

technological rearmament of companies, new high-technology products issuing and export activity, creation of new high-tech firms;

- the budget tax incentives of scientific and technological activity and demands for its results;
- the extension of international technological integration of enterprises and regional organizations;
- the formation of general conditions for the development of state-private partnership in the sphere of innovation activity;
- the regional development technological forecast and science and technology priority orientations determination mechanisms system formation for a long-term outlook (foresite technology); the formation of critical technologies' and technological development priorities' catalogue;
- the regional (organizational, financial, information) support of joint research projects of enterprises and higher educational institutions within the framework of the priority development orientations;
- the provision of innovation directivity of the purchasing system for the national needs (inclusive of the conjoint regional ordering for the R&D deliverables);
- the extension and "programming" of the demand for innovations in major companies.

Thus, the innovation development active scenario realization is the most optimal option.

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The article is admitted to the International Scientific Conference « Social-economical development problems of regions », China (Beijing), November 26 – December 4, 2007 г., came to the editorial office on 2.11.07

#### **COMPETITIVE ADVANTAGES DEVELOPMENT MANAGEMENT TECHNIQUE IN APPLIED SPECIALIST TRAINING PROCESS**

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One of the most important tasks of the educational system currently is the training of qualified specialists, the formation of professional traits, knowledge and skills, which can guarantee a high competitiveness level in the labour market, in them. The model of the specialist is built on the ground of the education standard. Thus, the higher education standard composition represents a paramount problem in the higher education quality providing as the specialists' ability to act professionally in conditions of production.

It is the standard that creates the sample, with which the specialist's training level is compared while defining the quality of this training. The given sample determines the work objective of the whole educational system. A wrong destination specification, at no matter how ideal the work of educational institutions is, leads to the fact that the graduate's training will not correspond to up-to-date requirements of technology and economy, i.e. the graduated specialist will not be able to solve the tasks being put in front of them by the productive-economic system [1].

The quality of education standards is determined by the degree of their correspondence to the modern society's changing requirements, state-of-the-art and the requirements of economics and potential market of labour.

In conditions of growing specialist's training quality requirements, constant underfunding of the educational system and limitations in other resources for the specialist's training, the composition of such a standard, and the organization on its base of such an educative process, which could promote the maximal development of the graduate's competitiveness, acquires a special importance.

The competitive power of the graduated specialist is formed of competitive advantages. By the "competitive advantages" we will mean the graduate's training level on definite disciplines being included into the given area specialist's training system. The graduated specialist's competitive advantages development management is the passport to the formation of his competitiveness.

The graduated specialist's competitive advantages development management occurs on the following scheme: the competitive advantages provision factors definition – the graduated specialist's competitiveness estimation – the definition of weak points in the graduated specialist's training system – the development and implementation of the development of those factors optimal control program, which are able to affect the general competitive estimation of the specialist to the maximum extent.

All the variety of scientific knowledge necessary for the applied specialist's training is acquired by the last within the framework of general-theoretical, general-professional and narrowly-specialized (professional) disciplines. The intersection of these varieties gives seven main parameters applied to the specialist of any practical activity area: social disciplines, natural science disciplines, general-technological disciplines, general-engineering disciplines, technical and economic disciplines, the disciplines of a concrete specialty and concrete direction [1]. It is necessary to take

into consideration that the studied disciplines serve as the base for teaching one or several following disciplines.

The graduated specialist's competitive advantages development potential can be determined with due account for the use of the resource approach to the specialist's competitiveness estimation [2].

The use of the resource approach to the competitiveness estimation is usually restricted by the presence consideration of the resources themselves. But there are some disadvantages in such an approach. It is important to take into account the interaction between the resources or, in other words, the communicative components of the sys-

tem. The degree of the resources' and the formed by them interfaces' influence on the integral system of the competitiveness estimation is not equal for various cases, and it should be overlooked.

One of the application areas of the being developed estimation system can be the specialist's training system.

