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## HR PROVISION FOR SOCIAL RESPONSIBILITY MANAGEMENT

*The article deals with HR policy and staff service in an educational institution. An important task here is the requirements of social reorientation of enterprises under the standard ISO-SA8000. The proposed reformation of management under SA8000 protects and supports personnel. The proposal is to solve the problem by using trend forecasting and minimization of the objective function describing the process variation using special algorithms.*

*Keywords:* HR department; social responsibility of business; ISO-SA8000; social orientation of enterprise.

*JEL classificatory:* M 11.

## Сергій В. Білокобильський, Леонід О. Мамаєв, Анжеліка В. Нецель КАДРОВЕ ЗАБЕЗПЕЧЕННЯ МЕНЕДЖМЕНТУ СОЦІАЛЬНОЇ ВІДПОВІДАЛЬНОСТІ

*У статті досліджено кадрову політику та службу персоналу освітньої установи, важливим завданням яких є соціальна орієнтованість підприємства, що регламентується стандартом ISO-SA8000. Запропоновано реформатування менеджменту у відповідності до вимог даного стандарту. Зроблено висновки, що вирішити дану проблему можливо за допомогою прогнозування трендів та мінімізації цільової функції, що описує зміни процесу з використанням спеціальних алгоритмів.*

*Ключові слова:* відділ кадрів; соціальна відповідальність бізнесу; ISO-SA8000; соціальна орієнтованість підприємства.

*Літ. 10.*

## Сергей В. Белокобыльский, Леонид А. Мамаев, Анжелика В. Нецель КАДРОВОЕ ОБЕСПЕЧЕНИЕ МЕНЕДЖМЕНТА СОЦИАЛЬНОЙ ОТВЕТСТВЕННОСТИ

*В статье исследована кадровая политика и служба персонала в образовательном учреждении, важной задачей которых является социальная ориентированность предприятия, что регламентируется стандартом ИСО-SA8000. Предложено реформатирование менеджмента в соответствии с требованиями данного стандарта. Сделаны выводы, что решить данную проблему возможно при помощи трендового прогнозирования и минимизации целевой функции, описывающей изменения процесса с использованием специальных алгоритмов.*

*Ключевые слова:* отдел кадров; социальная ответственность бизнеса; ISO-SA8000; социальная ориентированность предприятия.

**Introduction.** One of the problems in contemporary production and organization of education services is the establishment of a quality management system, which allows producing competitive products and services. International Organization for Standardization (ISO) defines quality as the combination of properties and characteristics of products or services, which enable them fulfill the determined or anticipated demands. Requirements to quality at the international level are set by ISO standards of various series (Azarov, 1999).

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Development of quality management systems (QMS) and the provision of product quality are the key instruments of competitive activity, capturing and maintaining market positions. Quality management has become the core element of production process and is now aimed not only at identifying the defects in finished products, but rather on checking product quality in the course of its manufacture. QMS are based on implementation of the family of international standards (IS) ISO-9000.

**Recent research and publications analysis.** Various aspects of HR management and social responsibility management have been reviewed by various researchers, including: V.N. Azarov (1999), N.V. Bondarenko and Y.A. Antokhina (2011), P.A. Lontsikh et al. (2007), D.A. Martsynkovsky (2007), D.A. Martsynkovsky et al. (2010) and others.

**The aim of the study** is the analysis of HR policy and staff service in an educational institution.

**Key research findings.**

**Specific features of HR management under contemporary economic conditions.** The baseline standard ISO 9001-2008 states that quality management system must be a strategic decision for any organization. The following factors should be distinguished among those, affecting the development and implementation of quality management system:

- a) environment, changes in that environment or changes in risks related to the environment;
- b) its specific targets;
- c) processes used by the environment.

For educational institutions, especially in higher professional education, it appears feasible to be oriented not only at the abovementioned standard, but also the standard IWA-2, which is specifically targeted at education activity. Formally speaking, this standard is the guideline for ISO 9001 application in education. This is primarily due to two reasons: firstly, the standard surpasses the base standard assessment of functioning from the perspective of quality management system efficiency and effectiveness assessment, and, therefore, greater potential of an educational institution. Secondly, it introduces certain guarantees for consumer satisfaction.

The following factors have a considerable effect on the quality of organization and implementation of lifelong learning projects: establishment of Federal State Education Standards, which constitute a set of requirements on competences; Russia's entry into the World Trade Organization; change of attitude and requirements to services rendered in the domain of lifelong learning; implementation of the State Program "Development of Science and Technology" as of December, 20, 2012 No. 2433-r, oriented at the development of priority areas of research and technology; development of the draft of the State Program "Training and Re-Training of Qualified Staff for Organization of Defense Complex in 2014-2020" (Bondarenko and Antokhina, 2011).

