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Lappeenranta University of Technology

School of Business and Management

Program Global Management of Innovation and Technology

Master's Thesis

THE ROLE OF HR MANAGEMENT IN THE CORPORATE MATRIX SYSTEM

Kseniia Ivanova

1st Supervisor: Dr. Sc. (Tech) Daria Podmetina

2nd Supervisor: Professor Juha Väättänen

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ABSTRACT

Author: Kseniia Ivanova	
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<p>The successful performance of company in the market relates to the quality management of human capital aiming to improve the company's internal performance and external implementation of the core business strategy. Companies with matrix structure focusing on realization and development of innovation and technologies for the uncertain market need to select thoroughly the approach to HR management system. Human resource management has a significant impact on the organization and use a variety of instruments such as corporate information systems to fulfill their functions and objectives. There are three approaches to strategic control management depending on major impact on the major interference in employee decision-making, development of skills and his integration into the business strategy. The mainstream research has focus only on the framework of strategic planning of HR and general productivity of firm, but not on features of organizational structure and corporate software capabilities for human capital. This study tackles the before mentioned challenges, typical for matrix organization, by using the HR control management tools and corporate information system. The detailed analysis of industry producing and selling electromotor and heating equipment in this master thesis provides the opportunity to improve system for HR control and displays its application in the ERP software. The results emphasize the sustainable role of matrix HR input control for creating of independent project teams for matrix structure who are able to respond to various uncertainties of the market and use their skills for improving performance. Corporate information systems can be integrated into input control system by means of output monitoring to regulate and evaluate the processes of teams, using key performance indicators and reporting systems.</p>	

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LIST OF SYMBOLS AND ABBREVIATIONS

APCS - Automated Process Control System

B2B - Business to Business

CEO - Chief Executive Officer

CRM – Customer Relationship Management

CRP – Capacity Requirement Planning

CSRP – Customer Synchronized Resources Planning

ERP - Enterprise Resources Planning

FRP – Finance requirement planning

HR/HRM – Human Resource Management

HRS – Human Resource System

IS – Information System

IT - Information Technology

KPI – Key Performance Indicator

LAN – Local Area Network

Ltd. - Private Limited Company

MRP – Material Requirement Planning

MRP II- Manufacturing Resource Planning

OLTP - Online Transaction Processing

SCM – Supply Chain Management

SMEs - Small and Medium-sized Enterprises

WAN – Wide Area Network

1. INTRODUCTION

This section is an introduction to the Master's thesis project "The role of HR management in the corporate matrix system". It provides the general background of the research, explains the research problem and objectives, presents the actual research questions and provides the structure of study and research design.

1.1. Background of study

Organizations need the internal processes that develop the most of organizational policies, practices, and design features for the interaction to produce and support employee performance (Grumman & Saks, 2011, p.123). The maintenance of the complex processes and function of innovation companies requires distinctly system engineering in corporate governance and management. In last decades, firms prefer to rely on corporate information system for managing knowledge and improving their performance (Liao, 2005). Companies aiming at innovative projects or customers-oriented approach focus on the improvement of managing processes, production efficiency and reduction of costs. They use the corporate software platforms to achieve their goals. Corporate information system should ensure the work of several geographically distributed branches or subsidiaries. Therefore, it becomes impossible to utilize a centralized database architecture. Information resources should be distributed across different divisions inside of company that help to provide the timely and value-relevant information for making short and long-term decisions.

The role of corporate information system can vary according to the requirements of the organizational structure. The structure of any enterprise aims at optimizing the way, in which employees reach the assigned objectives. It allows staff to take advantage of specialization, to achieve high-efficiency operation. The organizational structure encompasses a method of work organization, information channels, analysis, planning, decision-making, execution, organization, record keeping, accounting and control (Waterman, Peters & Phillips, 1980). It reflects the construction and system of managing subject, and affects the internal relationship, management levels, connection elements between departments and allowing the performance of control functions. These results of the structure has an impact on the

architecture of the information system and its connection of the internal components (Shehab, et al., 2004).

Particular impact on the application and changes in the development of information systems plays a matrix organizational structure. It is one of the most sophisticated and flexible management structure and requires specific way of adaptations for corporate systems. It prefers to implement the ERP systems (Kwahk & Ahn, 2010) and their variations for sustainable management. The opportunity of usage the ERP system as a tool to balance the company management is one of the priority research in the field of business strategies and this study.

However, despite the various methods and management instruments, the significant element of enterprise performance and innovation processes is employee (Ouchi, 1978). Employee performance is outcomes achieved and accomplishments made at work (Anitha, 2014, p. 309). Delery and Doty (1996) supposed that strategic approaches and organizational structure of company to improve the performance of human resources are significant tools for achieving organizational objectives.

Human resource management relates to maintain the employee performance for achieving the established or expected outcomes. Blasi, Conte and Kruse (1996, p.61) have noted that HRM aids to improve firm's performance that can be realized through decreasing labor management conflicts and encouraging employee effort, cooperation and information sharing. It is an essential part of process organization through using the most effective harnessing the opportunities of staff.

Currently, it is occurred reorientation of modern HR management research into the direction of control systems affecting on firm's performance. Human resource control aims to direct and influence the relationship, implementation of skills and modes of participants to achieve the firm's objectives (Eisenhardt, 1985). It consists of procedures and methodologies for monitoring, directing, evaluating, and compensating firm's employees. Many researches established general different approaches of control system in human resources, which managers can implement. Human resource management and control systems in this area

have a significant impact on the development of internal processes, increase employee productivity and reducing costs.

Nevertheless, it is noted the gap in realization of human resource management control. Each organizational structure has its own characteristics in relationships, subordination and exchange of information. The matrix organization with applied corporate system is the most uncertainty as to the precise management of people and it has its own specific internal problems and obstacles that could significantly affect the internal processes and performance. It is necessary to choose the correct direction of control and instruments for the maintenance, because when executives select the wrong priority and incorrect procedures, companies will suffer losses far in excess of the amount of benefits.

Mentioned above consideration about study of the HRM in the corporate matrix system suggests to explore a selection of more appropriate approach for creating a human control system in the matrix companies and to consider options and scenarios for the use of corporate information systems as a control management tool in this case. The study will examine all approaches of HRM control system within the matrix structure and assess their impact on the decisions of the major internal problems and employee performance. The role of corporate information system will be also estimated as the instrument of control system implementation.

1.2. Research problem, objectives and research questions

The control processes, the division of responsibilities for the HR management and flows of information, the creation of conditions for a more productive usage of the staff's skills, knowledge and experience, and the maintenance of the convenient level of competition between employees are main challenges of matrix organizations. The researches conducted in this area do not contain enough specific and detailed data that on their basis it would be possible to make the scenario or provide the appropriate suggestions for the internal corporate management system.

In the case of multi-bosses over the minor employees, it should contain a clear policy of HR management, because otherwise the internal issues will negatively affect the functioning of the entire company. The research problem is the need to identify a suitable HR control system and describe its elements and methods of implementation through information systems platform for matrix organizational structure.

The objectives of this study are to explore the role of human resource management (HRM) as a part of corporate information system in control and operation process of matrix enterprises and to study the integration and displaying the HR management control system and its components in the corporate information platform. Therefore, the main research questions are:

1. Which HRM control system is appropriate for applied in companies with matrix management system?
2. How can corporate information system implement the chosen HR control approach?

The revealing the research questions and objectives should be directly related to each other for the reliability of the study and further identification of research design and methods to analyze the research gap. This is reflected in the table 1.

Table 1. The research questions and objectives of the research project.

Research problem	Research questions	Research objectives	Research methods
The need to identify a suitable HR control system and describe its elements and methods of implementation through information systems platform for matrix organizational structure.	Which HRM control system is appropriate for applied in companies with matrix management system?	Exploring the role of human resource management as a part of corporate information system in control and operation process of matrix enterprises	Qualitative methods
	How can corporate information system implement the chosen HR control approach?	Researching the integration and displaying the HR management control system and its components in the corporate information platform	Qualitative method

Since operation and internal environment of corporate matrix companies are able to change because of different intrinsic and extrinsic factors such as business strategies, investment policy, knowledge management and another components of corporate governance (Ford & Randolph, 1992), and in this way relations and communication between staff vary drastically, it is needed to narrow the scope of this research. Matrix structure often associates with innovation, technologies, processes and strong knowledge management. However, previous studies such as Liao (2011) in this direction exist in HR management, although the results are not attached to the organizational structure and relates only to a business strategy of firm. In this research, it is going to be considered as additional material for theoretical framework and the source of items for algorithm of the information system. This study will focus on the review of the common internal problems related to employees and their performance, which are present in one degree or another in the matrix enterprises. In other words, the selection of the control system should be based on the circumstances of the functioning corporate governance. It means that research is also going to identify through literature review the basic challenges, which may be solved by HRM. Furthermore, corporate information system through HR control will provide ways to reduce the risk of their appearances and establish methods of detecting them at an early stage.

After estimating the main problematic points, solutions of which should become the purpose of human resource management in the controlling process and effecting on employee performance, the next logical step relies on the analysis of the two directions:

- 1) Corporate information system
- 2) Human resource management control system

In the first case, it is essential to research in detail the scope of corporate information systems, because the matrix organizations can use different types of such systems for their software. Managing information flow is a key component in the performance and sustainability of a matrix organization. Appropriate information flow provides opportunities to aid enhancing firm performance through reusing knowledge and experience of previous projects and obtaining feedback and ideas from employees for advance the efficient allocation of resources. Companies increase coordination with their employees and customers through complex information systems and reduce the complexity of access and utilization of knowledge. However, those systems that are favorite in these companies and in corporate governance have their own characteristics and purposes and reflect on the matrix company's human resources management and control. The objective is a detailed analysis of corporate systems to identify places in their platforms for HR system and programs to maintain the company's control and performance.

In the second case, it is needed to define what human resource management is and how it can exercise control over the staff and firm's performance. The analysis should cover the features and characteristics of the HR. Human dimension and motivation have critical impact on the effective performance of matrix organization and internal information system. Relationships and control process originate from employee's social networks, using software and standard procedures. Discovering better ways of operating matrix structure requires the fine adjustment and the distribution of responsibilities and methods of control. Key indicators selected by HR management become the orientation for functional managers to evaluate staff capabilities. Furthermore, the most significant direction and objectives are to identify the theory associated with control system and to describe the possible options for its implementation and realization.

This research focuses on the performance effect of human resources management operation and interaction of information system with HR control management. This study contributes to knowledge about results of HR management on the performance of people in matrix structure and, significantly, illuminates how corporate information system moderates the relationships between matrix structure-orientation management and HR control strategy.

However, the study is limited to features of the study and its methods. One of the significant limitations of the research is connected with the generalizability of the findings, because the statistical generalizing is not the goal of qualitative methods (Yin, 2003). This study is based on the analytical generalization of results. The obtained results may be reproduced in multiple contexts to improve the reliability of study. For the more complete disclosure of the external validity of the study, these issues of HR management may be necessary to reveal in using quantitative analysis to help identify other criteria influencing the choice of approach for the implementing strategy of control staff.

Another limitation consists in the complexity of the relation of theoretical data with the empirical overview and analysis of selected case. The review of literature and the choice of theoretical concepts to analyze the role and impact of HR management on the matrix structure and staff has been used mainly the Western sources, databases and research results, while the practical study will focus on the Russian company that has its own specific features and aimed at a specific market. The lack of scientific and official information about the HRM control in the theoretical scope is the significant bound for researching Russian case.

Collecting data focuses on the Russian single case, which has its own characteristics in accordance with the Russian market, the industry and the country's economic situation. The results does not cover the whole innovation matrix organization. They contain only the effects of HR management in certain organizations that operate in specific sectors. To expand the development of the concept and suggestions for improving employee performance, the research design should add the study and analysis not only the Russian matrix companies as well as other corporate complex organizations from the foreign markets.

1.3. The structure of the study

The research is organized for the purpose to uncover the research issues, analyze the situation and make the presentation of the results with followed proposals for solving the identified problems. This point and table 2 will provide detailed information about the content of each part of this study and input-output correlation of each section. It will contain the structure of the research work as well as an explanation for each point of the research work.

The first part is the introduction, which contains and reflects the main objectives of the research work, reveals the research questions and the general methodology of the study.

The second part contributes to the disclosure of the theoretical gap in the field of the management for the complex structures of the enterprises. It identifies the main features of the matrix companies, theoretically explains the main provisions of corporate information systems and chooses the theory and concepts of HR control management system to study its role in improving the company's performance.

In the third part that contain the description of the case study it is revealed information about the selected company and identified the practical problems related to the direct and indirect with the main control system via the information system and its software. It provides data, which is identified through interviews with additional reinforcements from the reports and job descriptions.

The fourth section contains the results of study with conducted the primary analysis and the identification of links for each HR control model. This actual presentation of the results is based on the valid sample of management in company with matrix structure.

The discussion as the sixth part follows the evaluation and description of the results of modeling for the implementation of analyzing the results in terms of performance of the basic tasks and overcome barriers through the corporate system. It provides the estimation of each direction in control management approaches and identifies the strengths and weaknesses, as well as opportunities to improve their utilization.

The seventh part contains the main conclusions in accordance with the literature review and research questions. It affords the possible options for constituting of solutions to problems as well as proposals for further research.

Table 2. The input-output structure of the research work

Part of thesis	Input	Output
Introduction	Research field, direction of research and background	Review and identification of the research questions, objectives, methodology and determination of study structure
Theoretical Part	Overview of theoretical concepts, approaches and theory	The main challenges of matrix structure, features of corporate system provided for complex organization and overview of HR control management
Case Study	Description of company	Identification the list of challenges connected with corporate matrix company
Results	Results collected from the interview and literature review	Presenting and analyzing the results related to HR control
Discussion	Evaluation of results in relation to the theoretical concepts	The main direction of HR management for matrix system
Conclusions	Overall study	Final conclusions, limitations and suggestions for further researches

2. RESEARCH DESIGN AND METHODOLOGY

2.1. Selection of qualitative method and formulating the research design

The purpose of the research design is to generate plan of producing a study, once the goal is defined or chosen. It describes a practical understanding of the central challenges related to the design of social and economic study (Hakim, 1987). This thesis will be based on the model of research design presented in Figure 1.

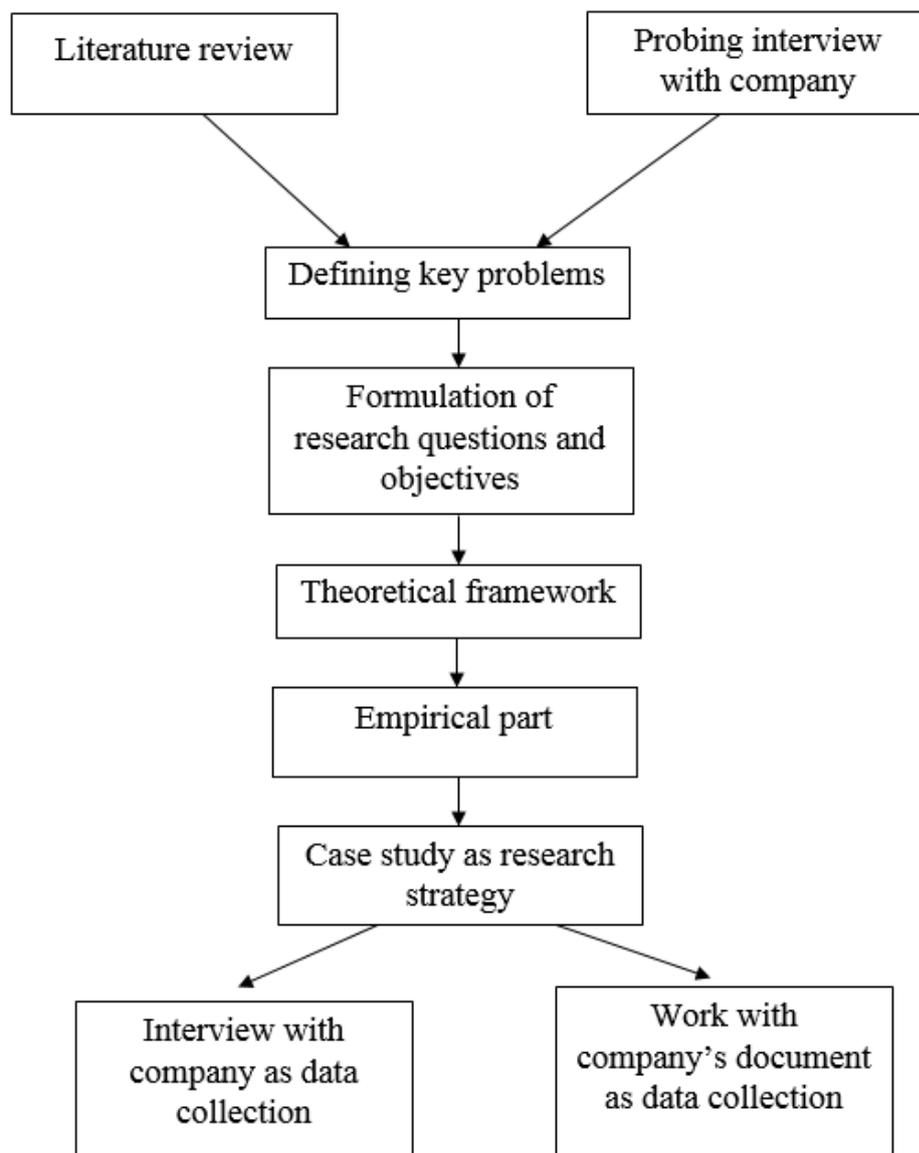


Figure 1. Research design

The main momentum for the beginning of the research process becomes the interest in the application of information systems to manage employee performance. Identifying trends for research are conducted the data collection from primary sources such as the overview interviews with representatives of the Russian matrix company, through which the main internal problems of the enterprise have been determined. Simultaneously, it is occurred to gather information and review of the literature from secondary written sources such as scientific articles, journals, books from university databases, documents, websites materials and reports provided by interviewing company.

