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Core Competence Development while Carrying out Organizational Changes

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***Abstract*—**The paper contains the different issues of competence management in industrial companies. The theoretical bases of human resources management and practical issues of innovative enterprises' competitiveness are considered. The research is focused on the modern industrial enterprise changes management problems; it focuses on the effective personnel management of industrial enterprises on the basis of competence approach. The influence of organizational changes on the competence development is discussed. The need for development of the new technologies is mentioned, proposal is based on competence-based approach in personnel management including in the conditions of carrying out organizational changes; methods of acquisition and development of missing key professional competences are discussed; importance of key competencies in forming competitive advantage of the organization is mentioned.

***Keywords*—**Competence model, development of industrial company, organizational changes, competitiveness, core competencies.

I. Introduction

PROCESSES of globalization set for modern accounting entities a task of key positions forming. The most important objectives of global industrial companies are increasing their own resources for creation an effective competitive source in global environment. In particular, personnel policy of the company is the instrument of preserving personnel capacity of the organization, and it shall be reviewed from a line item of competence-based approach. New competitive advantages are based on core competencies and help global industrial companies to improve their economic relations; they also form the information society and integrate industrial companies into world economic space [1].

Some scientists [2], [5], [8] make a hypothesis that core competence force, which was developed and enhanced to competitive level, became characteristic feature of the personality inside the competence-based approach. Other researchers [3], [6], [9] consider that the concept "competence and competence" began to be used since 1958 [2]. According to Argyris and Schun, interest in research problem of competences usually matches crisis stages of economy and education development [1].

The simplified scheme of historical development of competence management, and the concept "core competence" within the competence-based approach, can be divided into the following stages:

- 1950-1970 – first stage. In case of human resources assessment the entities traditionally use the term "professional and important qualities", the emphasis is placed on qualities, which are separately taken and most critical for this specific type of activity (most often mental and physiological characteristics) [2];
- 1970-1990 - second stage. The need for assessment of intellectual personnel is recognized. The workers, who are engaged in mental work, head amplifies. The emphasis is placed on knowledge assessment, including skills and capabilities, practical experience, the term "qualification element" is used [3];
- Starting from 1990 – third stage. The task of assessment procedure began to be based on bigger prognostic profiles of positions; specialties become wider [2], [4], [5]. The term "competence" is becoming the most extensive concept allowing describing readiness of the person for productive work (Table I).

TABLE I
Comparative Characteristics of Organic and Inorganic Competencies

Indicators/Period	1940-1950	2000s	From 2005
Priorities	Authority	Team work	Trust
Style of leadership	Directive	Situational	Mentoring
Formation of success	Following to a template	Effective communication	Flexibility
Professionalism	Technical qualification	Authority delegation and separation of responsibility	System approach

The employee competence is shown in integration degree in a corporate culture of the organization, unites in itself any characteristics of the employee. It is the significant for production process. Competences can possess various extents of manifestation (from basic level to the expert's level). A certain set of competences characterizes both an official line item and personal level of employee. The structure of the competences is necessary for accomplishment of the same function; it can differ depending on specific entity.

II. Literature Survey

A. Competence-Based Approach

Author considers that competence-based approach can be discussed as 1) the set of individual characteristics of the employee which are directly connected with execution of functional obligations, and 2) more universal personality characteristics and behavioral models [3]. The logical

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competency structure allows considering knowledge and experience of the employee in various sections of professional activity. The logical competencies can be seized in the course of acquisition of life experience. In this case the qualification is not just the only necessary thing for the solution what kind of specific production objectives can be implemented on a workplace.

It is possible to select the most significant characteristics of competence:

- ✓ Establishment of close interrelation between competence and professional activity;
- ✓ Competence possesses the structure consisting from the interconnected and constantly developing elements: skills, knowledge, abilities, etc.;
- ✓ Competence is not congenital and it is purchased and accumulates with experience;
- ✓ Competence is the concept connected with professional activity of the person.