Support for competitive advantage and quality improvement may be accomplished through statistic methods – the main tools of Total Quality Management (TQM). One of the key principles in TQM is that decision-making should be based on facts rather than intuition. In order to recognize this, it is important to set up fact-finding process, i.e. search of statistical materials. Statistic materials per se, without

proper processing and analysis, do not resolve problems. Gathering, processing and analysis of results are dealt with by mathematic statistics, which incorporates several methods, approaches and principles. In accordance with the terminology of the international standard ISO 9000, process is the combination of interrelated resources and activities, converting input into output. The mission of trend forecasting is to develop quality management tools, predict future values of time series based on previous observations. Two variants of tasks can be distinguished here:

- the general principle of alteration of the forecast process is not determined;
- the general principle of alteration of the forecast process is known, however, its definitive parameters are unknown.

It is proposed to accomplish tasks of the first type with the use of trend forecasting, and the other one – through minimization of target function, which describes the law of process changes using special algorithms (Lontsikh et al., 2007).

Forecasting of competitive edge of enterprises with the use of trends is one of the statistic forecasting methods. When forecasting the competitive edge of enterprises, trend is mainly used for long-term forecasts. The accuracy of long-term forecasts, which are only based on the approximated trend curve, is not normally sufficient. In cases, when definition of coefficients of the linear trend by means of least squares does not yield good results, it is feasible to use ROBUST-algorithms. In order to check for the congruence of plotted trend line to experimental results, the following numeric characteristics are normally introduced: correlation factor (linear function), correlation ratio and determination coefficient.

Application of mathematic programming methods should be viewed as the development of quality tools. The basis of mathematic programming is composed of the set of mathematic tools for optimization tasks. Majority of practical tasks related to optimization of the quality of complex objects typically has numerous criteria. Only one of them must be selected as the target function, while the other may not always be viewed as limiting factors. Difficulties are determined by the contradiction of criteria, their physical diversity, accidental factors, as well as limitation or lack of information on object's structure and its functional internal interrelations. It is possible to adapt the general approach to forecasting to match a particular practical case – the support of competitive edge at enterprises and educational institutions.

According to the type of management task being accomplished and quality assurance, the following approaches are distinguished in application of mathematic programming methods: linear programming, non-linear programming, stochastic programming. There is also a method, which takes into consideration specific features of these tasks in solving optimization problems. The efficiency of such methods exceeds general algorithms, and they are recognized as a separate class of methods used to resolve problems with special structure. The following sections may be identified in this respect: integer programming, quadratic programming, geometric programming, separable programming, linear fractional programming.

Below we illustrate the extent to which trend forecasting may be efficient in supporting competitive edge of enterprise within quality management systems. In accordance with the terminology of the international standard ISO 9000, process is the combination of interrelated resources and activities, which converts input elements into output elements.

Output parameters of the process measured at time moment  $t_1, t_2, \dots, t_n$  generate the time series  $P_1, P_2, \dots, P_n$ . It is apparent that in a number of management problems, of interest may be the value of output process parameter  $P_k$  at time moment  $t_k$  on the basis of the known values  $t_1 \dots t_n$  and  $P_1 \dots P_n$ . The forecasting task is to predict future values of time series based on previous observations. These tasks are typical for HR management problem-solving.

HR management is one of the key factors in theory and practice of management. Significance of HR management is apparent for non-profit, industrial and service industries, no organization is capable of achieving its targets and survival without adequately trained specialists, active and motivated. At present, the success of any business is increasingly dependent on staff. Contemporary management typically exhibits advanced attention to human factor, changing human role in the organization, transformation of staff into the key resource for competitive advantage of a company.

In science-intensive production, the issues of training for highly qualified staff is especially critical. This is related to global trends of production intensification and Russia's economy orientation at overcoming the crisis and achieving stable growth of production domain. This determines the current need to train highly qualified specialists in high technologies, familiar with advanced methods of theoretical and experimental research and engineering.

In HR management within the science-intensive, high-technology sector of economy, competences management remains the priority. This allows expanding knowledge of staff, enhancing labor satisfaction, promotion of opportunities, and thus satisfying the demand of enterprise for staff within the internal labor pool.

HR management in science-intensive high-technology production companies increases the level of social and professional competence of future specialists, creates new opportunities in the domain of efficient HR management.

Determination of the present state and forecasting future condition, as well as assessment of attainability of effectiveness criteria in HR management and social responsibility management appears to be the most feasible if performed by the methods of vector forecasting and trend analysis. Analysis of time series is different from other tasks of data research both in terms of the range of issues of interest, and methods used to accomplish these tasks. Time series developing in various subject domains are of different nature, therefore, different methods are efficient in their research.