After a comprehensive analysis of the obtained and available information, it is possible to determine the main internal challenges of the company, which are connected with the activities of the staff and operation of the company in general.

Furthermore, it allows revealing the structure of organization, the internal environment, some features of corporate governance support and assigning the first suggestions that should be the framework for theoretical research or can be refuted by existing theories. Theoretical framework offers the general and wide picture of existing researches in selecting field and aims to consider causal processes, explanation and gaps in special conditions. It becomes the basis for conducting practical research.

Given the aim of this study and identified conceptual starting points, an exploratory approach in this empirical analysis will be adopted. In particular, research will use single qualitative case study approach because it provides a deeper understanding of a complex trend with multiple variables and processes (Yin, 2003).

The structure of this complete study is presented in the table 3 for clarifying the main point of the research, data collection and approach of analysis obtained information. This table reflects the methodology of conducting research for the consideration of the role of HR management in the matrix company, identifying the chain of data analysis and presenting the results and the responses.

The description of each section of the methodology is provided below the table 3 for the detailed specification of the selection of each item and its purpose in revealing the problems and achieving the objectives of the study.

Table 3. The structure of the methodology and study

Research Questions	Type of research	Research Strategy	Data collection method	Tool for primary source of data	Tool for secondary data collection
Which HRM control system is appropriate for applied in companies with matrix management system?	Exploratory research	Holistic single case study	Qualitative method for collecting data	Semi-structured interviews with representatives of company	Working with reports and documents of company and forming and analyzing theoretical research
How can corporate information system implement the chosen HR control approach?					

According to Robson (2002), three main research types in purpose point of view can be distinguished: exploratory, descriptive and explanatory. Exploratory study is selected for research of those situations, in which the estimated interference is without a clear, single set of results (Yin, 2003). It is a valuable means of clarifying the understanding of a problem because of this study can become flexible and adaptable to change.

Other types of purposes do not concentrate to deep analysis of the problematic gap in the wide phenomena. The descriptive research aims to represent a detailed profile of individuals, facts or situations (Robson, 2002, p. 59). It is often needed for the extension of or a precursor of chosen research. The explanatory research focuses on links and causal relationship between the studied processes and variables (Robson, 2002). It provides an explanation of the possible consequences of certain causes, and is characterized by the conditions, under

which these effects will necessarily be implemented. Both these researches can be a part of exploratory study aiming to determinate the perspective for retrieving solutions to scientific problems.

This research with exploratory purpose will be established on the case study methodology to identify the contemporary trend or fact, which is hard to research in isolation. According to Runeson and Höst (2009, p. 131), it does not generate the similar findings on causal relations as controlled experiments do, instead case study provides deeper explanation of the phenomena under research. The case study approach is widely utilized by researchers in the field of information systems (IS) and is an appropriate strategy when it is needed to find out the reasons and techniques for filling gaps, when the researcher has insufficient level of control over events, and when the focus is in a valid context (Yin, 2003).

In this thesis, it is considered the a holistic single case study (Yin, 2003) for analyzing one matrix company operating with corporate information system supported by Buhta ERP platform of working with clients and projects. It will allow a more detailed consideration of the matrix organization in the situation with human resources control from three sides - from the direct subordination by sales managers, by functional managers from HR department and a subordinate employee (sales person).

Since case study is a flexible research method, qualitative data analysis and collection is commonly applied (Runeson & Höst, 2009; Baxter & Jack, 2008). Research design can establish for implementation two types of research methods for data collection – qualitative and quantitative methods. These approaches differ from each other in the way of using and assembling data. The difference between qualitative and quantitative methods presents in the Figure 4.

Qualitative method	Quantitative method
Methods consist of focus groups, in-depth interviews and reviews of documents for types of themes	Surveys, structured interviews and observations, and review of records or documents for numeric information
Primarily inductive process applied to formulate theory or hypotheses	Primarily deductive process applied to test pre-specified concepts and hypotheses
More subjective: explain a challenge or condition from the point of view of those experiencing	More objective: provides observed effects (interpreted by researchers) of a program on a challenge or condition
Text-based	Number-based
More in-depth information on a few cases	Less in-depth but more breadth of information across a large number of cases
Unstructured or semi-structures response options	Fixed response options
Can be valid and reliable: largely depends on skill and rigor of the researcher	Can be valid and reliable: largely depends on the measurement device or instrument used

Figure 2. The comparison of qualitative and quantitative methods (adopted from Runeson & Höst, 2009; Robson, 2002).

The main purpose of qualitative analysis is to extract from the data findings, maintaining a obvious chain of evidences. These evidences indicate that the reader is able to adhere the conclusion of the results and consequences from the assembling data (Yin 2003). This means that significant information from each study and every point taken by the researcher is provided. Qualitative case study prefers to use the interview as tool for data collection and analysis (Runeson & Höst, 2009). In-depth interviews provide profound empirical insight into the topic. Additional data are assembled by observing scientific journals, articles and some reports of company.

2.2. Probing interviews leading to formulation of research questions

Qualitative analysis of this case study consists of the two parts. The first stage is the preparatory step for conducting the research project and main data collection. It contains the

probing interviews with several representatives of firm from different departments to collect information about company's structure, problems and environment. The second stage of case study aims to answer to research questions and is explained later.

The probing interview was conducted with the aim to define the basic conditions for the firm functioning, collection of basic data about the general production processes and internal situation, which facilitated the establishment of the key direction of study and provided data for the theoretical scope and concepts. The main aim was to find out the problem, challenge, and be able to formulate the research questions; the framework of the research was identified.

The probing interviews were conducted in the semi-structural and unstructured forms for obtaining the wide range of data. The respondents answered on the overall corporate governance topics - conflicts, corporate culture, features of the structure, work processes with customers, manufacturing processes, the core advantages, the main direction of production and business strategy for the performance in the market. It became primary source of information about the description of the company and the main tool for identifying challenges of the management of HR performance in corporate matrix organization.

2.3. Interviews and case study aiming at answering the research questions

After analyzing the theoretical concepts on empirical part, the interview guide was developed for case study that consisted of the detailed interviews with respondents connected with established research field. The selected informants of chosen company are directly involved in project operations and are members of the company corporate and HR management, worked in close cooperation with customers, and had extensive knowledge and experience in matrix organization. The purpose of data collection was to collect empirical evidence about control approach of employees and the effectiveness of this management system.

The interviewees participated in the semi-structured interviews (Yin,2003), which identified the main directions of advance questions. Semi-structured interviews are suitable for the research of perceptions and opinions of the respondents regarding the complex and controversial issues. They allow probing for additional information and explanation of

responses. The order of questions could be changed in the course of interviews, depending on the answer of the respondent. The first questions concern the basic data about the company and its goals and objectives, the opinion of employees on their fulfillment, as well as their main functions and tasks within the company and the department. This was followed by the discussion of the working process of each employee, using the program information system, the characteristics of the motivation system, career development, the possibility of moving to other departments. It was described the appearance of problems and conflicts in the workplace within the department and between the departments and their tracking, identification and resolution from various parts of HR management. The reasons for their occurrence are clarified from the side of the opinions of subordinates and superiors of sale and project department, in addition, it was précised the internal corporate culture of matrix organization. Large blocks of questions concerned the specificity of control methods for employees working process and their interaction with other departments have been disclosed as an additional part of the human resource management. The next questions of interview concern the communication and reporting system between employees, as well as channels of information exchange through the platform of corporate information system. Respondents were asked about the system of training new employees, building and maintenance of the trust between staff and executives, the new employee's introduction in the working team, as well as the feedback system and ability to provide ideas for project management and the improvement of cooperation in the internal environment. The last question focused system of key performance indicators and their role in the model of controlling HR management and distribution of responsibilities between the collective. The main general list of issues that is not in chronological order includes:

- How you understand the main goal of the company? What is the primary purpose of your enterprise?
- What are your main functions and tasks?
- In your company Buhta program¹ is installed for transactions with customers. How do managers use it to control the employee's decision-making and processes?
- How in your department do responsibilities distribute and the changes in the authority take into account?

¹ Buhta: WMS is the software package for corporate information system

- What indicators do you use to control the workflow and productivity of employees?
- What is the structure of the reporting system in your company and your department?
- How are workflow processes and the exchange of reports between functional and project managers built?
- Do you have any performance bonuses and incentives for qualitative conducting of the work? On what they are targeting?
- Do employees have the chance for career growth? How is it determined?
- What conflicts occur in the workplace of employees?
- How do you resolve such conflicts?
- Are you somehow preparing new employees for intensive work and collaboration with functional managers for the conducting projects?
- In some companies subordinate can leave feedback or offer some ideas to fulfill the order or process for the creation of innovative proposals. Do you have something like that?

Questions varied depending on the position of the respondent as well as the involvement in the human resources control and management process. In order to confirm several answers, it was presented the working materials as example of dealing with projects and ERP software was demonstrated on certain functions. However, official documents are not quoted due to the company confidentially, and the basic algorithms of the program will be indirectly reflected in the results section. Conducting the interview provides a detailed immersion in a matrix environment of industrial company. Interview transcripts were examined and the data is divided into three groups in accordance with the mapping of each kind of control approach in the various aspects of HR management and employee performance. Therefore, the implementing research analyzed and presented this data for the determination of the impact on the specific features of the company's structure as well as the disclosure of corporate information platform in the control system of HR management. The results are presented together with the respondents' answer to develop the reliability of the study and a more detailed presentation and practical displaying of control operation. In conclusion, the findings were made on the foundation of literature review and empirical research.

3. THEORETICAL PART

Literature review and theoretical scope reveals the main aspects of the research problem and provides a framework for analysis and research. This section will reflect the relationship of the three components related to the management of employees and their capabilities in their work surrounding - matrix organizational structure, corporate information system (ERP) and HR management control system. Selected components are levels of strategic management of internal working environment and represent the multilevel structure of HR management for complex companies. Their interaction is not universal for each company. Each element is able to affect the employee performance and workspace depending on the types of changes in each level.

The gap of their interconnection expresses to identify the main appropriate HR control conditions for matrix organization in its internal working environment that use information system as instrument. Each item of chosen HR structure will be explained in research work for a particular purpose. These theories are interconnected by their influence at the employee performance and the working environment. Such structure for theoretical scope is displayed in Figure 2.

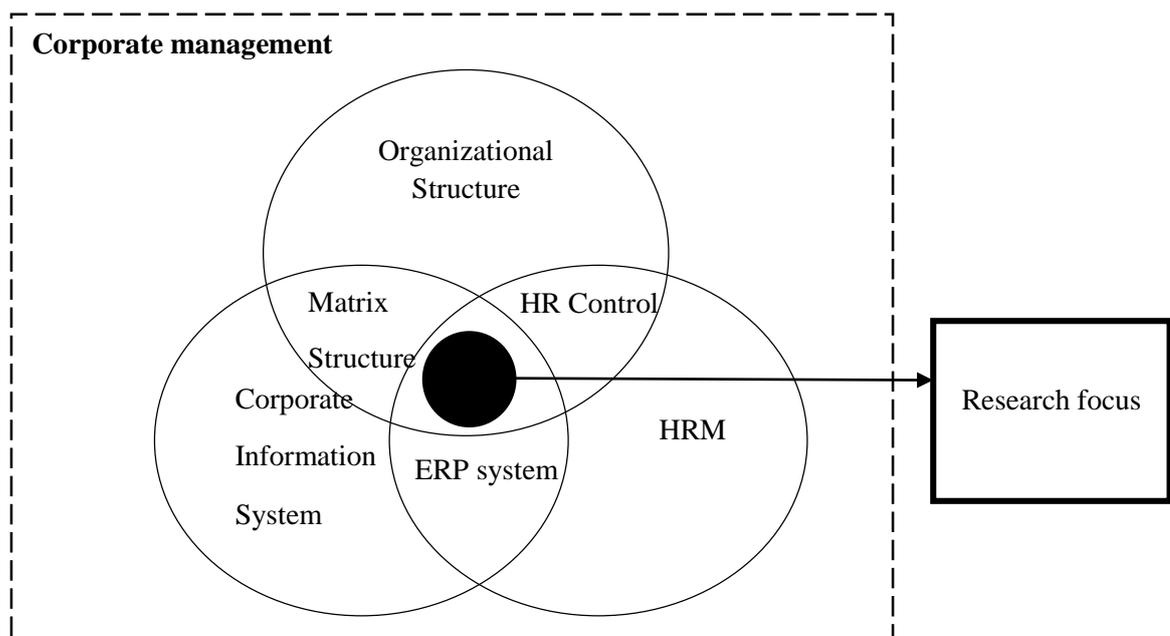


Figure 3. The model of theoretical scope for studying corporate matrix system.

Every element of the structure is directly related to the creation of conditions for the realization of employee's abilities in the company. However, the matrix structure largely creates the general picture of the interactions between staff to implement projects and operations and possesses the characteristic barriers that significantly affect the role of HR management and its efficiency in improving the performance of employees, firms and business strategy.

Corporate information system such as ERP operates as a tool and a connecting link between the company's strategy and implementation of production processes for the collective control on the workplace. The last element of the literature review is a system of HR control, which directly affects the harnessing the potential of each employee through application of different methods and specific systems. Their characteristics in this model of study construct the framework for the analysis of human capital control and provide the basis for identifying the effectiveness of the approach chosen for the examination of the overcoming the drawbacks of firm.

The theoretical scope in the majority is based on the foreign literature and sources. Theories about the Russian business in the field of complex structures correlate with the foreign concepts that contain more details and whose problems in the internal environment has general features in any country.

Russian institutional environment will be not directly taken into account in the theoretical framework because information from the official databases does not contain the sufficient researches about the control of the employees in Russian companies. Furthermore, the consideration of the application of theories retrieved from international publications and approaches for the control of the Russian working environment will contribute to their development and expansion of their powers for the development of HR management.

The disclosure of their essence and relationship to the performance of employees, with each other and a contribution to the fulfillment of the role of human resource management in general are presented below.

3.1. Matrix organizational structure

The organizational structure determines and supports operations of certain conditions for the internal environment, models, connection between the business items inside the company and response to changing trends and expanding global needs (Sy & Cote, 2004, p. 439). It is the essential part of corporate governance in order to accomplish an appropriate approach for the implementation of enterprise activities. The growth level of uncertainty concerning the exchange rate, political upheaval, energy prices and the requirement of innovative projects, products and services in many developing and mature industries cause that executives prefer to design and apply adaptive structure for enterprises (Child, 1972).

Adaptive structures aim at developing the conditions for the usage of stand-alone staff, which communicate and operate with other departments and employees exceptionally to solve challenges and overcome barriers. The companies employing these structures are the most often associated with innovative processes and cohere with projects or deal operation (Waterman, Peters and Phillips, 1980).

The main features of these structures concern the flexibility and accountability between minor teams and functional managers. According to Ford and Randolph (1992, p.269), adaptive structures relate to cross-functional organization because they permanently involve the attracting employees together from two or more ordinarily separated organizational functional department to achieve the task on either a temporary basis or on a relatively constant basis. These structures can be identified by the absence of a detailed labor division, blurring borders between corporate information systems, decentralization of decision-making and personal responsibility of each employee for the overall performance.

