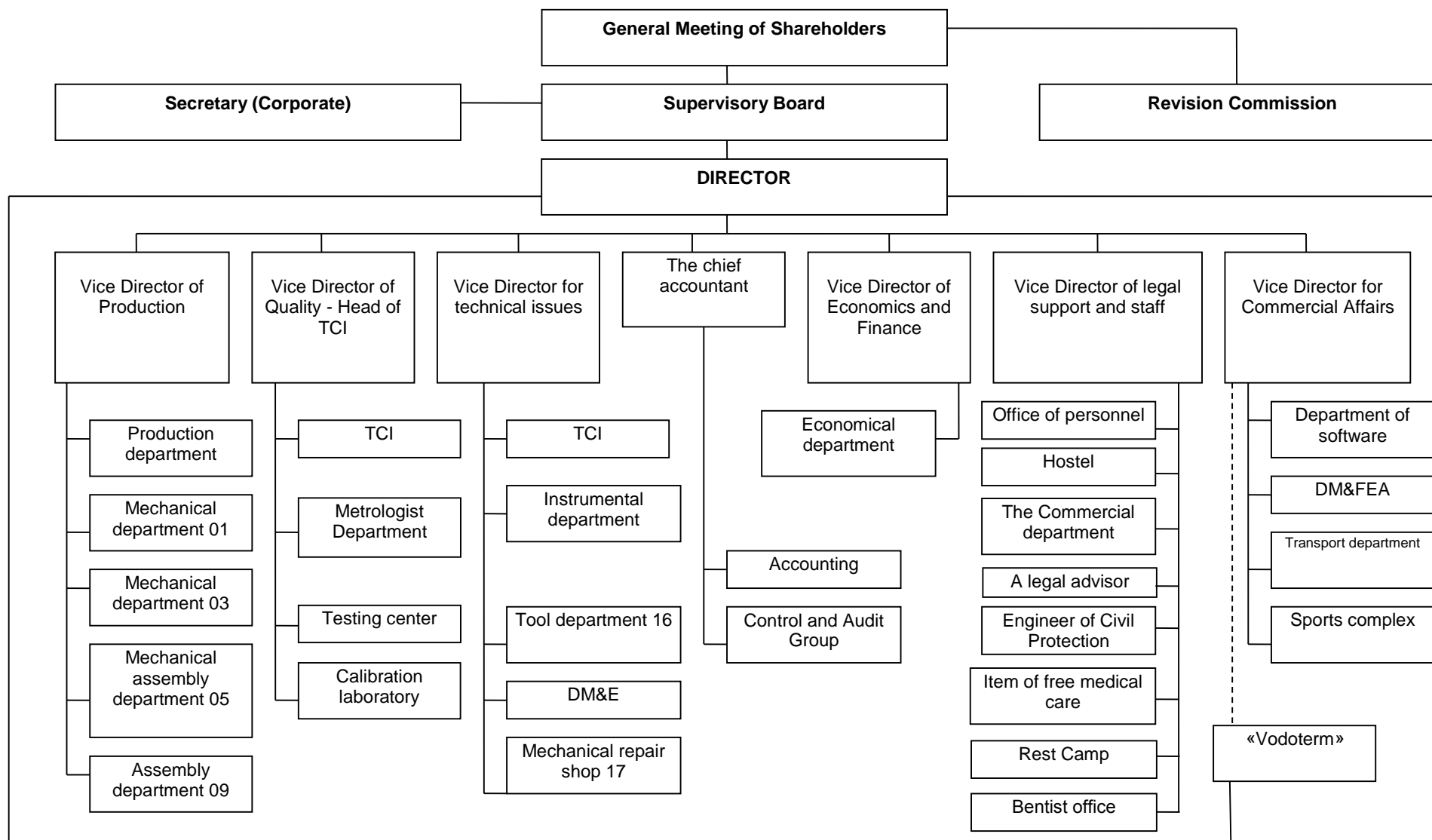
**Table A.3.** Impact factors on the instrumentation market (cont).