We try to investigate all definitions of competencies, estimate core competence' model and analyze the linkage between organizational competencies and competitiveness.

The dependence between a core organizational competency and its key personnel competences is not linear, so, the core competency of the company cannot be determined by the simple amount of employee competences, it depends on their configuration and properties of mutually strengthening (availability of synergy effect) [7], [8].

According to this research, we prepare the solution, that employee's competences can provide the synergy nature of core organizational competency only in case of their complementarity. In this case, if company wants to improve its competitive level it should follow some management directions:

1) observe existing competencies;
2) provide compliance;
3) manage core competencies.

Two last management functions of the organization are regulated:

A) by activation of informal confidential interaction, that is implemented extremely seldom owing to "closeness" of informal structure for third-party invasion;
B) by traditional training (programming of this action, assessment of effectiveness, ensuring compliance of tasks. In this case employee's developments are directed by organizational dynamics).

In industrial companies the task of a complementarity of competences finds strategic importance owing to variability of a contour and structure of project structure. Such organization shall provide training process in the permanent mode.

It is important to introduce the concept of American researchers [2], [7], [9]. They consider a personnel competence as set of six components. These components are:

1. Conceptual aspect–perception and judgment of theoretical bases of professional activity;
2. Tool aspect - ownership of basic labor skills;
3. Integrative aspect–possession of a capability to put the theory into practice in case of the solution of professional problems;
4. Contextual aspect - perception of canons of a corporate culture, in which professional activity is performed;
5. The adaptive aspect – possession of skills of change anticipation in external and internal environment and readiness to react to them;
6. Communicative aspect – possession of oral and written skills of interpersonal communication.

This research determinates that core competency is offered as capabilities to develop the available organizational resources on the basis of the effective personnel training system. Such system can follow to creating competitive advantage.

B. Hamel and Prahalad Theory [5]

Significant contribution to the competitive strategy development was introduced by Professor of London Business School G. Hamel and Professor of School of Business Prahalad. In 1994 they published their joint book «Competing for the Future», in which they argued that, instead of treating the company as a set of enterprises, managers should begin to perceive it as a combination of key, basic competence, i.e., skills, abilities and technologies that provide benefits to consumers [5]. According to Hamel and Prahalad [5], the prospects of the enterprise are recognized not today, but in future markets and is referred to intellectual leadership. These markets, according to the researchers' opinion, have not yet formed, but now they should represent themselves and strive for their creation. That's why, skills, abilities and techniques may not be localized in a particular division or department.

The most important conditions for intellectual leadership are skillful application of the "basic functionality of the product" and "core competence" model". The first concept state that in order to predict the future control managers should not think about services, they should start thinking about their functionality and to ask the question "What kind of value or benefits are delivered to customers with existing products and services?" Asked this question, managers will be able to discover a lot of new opportunities for their companies. Moreover, these new features can be created on the basis of available competencies.

Hamel and Prahalad [5] tried to give the explanation of the essence of "core competencies". They consider that it is necessary to establish contact within three groups of employees. Firstly, they believe that the contribution of young professionals can make a bet on the future: "We must encourage represent Generation X-workers to exchange ideas with the gray-haired members of the executive committee." Secondly, they suggest that using people who are on the periphery of the organization ("back space specialists") can provide the ability for strategic innovation increases, because every mile is proportional to the distance from the central office. Using the periphery area (subsidiaries or remote locations), most likely, it is possible to find people who are more open and processes and inappropriate orthodox principles of the company. Such people have the greatest creative potential in spite of limited minimal resources. Finally, Hamel and Prahalad give advice to bring into the competence creation

process new organization, since that, new employees "are not imbued with the prevailing dogma in the industry."

Hamel and Prahalad [5] introduced new term "strategic architecture" to denote a competitive strategy. Using the strategic architecture company can find the opportunities that it should increase immediately, for example, new channels, which you need to study today, new development priorities to be pursued at the moment. It will help managers to seize the future and market initiative. Thus, the strategic organizational architecture addresses issues that need to be taken today; it will help to prepare for the mastery of a significant share of future earnings in the arena of emerging opportunities. As a result, this approach is called “the concept of a market space”.