Adaptive organizational structure consist of project-relative and matrix organization (Dooley, 1997). Project structure is often temporary (Cleland and King, 1983 cited in Ford and Randolph., 1992, p. 269) and resolves the coordination issue by insuring that everyone participates in the similar reporting relationship, ensuring the project manager more direct authority and unifying all of the engineers together in the single organizational and physical location (Allen, 1986, p. 219). It is required for a particular complex task, and during the

complication and development of the corporate environment, this structure adopts features of matrix type.

The matrix organizational structure distributes personnel both along functional lines as well as within project-related clusters (Mintzberg, 1979; Dooley, 1997, p. 72). Burns (1989, p.350) defines matrix organizational structure as the particular structural disposition, in which the two forms perform with balanced priority and authority on a relatively constant basis. It is an organizational structure, in which staff reports to several managers, such as a functional manager and a project manager (Sy & Cote, 2004, p.439).

It is built on the principle of dual subordination of team as depicted in Figure 4. On the one hand, the direct supervisor of functional operation provides the necessary resources, punishes, encourages and organizes training for the staff, on the other hand, the project manager or the controlling department is endowed with the significant responsibilities and tasks to implement the management process in accordance with the schedule and quality of work performed, as well as enforces labor discipline.

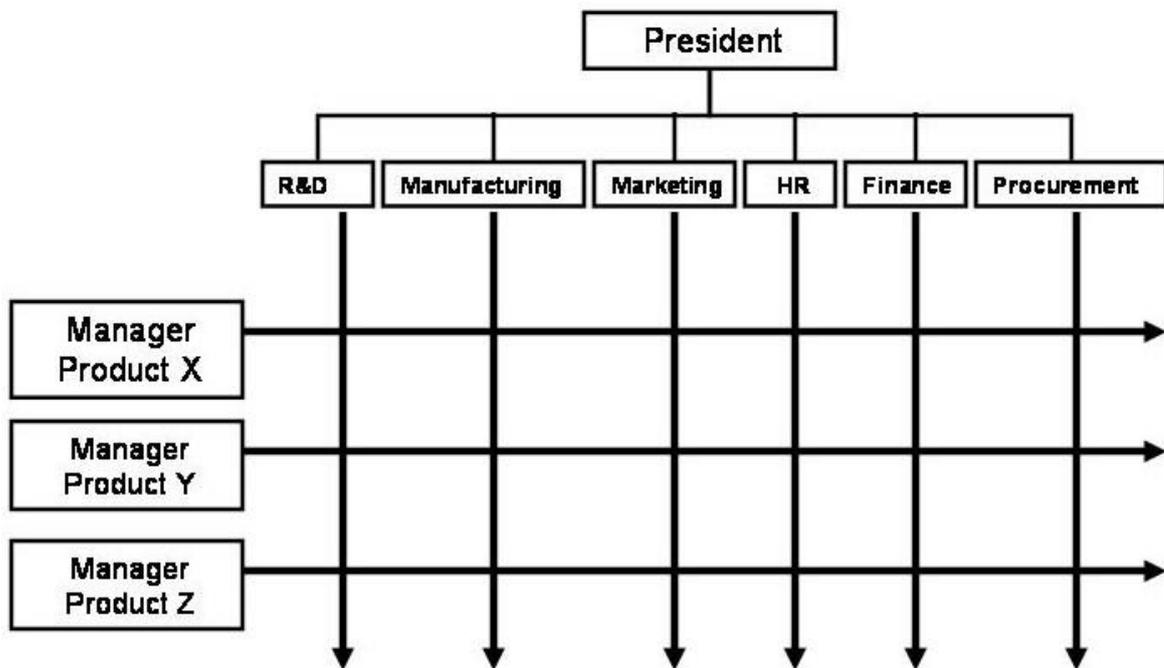


Figure 4. Matrix organizational structure (Adaptation of the figure from Ford & Randolph, 1992)

According to Burns (1989), terms and conditions for using matrix management structure relate to the inability or unwillingness of the organization to be limited by one principle of the grouping. It requires revitalization of workers by forming control program units interacting with the functional units. Furthermore, the labor process in some departments is complex and not amenable to standardization by the corporate linear system, because it is occurred involvement of all managers and experts in creative activities for supporting and improving production, in which the innovative nature of the activities dominates. One of the main motivators for the usage of the matrix structure is the level of impact on the innovative products by the external environment that is dynamic and unpredictable.

Executives choose for adaptation this structure for several reasons. The matrix organization enables companies to focus on complex business goals, for instance to concentrate on both functions and regions (Sy & Cote, 2004, p.440). It is needed because extension of companies' internal environment requires a labor division and the formation of different business groups that provokes the establishment of multiple business goals. In the case of effective usage, matrix structure enables companies to obtain the inherent advantages of a functional, divisional and project simultaneously, including the most of the professional staff, and a great opportunity for the operational coordination of activities inherent in the structure of the project. Furthermore, it has the ability to achieve a degree of flexibility that is not able in the functional structure, due to the collaborative (complex) groups of experts involved to solve specific issues and for the implementation of project activities for the purpose of effective coordination of this performance. Companies operating in less complex conditions can readily prioritize their goals and objectives and utilize resources accordingly. However, according to Sy and Cote (2004), firms in more complex environments increasingly need to achieve several business purposes simultaneously. The matrix organizational structure allows companies engage the multiple business goals with equal concentration.

Matrix structure facilitates the management information system and creation of the information flow. Enterprises operate in the market, which is based on Internet speed. In this constant and rapidly changing environment, information is crucial importance for the survival and prosperity of the company. In a traditional hierarchical structure, information flows pass vertically through selected points due to filter and distribute relevant information

to the appropriate recipients. This process is formed to work in quite a less complex environment. However, in conditions of market uncertainty, the conventional hierarchical structure can be promptly paralyzed by an overload of information and efforts to correct the situation through additional resources and standardize procedures usually lead to a strong bureaucracy. Matrix structure relieves congestion through accelerating the information vertically by means of shifting part of the flow horizontally to the appropriate recipients and creating multiple information channels due to features inherent to this structure. It accomplishes the establishment of efficient data exchange through lateral communications channels (Ford & Randolph, 1992, p. 273) and reducing the need for vertical communication because of formation of autonomous target group oriented on specific and final projects. Matrix organization can improve relationships between different departments forcing managers to support close relation with all organizational groups whose maintain they need to rely on the success of the project.

According to Larson and Gobeli (1987), the increased contact among items of company enables information to improve decision making and response time, which causes prompt and flexibly adopt to a dynamic situation. Resources can be disconnected from the irrational and unproductive uses and be targeted for new opportunities in the case the team members of matrix structure have flexible response and accelerated the information flow.

Matrix organizational structure contributes companies to handle with the effect of economies of scale (Hobday, 2000, p. 878). Expansion of the company needs the magnification in human resources, systems and develops the list of requirements to the capital. Size affects the complexity of resource sharing by employees. In case, matrix organization engaging relevant system of corporate governance and control management is capable of more efficiently distribute and use resources.

Furthermore, matrix structure is based on the competition between managers, which work with requests from customers for innovative products. Several writers have positioned it as the opportunity for motivation, job satisfaction, commitment, and personal development (Ford & Randolph, 1992). In the matrix structure, employees should work intensively with a variety of customers, suppliers and projects as well as a variety of colleagues from across the organization for performance of tasks. With proper construction of the matrix system, it

is occurred the sharing ideas, knowledge, and perspectives that advance worker's experience, rises responsibility and participation in decision making, and offers the significant opportunity to present capabilities and skills (Ford & Randolph, 1992; Randolph & Posner, 1992).

On the basis of a single study conducted by Denise (1986) for exploring this area, it was approved that in engineering field the matrix is more motivating and satisfying structure because this organization can offer more creativity, facilitating the establishment of the direct relation with customers, improving team work, developing decision making, and increasing communication and responsibilities.

Ultimately, determining factor for the company, which uses a matrix management model, is the benefits from customer-focused approach used for project or request's fulfillment that supports attractiveness and stable relationship with clients and expand the level of knowledgeable, technically competent staff (Kolodny, 1979).

Nevertheless, the mentioned above advantages, positive features and indicators of the analyzed management structures, it should be noted that this management structure is the most complex then all available ones in practice. It is intricate to manage and control, cumbersome and expensive for strategic planning of processes, introduction and in operation. The structure has to become completely ineffective in times of crisis if some challenges are overcome (Bartlett & Ghoshal, 1990; Ford & Randolph, 1992 cited in Sy & Cote, 2004, p. 443).

Each company faces with challenges during operating on the market that has susceptible influence from the uncertainty. However, the main drawbacks of matrix structure are the result one and the same dual and multiple imposition of powers and influence features that generates the benefits. It can cause the creation of internal environment for the ambiguity and conflict, as well as additional expenditures, both for the organization, processes and for the staff (Ford & Randolph, 1992, p.275).

According to Sy, Beach and D'Annunzio (2005), the common five challenges identify matrix organization form during managing company:

- Misaligned goals

Matrix organization form is characterized by the conflict of views on the main goals of different dimensions (Knight, 1977). This challenge originates because of disconnection between management levels in firms due to have different experiences for leaders at top and mid-levels. It appears through the formation of competition and conflicts between matrix dimensions objectives, existence of timing challenges of work planning and insufficient and unsatisfactory consultation (Sy, Beach & D'Annunzio, 2005, p. 42). All teams used a finite amount of resources, the differing purposes established constant friction between the two groups. Matrix form enforces contact, relations and interaction among managers; most meetings are based on disputes and verbal threats. The failure of teams to resolve their conflicting goals affect o the performance of the entire corporate system.

- Unclear roles and responsibilities

The main matrix problem is the confusion of over roles and responsibilities for the most mid and low – level managers. Companies venturing to adapt the changing business environment for increasing flexibility should make expanded and adaptable employee's role and responsibility. For employees unaccustomed to change this constant shifting contributes uncertainty and confusion (Sy, Beach & D'Annunzio, 2005, p. 43).

Matrix organization structure should share authority and responsibility between functional and project managers. These features create controversy and conflicts over fields such as resources (Larson, Gobeli, 1988), technical problems, salaries and motivation, and personnel assignments (Katz & Allen, 1985). Staff attempt to explain and define their responsibility and accountability through the struggle for power and the overcoming of uncertainty.

- Ambiguous authority

The most widespread authority conflicts are problems and dispute between functional and project managers on working priorities, administrative procedures and methods, technical excellence and performance trade-offs, human resources, cost estimates, planning and personalities (Ford and Randolph, 1992, p. 276). Matrix organization structure does not

clarify the leadership rights. Managers of top-level and mid-level face a relatively high frequency of appearance for reasons related to ambiguous authority.

The specific issues and conflicts of the interaction of employees with different work orientations, professional affiliations, time horizons, and values characterize matrix organization structure (Katz & Allen, 1985). Managers can have responsibility without authority because of the double reporting structure. This structure has all of the ingredients to trip up any smoothly running organization (Sy, Beach & D'Annunzio, 2005, p. 44). It is sufficiently prevalent in matrix organization because employees keep themselves working with various clients and requests under various managers. This situation causes multiple reporting relations (role conflict), contradictory and confusing perspective and results (role ambiguity), and excessive demands (role overload) (Ford & Randolph, 1992, p. 276).

- Lock of a matrix guardian

According to Sy, Beach and D'Annunzio (2005), the most of the organizations emphasize keenly the importance of assessing performance. They endeavor to adhere to the proven methods and with few expectations, they measure ROI, profitability and market share. Minority of the matrix players in the market use special metrics to measure the performance of their structure for identifying the problems and preparing the necessary steps to solve them. It contributes the senior managers do not have detailed knowledge about obstacles, and it complicates the process of solving problems and can lead to production costs or the loss of customers (Appelbaum, Nadeau & Cyr, 2009).

- Silo-focused employees

The most critical challenge for matrix organization that occurs as indicator is connected with employee behavior. Matrix organization claims a constant balance between dimensions, which creates the tension among individuals (Sy, Beach & D'Annunzio, 2005, p. 46). In large matrix firms, workers prefer to be silo-focused. It means they realize their membership and loyalty to a certain department and do not attempt to adhere trends and mechanism of other subunits (Sy & Cote, 2004, p. 447). Silo-focused behavior leads to resistance mentality that prevents the coordination and collaboration needed to running of the matrix companies.

Employees operate in such a way that it facilitates benefits for their department, however, that may have detrimental consequences to the organization as a whole. It is caused through the result of two reasons. The first reason concerns the working environment of employees – the staff work in the same process throughout their career way – they interact with the single system and the same colleagues for many years to develop faithful to this group. Staff do not have a chance to interact with other department. The second factor is the matrix structure requires the high level of the interpersonal skills needed to work with various items of the organization that many employees do not reach.

It should be noted that even the best structure does not guarantee significant performance results (Rubino & Vitolla, 2014). Except of appropriate organizational form, companies need to establish corporate governance and information systems that identify and overcome opportunely the problems inherent in the matrix structure. Cooperation of information systems and organizational structure guides company's operation through the market uncertainties and create a corporate culture and environment for supporting the success. Matrix organization, in major cases, requires a uniform corporate information system to improve coordination and monitoring between dimensions. Despite the fact that in this organization structure all elements are independent and have extensive responsibilities for decision-making corporate governance prefers to use a system for enterprise resource planning (ERP), which include a plurality of functional systems (Uçaktürk & Villard, 2013), for cross-functional control and rapid utilization of assets.

3.2. Corporate information systems

The most significant way by which to evaluate and monitor the employee performance within a matrix structure would be by integrating corporate information systems. According to the identified pitfalls and risks in operation of employees of the company with matrix structure, this option of optimizing systems provides the organization with the most reliable approach by which to manage its staff in multi-boss situation (Appelbaum, Nadeau & Cyr, 2009, p. 13; Rubino & Vitolla, 2014).

Studies in information modelling and research of corporate management notice that firm's performance and core advantages are largely connected to intangible components such as the sustainability of information and the development and sharing of knowledge flow (Porter & Millar, 1985). The development of enterprise position on the technology market claims consideration and adaptation of a massive number of solutions, for which a large amount of information, completeness is compared and evaluated. It is essential to create the management of information system obtaining support from electronic communication technologies and items that will aid to provide this information (Uçaktürk & Villard, 2013, p. 1037). Information system for corporate management wished for an organization is all of significant and sufficient data, which present the activities and are stored, processed, amended and most importantly, are represented to the divisions and managers as report. Therefore, supporting innovation processes within company it is practiced the introduction of modern corporate information system that uses information and technology to develop projects, services and competencies affording businesses to gain benefits over competitors. Despite the difficulties of implementation and adaptation in the initial stages, this way of information flow management is able to provide information that meets the requirements of the company's management at any level and significantly affects the interaction between departments and employees.

Corporate information systems are the systems designed to ensure the effective functioning of the company through automated performance management functions. They cover almost all aspects of modern enterprise, making all closer connections between production facilities and information infrastructure components. The realization of these systems is a complicated and high cost proposition that requires tremendous claims on corporate time, management

and resources (Umble, Haft and Umble, 2003, p. 241). However, the company should choose the appropriate type of information system that is easier to adapt to its organizational structure. In this case, implementation procedures will have significant success.

The company may use a common information system, which includes a variety of narrowly focused subsystem. In this case, the system should have a debugged architecture and functions of the interaction of the components because it needs itself to provide control and monitoring processes and employee's performance. However, some methods have to form within companies the separate information systems that are independent on the corporate governance level. These systems are inherent to substantially small and medium-sized enterprises because they focus on the management of a specific field.

Corporate systems can be built based on different concepts and methods, as well as the main activities of the company and the chosen organizational structure. The main type of complex corporate information system (Umble, Haft & Umble, 2003; Uçaktürk & Villard, 2013; Triznova et al., 2015):

1. MRP II (Manufacturing Resources Planning) is a complex system of production planning. It is utilized to control production-planning processes, and have been widely performed in contemporary manufacturing companies (Wazed, Ahmed & Nukman, 2010, p. 18). MRP II provides cooperative planning of material flows and production capacity to hold all of the planning and information systems in a new level and accurately determining the financial results generated by the production plan, which is impossible in case of partial planning. This system focuses on the analysis of financial results of the production plan, is appropriate for the vertical hierarchy of subordination and involves only MRP, CRP and FRP subsystems.
 - i) MRP (Material Requirements Planning) is the subsystem or system of methods for planning the requirements of material resources for deals, because it takes into consideration of the natural dependency between assembly schedules and parts fabrication (Whybark & Williams, 1976). According to patent of Rembert (1992), MRP system platform uses the special algorithm BOM (Bill of Materials) that determine a relationship between the independent demand elements at one

level of model and the dependent demand elements at the next lower level of system model. It is needed for software as calculator of costing and assessment of materials from inventory for released products.

ii) CRP (Capacity Requirements Planning) is subsystem for planning of production resources. It exists as a general part of complex system of innovation organization and is included in ERP or MRP II corporate software. In algorithm of program such as Oracle Application, it plays role of accounting method for determination of the available production capacity. CRP analyzes the schedule of production and the enterprise's annual production capacity, after that it weighs them against each other to identify the possibility of schedule be accomplished with the current production capacity.

iii) FRP (Finance Requirements Planning) is a system for planning of financial flows. It ensures short planning process for all commercial activities of the innovative enterprise including financial costs of equipment upgrade projects and investments in the production of a new product line.