| №                | Impact factor   | +/- | Manifestations  |
|------------------|---|-----|---|
| 1                | 2   | 3   | 4   |
| <i>Economic</i>  |   |     |   |
| 1                | Restoration of economic growth  | +   | - Increase in the number of consumers;<br>- An increase in the volume of deliveries of products, both in domestic and foreign markets;<br>- Increase in profit operators;<br>- Increase in market share         |
| 2                | The stability of the national currency                                  | +   | - The possibility of long-term planning;<br>- Reducing of currency risk   |
| 3                | Rising volumes of production of major consumers                         | +   | - Increase in production volumes of test equipment;<br>- Profit growth of market operators;<br>- Stabilization of the market position of companies  |
| 4                | The increase in demand for the products of major consumer sectors       | +   | - Increase in the production of basic consumer industries, which would entail an increase in demand for the investigated products;<br>- Increase in volume of profit and realization of companies in the market |
| 5                | Increasing the number of players in the market                          | -   | - tightening of competition;<br>- Decrease in market share;<br>- Reducing the profitability of companies;<br>- Increasing the entry barriers to the market  |
| 6                | The increase in cost of materials for the manufacture of test equipment | -   | - Increase in costs;<br>- Decrease in profits;<br>- Loss of consumer groups   |
| 7                | Inflation rate  | -   | - Unstable prices for test equipment and materials for their production;<br>- Difficulties in maintaining the stable demand of products;  |
| 8                | Increase in prices for energy resources                                 | -   | - Increase in energy prices will lead to a rise in the cost of production test equipment;<br>- Reducing the number of consumers;<br>- Reducing the company profits  |
| <i>Political</i> |   |     |   |
| 1                | The stabilization of political situation                                | +   | - The entry of new consumers;<br>- Realization of significant volumes of products to existing customers   |
| 2                | Cooperation with countries near and far abroad                          | +   | - Expansion of foreign markets sales;<br>- Increase in company profits, increasing production volumes   |
| 3                | The peculiarity of customs  | -   | - Increase in the customs value of products exported to foreign markets, the loss of customers in foreign markets;<br>- Increase in terms of customs clearance commodity;                                       |
| 1                | 2   | 3   | 4   |
| 4                | The adoption of the Tax Code  | -   | - The cost of adapting to new market conditions;<br>- Exit some players of market   |
| 5                | Instability of the legal regulation of economic activity                | -   | - Possible problems with suppliers and customers;   |

**Table A.3.** Impact factors on the instrumentation market (cont).

| <i>Scientific and technical</i> |   |   |  |
|---------------------------------|---|---|--|
| 1                               | The implementation in the manufacturing process of new methods of production test equipment | + | <ul style="list-style-type: none"> <li>- Strengthening of market position;</li> <li>- The opportunity to participate in new projects;</li> <li>- Improving the image of the company on the domestic and foreign markets</li> </ul>                 |
| 2                               | The advent of new types of devices that are more popular in the market                      | + | <ul style="list-style-type: none"> <li>- The emergence of new groups of consumers;</li> <li>- Strengthening the position in the Ukrainian market;</li> <li>- Formation of positive image of the company.</li> </ul>                                |
| 3                               | Improving the quality of manufactured by domestic producers products                        | + | <ul style="list-style-type: none"> <li>- Displacement of the import manufacturers Ukrainian market;</li> <li>- Increase in volumes of product sales in the domestic market;</li> <li>- Strengthening the position of national operators</li> </ul> |
| <i>Cultural and social</i>      |   |   |  |
| 1                               | The emergence of a new type of instrument by changing customer needs                        | + | <ul style="list-style-type: none"> <li>- Increasing the volume of equipment production.</li> </ul>   |

Source: Documentation of enterprise



**Figure A.3.** The organizational structure of management of PJSC «ETM».

Source: Documentation of company.