The process of generating ideas differs from the process of knowledge using. Most employees are not able to do both at the same time. That’s why ideas require a creative approach. De Bono [8] introduced the concept of "lateral thinking" and defined it like "a set of processes, which can be used for gathering information, generating creative ideas through astute restructuring concepts accumulated in memory."

Companies derive their ideas of the goods or services from the development of researchers, focusing on consumer needs, behavior on the market and other competitors. The process of generating ideas, usually, is activated at the beginning stage and during the implementation of a new project.

TABLE II
OVERCOMING RESISTANCE METHODS OF ORGANIZATIONAL CHANGES

Measures	Prerequisite	Advantage	Shortcomings
Corporate training and full information providing	Shortage of information, provision of unreliable information	Active participation of workers in the held event in case of successful belief	Labor-consuming on time covers practically all personnel
Attraction for work in the project	Shortage of information at initiators on the implementable project and the possible reasons of resistance	Intensity in collective decreases, the project team is formed	Rather costly on time because of long provision process and studying of information
Stimulation and support	Resistance owing to individual adaptation in the project	Provision of support in case of adaptation and accounting of individual wishes, goal achievement	A lot of time, and also financial expenses are required, it can lead to a project failure
Negotiations and agreements	Resistance of a management because of fear to lose the privileges in a project deliverable	Provision of guarantees, exchange support; it is rather easy way of overcoming resistance	Often requires heavy expenses and can cause discontent in other groups of personnel
Staff rotation	Insolvency of other influence "tactics" or unacceptably high costs on them	Resistance is rather quickly liquidated, without requiring high costs	Threat to future projects because of mistrust of the affected persons
Hidden and obvious enforcement powers	Acute shortage of time or lack of the authority at initiators of changes	The threat of punishments reduces resistance, accelerates project implementation	It is connected with risk, generates resistant hostility to initiators, the passive resistance of possible reorientation in the project is appeared

C. Influence of Organizational Variability on Object of Management

The American scientist Levin [9] provided 3 stages of process of changes:

1. "Thawing of a glacier" – change of habitual way of organization functioning, which supports the existing behavior and installations. This process reflects changes for people with potential hazard and; therefore, for achievement of natural state of balance it is necessary to motivate the people involving them in reorganization;
2. “Process of change” – emergence of the accompanying reactions with use of new information;
3. "Building-up of a glacier" – entering of change in a stabilization phase, approbation of new responses for those who are involved in transformations.

Standardly, any carried-out changes cause active resistance of both organizational levels: personnel and organization. The analysis of literature shows that the reasons of resistance to organizational changes are generally researched in the context of various theories of organizational development.

Organizational resistance has three versions [1]:

- ✓ resistance to delegation of obligations and responsibility;
- ✓ inertness and not dynamism because of difficult organizational systems;
- ✓ resistance to changes which are imposed by experts from outside.

The most known classification of overcoming resistance method is provided by Kotter [4]. He allocates six methods, gives their analysis from the point of view of benefits and shortcomings, and also creates approbation prerequisites (Table II).

One of types of an organizational change is development of personnel capacity in the organization. Any organizational change significantly influences personnel development. Personnel development implies the structured employee development oriented to goal achievement of the organization through expansion and deepening of the available professional competence. Training in new professional skills can also increase the interest and organizational opportunities of the company, managers can use more fully the potential of workers.

III. MANAGEMENT CORE COMPETENCIES IN INDUSTRIAL COMPANIES

A. The Impact of Changes in Organizational Behavior of Industrial Companies

For the purpose of steady competitive advantage achievement and development, strategies of project companies are implemented the following directions of organizational changes:

1. in interaction with the external environment:
   - ✓ integration with large industrial complexes (entry into

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structure of large holdings and corporations);
- ✓ disintegration on small firms in various directions of project works;

2. in interaction with the internal environment:
- ✓ implementation of the "working" quality management system, providing analysis of key business processes;
- ✓ implementation of a management system competences, creation of the self-training organization.