In the practical research of time series, the research must arrive at the conclusion on the properties of this row and probability mechanisms generating the series, through actual observation of time series (of finite length). Most frequently, the following tasks are pursued in time series research (Azarov, 1999):

- concise (compressed) overview of typical features of time series;
- selection of statistic model (models) describing time series;
- prediction of future values on the basis of prior observations;
- management of the process generating time series.

More often, these and other similar targets cannot be always accomplished and not always to the fullest extent. To a significant extent, this is impeded by insufficient amount of observation (insufficient duration) and time-evolving statistic structure of the analyzed time series. Due to these changes, the value of past observations is depreciated, and they no longer assist future prediction.

It is apparent that the more statistical data are used to determine the level of regression, the more accurately will the target function be defined. However, it should be taken into account that the quantity of statistical data is unable to generate a reliable function, if the dimensions in question do not have the correlation they are being tried to assign. Alongside with that, there is a minimum amount of necessary input data, determined by the method of least squares, and may not be less than 4, i.e. each researched statistical series must contain at least 4 values. A substantially reliable forecast may be generated for a relatively large number of observations (for linear trend  $n = 6$ ). Meanwhile, if the opportunity to itemize series exists, i.e. for instance, use quarterly values instead of annual values, then the series composed of quarterly indicator values should be analyzed, providing higher accuracy of input data approximation and obtained forecast values.

In order to check congruence of plotted trend line to experimental results, the following numeric characteristics are normally introduced: correlation factor (linear function), correlation ratio and determination coefficient. Correlation factor is the measures of linear connection among dependent random magnitudes: it indicates the extent to which, on average, one of the variables may be represented as a linear function of another variable.

The trend enabled us to conduct the forecast of future series values and plot a trusted zone for prediction of competitive advantage support of enterprises and educational institutions. The developed quality management system must be subjected to the procedure of internal audit. Report on internal audit is one of the input signals of QMS analysis from the point of view of Guidelines. Standard SA8000 defines the "Analysis on behalf of Management" as follows: Top management must conduct periodical analysis of adequacy, suitability and uninterrupted effectiveness of policy, procedures and work of the company relative to requirements of the present standard and other requirements assumed by the company. Whenever necessary, changes and improvements of the system must be implemented. Representatives of staff should take part in this analysis.

At present, the methods of risk management are popular and used in all branches of economy: in production, service industry, including education. Enterprises functioning is typically subjected to impact of numerous destabilizing factors and various risky situations, which inevitably cause the necessity to resort to modern methods and approaches to risk management. Experience of leading international companies and institutions provides credible proof that identification of main and auxiliary processes in an educational institution, as well as management efficiency improvement are impossible without active use of risk management as an element in the management system of an educational institution, regardless its scale and specific features of education services rendered.

The system of risk management is targeted to accomplish the necessary balance between the collection of profit and the reduction of losses from educational activity. This system is intended to become an element of organization management, a system to be integrated into the overall policy of the educational institution, its business plans and activity. The use of risk management system is efficient only if this condition is satisfied.

Risk management suggests the following:

- definition of causes and key factors of risk occurrence;
- identification, analysis and assessment of risks in education environment;
- decision-making based on the assessment conducted;
- development of anti-risk managing impacts;
- reduction of risk to an acceptable level;
- organization of completion of the planned program;
- control of planned actions progress;
- analysis and assessment of the results of risky decision.

Risk management calls for balanced decision-making. In the process of risk management, it is important to clearly define economic feasibility of risk level reduction and achievement of planned results (Martsynkovsky, 2007).

This process is a component in the development and implementation of quality management system in an educational institution, compliant with the requirements of ISO 9001:2008, and it appears to be a determining element in the formation of mission, vision and quality management policy in an educational institution. Quality management system forms the requirements to the role, functions, rights and obligations of HR division, as well as its interaction with other divisions. In addition, of importance are the issues of qualification and competence of HR division staff, the approach to determination of their effectiveness and efficiency of the HR division activity.

HR service is the key developer of HR policy in an educational institution. However, the majority of functions are left to be exercised by unit managers. Unit managers perform part of the functions of HR work in close contact with HR division.

***Specific features of risk management at educational institutions.*** The abovementioned features of risk management at educational institutions are its base factors. Key advantages of risk management in educational institutions include the following:

1. *Reduction of uncertainty in rendering education services.* Control over negative events is accompanied by specific actions to reduce the probability of their occurrence and their impact. Even in cases, when such events cannot be averted, the organization may still achieve the necessary level of stability due to adequate planning and preparedness (Podolnaya et al., 2009).