**Table A.4.** Evaluation of macro factors of PJSC «Elektrotermometriya» (cont).

| Group of factors    | Factor  | The manifestation of factor influence (change of factor, condition of factor) | The nature of the factor influence on the enterprise (+1, -1) | Assessment of the impact of factors on the enterprise in points |
|---------------------|---|---|---|---|
| 1                   | 2   | 3   | 4   | 5   |
| Economical          | 1. System of taxes  | Increasing the tax burden   | -1  | 2   |
|                     | 2. The level of competitive relations                     | The emergence of new competitors, increase in competition                     | -1  | 2   |
|                     | 3. The extent of government support for the industry      | Increasing of state support   | +1  | 2   |
|                     | 4. The general situation of the national market           | The stabilization of market conditions  | +1  | 2   |
|                     | 5. The size and rate of change of market size             | Limitation of growth  | -1  | 2   |
|                     | 6. Investment process                                     | Low investment attractiveness of the country                                  | -1  | 2   |
|                     | 7. The rate of bank interest                              | Increase  | -1  | 1   |
|                     | 8. Pricing system   | The increase of inflation   | -1  | 3   |
| Political and legal | 1. Political stability in the country                     | The lack of stability   | -1  | 2   |
|                     | 2. The level of regulation and state control              | There is a tendency to strengthen   | +1  | 2   |
|                     | 3. The state policy in the field of training for industry | Without sufficient attention  | +1  | 2   |
|                     | 4. The impact of laws and regulatory acts                 | The ambiguity of the law  | -1  | 1   |
|                     | 5. Efficiency of legal system                             | Insufficiently effective legal system   | -1  | 1   |

**Table A.4.** Evaluation of macro factors of PJSC «Elektrotermometriya» (cont).

| 1                        | 2  | 3   | 4  | 5 |
|--------------------------|--|---|----|---|
| Social and demographic   | 1. The number of potential customers                                 | Growing   | +1 | 2 |
|                          | 2. The presence and potential amount of labor force                  | An increasing of free labor because of unemployment | +1 | 3 |
|                          | 3. Qualifying characteristics of labor force                         | Compliance with qualifying performance              | +1 | 2 |
| Scientific and technical | 1. The emergence of technological innovations                        | There is a possibility                              | +1 | 2 |
|                          | 2. The share of high technologies in production                      | Growing   | +1 | 2 |
|                          | 3. Requirements for staff development                                | The increase of requirements for staff development  | +1 | 2 |
|                          | 4. Requirements for scientific and technological level of production | The growth of relevant requirements                 | +1 | 2 |
| Natural                  | 1. Cost of energy  | The tendency to increase                            | -1 | 3 |
|                          | 2. State of ecology and its Impact                                   | Unsatisfactory state of the environment             | -1 | 1 |
| External economic        | 1. External state vector   | The uncertainty of state positions                  | -1 | 1 |
|                          | 2. Recognition of Ukraine by the international community             | There are certain developments                      | +1 | 1 |

Source: Documentation of company, author's own elaboration.