In case of choosing the development strategy for competitive advantages, the project company needs to use instruments of project-oriented management.

It is possible to offer the following determination of the project-oriented organization: the organization is investigated as a factor of steady competitive advantage; it has fixed involvement into the project activities and it is connected with the solution of uncommon tasks because of uncertainty and variability of the external environment.

It is necessary to mark out features of the project-oriented company which are shown in the following areas:
- ✓ The organizational structure allows to move freely personnel and to create temporary work groups. These groups have irrespective functions in structural divisions and they built interrelations between them.
- ✓ The budget is planned and performed on separate projects, but not in general on the organization. Flexibility of the budget structure allows to create reserve funds of projects and to credit other projects at the same time.
- ✓ The system of personnel requirements may have unique key set of skills and abilities. It is created due to effective system of motivation which shall conform to these requirements.
- ✓ Tough control of accomplishment terms of the project documentation and quality of the project decisions should be made.

The main essence of project-oriented management consists of 1) system (process - oriented) approach and 2) management of key project parameters, such as content (structure of works), terms, cost, and communications. Quality of the management is considered as set of obligatory processes: planning, control, motivation and others. It is possible to provide a certain matrix of management to disaggregate process of project management and improve managerial procedures.

B. Core Competence Model

Modern researchers distinguish following classification in considering the professional competence:

1) Simple (basic) competence – it is seen in certain types of activity, formed on the basis of knowledge, skills, abilities, easily fixed;
2) The core competence – it is extremely difficult to account for it, it is storage of measurement, it can appear in all activities, it reflects the attitude of the individual person and meets the global environment [12]-[14].

The process of organizational competence formation is an integral part of building a competitive strategy, so it is a basic step in the formation of core competence model. The main objective in the step of forming the organizational competence is definition of key organizational competence which forms the main competitive advantages (Porter's Model) [12]. In practice managers find a lot of problems using competence management in innovative companies. These problems are:

- The level of existing complexity of specialist involvement in other project is rising. Usually the holder of the key competences does not want to share his core skills with other specialist;
- The indispensability of a highly qualified specialist and, therefore, control the complexity of competence is failed;
- A degree of lack of personnel interest is high, because it is long period to transfer knowledge in the project and format the key competencies.

The most acute problem faced with innovative organization performs complex design. One of the features of innovative companies is excessive requirements to the competence profile of key employees. This is due, no doubt, to the uniqueness of the products (and/or services), which are produced in the group projects. It is known fact that the "smart" company has a greater extent than the other players in the market. It depends on the professionalism of its key personnel and the effectiveness of their core (and hidden) competencies. It is possible (with some modifications) to use the special indicator to share the total costs in wage fund with the cost of the project or service, and it can be a criteria of a relationship.

The problem to determine organizational competencies as a source benefits is a compound of core competencies with individual. With this statement we can agree, because, for example, resource-institutional theory creates competitive advantage of the organization increasing using core competencies, which improve the level of values. Thus, the key competence is a special category of organizational competence. It helps innovative organizations to create and maintain a sustainable strategic competitive advantage. The main property of the key competence is to establish the usefulness of the product which is produced. If managers want to treat the core competence, they should provide a set of skills which must meet four criteria:

1. Producing value for internal and external users (customers). The customer for the innovative organization is the chief referee, who determines what a key competence is considered.
2. Skills must be unique and individual. There are differences between forced and distinctive competencies. A key competence is organizational value, so, to the opinion of managers and key specialists of the company, the resources for its development should be found. For example, the innovative organization can dramatically improve the quality of customer service; make it above its average level in the industry with making its core competence.
3. Core competencies should ensure a competitive advantage during the long period. In defining key competencies process managers need to move away from the outer parameters of the product and consider how you can use the competence to produce innovation in this product.
4. Key competence should be long-term and unique.