2. ERP (Enterprise Resources Planning) – a system or software platform and simulation model that include many sub-systems endeavoring process-based by establishing targets for the enterprise and maintaining responses for data and information needs by tightly integration of all functions and items (Uçaktürk & Villard, 2013, p. 1038). The role of the ERP system is to work as a single, integrated system instead of many separate systems that would uniform information for the different corporate functions. This system is used to manage company's internal basic functions as logistics, production, human resources and business administration. ERP systems are most often modular, meaning that all the main functions are separate modules. Modularity makes it possible easily adding features to the ERP system later on. Furthermore, to the basic functions, the modern ERP-providers have extended their software (modules) so far that almost every function in the company can be managed with these systems. These systems are appropriate for different organizational structures, especially for matrix organization, because ERP systems help to make decisions consistent with speed and flexibility of market conditions and in

accordance with requirements and expectations of executives. The general platforms for the usage of this corporate system are SAP/R3, Baan IV, SyteLine, Buhta ERP.

3. CSRP (Customer Synchronized Resources Planning) - the essence of the CSRP is to integrate the customer in the enterprise management system. Clients becomes the part of company – customer places an order for the production of products, is responsible for the correctness of its implementation and monitors compliance with the terms of the production and supply as needed. The company can very accurately track the trends in demand for its products. However, this corporate system is not efficient without integration with business administration or human resources and is often used as part of ERP or CRM.
4. SCM (Supply Chain Management) - this system invented to optimize the management of logistics processes and point of supply chain and can sufficiently reduce transportation and operating expenses through simplifying structure of the logistics supply schemes. It manages contracts for determine the reciprocal sharing of the risks and benefits of coordination in order to clarify supply chain points that participate in channel coordination (Darayi, Eskandari & Geiger, 2014, p. 2299). Therefore, the supply-chain management system coordinates the reassessment of plans or schedules across supply-chain processes. Program based on SCM system should provide the opportunity to control the tactical and operational actions of the supply chain because its algorithm aims to disseminate information, appropriate coordination of decisions, and management of activities among individuals and systems (Fox, Barbuceanu & Teigen, 2000). SCM concept is supported by ERP systems. Nevertheless, it can be realized as separate system for SMEs companies or for firms without unified network of branches.
5. CRM (Customer Relationship Management) - the platform of independent customer service systems of the company. CRM involves the accumulation, handling and analysis of not only financial and accounting sub-systems, also additional information and process related to the relationship with clients. This increases the performance of managers, improves customer service and helps to increase sales. Foss, Stone and Ekinici (2008) argue CRM system plays role of technology-based

tool for managing and leveraging customer knowledge to develop, maintain, and strengthen efficient relationships with customers. CRM system programs can be separated into operational or analytical program. Operational system is an integral part of ERP and includes all applications immediately in contact with the consumer because it contributes reducing costs while enabling these functional areas to provide a sustainable level of value to customers (Hung, et al., 2010). Analytical CRM is involved in the overall control strategy and system of organization. It is found on technologies and items such as data warehousing and data mining. Therefore, analytical CRM forms the framework for planning and assessment of marketing campaigns and helps cross and up-selling operations (Foss, Stone & Ekinici, 2008, pp. 68-70). This system is able to operate separately from the other elements of the company. However, organization that focuses on innovative projects prefers to implement CRM with integration with SCM, FRP and MRP for achieving the significant level of company's performance.

Adaptive organizational structure prefer to operate with single complex information system as ERP that can cover and combine the most of departments and overcome barriers of cross-functional responsibilities, extent authority, complication with information exchange. According to Kwahk and Ahn (2010, p.186), Enterprise resource planning (ERP) systems provide the opportunity to improve organizational performance and competitiveness by optimization of business processes and eliminating duplication of responsibilities and data. This high innovative cross-functional information system has the flexibility of function structures that is appropriate and significant for matrix organization (Elmeziane & Elmeziane, 2012; Kwahk & Ahn, 2010).

Chen (2001) noticed that the popularity of utilization of ERP as corporate system started after 1994, when SAP, German multinational software corporation, created its next-generation platform R/3 for corporate governance and approach for shifting to complex decision-making. SAP R/3 is an integrated package of financial, manufacturing, distribution, logistics, quality control and human resources process systems and can guide or facilitate modifications in the business processes (Shehab, et al., 2004).

Some researchers describe SAP R/3, which is built on a relational database model, as operating source in the unifying business platform for all elements and divisions of company. The database system regulates the SAP data collection, which contains all firm's data (customer and supplier documents, orders), all of SAP R/3-internal management data, an SAP R/3 business dictionary, and the codes and simulations of all application programs and tools. Actually, information is not stored outside this SAP system, because it allows avoiding the usage of a file platform (Kemper, Kossmann & Zeller, 1999, p.32).). Its architecture provides three layers of software and platform (Al-Mashari & Zairi, 2000), which became the basic component of other application and software, and their general explanation provided by the study of Kemper, Kossmann and Zeller (1999, pp.32-33):

- SAP GUI, playing role of the presentation stratum - it uses the graphical tools interface generally applying on PCs connected with the application servers via a local (LAN) or a wide-area network (WAN).
- SAP application layer - It contains the business administration and control model of the system. It handles pre-defined and user-defined orders and programs such as OLTP and the realization of decision assistance requests. Application servers are linked through a local area network (LAN) with the server of data bank.
- SAP database layer - it is performed on the high level of a commercial database product that contain all data of the organization.

SAP provides modules for logistics and HR and extends its product lines through SCM, sale power automation and data warehousing (Shehab et. al., 2004, p. 366). In the following years, it became the momentum for development of corporate information management and culture and provided motive force for appearance of the variation of ERP software from SAP and its competitors, Oracle, Baan and J.D. Edwards. Furthermore, many IT-specialists of companies use SAP/R3 as the general temple of the construction for ERP architecture platform. Sustainability of corporate information system caused the industry growth rate until 40 percent during last two decades (Chen, 2001, pp. 376-377; Elmeziane & Elmeziane, 2012). ERP as corporate information system consists of the most popular functions that within each module is presented in Figure 5.

This system includes several functions and process by permitting its modules to divide and transfer information by freely centralizing flows in a single database accessible by all divisions (Chen, 2001). However, current corporate information system can include more items than in simple ERP due to choose the organizational structure, specialization of industry or the need for particular programs.

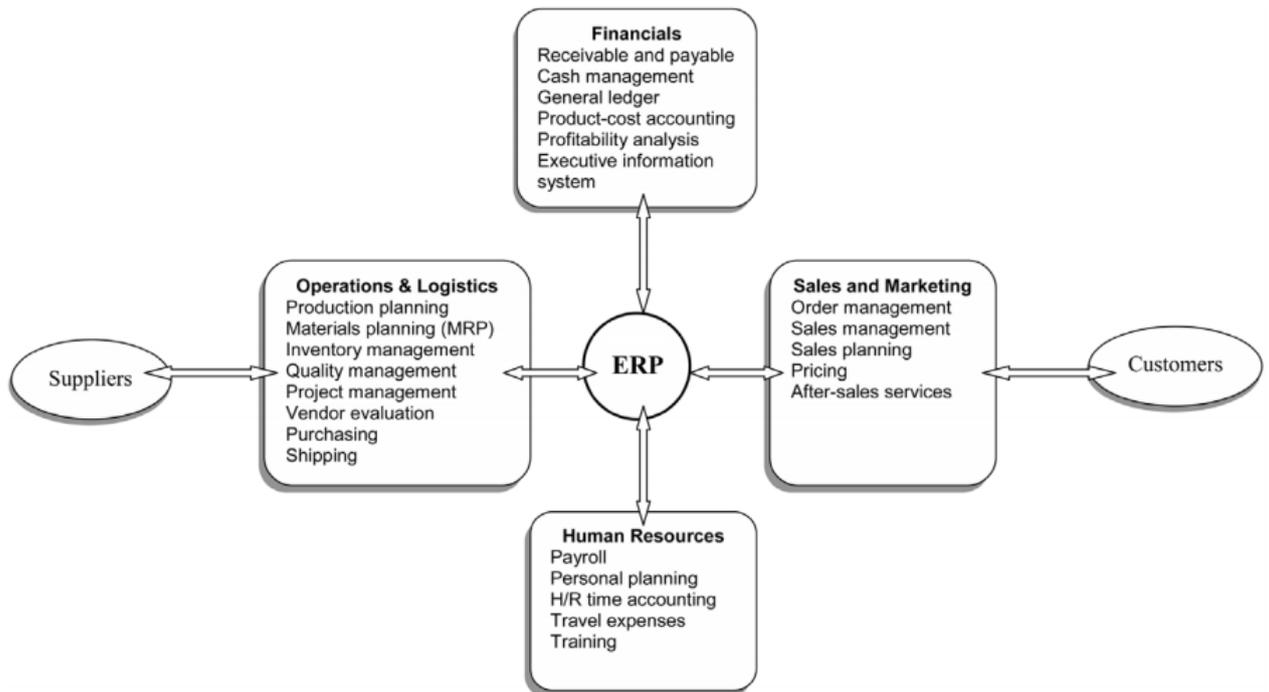


Figure 5. The overview of ERP corporate systems (Chen, 2001, p. 377)

Corporate information systems as ERP are particularly focused on the development and support of the attempt to combine seamlessly front service (sales, marketing, customer service, and logistics) and back office (financials, human resources, operations). Furthermore, the corporate systems can be utilized as an instrument to aid improvement of the performance conditions for a supply chain and customer network by stimulating to decrease times of cycle (Gardiner, Hanna & Latour, 2002). It has largely been performed in capital-intensive sectors that try to create or use innovation approach and technologies such as heating products, construction, aerospace and defense. Nevertheless, ERP systems have been moved beyond manufacturing framework and integrated to the financial sector, health care, hotel chains, education, insurance, retail and telecommunications fields (Shehab et. al., 2004, p. 359).

Corporate systems supplant information systems that aimed to manage individual functions or departments. The preceding systems often included custom software pieced together on mainframes. It provided isolated databases that caused the storage knowledge from obtaining easily to other operations. Information existed in aggregate form that constitute the obstacle - another functions might require to retype the original data and codes, with the additional risk of facing inaccuracy, interpret the aggregate data, or develop a custom link to the other system (Gardiner, Hanna & Latour, 2002, p. 358).

Corporate system concentrates modifying the flow of information and materials to decrease marketing cycle time, lower expenses, and improve quality. These systems are appropriate for supporting the cross functional processes.

However, the universality of these information systems is deceptive. The organization has its own management structure, which either should duplicate in corporate system structure or have a strong impact on the relation between items of system during the usage. SAP, Oracle and Baan companies design the flexible packages of program for corporate systems that enterprises can easily adapt and manage corporate processes. However, it is needed to consider the roles of each ERP module in chosen organizational structure, especially back office for matrix structure because they are founders of the mainstream operation and have significant influence on the architecture of systems and relationship between departments. This research focus on the observation of human resource management system in corporate matrix organization. The role of human resource department is vital to affect the corporate culture and structure of the organization. The large momentum from implementing the HR module may be connected with stimulation of increased investments in contemporary human resource practices. Previous research notified that some HR practices play role of a significant format of intangible assets (leading to higher market valuation and productivity), especially in combination with investments in IT.

The matrix organization with corporate information system based on the management of cross-functional relationships and authority between departments and staff that require the formation of the control system for employees and processes from human resources department. Human resources module includes many features and programs, without which ERP systems platform cannot perform its strategic role.

3.3. Human resource management control system

Recently, human resources generates a firm's competitive advantage (Liao, 2011, p. 495). The modifications in the company management trends, the use of a variety of domestic and external technology and knowledge for projects implementation create new needs of organizations that promote the HR field in new directions. According to the resource-based view (Barney, 1991), the firm would realize sustained competitive ideas through developing value in the way that is rare and complexity for competitors to replicate and utilizing appropriate control model and culture for this value.

HR is associated with intangible capital that develops value when it is embedded in the management system that it enhances organizational capacity to deal with a changeable environment (Liao, 2011, p. 495). In the view of information system, human resource module is the integration of workforce information for the possibility of operational planning, control and operations management with consideration of information about the personnel availability, the ability of accurately calculation the cost in locations of occurrence and products in accordance with information on compensation of involved employees.

The concrete structure of human resource management departments, distribution of its responsibilities between organization structural units and inside structural division between the performers can vary over a large range, since it depends on many aspects. They include the common organizational structure and relationship specification between departments, enterprise size (number of people employed), the amount of administrative work for each function, understanding the direction of human resource management tasks. Organizational work with the staff continues to be widespread in many functional units of company.

It is s needed for employees to focus on the implementation of the planned company's strategies; ensure effective use of the intellectual and physical capabilities of staff, the realization of their capacity; promote labor relationships in a spirit of cooperation and to improve corporate culture. A number of studies have demonstrated that human resource management (HRM) as a part of organizational structure are related to significant levels of productivity at the organizational analysis (Liao, 2011). Snell (1992) argues that the construct of organization control has been used as a lens for combining HRM practices. They

elicit employee role behavior that cause a number of outcomes and providing benefits to the firm. It affords to consider the human management as a set of principal methods that regulate firm's performance and fulfill control (Chiva, 2014; Liao, 2005, p.296). This research uses the control perspective of HRM to identify the role in corporate system.

In control approach, HRM ensures employee compliance and efficiency through including close supervision, and regular assessment and discipline (Martin et al., 2016, pp.5-6).

According to Arthur (1994, p. 672), the purpose of control human resource systems is to decrease direct labor expenses, or improve performance, by enforcing employee skills with specific methods and procedures on the foundation of employee motivation in measurable output criteria. Therefore, the traditional approach of implementing HRM control system is based on the maximization of employee performance through vertical hierarchical control because the corporate culture is typically authoritarian and bureaucratic or uses the formal rules.

However, HRM approaches manifest the centralized decision-making and predominating top down communication. They provide methods and tools concentrating on individualism - the organization does not stimulate team and group work, major of the HRM cases are concentrated on individuals on their own (Chiva, 2014, p. 943). The selection and recruitment of employees should be implemented with demonstration of job-specific skills, placing the emphasis on technical selection criteria (Mossholder, Richardson & Settoon, 2011). The control HRM system assesses staff by evaluating individual performance, through quantifiable indicators (Arthur, 1994; Mossholder Richardson & Settoon, 2011). HRM is often associated with centralized and bureaucratic enterprises that follow to the trend of the development when successful operation depends on labor cost reduction and level of performance (Chiva, 2014).

The most of researches in the field of human resource management consider the theory of HRM control system (Liao, 2005; Liao, 2011) and its relationship with the knowledge management and the impact on company performance in the general view. The theoretical model of human resource (Snell, 1992) for assessment of what human resource management applies to control performance combine three types of control systems: behavior, output, and

input control. Figure 5 demonstrates main characteristics for three types of HRM control and they connection with administrative information conditions (Ouichi, 1978).

		KNOWLEDGE OF CAUSE/EFFECT RELATIONS	
		Complete	Incomplete
STANDARDS OF DESIRABLE PERFORMANCE	Crystallized	Behavior Control, Output Control, or Both	Output Control <ul style="list-style-type: none"> • Decentralization • Results criteria • Performance-rewards link
	Ambiguous	Behavior Control <ul style="list-style-type: none"> • Centralization • Articulated procedures • Close supervision • Behavior appraisal 	Input Control <ul style="list-style-type: none"> • Rigorous staffing • Training-development • Socialization

Figure 6. Administrative Information and Human Resource Management Control (Snell S., 1992).