**Table A.5.** The analysis of competitors of PJSC «Elektrotermometriya» by the main types of products.

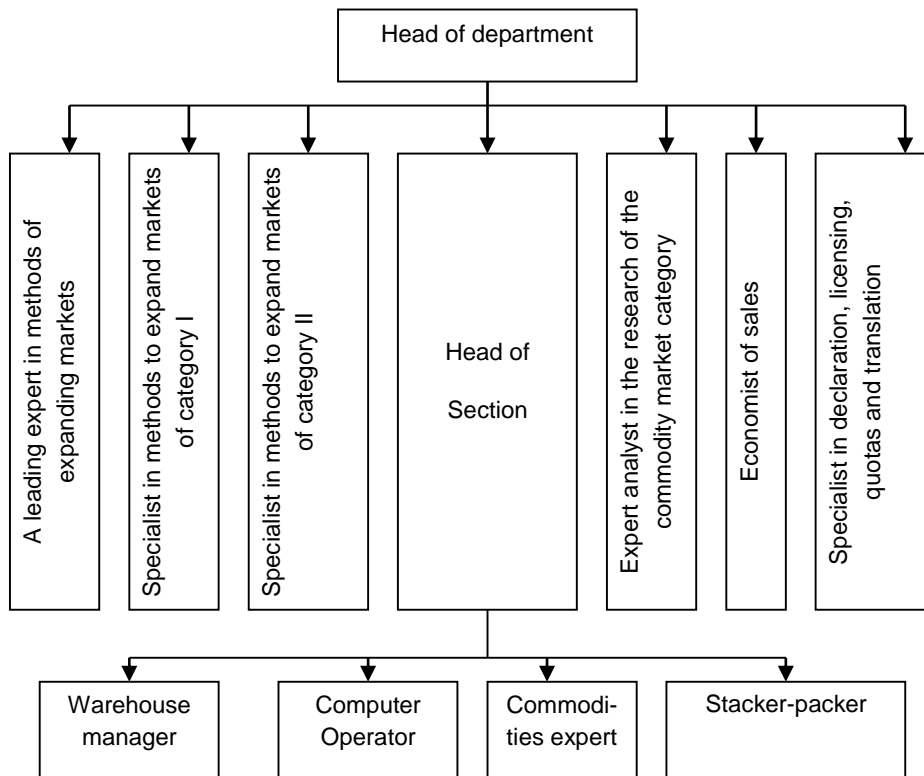
| Type of product                | Competitor (legal name, address)                      | Competitive advantages   |
|--------------------------------|---|--|
| Contact thermometry            | Ukraine:<br>PJSC «TERA», Chernigiv;                   | The price level corresponds to PJSC «ETM»; wide range of products of both manufacturers.   |
|                                | PJSC «Termoprylad», Lviv;                             | Used the latest technology, put into effect the latest electric insulating materials (Thermal Ceramics UK), but the price level of competitor is higher in the 20-30%. |
| Water counters                 | PJSC «Novator», Khmelnytsky;                          | A flexible system of discounts; high level of service; convenient payment; price level corresponds to PJSC «ETM».  |
|                                | Enterprise «Komunarschetmash», Kharkov;               | New technologies; high level of service; price level corresponds to PJSC «ETM».  |
|                                | JV «Tsentner-Invest», Kyiv;                           | Modern equipment; the latest technology, high level of after-sales service; the level of prices is in 50% higher.  |
| Gas pressure regulators, other | Ukraine:<br>Factory «RADAR», Kyiv;                    | Used the latest technology; highly skilled personnel; high level of service.   |
|                                | Machine-building plant «Vizar», Juliani, Kyiv region; | The wide range of products, a flexible system of discounts.  |
|                                | Firm «Armavir», Kyiv;                                 | New technologies and modern equipment; high level of service; qualified personnel.   |
|                                | Enterprise «Ukrhazkom», Kyiv                          | A flexible system of discounts; convenient payment; high levels warranty.  |

Source: (ukrstat.gov.ua).

Table A.6. Activities profile of PJSC “Elektrotermometriya”.

| Indices   | Points |   |   |
|---|--------|---|---|
|   | 1      | 2 | 3 |
| Measures of achievement goals                                 |        | X |   |
| Risk level (Z – factor)                                       |        | X |   |
| The degree of appropriateness of the organizational structure |        |   | X |
| The level of communications in the enterprise                 |        |   | X |
| Style of management   |        | X |   |
| The level of profit   | X      |   |   |
| Market share  |        |   | X |
| The control of product quality                                |        |   | X |
| The nomenclature of products                                  |        |   | X |
| Flexibility of pricing policy                                 |        |   | X |
| The feasibility of contracting policy                         |        |   | X |
| The system of sales   |        |   | X |
| The level of service  |        | X |   |
| The system of buyers stimulation                              |        | X |   |
| The degree of marketing activity                              |        | X |   |
| Research and development (R & D)                              |        |   | X |
| Status of logistics   |        |   | X |
| Qualification of personnel                                    |        |   | X |
| Motion estimation of staff                                    |        | X |   |
| The degree of motivation of staff                             |        | X |   |
| The financial capacity of the enterprise                      |        | X |   |
| Organizational culture  |        |   | X |
| Rating score of enterprises                                   |        | X |   |

Source: Documentation of company, author's own elaboration.