To build a competence model of key employees for

organization it is necessary to organize an algorithm of control system, for example, managers can implement role-playing instructions and establish competency cards. Usually, the guide role contains the following sections: a set of core competencies, responsibility (responsible for individual sections of the project and co-executor in any stage of the project), and the project targets (Fig. 1).

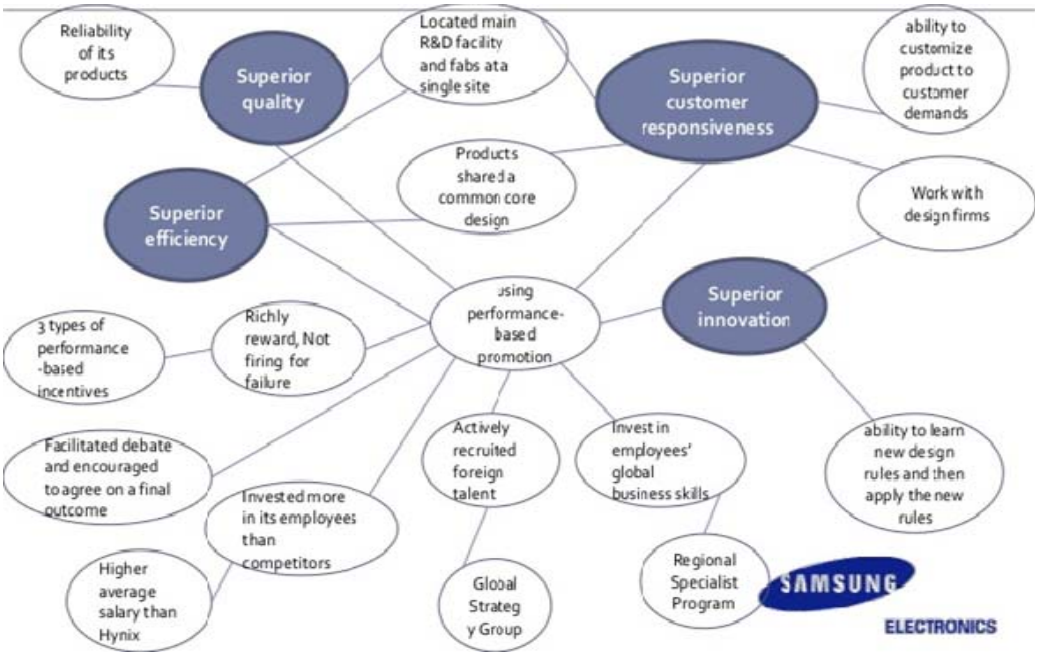


Fig. 1 Samsung's activity matrix [16]

What is designing competence? Managers should find the moment when designing competence comes to the areas in which innovative organization must possess all possible resources or skills and create them from existing. Strengthening competence is adequately when innovative organization finds additional market segments and it is used with its existing capacities [6].

The change in the ratio of policies directly depends on the macroeconomic environment of organization, as well as it depends on the strategic orientation of the design organizations. Their willingness to sacrifice short-term income in exchange for a higher and more long-term period is important.

It is necessary to identify a number of factors that determine the choice of strategy. These factors are:

1. the level of development and the basic forms of market competition,
2. the ratio of the increase rate in the staff cost,
3. the active part of fixed assets,
4. respectively, replacing living labor,
5. the time factor,
6. the rate of inflation,
7. the structure of the consumer basket,
8. asset portfolio of innovative organizations,
9. government regulation economy and transport industry,
10. the priorities of industrial policy,
11. the provision of cross-sectorial ne-redistribution of capital and labor,
12. the development of innovative activities.