3.3.1. Behavior control approach

Within the framework of bureaucratic linear structure, behavior control handles the activities of subordinates existing on the work. The assumption of a centralized hierarchy provides that behavior control presents the top-down process in the form of articulated steps (Snell, 1992, p. 294). According to Snell and Youndt (1995, p. 713), behavior control means that managers standardize responsibilities for each department and spread top-down with an overriding task for procedures and methods. The staff are responsible for their actions and operations, regardless of the outcome. Supervisors observe behavior of their subordinate employees and conduct evaluation subordinates' actions over time. The idiosyncrasies of the information is utilized as an approach of obtainment results by superiors and any deviations are identified and rectified urgently through feedback (Snell, 1992).

Therefore, behavior control is used to stimulate the interaction between the staff at the personalization strategy. It clarifies ambiguity and causes predictability by routinizing the transformation process (Ouchi, 1978; Liao, 2005). The framework of behavior perspective is the transparent and prescribed procedures of the interaction of employees and departments with each other and clients. Behavioral performance evaluation and feedback to help improve the active engagement of employees with their colleagues to get the implicit knowledge, and thus enhance the company's performance (Liao, 2011, p.497). This approach of HRM adjusts the actions of employees through the solution of problems related to the reliability and efficiency (Snell, 1992).

However, behavior control provokes the substantial cost of individual surveillance (Eisenhardt, 1985), which would increase costs for monitoring and cause an inefficient way to adjust the performance. Furthermore, the standardized work processes and strengthen degree of control over the behavior reduce the leeway afforded by subordinates, realization riskless strategy, lack of finding more radical solutions, and can lead to tough and cautious behavior.

Nevertheless, behavior control stays one of effective tools to align the actions of individuals with the interests of their firms' knowledge management strategy and affects firm's productivity directly and meanwhile contingently with executive controls (Snell & Youndt, 1995). It applies the profile job description, budgetary control and accounting standard costs as a control tools. The level of delegation of authority are the minimum at the level of operational activity in the formal established boundaries. The employee's initiative is encouraged in the case with customer only if it is recognized and formalized in administrative system. The usage of this control system concerns positively with the completeness of information about cause-effect relationship (Ouchi & Maguire, 1975 cited in Rockness & Shields, 1984; Snell, 1992).

3.3.2. Output control approach

According to Snell (1992, p. 297), output control varies from behavior control in that supervisor do not translate purposes into official operating procedures, and instead they

install targets to pursue, such as financial results, for subordinates. This form of control system provides employees the freedom of actions, which use to achieve desired goals, thus, decentralization of corporate management. This does not offer them to select or change the goal and responsibilities, only the methods used in order to achieve targets set. The framework of this HRM control lead the research of Kerr (1985). He suggests that binding of personal interests and the achievement of organizational goals is the approach of human resource management that provide staff the internal environment with flexible conditions for decision-making and choosing the processes that they use, although ensure incentives for results that benefit the company.

Snell (1992) and Liao (2011) suggest that one of the advantages of output control consists in affording for some discretion of subordinates provide both stimulus and duty for results that benefit the firm. Staff can adapt their behavior to take advantage of opportunities and avoid the threats that arise unexpectedly. If company has very readable objectives, output focus to HRM may cause acceptable performance (Liao, 2005, p 297). In this instance, output control can help to establish the functions and responsibilities for the departments, to provide standardized information that causes the reference to the remuneration system simplifying information system and reducing the complexity of the access and use of knowledge.

However, Williamson (1975) notifies that in the absence of close supervision output control may lead to the usage of information that is restrained from superiors, resulting in control loss. It does not imply mechanism or set of procedures to prevent errors until they occur. Furthermore, output control might elicit myopic mode, in which subordinates achieve specified targets to the exception of other significant, though non targeted, goals (Snell, 1992, p.297).

This approach requires elaborate information systems for attaching appraisal (Ouchi, 1978) and rewards (Kerr, 1985) to results achieved. Output control system should contain reliable and valid criteria, which through special program or other tools constitute indicators and exhibit company benefits. It is not expensive and can be cost effective for enterprises operating in narrowly focused markets with a small amount of capital at stake. It engages

the top salespersons and project managers willing to take the risk of responsibility and relying on their strong capability to earn commissions (Anderson & Oliver, 1987).

3.3.3. Input control approach

Snell (1992, p. 298) describe input control as bureaucratic mechanism in human resource management focusing on the selecting and training. It helps to communicate staff to ensure they have essential abilities and understanding and internalizing the values and purposes of the organization. In this case, employees are probably to work in the interest of the company themselves (Snell & Youndt, 1995, p. 713). Instead of utilizing external inducements, input control includes attentively selecting, training and developing new staff who are dedicated to the company in the actual fact (Liao, 2011, p. 498). It adjusts the antecedent conditions of performance and productivity - knowledge, skills, values and motivation of staff; behavior control handles the process of transformation; and output control regulates results of operations.

The strength of input control system is that it helps to avoid performance problems. Careful recruitment and training practices can prevent deficiencies that can be impossible to correct later. Furthermore, trends of market for technology (Arora, Fosfuri & Gambardella, 2001) require that the employees of concerned companies are willing to share their knowledge and experience to achieve and sustain innovation projects and not miss the opportunities (Chesbrough, 2003). In this case, input control become the appropriate tool for searching for and selecting people who fit the needs of the firm, provide well-defined intellectual property management and analysis of external knowledge, and then train them to be dedicated to the firm (Liao, 2005).

However, its disadvantage is that input control regulates potential of staff with no guarantee the way to identify performance problems post hoc (Snell, 1992, p. 298). In addition, when firms place significant investments in infrastructure, they have to consider the training of employees as complementary process. Executives are trying to increase internal workflow through information systems and eliminate the need for communication and coordination among employees of the organization. Working procedures make the responses of staff on the environmental problems rather predictable. This condition for input control system

prevent to support such strategy, because it realizes the better performance, when the standards of desirability are ambiguous (Snell & Youndt, 1995).

Nevertheless, the implementation of input control becomes widespread for new actors that start their entry in the new market. Executives having the capacity to control neither the behaviors nor the outputs of their employees and superiors clearly understanding only a general idea of the qualifications required of subordinates place special emphasis on selection and training (Snell, 1992).

Considered human resource management control system theory is sufficiently isolated from the existent conditions of many companies' operation. Many studies have proved the direct impact of HRM control on the knowledge management (Liao, 2005, 2011), support for the main company strategy (Snell, 1992, Snell & Youndt, 1995) and performance improvement (Ouchi, 1978) with the efficient control approach and methods.

This research is based on the gap of relationship between appropriate control system and organizational structure, which performance is in direct correlation with the implementation of corporate information systems. The control theory in its original form has features suitable for vertical and linear relationships between employees and process of the submission (Liao, 2006). This thesis focuses on the matrix organizational structure as the instance of complex cross-functional cooperation of employees and corporate information system ERP, which is associated with the main part of matrix organization infrastructure.

Matrix organization is an essential solution for complex large companies. However, in such enterprises is difficult to achieve the balance of authority and conflicts inevitably arise. Corporate information system aims to improve internal employee engagement, to create a culture, not to allow them withdraw and deviate from the set goals and have equal access to assets for the development of projects and work with clients.

Nevertheless, executives may face the risk that usage of corporate platforms as SAP/R3, Buhta and Oracle E-Business Suite can lead to the additional problems as enhancement effect of underproduction, interpersonal conflicts and lack of confidence. It is possible because of the obscurity of HRM role in regulation of matrix corporate structure.

The HRM control systems in this research is the administrator that can affect the relationship between corporate information system and matrix structure.

4. EMPIRICAL PART

4.1. Case study

This research will focus on in-depth study of the inner corporate matrix structure of Russian company "Elcom" Ltd. According to their official site and the first overview interview with company's representatives, this firm founded in 1998 is one of the largest industrial companies in the Russian market in its B2B segment. The company is headquartered in St. Petersburg. Its branches are located in Moscow, Yekaterinburg, Novosibirsk, Voronezh, Krasnodar, Kazan, Rostov-on-Don, Samara, Izhevsk, Kazakhstan. The company produces and sells the following products: electric motors; pumps; fans and heating engineering, automation (frequency converters; throttle; the soft starter, the other equipment). Furthermore, it has its own production for refinement of the electric motors, manufacturing of electric motors with a brake and aggregation process for all lines of goods.

The company uses a matrix structure to control lower-level managers to work more effectively on projects and orders. Official structure will not be provided in this study due to the requirement of confidentiality. It is necessary to consider that in this enterprise the functional departments that control and collaborate with project teams are human resources, finance, and transport and logistics department. Analytical department is not involved in process of multi-bosses control and connected only with the top management of sales departments.

Therefore, the company is engaged in industrial automation. The company's structure represents matrix that includes the direct subordinate from CEO, top sales managers and department APCS (automated process control system) and the functional cross-subordination from HR, supply chain, logistics, financial departments and engineering shop. Projects groups consists of sales managers, sales persons and their assistances. The company's project teams are divided into sale divisions of certain narrowly focused product lines and department of complex projects with corporate clients.

Currently, the company employs more than 20 thousand employees. The company aims not only the sale of goods produced by factories, whose dealers it is. Elcom has its own trademarks, focuses on the realization them and capture significant market share.

The company has three corporate information systems - a single ERP, which includes a large number of corporate subsystems, HRS aimed at controlling and monitoring the work of employees, and APCS, which provides the implementation of a comprehensive optimization of technological processes and is characterized by a large number of parameters and complex control algorithms.

At the beginning of its appearance on the market, Elcom used corporate information systems in SAP platforms. However, the last eleven years the firm uses Buhta program (for all operations and all departments) and Siemens Teamcentre (for aggregation in the engineering shop), because the branches matrix structure operates in the warehouse complex, inside which it also has an engineering shop and administrative office.

Corporate systems help to quickly find the right product for the customer and the employee to provide price and delivery time. The average duration of a transaction to supply engines without any additional services is 3-4 days. The completion of project means to obtain the financial documents with receipt of payment and confirmed invoice from a customer. One manager provides services for 15 client companies, in which he can work with ten different managers in different cities.

In accordance with the statute and mission of the company, the main competitive advantages of the company, which they represent both customers and its employees as the main tasks for the implementation of the stated objectives:

- Possession of official titles (foreign brand dealers in the field of electric motors and equipment).
- Stability and long experience (since 1998).
- Wide range of products and services. (In stock and on order)
- Large warehouse

- The company's policy - a wide range of storage and work to maintain 100% of nomenclature available in stock, which ensures reliability of supply
- Providing individual projects
- Convenient location of the warehouse near the city center (for local customers).
- Availability of warehouses in addition to the main points in St. Petersburg, Moscow and Yekaterinburg.
- Preparation of documents, office, warehouse in the same territory. (client can optionally communicate with the manager at shipment)
- Ability to organize delivery. Well-established over the years the working system with transport companies cooperates with its transport department.
- The chance to get free delivery. (If it does not deprive the transaction profitability and is a condition of the deal).
- Guarantee the quality of products.
- The presence of the technical department, which in most cases allows for technical advice on the spot.
- Arrange the departure of the expert on the place.
- Efficiency of the work (as responses on applications and on shipments).
- Each client is allocated manager individually.
- A flexible approach to provide service to the client (the possibility of various forms of cooperation).
- Willingness to undertake additional client request (delivery, packaging, etc.).
- Pricing policy (the ability to offer competitive prices).
- The proven performance of regular customers, the possibility of deferral of payment.
- The employees are qualified specialists.
- Its production in the warehouse, which allows making the necessary improvements of the goods at the customer's request.

The work on the promotion of the brand «Elcom» occurs at two levels: external and internal. Attracting new customers and strengthen the company's reputation in the market - is the main objective of the external company's strategy.

According to top manager of working with clients, the internal environment of the company strives to implement and strengthen corporate governance and culture of the company. Sales and project managers want their teams to be proud of working at Elcom, and could involve the new staff, which would like to work in this company. Furthermore, in recent years, project managers and sales persons are working more on individual projects, which require the use of corporate systems for information exchange between the teams and functional managers.

However, matrix organizational structure of Elcom, which was applied since foundation, causes the different problems that are characteristic of firm. Executives, top managers and the HR department are trying to reduce the risk of such problems using a variety of tools for conflict prevention and monitoring of employees such as information systems. Nevertheless, on the basis of the first interview, the team working on projects and with clients face different barriers that overload their working process and adversely affect their performance. They consist of:

- Problems with recruiting new staff, jointing in the work process and the use of corporate information systems. The trial period is a minimum of 3 months of intensive work with the passing of each month for testing products that also include full financial responsibility for every mistake, strong and broad system of fines, and strong competition among managers for production (the cause of conflict).
- Sophisticated algorithms of the use corporate systems for new employees- a high level of congestion in working process. The manager should not only work with his own system of CRM, as well as in transport, financial, warehouse, defect system and workflow. The employee have to be able to work and fill data in several accounts belonging to several systems, and in a certain order. It takes a lot of time. Orders and projects must be executed quickly and effectively, in order not to lose the trust of their clients.
- Staff turnover. In the last year, seven employee in the corporate sales department were recruited, only one remained to work after the trial period. Each year, it is occurred the change of secretaries. The procurement department contains 10

employees work mainly in companies that are more than 7 years, new employees after the probationary period longer than 6 months do not work and go to either another department or another company.

- The underproduction situation in warehouses
- High level of interpersonal conflicts within and between departments
- The rigid system of penalties and unclear a system of motivation

Identified problems of Elcom Company are way or another connected to the management of human resources, as well as the use of software to perform the control over the work of employees. It is necessary to clarify, which approach is used in the management of employees in the company, how it affects their performance. In the research of this case study, it is needed to select a better approach for human resource management control system, and to propose options for the use of corporate information systems for the implementation of HR management role.

4.2. Results

This chapter represents the results of the case study obtained through interview. It shows how HR management control approach tries to overcome the general matrix structure problems not to the detriment of the employee performance. More specifically, the results are displayed with regard to how HR management manifests itself in controlling employees, its focus in the implementation of its methods, how it interacts with corporate information system and what the consequences of the chosen control system to overcome conflicts and solve problems of managing employees. These results provide a chance to analyze and present the role of HR management on three sides - direct submission (sales manager), from a functional manager (manager of HR department) and from the subordinate employee (sales person). It reveals the drawbacks of the selected control system, provides an opportunity to choose a more appropriate approach and actions for the HRM in matrix organization, as well as displays how corporate information system can help with the maintenance of employee process.

4.2.1. Matrix behavior HR control system

The highest level of performance of employees working on projects often depends on the interaction with the sales manager, functional managers, teams and the organization as a whole. Such interaction places an obligation to monitoring the work of subordinates, their behavior with the client and other members of staff. These items are the center of the control behavior of human resource management in large companies.

For large matrix company, the behavior control system becomes the prevalent in the foundation of employee processes and achieving the target objectives of corporate system. It is wondering that the matrix structures have their own specificity in this approach. The behavior and actions of employees, as well as their reporting activities are controlled not only in the vertical direction with consideration of all the characteristics and the specified parameters, as well as from the other functional departments, which also expose the framework for the project teams.

In this study, the behavior approach in the matrix organization involved the certain areas of human capital management. Each item, which is reflected in the table 5, was investigated in terms of impact on the problems of the structure and their interactions through corporate information system on the employee performance and psychological conditions in the working environment. The explanation of results is mentioned below table.

Table 4. The items of matrix behavior HR control system

№	The component of control system for matrix company
1	Awareness of general goals, missions, strategy and functions
2	Responsibilities and changing roles of employees and departments
3	Conflicts, solutions of problem
4	Regulation of internal environment
5	Communication and feedback system
6	Working process control
7	ERP system in this control approach

However, this approach in human resource management should deal with common problems of matrix organizations and consequences from these actions.

The awareness of common goals, its philosophy, mission and objectives, as well as their own functions by employees at all levels of the company are an obstacle to executives. The behavior HR control handled with this problem ambiguous. Sale, project and functional managers almost identically said: *“The overall objective of our company, I think, is the production of high quality electric motors and other electrical engineering, fulfillment of all obligations as dealers of foreign brands and to provide quality sale and delivery services of our projects in accordance with the order directly from the company-customer”*. (Sale manager). However, the assistant of sale manager, which work and help with clients and is a part of team, states that proving a set of quality service connected with projects and goods is the main goal of Elcom company. It means that the low level of management is not aware deeply in the main strategy and direction of firm and multi-control is not conducive to the

achievement of all the information and comprehension by the employee as part of a whole company.