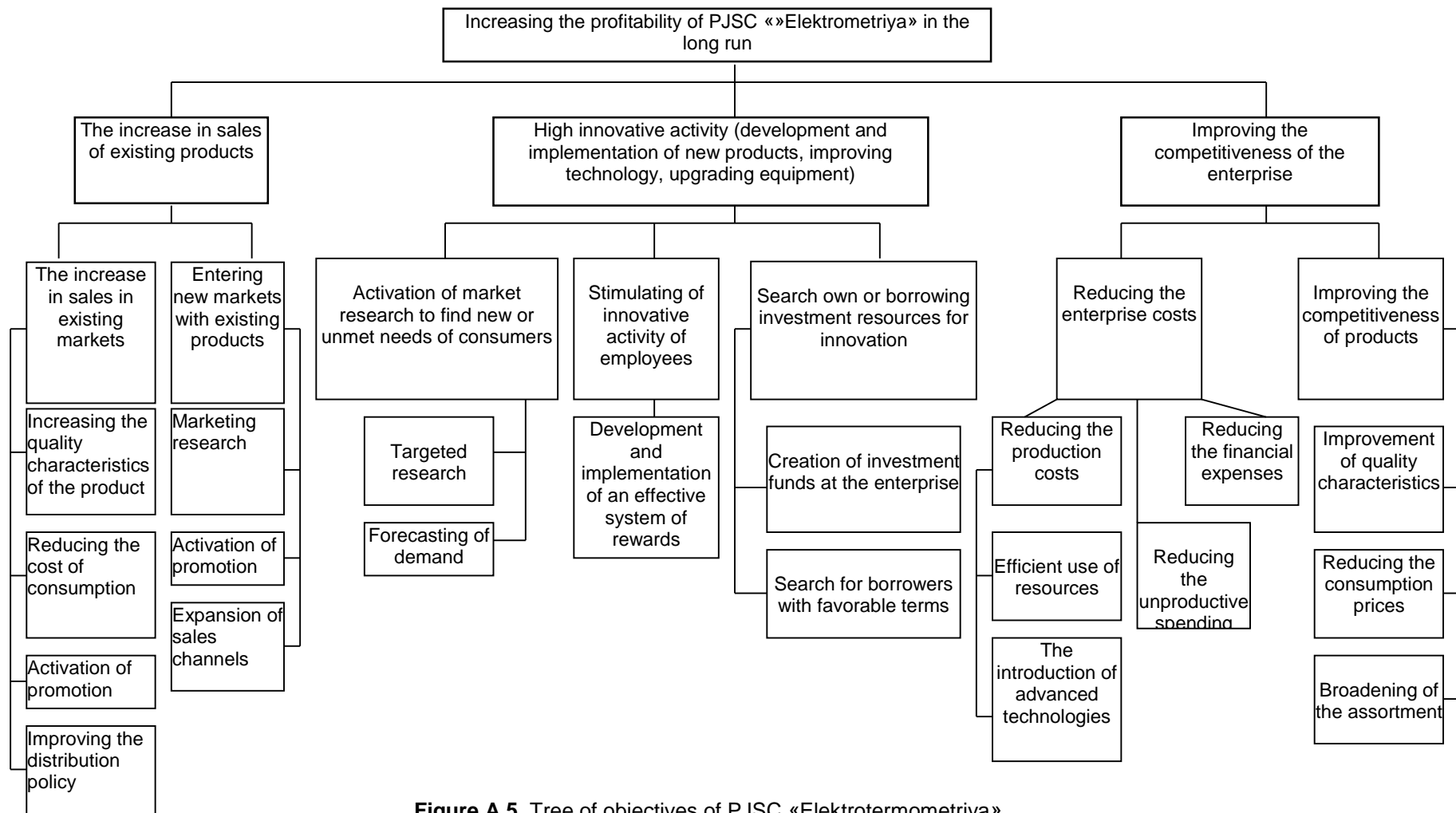
**Figure A.4.** Structure of Department of Marketing and Foreign Economic Activity.