C. Matrix's Unique Competencies for Innovative Companies

Modern corporations which are operating in the high-tech markets must be adapted to the current pace of development tools and mechanisms. These tools include:

1. the methodology of forming "core competencies",
2. the creation of support centers "inorganic competencies" (focused on the new "core competencies" creation),
3. practical arrangements. "Open innovation" is tool that provides speed dialing and the development of new competencies on the basis of close cooperation with the market and getting feedback from it.

"Open innovation" competency matrix is used to prepare an adequate decision on the competence development. This tool helps to select the form of using approach, name the partition of all subsets of the innovation competence unit and provide not only the organic and inorganic expertise (Table III).

The international practice shows that such corporate giants like Intel, General Electric, Apple, Motorola, Thales, North Grumman and a number of others, use the acquisition of new competencies within the framework of inorganic innovative projects like the most important competitive factor s [10]. For example, Google's innovative complex is presented as a set of separate research teams involved in the development of new technologies and products. Those competencies appear due to the unique corporate system "20 percent time". It means the company's philosophy, according to which the company's employees can spend one day a week for the development of new projects not related to their immediate duties. Thus, 80%

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of their time programmers must deal with the search engine development and advertising services, and the remaining 20%, they can devote to their own projects. Leaders must also be innovative: it is necessary to spend 70% of the time to the main work, 20% - to other projects related to the main job, 10% - to new trends and products [15].

TABLE III
COMPARATIVE CHARACTERISTICS OF ORGANIC AND INORGANIC COMPETENCIES

Criteria	Organic	Inorganic
Competence	Development of the current "core competencies"	The development and acquisition of new competencies
Source	The source of the company acts itself	Internal competencies are actively involved in the competence of the market
The payback period of brief examination of competence development	Projects with medium-term prospects for the return outlet	Projects with long-term prospects for the return outlet
Criteria for making a decision on the development of tight financial decision	Along with finance	Decisive role is decided by the market prospects in a few years and current technological trends

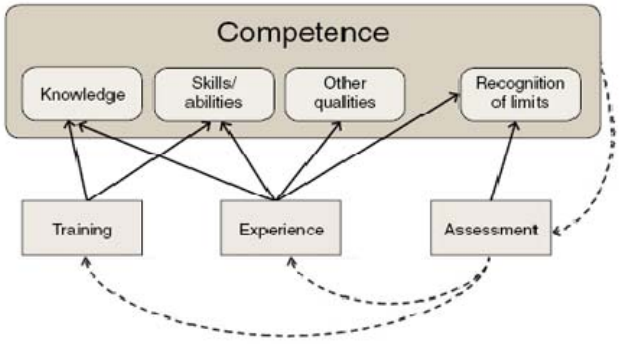


Fig. 2 Competence in project oriented management [13]

Today, the global innovative company carries out strict control of competence-based projects, because the company's management has recognized the value of these innovations. In such way Gmail and GoogleDocs were developed. These company's expenses in R & D are up to 3.7 billion every year (12.63% of total revenues). Thus, professionals and entire teams develop competence largely on their own, decentralized way [11].

Global practice shows that any large company should implement its own support system for "inorganic competencies"; and it can be a possible modification of a set of core competencies over time. The task to find new competencies and identify them as an update key becomes a basis to remain competitive acts and find the ability to grow or to borrow knowledge from the market [10].

When company manages the competences according to the process of developing an organizational strategy, management should clearly identify which organizational competencies are needed to be implemented into this strategy. Organizational competence is a set of competencies of staff which are combined with the ability of organization to achieve specific results. There are examples of organizational competencies:

- the ability to develop new product with minimal costs to the industry,
- the competence in the field of foreign representative offices and branches,
- the competence in the area of customer needs in the development of new product
- and others (Fig. 2).

Marketing skills, or organizational resources (e.g., the ability of Coca-Cola to meet the needs of residents of almost all countries is key competence in the technical possibilities (manufacture of miniature electronic equipment, which involved hundreds of people; the same competence Sony corporation has). In this case marketing skills can act as a source of organizational competencies, providing soft drinks cross over the world and organizing regular supply). Key competence can also create the personnel qualification (for example, the key competence of McKinsey consultants is plan development of strategic and organizational changes).