Nevertheless, employees understand and are aware of their main functions and tasks. Superior manager duties to direct subordinates in the right direction, and functional managers contribute to their achievement by support actions. The assistant and minor sale persons obtain the necessary information for the conduct of orders from different sources and database software: *“Since the start of the implementation of operations, project or sale manager determines our functions and tasks that should be carried out through training. Human resources, marketing and finance Division also provide us with a list of the main indicators in Buhta program, on which we will be accountable... and our manager has on this list to guide us”*. This situation should compensate the misaligned goals of different teams and divisions. Behavior control system strives to maintain a single view of the higher levels of management, that they can rally collective in correct direction. Despite this decision, this situation is very precarious and possible conflicts within teams.

Behavior control succeeded in the sharing duties and responsibilities of employees. Human resource department engages the process of clarification of basic questions about accountability, responsibility and job descriptions: *“We have two employees from the HR department who induct other staff with the general duties, instructions and responsibility of the company. They also partly monitor their implementation. Any interaction should be clearly defined and all actions are coordinated with job profile, duties and authority”*. (Sales manager).

If any changes occur in respect of transactions with customers, the head of department or the sales and project manager may modify the conditions of monitoring or reporting to other departments, job descriptions and responsibilities.

In such cases, it is held the collective meeting of representatives of several departments, in which all obligations and responsibility are discussed and distributed. Behavior control of human resources in matrix structure is trying to clearly differentiate and register all job descriptions, especially which influence the ERP program managing resource management (material and human), those employees, who do not have constant access in certain

databases, cannot conduct operations without notification of the responsible person. The slightest change or the intersection of roles can lead to negative consequences. Therefore, the superiors and the representative of HR department must monitor the implementation of each employee operation. Every discrepancies can be resolved immediately: *“Any changes in the performing duties shall be recorded in the official order that our department distributes through the internal network to each employee in the mail with a brief explanation.”* (HR manager).

Furthermore, responsibilities for supervision of the execution of working processes of matrix teams are divided between the manager, who should monitor the work with customers and control internal discipline and environment, and other departments that control the financial statements, transport documents, changing in the staffing, customer distribution within the department and the algorithm of conduct and execution of projects.

This method in behavior control is quite effective for the performance of the employee, staff rarely complain and conflict due to crossing responsibilities. It is needed only to maintain and develop a system of notification on the external network. The authorities under the matrix teams are divided mainly overeating project manager and HR department as the representatives of the corporate governance in the immediate environment.

Nevertheless, the close co-operation of employees with a number of managers from functional departments and their direct superiors cannot avoid or reduce the emergence of interpersonal conflicts through behavior control system: *“Within the department, we try to avoid any interpersonal conflicts. Our manager tries to resolve any dispute quickly and quietly. However, they still occur quite often between departments and teams. Our staff have rarely conflicts because of hostility; colleagues are friendly and patient, and senior managers invariably willing to help with orders. Unfortunately, sometimes we still cannot find a common language, or it seems to us that our work is underestimated. The worst option - if my manager and logistician, for example, have different opinion on the transaction or condition of project. In this case, my decision could cause precisely the dispute and serious proceedings.”* (The assistant of sale manager).

The corporate culture in sale and project departments that is installed by HR managers and senior managers and a unified system of resource management improves employee performance in matrix organization. Project managers in the framework of the behavior control approach are trying to communicate closely with subordinates to reveal any fluctuations in the working team environment. However, the selected approach in HR management has the reverse side in conflict solving. Tight control of employees through numerous system of penalties, constantly monitoring from different sides on the final output tenses situation in the workplace.” *Conflicts with other sales departments are, especially with assistants and managers, and not with the authorities. In the consequence of the feeling that every worker is under observation, many of my colleagues are experiencing psychological stress that sometimes results in nervousness. Our job should be executed at the highest level, because it affects the salary, bonuses and the possibility of a variety of internships. This is the reason for a serious fight. In addition, if the managers or assistants are somewhere intersect, occasionally it results in the disassembly*”. (The assistant of sale manager).

Conflicts often occur between teams or departments of sales because of underproduction and rigid framework of action protocol with clients. The underproduction effect is shortage of goods or materials in warehouse for production and projects.

This method is used for increasing innovativeness in making decisions and modelling product launch, and it becomes the reason for significant competition between staff: “*The number of our products and materials is limited in storage and the ordering new ones is long expectation that does not suit for all clients. In such cases, our department of complex projects competes with for the remaining sales departments and teams, which are narrowly focused and work with one type of goods and projects.*” (Sale manager).

Company with matrix structure because of implementing behavior control cannot fulfill its principles of providing the policy of making independent decisions and actions for employees that is the advantage and common feature of this structure. It strongly embarrasses managers, because, on the one hand, they are required to self-reliance in dealing with customers, and, on another hand, they should be accountable to all department in order to avoid confusion and conflicts with other managers: “*Our work is intensive. We have to*

work with several clients at the same time, and we have high level of accountability. Even experienced staff cannot stand frequently. Many people are dissatisfied, but if even slightly something changes in the work process, we may lose customers or the efficiency will drop. Many of our customers locate in different parts of the country, and we have to work longer than the set time, because customer is a priority.” (The assistant of sale manager). Resolution of all barriers and conflicts in the working process takes place through meetings within the department with the help of senior managers and HR department.

Qualitative research revealed that HR behavior control system is unable to maintain the quality of communication between sales managers and their subordinates. Matrix companies prefer to utilize the accurate sharing of information through formal (by mail, official documents and contracts) and informal communication facilities: *“If employee has any suggestions or ideas, he can always express them to his manager, especially when it concerns the customer service. If the idea is appropriate for working process, it will be discussed with the head of the department and, after that, an order will be issued. Our company has a well-developed internal communication between employees, both formal (through the program and e-mail), and not the official (via Skype and ICQ).”* (The assistant of sale manager). Internal communication between employees has the significant impact on the employee performance and fulfillment of business strategy of firm. Generally, behavior control approach in human resources appreciates the vertical relation and communication channels, because it provide the clearly conditions about building customer relationship and project operation and expectations, simultaneously correction of mistakes and developing trust.

However, this approach in HR management does not work permanently with the corporate identity and communication with functional managers that can lead to misunderstandings, confusion and conflicts between departments:” *Furthermore, we can encounter misunderstanding or difficulty in communicating with engineers, welders and other employees of different departments, especially in engineering shop. Contingent in sale department contains mainly women, when the engineering shop and warehouses are place for male community, and we have to communicate through the using of special terminology and suffering male terseness. However, our engineering staff are different people with their*

concept of communication; therefore there is often a misunderstanding or minor skirmishes.” (Sale manager).

Despite the need of interaction and the use of common terminology for particular metrics, names or materials, occasionally, senior managers between employees do not feel solidarity and support for the realization of the tasks of another department. In this case, divisions are separated from each other and they possess the lack of motivation to perform operation in the way of improvement for firm’s productivity. Employees only perform their tasks and communicate with functional staff, when it is significant for project and reporting information, and the maintenance of the quality communications between departments takes place only on the highest levels of management.

The vertical communication between sale manager and subordinate persons is based on a sense of relief in managing operation of projects that causes the motivation effect on the employee performance. The project staff act in delusion that only the sale manager is able to understand, has experience in this field and can promote the raising skills and overcoming challenges. Functional managers may provide communication only in case of coordination of special processes and accountability.

However, matrix organization requires the deeper relationship in communication between horizontal information flows for increasing the quality of customer service.

Human resource management behavior control system in matrix structure does not concentrate in official system of feedback: *“We do not provide the official system and function of ERP software for receiving feedback from employees. Workers are not aimed to specially create feedback about working process. I know that other companies even plan meeting with engagement of minor managers to improve process and offer capital and platforms for a variety of activities for the simulation of the proposed ideas. In general, proposals are welcome, subordinates of sale and project managers can come to them and say that some working operations or process can be implemented in another way and present the idea. Furthermore, we conducted within the department meeting once in half a year on various plans of sales, projects or problems, where every employee, a member of the meeting, can express their wishes and ideas.” (HR manager).* All ideas and suggestions are held through the vertical chain of managers that has not constantly efficiently impact on

firm's performance because the basic ideas and changes related with innovation in working process and customer relationship service should be examined with other functional managers, not only representatives of the personnel department.

In matrix organization the working process of each employee, especially those who provide service for customers and develop projects should consist of several stages that contain creating and filling out certain documents, conceptual development and analysis and testing developed design. All contracts, invoices, the results of inspections and permits for conducting certain operations to comply with the coordinated functioning of the departments require the creation in a certain procedure.

It is needed because everything is stored in the databases of a corporate system and each new component, the document or the result of product testing has its impact on the selection of the next step (decision-making) and clarifies managers their role in the recording and monitoring. Each deviation has capability to lock the operation of the whole department. However, monitoring the correctness of filling the accounts, the nomenclature and performance of the obligations on these documents may occur in different ways depending on the direction of the control in HM management, business strategy and knowledge management that will establish key performance indicators and report system.

Generally, the strong constraint behavior of employees in the office, therefore, in working process control is characterized the high levels of monitoring all actions by sale and project managers, interference in the activities, as well as subjective and more sophisticated methods of performance evaluation, which focused on the implementation of the rules, protocols, and increase output.

Nevertheless, in matrix organization the project teams provide goods and services quite independently: *“Our managers can only scan specific points, because the track all processes from beginning to end cannot be possible - we have a large number of employees and a large flow of orders. They have to monitor employee's planning process, create with our department and analytical manager milestones (indicators), which is checked - whether the employee follows the plan to reach the specific parameters that are established in advance as a minimum.”* (HR manager). This proceeds when the actions of the staff are not effectively

managed through HR behavior control, and executives utilize another related control approach that is considered as additional method. Matrix behavior control provides a chance for functional managers interfere in the activities of teams. It can overload the control activities and prejudice the psychological condition in staff' environment.

Leading the staff performance management, evaluating their work and contribution to the development of company are needed only through the list of specific indicators for each department, which are key elements for the reporting system.

Matrix organization use these indicators almost without connection with behavior control of human resources: *“We really have a very extensive list of rules and penalties for internal office management and staff behavior. They are our concern and head of the department in the greater extent. These rules and points of behavior assessment are not considered as indicators of performance. They belong to the maintenance of a working environment and development of employee skills and communication flows and corporate culture. These metrics are very strict because Elcom has wide range of the staff and all of them must be controlled to avoid conflicts and to know where and what they were doing.”* (HR management).

The matrix structure empowers employee's autonomy to find and develop innovation for the production. In the other way, the ability to control the behavior restrict the freedom of action of colleagues. Therefore, this approach is combined with another type of control for a more substantial and sustainable management of specific personnel actions.

Each control system has to effect on the different algorithms of software and be displayed in the company's corporate information platforms. ERP program, in many cases, is an instrument of influence for various aspects of management, not only material as well as also human resources. HR control often is reflected in such systems through access to various databases, protocols, obtaining permission to perform any operations and document flow between departments and employees.

HR behavior control in matrix structure represents the opportunity of utilization corporate information system as complementary instrument of maintenance in managing teamwork.

ERP system in this human resource approach benefit in monitoring communication, checking query execution by other department, infringement of the confidentiality, distribution of responsibility, certification, results of testing and access to main assets and materials for project: *“Here, almost everything is associated with the program. It always displays which manager working on what project. Each employee has his own level of access to information. For example, I cannot see the accounts of managers from other teams; however, our head of department is able to check the work of each subordinate at any time. The monitoring and control process is common. When I create in Buhta program the account (an analogue of the official agreement or order), information system stores immediately in the database under my name all document, permits and reservation of materials for projects. It means I am responsible for this client and order and should bring everything to the end. If the document refers to another department such as logistics, they immediately gain access to all necessary accounts and we are starting to work together. Many operations are required the permission from my superiors and from the department manager, with whom I work. The program highlights all reporting information for other colleagues.”* (The assistance of sale manager). In the same direction, other departments are able to use the corporate information system.

Behavior control in HR management is not perfect approach for matrix organization. In some moments, it creates more negative consequences than provides the decision for general obstacles of structure. This approach is widespread in sphere of sales for B2B relationships, and the most companies prefer to use it for a clearer distribution of responsibilities and ongoing supervision to the actions of all employees.

Nevertheless, the matrix organizational structure cannot rely only on this type of control and require the balance in all aspects of employee performance because of the complexity of building relationships with different parts of the organization.

Behavior control cannot cope with some problems of structure, and rather become a cause of conflict and conditions that have the direct negative effect on the motivation of employees. In this case, this approach takes mostly a primary part in the organization tools influencing the improvement of employee performance.

However, for the essential and sustainable management executives needs to combine it with another control approach, which will play a secondary role and will be able to improve workflow. Corporate integrated information system requires a complex control system.

4.2.2. Matrix output HR control system

In addition, the usage of behavior control in HR management is combined with control outcomes strategy by the corporate information system. This approach playing secondary role in human resource control engages less amount of components to the system. The list of components is presented in the table 6.

Table 5. The items of matrix output HR control system

№	The component of control system for matrix company
1	Working process control and KPIs
2	Exchange of responsibilities and authority
3	Reporting system
4	Performance assessment and rewards
5	ERP process and algorithm in control management

The output system of control states in the HR management that staff are provided a specific list of indicators that they need to perform at a certain date. For the achievement or superiority of these objectives, people should be rewarded more often in monetary equivalent.

Not only the manager of department, as well as some functional managers, which results connect with the turnover of projects or materials used in production, characterize output control of human resources in matrix organization that the list of indicators is provided. Several representatives of the departments should submit in information system a list of restrictions and conditions affecting the use of certain materials and assets in order to somehow responsible departments can monitor and adjust production capacity and do not allow to drain resources or use them in a negative direction for firm's performance.

Nevertheless, HR output control in matrix organization do not indicate only the utilization of quantitative indicators for checking the activities of the staff: *“Operations and transactions should be regulated by a variety of indicators of quantity and quality, naturally. I, the manager of sale team, provide the full list of indicators of the sales department to my subordinates subsequent to the meeting with functional managers and executives, where indicators are discussed and adopted for each department.*

However, it should take into account the conditions exposed by other departments. For instance, the transportation department sets the maximum weight of goods that our car can deliver. If we exceed this level, then you need to expect that need a second vehicle - otherwise it is an additional cost.

Speaking of indicators, the quantitative KPIs are the amount of achieved results such as the number of closed transactions by the end of each month, each employee revenues, capital expenditures, the amount of absenteeism and tardiness, number of transactions that have been disrupted or broken, they are purely statistical indicators, through which the interest is calculated. In accordance with these indicators, employee is stimulated, receives premium payments and interest of the proceeded income from the transaction. Qualitative indicators are not such prevalent in control process. They are reflected in the conducting various kind of the examinations, tests, a variety of cases from the administration, which is verified substantial part of how employees work, fulfill their obligations to clients and superiors. It affords the opportunities of viewing and checking operation processes of employees and identifies the drawbacks in their performance.” (Sale manager). The usage of such indicators to verify the actions suggests that staff are, basically, sufficient independent and can make decisions using available information and restrictions satisfying certain metrics. The illusion of moral independence in decision-making can be destroyed only in case when the employee behavior control on the part of the direct superiors is strengthening, which is at odds with human resources output control.

Approach of output control in HR management is more appropriate for matrix organizational structure in monitoring of working process, because it affords not to waste the manager’s attention on the all activities of teams from the beginning until the end and checking each step. Subordinates can only obtain permission from his supervisor to guide any transactions that involve other functional departments. Members of work team feels confidence to themselves and try to fulfill their job at a high quality level.

The main feature of motivation in the utilization of output control in the human resource management is the applying indexes bonus payment and material incentives as the primary control lever. Their preparation is officially registered in the employment contracts for the implementation or the achievement of certain results in the deals and tenders: *“Such measures and indicators are aimed to improve or realize our goods and service for achieving goals of company and attract new customer. They play role of the foundation of the motivation and try to follow the business strategy. The usage of KPIs as the stimulus is one of my function as sale manager to achieve capabilities of employees that are particularly important for the company. For the staff executives create a special sheet, which indicates if the employee performs or reaches a certain level of revenue from the completed projects - respectively, he will be rewarded in monetary equivalent.”* (Sale manager). This motivation approach should be synchronized with the overall business strategy (customer focus or increasing the market share) and provide employee tools for reaction on the changeable market uncertainties.