2. *Use of perspective opportunities for education services improvement.* Probability of the occurrence of favorable consequences in a risky situation is also assessed in the course of risk management at educational institutions. The search for perspectives becomes more efficient, if staff recognizes risks and has necessary skills to manage them. HR division carries out its activity in an effective manner, which suggests that HR division renders the following services:

- staff recruitment;
- HR accounts management and HR document processing in accordance with effective laws;
- organization of staff training;
- development and maintenance of regular assessment (attestation) of staff;
- development and maintenance of staff motivation systems;
- improvement and development of corporate culture.

3. *Higher quality of planning and activity efficiency growth.* Objective data about the organization, its target indicators, operations and perspectives enables more rea-

sonable and efficient planning. This, in turn, increases the capacity of educational institutions to use favorable prospects, reduce negative consequences and achieve improvements of activity.

4. *Resources saving.* Special attention in risk management is dedicated to social matters. Consideration of the amount of existing resources allows not only be avoiding costly mistakes, but also achieve higher profit from organization's education services (Veits et al., 2002).

5. *Improved relations with key stakeholders.* The process of risk management drives educational institutions to identify internal and external stakeholders and develop bilateral dialog with them. This information channel provides with information on expected reaction of changes in the activities of educational institutions on behalf of stakeholders.

6. *Growth of business reputation.* Investors, creditors, insurance companies, suppliers and customers are more inclined to work with organizations who already earned the reputation of a reliable partner capable of managing financial and operational risks (Капырин and Korenev, 2002).

7. *Support of founders.* Risk management conducted with proper quality ensures high authority of top management among founders through the existence of a detailed database of potential risks and demonstration of the existing controllable conditions for activities of the educational institution.

8. *Control over production process and investment projects implementation.* Particular focus in risk management is allocated to the issues related to monitoring and management of business processes parameters (Martsynkovsky et al., 2010) which enables precise control over implementation of investment programs, being especially critical for modernization and implementation of innovative projects at educational institutions.

**Conclusion.** Implementation of risk management system into the practical work of an educational institution allows more stable development, increases the level of justifiability of decision-making in risky situations, improves the financial position through the implementation of all activity types and, primarily, in the course of innovative projects implementation and modernization. Rendering of educational services is associated with risk: investment project management, interaction with consumers and stakeholders, determination of priority development areas in education business and managerial decision-making (Lontsikh, 2014).

Both management and staff of educational institutions continuously face and manage risks, sometimes consciously, sometimes without realizing this fact. All organizations repeatedly face the need to manage various risk types in their business processes. Sometimes this occurs on time, however sometimes too late. Therefore, top management of educational institutions must accomplish that the need of risk management is accepted by all managers and staff of educational institutions as one of the factors of primary importance.

#### **References:**

Азаров В.Н. Управление качеством. – М.: МГИЭМ, 1999. – Т. 1: Основы обеспечения качества. – 326 с.

Бондаренко Н.В., Антохина Ю.А. Особенности компетентностного подхода при оценке качества профессионального образования // Вопросы радиоэлектроники: Научно-технический сборник. – 2011. – Вып. 2. – С. 9–10.

*Вейц В.Л., Кочура А.Е., Лонцих П.А.* Структурированные модели и методы расчета сложных управляемых систем в технике и экономике. – Ростов-на-Дону, 2002. – 200 с.

*Капырин В.В., Коренев Г.Д.* Системы управления качеством. – М.: Европейский центр по качеству, 2002. – 324 с.

*Лонцих П.А.* Управление процессами: управление качеством технологических систем. – Иркутск: ИрГТУ, 2014. – 344 с.

*Лонцих П.А., Вейц В.Л., Шулешко А.Н.* Качество: инструменты управления, прогнозирование и диагностика. – Иркутск: ИрГТУ, 2007. – 244 с.

*Марцынковский Д.А.* Моделирование процессного подхода СМК Организации с использованием функционального взаимодействия процессов // Вестник ИрГТУ.– 2007.– №2. – С. 158–168.

*Марцынковский Д.А., Владимирцев А.В., Марцынковский О.А.* Управление рисками в современных системах менеджмента / Ассоциация по сертификации «Русский Регистр». – СПб., 2010. – 246 с.

*Подольная Н.Н., Лещайкина М.В., Еремеева М.А., Архипова К.Н.* Применение статистических методов в исследовании успеваемости студентов вузов как составляющей качества образования // Системное управление: Элект. науч. период. издание Мордовского ГУ.– 2009.– №1 // [www.mrsu.ru](http://www.mrsu.ru).

Стандарт SA 8000:1997. Социальная ответственность / Пер. и ред. Н.В. Михайловой // [www.assistem.kiev.ua](http://www.assistem.kiev.ua).

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