Despite the fact that organizational competencies have a long-term nature and are essential for the development of the organization, it is important to understand that no single organization can develop itself successfully during long-term period if it does not improve their own competencies and does not exquisite the new ones.

Managers should recognize the sources of unique competencies – they can be "internal" (in the company) and "external" (the market competencies, competencies exchange) - and understand how they can be put into circulation.

The internal and external competencies consider only those factors that give the company a significant competitive advantage. These competencies cannot be easily copied by competitors. Typically, sufficiently long period of time and experience in a particular field are required to create such competencies.

IV. CONCLUSION

At the present stage of economic and engineering business development, the level of environment competitiveness of innovative organizations is regularly re-determined by its ability to accumulate knowledge, experience and skills. The talent to maintain an acceptable social climate and to develop organizational and information culture is important. The both concepts of the knowledge development and competencies creation, in general, allow the human resource to be widespread, both in innovation and in traditional sectors of the economy.

Thus, modern conditions of domestic economy development are the important factors in the success of innovative organizational competitiveness. It is ability to identify and develop own core competencies. Innovative organization should seek and provide a high level of competitiveness, using the ability to synthesize the strategies and personnel skills, individual (personal) and collective (organizational) competencies. To do this successfully, firstly, it is necessary to evaluate existing competencies in the organization and, secondly, to develop profiles of key competencies (some

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standards, benchmarks can be provided) and, thirdly, to develop an effective system of personnel training within learning organization model for the accumulation of existing competencies and the acquisition of the missing ones [14].

The profile of the key competencies in industrial organizations endorses the program of training and develops the key staff. Company must provide the trainees with necessary handouts and an opportunity to try out the standards of behavior which are required in the development process. This means that development activities should provide the opportunity to apply the techniques which are studied in a variety of work situations. According to this task, the development activity should include a range of techniques, such as workplace training and special courses with the assistance of mentors. Thus, it should be noted that many factors affect both the training program and the development of an innovative organization. In this case the actual training should be organized. Strategic plans for innovative organization and its personnel policies directly affect the training and development programs.

In the process of passing the training new skills-functional skills and expertise are acquired. All possibilities and techniques to achieve the required learning outcomes are numerous and varied, but all aspects and directions of personnel improvement must be correct in order to ensure effective results. If training activities are not supported by the development activity (for example, developed skills are not implemented in practice), the theoretical and methodological materials will soon be forgotten.

Within the framework of the international quality management system standards for design organizations (ISO 9000) clear requirements to the human resources are established. It means that personnel who is involved in work with affecting product quality should be competent, in other words, such personnel must have a proper education, training, skills and experience. A new training requirement in recent years has become a key competence as a reasonable ability to apply knowledge and skills. Competence in the frames of ISO requirements must be documented [15]. Documentation should be periodically reviewed and corrected and follow the organizational strategy.

Usually, the level of competence is defined in the selection, recruitment, training and development. The use of international standards of quality management in project management allows the company to build a clear competence-based project management. It is recommended to take into account international experience and the specifics of enterprise; implement a corporate "intelligent" control system based on personnel, including regular assessment, education system, development, and incentives for employees.

Organizational competence model must be dynamic, developed in accordance with changes in the company's corporate strategy, involving the implementation of innovative projects. The main tool is the creation of an innovative program of staff training.

Strategic competence in innovative organizations can be identified as a key factor in improving the competitiveness of products. It consists of the relationships between key organizational and key individual competencies. Update rate of strategic competence determines the long-term life cycle of goods and services. In this regard, the organization must promptly be innovative and introduce new technology, knowledge in the process of solving actual problems due to development of business, that is, to become a learning organization. Organizational learning involves the development of intellectual potential of the employees and their assessment based on competence management principles in order to achieve the strategic goals of innovation organizational development.

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