Source: Source: Documentation of company, author's own elaboration.

**Table A.7.** Analysis of prices of basic products on 02.01.2015.

| Type of product                    | Price of the enterprise | Price of competitor of the enterprise | Price of the enterprise in % to the price of competitor | Enterprise competitor (legal name)                           |
|------------------------------------|-------------------------|---------------------------------------|---|--|
| Contact thermometry: «A – 8045»    | 237,8                   | 261,6                                 | 90,9  | LLC «Proyzvodstvennaya company «Theseus», Obninsk (Russia)   |
| Water counters: «D-1,5»            | 186,4                   | 189,8                                 | 98,2  | PJSC «Novator», m. Khmeltsky                                 |
|                                    |                         | 175,2                                 | 106,4   | «Komunarschetmash», Kharkiv                                  |
| Gas pressure regulators: «C -10»   | 336,4                   | 347,2                                 | 96,9  | Zhuliany machine-building plant «Viza»", Cherry, Kyiv region |
| Casing with mounting kit: «D – 10» | 154,0                   | 162,6                                 | 94,7  | Enterprise «Ukrhazkom», Kyiv                                 |

Source: <http://smida.gov.ua>.



**Figure A.5.** Tree of objectives of PJSC «Elektrotermometriya».

Source: Author's own elaboration.

**Table A.8.**The functions of the major subsystems of decision support system (DSS) of industrial enterprises.

| Subsystems of DSS                                   | Functions of subsystems of DSS  |
|---|---|
| Strategic planning and management of the enterprise | <ol style="list-style-type: none"> <li>1) formation of mission and corporate culture of the company</li> <li>2) statement of corporate goals of individual projects</li> <li>3) forming an economic portfolio, the choice of corporate strategy</li> <li>4) definition of strategy, tactics, policies, procedures and general requirements for each project</li> <li>5) strategic marketing</li> <li>6) assessment of conformity of organizational structure to strategic plans</li> <li>7) assessment criteria and methods for measuring of results reward system</li> <li>8) the set of tasks managers, delegation of authority</li> <li>9) drawing up action plans at all levels, resource allocation</li> <li>10) establishing methods of coordination, communication</li> <li>11) implementation of information systems for the timely evaluation of business</li> <li>12) control of management process, analysis and problem solving</li> <li>13) evaluation and correction of strategic plan</li> </ol> |
| Management of marketing                             | <ol style="list-style-type: none"> <li>1) objectives and strategies of marketing</li> <li>2) the procedure for compilation and content of marketing plan</li> <li>3) analysis of nomenclature of enterprise</li> <li>4) marketing budget</li> <li>5) sales markets: a preliminary market research, working with selected option, selection of development strategy, product strategy, sales strategy, promotion, pricing strategy, audit and control marketing</li> <li>6) supply markets</li> <li>7) production</li> </ol>   |
| Market Analysis                                     | <ol style="list-style-type: none"> <li>1) strategic analysis</li> <li>2) analysis of marketing of the company</li> </ol>  |
| Business Planning                                   | <ol style="list-style-type: none"> <li>1) production plan</li> <li>2) the possibility of release related products</li> <li>3) production capacity</li> <li>4) equipment purchased</li> <li>5) ecological estimation of project</li> <li>6) logistical support</li> <li>7) justification scheme of logistics:</li> <li>8) risks</li> <li>9) the cost of production and marketing</li> <li>10) the full costs of products sold</li> </ol>   |

Source: Author's own elaboration.