The combination of key performance indicators and performance bonus payment and material incentives should be taken into consideration in planning and not damage the firm’s performance improvement. The authorities need only accurately to determine the lists of metrics and indicators for each department. Selection of key performance indicators and performance bonus payment becomes the significant way of direction for working process and stimulation of sale department and project teams. In such case, HR department can present as intermediary between functional management and sale managers - they offer the approved list for each leader of project team and announce the timing limitation of their implementation: *“The amount and quality of indicators of bonus payment in each personnel category are various. Employees of the departments related to the production, testing, warehouse and shipment receive rewarded payments based on the special production indices (monthly and annual bonuses). Staff of planning, marketing, finance and other strategic management departments receives bonuses through its indicators connected with their control lines and results. All these indicators are cascaded from the top management in our department, then we recorded them officially in the corporate database and provided to the needed department. They are aimed at implementing the each division of its determined goals, leading to the achievement of overall corporate objectives.”* (HR manager).

Career development is also a motivating tool, which is able to secure the employee in the company for a long period. In the matrix company using output controlling for measurement and fulfillment of working process, the HR managers should be aware of the performance of indicators, because they further with the direct employee's superiors could help to advance along the career ladder: *“Career growth is largely due to the afford of various benefits. Our team can obtain more bonuses or premium, usually money, for the responsibility compliance and taking the initiative in the deals. This occurs through the achieving the high rate of revenue for completed transactions, excellent work (according to feedback from our regular customers), and analyzing the results obtained at the end of the year... Career development and promotion are determined even at the stage of the hiring by the HR managers... They monitor the all violations of rules in the office and establishment of indicators, which we need to reach. HR department compose a report of our accomplishments and presented to top management to bypass the sale manager... If you work sufficient effectively, independently in decision-making, avoid making mistakes, which will lead to negative consequences for the company, provide a high level of income, the sale manager and HR representatives will increase your percentage of transactions, may entrust the work with tenders and you can become the manager and create your team.”* (The assistance of sale manager). The advancement on a career ladder is determined on the meeting where executives, head of department, HR manager with possibly someone from the functional managers are present.

Output control of human resources involves the rigid analysis of the data and indicators by the various departments (especially their direct superiors) for completed deals and projects, which are stored in the internal network. The results of this analysis of reports, documents and invoices can constantly represent the deficiencies in the actions and decisions of employees and the level of their capacity in the chosen field of operation, which could lead to incentive actions for the benefit of the employee career development or cast doubt on his continued functioning in the firm or department. The authorities can addressed and place the presented challenges and objectives not only to individual employee and for the whole group of different specialists and teams to unite people together to achieve common goals.

However, this approach of human resource management is useless in identifying and resolving conflicts and competition in matrix environment. Furthermore, occasionally output

control system becomes a catalyst for the emergence of conflicts and obstacles in the working environment of team and department, because many employees possess and follow the same metrics and indicators and they are starting to fight fiercely with each other and may even begin disassembly of the use of resources for similar projects for different clients. Staff performance cannot depend only on monetary motivation and tense situation in the workplace have to disrupt the managing operations through the established order of the system of indicators.

Corporate system matrix organization should be based on the sustainable use of available resources of each division during the combined production and development of innovative products as well as in the internal interaction between employees and other divisions that through the involvement of the employees are able to generate more creative ideas and consider themselves as part of the company. These interactions are difficult to control only through various indicators, because they do not consider the certain psychological aspects of communication and trust between employees of the same rank or the same team. Therefore, the corporate governance of matrix organization is applying the output human resource management as an additional control system.

Nevertheless, the output matrix control has several advantages elevating it above all other human resource management approaches. They are connected with easy integration of output techniques in the corporate information system because quantitative and qualitative indicators as well as tools of their analysis can be utilized to easily cross-functional algorithm of reporting model. In this matrix structure with the usage of ERP platform, the reporting system consists of the prevalent online document flow and standard printed accountability: *“Assistants and their managers submit reports, invoices and other documents mainly in electronic forms through Buhta program. However, in case of working with financial department, we have to prepare several specific accounts, invoices and other documents in printed copy. The financial secretary and specialist have to check them, conduct the operation and authorized person sealed them for archive, that the order is fulfilled. The program allows us to create and follow the requirements of the different departments and managers. Therefore, it is necessary only to know which number of electronic document corresponds to whom department or type of report, and then only need to fulfill the steps of the procedure for completing the documents. All changes in the circulation of the document*

chain are notified in advance. We have explicit instructions about sending and interchanging of various documents and contracts. For instance, it is clarified that which reports our department should provide only for the HR department, financial, logistics and marketing employees, and some of them may be duplicated - that is sent to my direct supervisor and one of functional department such as supply manager (sales report for the month).” (The assistance of sale manager). Because of IT-department any changes in the flow of documents, reports, and the order for the application of key indicators of reporting are fixed in the program and automatically warning message notifies employees.

Matrix organization faces and confronts the challenge connected with ambiguous authority and unclear roles of staff. However, the conversion of responsibility to the list of limitations, goals and indicators restricting the usage of resources can facilitate this struggle: *“The reporting system in our company is automated. Any documents are loaded into the general network... Each department or manager receives only those reports, to which they have access, and which are necessary for their work or that they requested from another department... The program should remain and support clear regulation of accounting documents... Duplication of documents and reports flows can only relate to the monthly revenue or other financial information about the deals and material resources, because these data are needed to several departments simultaneously (for example, for accounting, marketing, finance department and project and sales teams).”* (HR manager).

Output control of matrix structure is a peculiar adapter for corporate management to make decisions and organize the work and capability actions under projects. It particularly affects the performance of employees through the system reports that output control of human resources generates and guides, as well as analysis the consequences and reaction on the elements of the working process.

ERP platform as the representation of corporate information system in the company with matrix structure for this approach of implementing control processes is affordable tool in the analysis of the activities of the staff and improves company performance as a whole. In spite of the excellent compatibility with various software and program for resource planning, the human output management system cannot occupy the leading positions in the regulation of resources and employee performance in the matrix structure.

Creating a foundation of motivation for lower-level employees only on the resolution and analysis of specific indicators and results as well as the monetary reward is not enough for company that is functioning because of harmonious communication, teamwork and high skills implementation through competition. The staff may not be prepared to cope with increasing the confrontation between the teams and departments, market changes and multi-faceted reporting system. Human resource output control in a matrix structure requires combination with other approach of HR management that will be focused in more detail on the opportunities and respects employees and their skills and ambitions.

4.2.3. Matrix input HR control system

Matrix organization rarely integrates the input approach in the human resource management in all aspects and uses many its features to improve performance of firm. This control approach implies large investment in training of staff, their skills and the clear development of communications between the various levels of management and divisions without fixing official restrictions of engagement in the relationships.

The revealed components of this system (Table 7) do not cover such a wide range of working environments directly. However, the impact of the identified results by the list of items allows to determine the essential role of HR management in the corporate governance of the company and to analyze the weaknesses in the implementation of control through information platform.

Table 6. The items of matrix input HR control system

№	The component of control system for matrix company
1	Mentoring
2	Awareness of general goals, missions, functions and tasks
3	Implementation of working process
4	ERP platform realization
5	Motivation

HR input control can realize its peculiar properties due to the utilization its methods in matrix structure. It stimulates managers to prepare carefully their team for providing service and

projects for customers and form staff' capabilities that allow employees to respond more quickly to the manifestation of uncertainties in the market and their consequences. On the basis of this study, it is notified that such control of human capital in matrix company will focus on the creation of an independent competent employee who has to work for the benefit of the company and, in spite of the various internal exposure, to maintain and improve their level of productivity.

However, matrix corporate organization prefers to express the input control methods only in the system of mentorship, which should be present in the hiring of new employees in the working process. In such companies, it can be used the various stages in the preparation and training new staff for operating in the high competition environment: *“Our company has developed several stages of preparation of employee in our corporate matrix system. That probation period is only the first step, which is directly related to my duties. Then it may be other ways of training that connect with HR division or me. Our human resources department conducts trainings, internships, courses for a very different period, because it is their responsibility to provide the chance of increasing quality for subordinates.”* (Sale manager).

It is worth noting that almost completely the first stage of mentorship depends essentially only on the manager of the department or team. His actions can only be slightly corrected by HR department during the first weeks of probation period. Thereby, the first step in the system of introduction to working with projects and clients is the probation period from three to six months, during which managers try to constitute the representation for employee about the company and its main functions. HR manager states: *“One of the members of our department is responsible for fixing the work of sale or project manager for newcomer's integration into the working environment. During the probationary period of the new employee, we meet several times with his supervisor, and discuss his work, behavior in the office, answer and clarify some of the issues and problems. We do not interfere in the work of the manager and team constantly to monitor the action of the new employee. We just need to ensure only that staff member joined to the team and working process and that this division is appropriate for his comfortable operation. We also listen to the views of the manager to analyze how he copes with his duties as a mentor.”*

Nevertheless, due to connectedness with prevalent behavior control dictating the complete subordination to one manager in the early stages of working, it is remained only formal multi-bosses reporting in the input control management of the new employee. In this case, he cannot adjust to multilateral submission and management.

However, this approach can be applied separately from other control system. It is occurred in the second step of mentorship in the in the middle of the probationary period, although not in all departments. Matrix corporate system is characterized in the HR input control by the fact. It sharply throws new employees in the intensive work that he has to deal with not only the subordination of his manager and other functional departments: *“New employees are encouraged into the ranks of assistant, when we have many orders from our clients; it is needed employees who will work with them. However, not everyone can stand the pace and tension. In my experience, it is necessary to grasp everything during in the first days. When a new employee comes, he is accepted immediately to the team of department on work with clients, and he begins almost instantly to operate in our mode. The functional managers do not provide concessions. It is necessary that he immediately start to realize what he may encounter. At the beginning, we can help newcomer, giving different orders that he learned to cope with the increasing flow of work.”* (The assistance of sale manager). In general, in spite of the severe training, the staff during the implementation of input control will be able to immediately respond quickly to new requests and orders and make decisions promptly. Improving this aspect of the matrix control is possible only with the help of mitigating the boundaries between the first and second stages of mentorship when functional managers are introduced from the first week into employee training.

HR input control system distinguishes the main need of matrix organization that it attempts to reach. Matrix structure requires independent employees, who know all the main tasks, goals and strategy of the company as well as their functions. They can fulfill the work in the competition for revenues and resources, while remaining a united collective not only in the team and also in the department and between departments. For this purpose, in addition to the probationary period, matrix structure should use other input control methods that have more qualitative impact on the realization of the employee potential and capabilities and establish of communications between a new employees and other representatives of the other departments. These methods include conducting various collective events, which are

implemented within the framework of the corporate system and management. These events can engage in the cooperation different staff with various experience: *“Our executives and HR department try also to conduct various trainings, lecture, internships and workshops. However, only formally employed staff can participate in these events. In these workshops and case studies should be involved as well as experienced staff from different departments, as well as new employees. They are quite interesting and informative events and establish communication and exchange of experience with other colleagues. Our staff use them for keeping a friendly working environment.”* (The assistance of sale manger).

As mentioned before, in the input matrix approach in HR management, which is conducted with behavior control, all the major obligations of mentorship will be assigned to the team manager. Large companies for cost savings cannot afford a separate mentor for each new employee, which would thoroughly explain all the basic points concerning the firm’s goals and strategy to each new member of staff. Team manager have to combine mentor activities with other functions in intensive flow of orders and projects: *“New employees are recruited to the project team, and they will be willing to work in these teams. Nevertheless, we cannot let a single mentor; therefore, the new employee will have to start fully operating immediately in one week of induction training. All responsibility for the first months of his work will be borne by his superiors.”* (Sale manager).

On the one hand, the implementation of this way of input HR control is more appropriate for the combination with behavior control, the employee will gain experience observing the example of his superior and other member of team. The manager will be able to form a trusting relationship with a newcomer and to introduce in the politics and working process of certain functional managers. He can also interrupt in the actions and decisions of new employee for ensuring that all steps of project are correct.

However, on the other hand, the team manager working in the intensive mode directly cannot explain all aspects of the working process. It causes that the employee starts directly to confront with stupendous stress and can make mistakes, material responsibility for which is imposed to him from the outset: *“Unfortunately, as soon as the employee proceeds to fulfilling all operations, the financial responsibility (in our case it is high) will be fixed only for him. Therefore, the committed error will cost him expensively. I am as a manager and*

mentor will assist in internal conflicts and in some negotiations with clients.” (Sale manager). Furthermore, such a sharp introduction to the working process and obedience only to the team manager close the newcomer from communication with other teams, and that in the future may lead to interpersonal conflicts.

Reporting system is also influenced by the input control in matrix organization. From the first stages of mentorship, superior directs the new employee to report about the orders from clients. Simultaneously, the team manager should provide the reports to HR department about the achievements of new employees and how they joining into the collective. After a probationary period, the employee is ready to work with a list of requirements from the functional and team managers.

Reports for matrix information flows in this approach of human resource management should concern not only quantitative requirement and indicators, as well as detailed quality review of teamwork. Inspections of the qualifications and examinations of employees related to the qualitative utilization of the program functions and the corporate information system to customers is a small part of the input control system.

HR management using this approach for the implementation of its role in improving the performance of the matrix company is able to avoid obstacles on the allocation of staff roles, responsibilities, authorities and awareness of themselves as part of a whole. This can be achieved if for mentoring executives and HR department create clear detailed instructions and a list of priorities, about which every new employee should know. Investing enough money, experience and knowledge in the preparation of staff, they will be able to cope with change, both within the company and to external irritants.

Motivation is based not only on monetary encouragement, as well as on the comfort surroundings in the team and department, the opportunity to work as an independent manager and gain experience to further advance up the career ladder. Establishing a positive psychological environment in the system of communication and motivation among departments through joint activities as well as clear instructions of goals and responsibilities in the start of reporting reduces the stress level for a large flow of orders and projects, and contributes to obtaining advice, concessions and aid from the functional managers.

In the corporate matrix organization, input control of human resources can become the foundation for the maintaining corporate culture and management of information and document flow. Sophisticated reporting system could be improved as it would be the involvement of employees in many communication processes: *“Our team is trying to communicate with other departments and groups. It is helpful to have strong relationships with other managers from different divisions. It is easier to negotiate about the manufacturing processes and equipment, materials and reports. It is necessary to start the establishment of contacts immediately once infused into the flow of creating projects. Collaborative reports are encouraged by our superiors and reflect the more detailed situation and work problems.”* (Sale manager).

Nevertheless, the HR input control is difficult to connect with the corporate information platform except to use the cross-functional progress reports of mentor, trainings, seminars, deals and instructions for employees. If leaders of matrix structure apply this approach as leading direction in the HR management, it will still need to be combined with another control system, because, in spite of the excellent training of staff, the matrix organization executives require additional metrics and features that can be integrated easily with the information system.

Input control aids to form the structure of algorithm for ERP platform and provides the opportunity for taking advantage of its efficient utilization aimed to enhance the staff performance. Employees will be able to identify and use all the possibilities and knowledge to operate with the program in the implementation of innovative ideas for themselves without additional supervision and management.

Matrix input control is more rarely used in other aspects of human resource management and performance, because this approach is quite risky and expensive in the early stages of employee operating. It also requires very thorough preparations for any instructions, documents and orders, as well as the already established pattern of interaction, responsibilities and job profile for employees from different departments. In other matrix approach, investing in staff and the formation of an information exchange system occurs during their operation and only when the employees shown themselves to the benefit of the

company. The matrix input HR control system provides the ability to construct the more cohesive and innovative-focus staff in the conjunction with an independent mechanism for communication and reporting to reduce the level of conflicts and the problems of the internal environment and without strict control over the all actions of employees.

5. DISCUSSION

HR control system is reflected in the various parts of the matrix structure, which is directly related to internal activities, business structure and firm's performance (Liao, 2005). In most cases, executives rely on the most widespread approach of behavior control, which in turn affects all other types of management for quality usage of personnel capital to achieve the goal.

However, the chosen direction is not at all encourages the utilization of the available benefits and opportunities, which matrix organization possesses. In addition, occasionally it creates and aggravates the numerous barriers of matrix structure, which typically occur in the firms with multi-subordination of project teams (Sy, Beach & D'Annunzio, 2005) because of the constant interference in each staff's decision and overloading the complicated and instability reporting system. Managers of departments attracts such control approach that they can intervene and monitor the behavior and actions of subordinates to simplify the implementation of the basic functions and tasks (Snell, 1992). According to Ouchi (1978) and additional research of Liao (2005), HR behavior system also focuses on establishment of strong relationships vertically between a manager and a team that is a significant element in sphere of sales because it increases the quality of customer service and awareness of their needs through the direct interaction of the authorities.

Nevertheless, this HR management system is struggling to cope with the problems of the distribution of authorities and roles of the staff (Sy, Beach & D'Annunzio, 2005) in such large company and cannot convey shared vision and goals of the organization from corporate governance to lower management and teams. It only generates dissension and additional conflicts between employees and adversely affects their performance. Furthermore, behavior control does not provide a strong influence on the teamwork by the representatives of the functional departments and divisions, with the exception of the human resource department that infringes their role in decision-making using only the reporting, software accounts and permissions as a method of interaction for the projects.

In matrix organization, distribution of information and ideas is crucial requirement to maintain the level of innovation in work processes and production (Larson & Gobeli, 1988)

that will lead to the satisfaction of consumer needs, attract new customers, support and enhance the company's market share in spite of the changing market conditions due to the economic crisis currently. Human resource management plays the significant role in the system of information exchange, development and the maintain of absorptive capacity (Cohen & Levinthal, 1990) and construction of a connecting link in the ERP program for linking main activities with back office, establishing KPIs and their requirements in the implementation of business plans.

However, the conducted study reveals that behavior approach in the HR system provides negative effects in this part of knowledge management because of the constantly changing authorities and frequent occurrence of amendments in the job description that cause the confusion and overload the system of document circulation and the discontent of employees faced with additional functions. It causes severe stress in the working process of employees from each department and makes the algorithm of ERP platform increasingly complex and bureaucratic for conducting operations and preparation of accounts and applications, especially for the project teams.

Matrix organization using behavior control almost does not apply the system of feedback and the strategy of the involvement of every employee in the control model and the provision of ideas for improving the internal network. It is understood that the managers of teams and departments should themselves receive the offers of staff if subordinates decided to express them (Snell, 1992). However, it is not occurred the incentive and motivating of employees to signify their views in the official form.

In general, this control approach copes with the role of expressing the impact of human capital on the management of matrix organization and its realization on the market. It is worth noting that this is not appropriate HR control system and strategy in the implementation in the form of a structure through corporate information system as main tool. Thereby, the selection of such direction may result the financial losses in the process of increasing capacities and smoothing the effects of increasing levels of conflict.

It is successful decision to choose as additional matrix HR system management for ERP platform and program output control. In confirmation of research of Liao (2011), it is

determined that this choice does not infringe on the independence of the staff, require the precise plan and schema of the interconnection and communication flow and does not directly affect the internal environment of the divisions. Matrix output control has succeeded in terms of HR management in the corporate information system and features of corporate governance. This approach plays a key role of intermediary between the human resources, its view on the function, decisions and operation and in the establishing chain of actions to unite functional and directional multi-subordination in the ERP system.

According to conducted research of case, the output control in matrix structure is able to apply setting goals and objectives to employees, establishing the significant items of motivation and creating a comfortable environment for the implementation of team autonomy in a matrix structure that indicates providing opportunities for the development of innovative projects to satisfy the customer needs. This control approach has to increase the participation of functional managers in the fulfilling the projects and communication with teams despite the fact that it has expressed largely in the indicators and requirements for utilization of material resources.

However, this HR system does not actually engage in managing and analysis of conflicts and internal competition between departments and teams. Kerr (1985) states that output control increasingly concentrates on the utilization of quantitative indicators and metrics thus losing a significant aspect in the management of human resources. Furthermore, this research identifies that this approach does not focus on improving the skills and qualifications of the staff, their efficient usage for the benefit of companies and weak expression of advancement on a career ladder for employees.

In general, the output control may not play the primary role in the implementation of the human resources in the matrix structure, because it does not ensure to overcome most of the problems of matrix organization in spite of creating the automation for the reporting and requirements system. Its position for such companies should remain on the same level as the complementary system to provide the implicit supervision of staff and monitoring the performance of each of them.

Nevertheless, some corrections should realize, especially those that relate to the integration of quality indicators in the corporate information system. If the matrix output control does not combine strongly with the behavior approach and simultaneously the corporate governance identifies the main points of the reporting network and distribution obligations for the ERP platform in advance, the selected HR management approach will be able to consider not only numerous metrics and key performance indicators as well as qualitative and innovative shifts in the staff' actions. In this case, it can provide with less negative consequences the regulation for partially the internal struggle, which is not removed completely because it is one of the key tools of the matrix structure for achieving the significant results from realization of products and development of innovation.

ERP platform as a reflection of the corporate information system and tool for the usage of control actions over the staff and their operations has only one drawback in the selected output approach in accordance with the work of Mossholder, Richardson and Settoon (2011) that is connected with unbalanced communication and interaction between departments and employees. Reporting system and list of indicators fulfill only one side of the HR control, which may not reflect all deviants in the staff relations.

According to Liao (2011), the most underrated approach in the management of human resources is the input control system that is used marginally in the matrix company. Research of matrix company case provides the results that it is expressed mostly in a mentoring system, which performs the initiation of new employee in the working environment, teams and training to use the corporate information system and program for resource planning to obtain the available information and accomplish of all production processes for projects. According to obtained results, the mentoring system in a large matrix system is sufficiently weak and not perennially effective due to lack of resources and time allocated for training newcomers. Matrix input control of human resources is based on the way to a quick introduction of employee into the workflows, which is significantly efficient for imparting of specific skills, training and rapid deployment in business processes, communication with customers and the management of intensive stream of small projects and orders. Nevertheless, the high level of financial responsibility for the mistakes imposed on each employee team and isolation of functional managers are frustrating staff and prevent involving in the team and revelation of their potential.

Another complexity in the practice of input approach is the slight utilization of the ERP program to execute control of matrix company (Chen, 2001). Program keeps a variety of documents and records of the mentor work accomplished by superior and essays about the staff development from human resource department. Corporate information system faces with the obstacle of monitoring the employee satisfaction with the use of such complex algorithms and cannot afford closer cooperation with the functional managers, except through the software orders sending into different department form ERP program.

The case study claims that the input control in HR management has to implement within the corporate matrix structure only with the proper combination with the output approach. In this case, the platform can capture various accounts, the nomenclature and the employee's requests and provide the opportunity of obtaining feedback from other departments and managers that will lead to the more coordinated work of elements of the structure. It will require a redefinition of the role of behavior control system in company with matrix structure, which is contrary to the provision of the independence for the employees in the decision-making after preparation for a full-fledged work.

According to Snell and Youndt (1995), input control needs the major investments and more detailed strategy of the simulation in reporting and communication channels for the simplified flow of information and the creation of teams for projects from various managers and departments. Research results provide that in this case, HR department will get all conditions for the formation of trained staff to work independently and deal with inessential conflicts on the background of competition in the organization. Furthermore, matrix input HR control does not lose the ability to track through the corporate information system of the major decisions and activities of each employee, based on which identify the results and make the calculations for planning resources and strategies.

Matrix companies using corporate information system and its platform for human resource management needs in all three approaches of control for preparation of the schemes and algorithms of programs for managing requirements, competition and resources between teams and improving reporting and communication system to avoid underproduction and blind spots in employee performance. Nevertheless, they should not be applied equally in all aspects of HR management.

6. CONCLUSIONS

Concluding part of the research is designed to provide general conclusions and answers to research questions. It includes and discusses the contribution of the study and considers the restrictions as well as makes several areas for further research.

6.1. Final conclusion

This research aimed to explain and identify the HR management as the main momentum in the development and control of the complex organizational structure to realize the business strategy and any changes in the HRM approach leading the sufficient disturbances in the corporate working balance. The research objectives for supporting this goal were to explore the role of human resource management (HRM) as a part of corporate information system in control and operation process of matrix enterprises and to study the integration and displaying the HR management control system and its components in the corporate information platform.

It was considered the role of HR management in the matrix company, which applies the corporate information system for maintenance of order in the work process and performing a variety of projects and transactions, simultaneously with the resource management, planning and logistics. It involves representatives of various departments in the operation and solutions for sustainable level of performance of the enterprise.

The obtained results from this research provide the fact that the developed corporate model for the algorithm of the ERP platform, knowledge management and integration of absorptive capacity into project depends on the way of controlling human capital and their skills for overcoming the main drawbacks of matrix structure and using for achieving the general goals. In addition, through qualitative analysis this research has been able to reveal the level of the effect of various HR management control systems to handle the internal environment of the company and how it is reflected in the selected program representing the structure of the corporate information system.

In order to answer the research questions, the extensive analysis of the literature was conducted, and the situation was researched in the framework of a case study to identify the

impact of each control approach to employees' performance and moral condition. It was revealed that the company is not entirely correct to choose the direction in HR management because of the conducted analysis of data obtained from the interviews and the company's official documents.

In relation to assigned objectives, we introduces several research questions:

- 1) Which HRM control system is appropriate for applied in companies with matrix management system?
- 2) How can corporate information system implement the chosen HR control approach?

It was conducted extensive literature analysis and case study through the interview to obtain results for answering these research questions. These findings allow making the complex conclusions for clarifying both research questions simultaneously.

The most significant approach for matrix organization working through corporate information systems not only with customers as well as with other functional managers and department for sustainable projects is the HR input control system. This control system is more appropriate for the preparation of subordinate to the established mode in the functioning of the internal processes and the environment, trains the staff to a rigid competition, provides opportunities for communication and relationship for teams with representatives from different departments, and strengthens a corporate culture in the collective. The working operations management and reporting algorithm for staff will be monitored through the platform ERP and access to various databases and documents. The required skills of new employees will be developed and provided through various trainings and workshops. The teams will compete with each other, however, it only contributes to the company's improved performance due to the fact that employees will be able to cope with problems appearing with the resources themselves because of the preparation for the development of other ways of fulfilling the projects.

Despite the fact that the selected input approach of HR management is considered the most complicated for the integration into the system, only it is able to prepare more thoroughly employees to perform their obligations and authorities and provides the necessary skills to

overcome the main obstacles of matrix structure. Multi-subordination imposes complexities in determining the role of human capital in the strategic management and staff commitments, in spite of the usage of the HR department in the constant checking and changing job descriptions for workers. Input monitoring enables the opportunities for employees to cooperate and to gain experience from other managers and accustoming to the characteristics of subordination.

It causes the favorable communication and information exchange between departments and teams that minimize the confusion of responsibilities and roles and not stimulate serious conflicts. The special role of HR management during the input control will be in the creation of awareness of each employee not only part of the team and part of the whole company. If the mentoring system is enhanced, then it will be possible to convey to each employee not only its goals and functions, as well as also the main objectives of the company, the overall vision of the company development and the strategy adopted for the functioning on the market. ERP system will serve as the tool for reporting storage and exchange between departments and teams and the template of document circulation for software. It can also be applied in the measurement and the direction for employee performance through quantitative and qualitative indicators that allow establishing the more effective system of incentives and take into consideration of the contribution for each employee in the implementation of transactions. Input control aims to support the positive trend that implies employees themselves seeking the help of others functional managers or take the initiative in some projects, in which their contributions can be assessed and rewarded. It also improves motivation, which is expressed not only in monetary terms (as under the output control in HR management), as well as creating amicable collective and environment, providing the selection of projects and the possibility of realization of career development, which is defined during the hiring process.

Corporate information system as an HR tool cannot be fully utilized at the matrix input control. In regard to integrate this approach in information platform completely, it is needed to combine input control system with output approach, which focuses more on the analysis of the achieved results, and is better integrated into the ERP system through a list of indicators for each employee and the notification of the change of employees authority. Output control does not infringe the autonomy of the employee and creates together with the

input control a kind of enclosed system in the program for an employee to provide the illusion of freedom in decision-making, management of transactions and production processes for projects. Nevertheless, managers of department and teams and some functional departments have access to relevant information, through which they can invisibly track the performance of subordinates without interfering directly on their activities and provide support and analysis if it is necessary.

This combination requires the feedback system that can be established in the corporate system as the maintenance of staff involvement in the corporate governance and culture and provide ideas to improve a variety of products or services for customers. It can be expressed in terms of the input method as the reporting system for certain managers through a special application software or through the output control - assessment of the employee work and provision comments in a particular sector of accounts and electronic applications for the elaboration of products or production processes.

However, the managers of company with matrix structure are engaged in the development of not only innovative products, but also intensive sale of its goods and service to customers and competitors. This activity of corporate organization is regulated increasingly through the usage of HR behavior control. This approach of HR management is the most common and effective in the sales industry and marketing-focus in the providing service. It is able to maintain the strong vertical links between higher and lower sales management to contribute the more strengthening implementation of the sales strategy and customer service. Behavior control system is reflected in the corporate systems via CRM tool for, which is significant part of ERP platform and control of interaction with customer and all actions and communications between employees. However, the performance of the matrix structure depends not only on the relationship built from the vertical side of the subordination as well as the influence and support of functional managers. Constant interference from different directions in the work of each employee will not lead to an improved knowledge management and employee performance. Rather it causes only the additional stress and tension between the teams, because behavior control approach of HR management eliminates any competition in the collective or deteriorates this completion to the level of unpredictability in the internal environment. Behavior control management does not guarantee the personification of an employee with a part of the company. It can only create

a relationship of trust with the team and department, which may exacerbate the problem of communication between the divisions and other staff.

However, behavior control approach does not exclude its presence in the matrix structure. It can become part of a mentoring system and monitoring workflow. HR department can implement the methods of behavior control as the most effective system in the resolution of conflicts through talks and meetings. Corporate system automatically, in this case, announces any changes in the distribution of roles and capacities and monitors their fulfillment reflecting the responsible person for each action in mediation documents and program accounts and preventing abuse for senior managers.

Nevertheless, it cannot play the key role in management of employee performance in corporate matrix organization.

In general, the implementation of corporate governance and its influence on employee performance depends largely on the prevalence of selected control system in HR management. Roles and responsibilities in this area are scattered between different managers and committed not only to the human resource department. The algorithm of information system should be based on the legible, balanced reporting structure and automatically keep track of the key identifier of the work execution. Therefore, corporate information platform should create and contain with the help of high-quality training and reports the application for the evaluation of the staff, reports of which should be available to different departments to avoid intersections and duplication of information flows.

Company with matrix structure should create in advance the model of cross-subordination in the system of monitoring the decision-making and operations and abolish duplication of authorization in the workflow chain through a combination of access for various managers to single deployed document or nomenclature. Bureaucracy and multi-reporting system in matrix organization does not fully destroy because of large number of employees and divisions. However, the simplifying access to the communication channel and the reevaluation of admittance to the materials and documents will be able to overcome the backwardness of the analytical department in terms of resources and reduce the level of underproduction in order not to strengthen the fight between the project teams.

6.2. Contribution

This research contributes in the field of strategic management by providing the specification in the depending control system on the structure of the company as well as the variation in the usage of the corporate information system in human resources management. The detailed immersion into the internal environment of the company and the identification of the delicate moments, which disturb employees in the work process, enables to restructure or establish a system of internal communication and corporate culture matrix companies. The selected approach allows analyzing other organizational structures and their research environment, in which they operate in order to achieve their goals, choose suitable direction of human resource management, knowledge management structure and selecting platform for the corporate information system. Developers of corporate policy and strategy could use these results to expose the weakness of the innovative processes support and the involvement of employees in the provision and development of ideas for the improvement of internal capacity.

7. LIMITATIONS AND THE SUGGESTIONS FOR FUTURE RESEARCH

Despite the considerable scope of the study, this research has its limitations, which can also refer to an interesting future research directions. The research of matrix companies and applying HR management in them is revealed in the single business field that focuses more on the sales of innovative technologies and products in the direction of B2B relationship between sides. This sphere provides and utilizes its own characteristics using the control over the management of human resources within the framework of their activities. Such study can be applied to the matrix of companies from other industries and business fields. Furthermore, many of the matrix organization expose to the tendency of transition to the usage of open innovation and open relationships with other partners and competitors in research projects. In such cases, the research will more completely reveal the various deviations in the use of employee performance to implement open innovation strategies and the management of knowledge.

This study has provided a discussion. However, it affords only a very broad view on the combination of enterprise information systems and the HR management in the matrix enterprise and its performance. This work focuses on the examination of these information systems in human resource management as a tool for the implementation of their methods. Nevertheless, only one of complex system (ERP program) is considered in the research project that is used commonly in the matrix companies. Undoubtedly, other corporate systems and models exist in the matrix organization, which can effect on the employee performance. They cannot be used as a tool to support the management, as well as a separate condition for the implementation of business strategy. Therefore, it is needed the additional researches to be regarded from various points of view the utilization of corporate systems to manage complex organizational structures.

Finally, the literature about matrix structure and corporate system contains the information and study theories aimed to reveal the field of products realization. Despite the rise of services within the international market and innovation industries, HR management approaches remain largely to increase the employee' potential and capacity for innovative goods. Therefore, this research requires further study in the field of application of the control approach for human resources through the corporate system to the service sectors and

industries, where the role of services is increased within previously product-oriented strategies.

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