Originally the influence of various factors on the graduated specialist's competitiveness through the resources reflecting them becomes formal. Then a resource matrix (1) is built, in which the diagonal elements reflect the resources, and non-diagonal – the interfaces between these elements, the relations between them and their influence on each other.

$$P = \begin{vmatrix} P_{11} & P_{12} & \dots & P_{1n} \\ P_{21} & P_{22} & \dots & P_{2n} \\ \dots & \dots & \dots & \dots \\ P_{n1} & P_{n2} & \dots & P_{nn} \end{vmatrix}. \quad (1)$$

One should bear in mind that the inequality (2) can be valid

$$P_{ij} \neq P_{ji}. \quad (2)$$

On the diagonal it is necessary to put only really used resources, which are not equal to zero. Some of the non-diagonal elements can be equal to zero. The quantity of the included into the matrix (1) resource components depends on the specialty.

Every component of the resource matrix can be characterized by its own value and dimension. On each of the components one can introduce its potential utilization coefficient, which is determined by the formula (3) and is non-dimensional

$$k_{ij} = P_{ij} \phi_{akm} / P_{ij}, \quad i, j = \overline{1, n}, \quad (3)$$

with  $P_{ij}$  – as maximally possible value of the  $ij$  matrix component potential;  $P_{ij} \phi_{akm}$  – as an actual value of the  $ij$  matrix component potential.

The matrix  $K$  (4) composed of all  $k_{ij}$  in some way reflects the general picture of the resource use and internal measures of competitiveness

$$K = \begin{vmatrix} k_{11} & k_{12} & \dots & k_{1n} \\ k_{21} & k_{22} & \dots & k_{2n} \\ \dots & \dots & \dots & \dots \\ k_{n1} & k_{n2} & \dots & k_{nn} \end{vmatrix}. \quad (4)$$

The matrix norm can indirectly reflect the total degree of resources utilization in the training system and the competitive potential revelation on

the condition of equal importance of the components forming the matrix, that is impossible in practical use of the technique.

$$\|K\| = \sum_{i=1}^n \sum_{j=1}^n k_{ij}. \quad (5)$$

If we multiply the matrix elements (4)  $k_{ij}$  by the ponderability coefficients  $v_{ij}$ , we'll get the matrix  $R$  (6), which will indirectly reflect the re-

sources utilization total degree in the training system and the competitive potential revelation at various importance of the components forming the matrixes (1 and 4)

$$R = \begin{vmatrix} k_{11} \cdot v_{11} & k_{12} \cdot v_{12} & \dots & k_{1n} \cdot v_{1n} \\ k_{21} \cdot v_{21} & k_{22} \cdot v_{22} & \dots & k_{2n} \cdot v_{2n} \\ \dots & \dots & \dots & \dots \\ k_{n1} \cdot v_{n1} & k_{n2} \cdot v_{n2} & \dots & k_{nn} \cdot v_{nn} \end{vmatrix}. \quad (6)$$

The following restriction is advisable to establish:

$$\sum_{i=1}^n \sum_{j=1}^n v_{ij} = 1. \quad (7)$$

For the ponderability coefficient estimation the method of expert evidence can be used. With the help of the expert evidence method the re-

source matrix importance factors are defined by the ratio of the rank sum on every factor to the total rank sum on all the factors:

$$v_1 = \frac{\sum_{l=1}^m a_{1l}}{\sum_{h=1}^n \sum_{l=1}^m a_{hl}}; \quad v_2 = \frac{\sum_{l=1}^m a_{2l}}{\sum_{h=1}^n \sum_{l=1}^m a_{hl}}; \quad \dots; \quad v_h = \frac{\sum_{l=1}^m a_{hl}}{\sum_{h=1}^n \sum_{l=1}^m a_{hl}}, \quad (8)$$

with  $v_1, v_2, \dots, v_h$  - as the resource matrix components importance factors;

$a_{hl}$  - as the  $h$  factor rank assigned by the first expert ( $h = 1, n^2; l = 1, m$ ), the maximal rank is assigned to the most important component.

The importance factors ( $v_1, v_2, \dots, v_h$ ) correspond to the factors  $v_{ij}$  of the matrix (6). While calculating the ponderability coefficient the following condition should be held:  $h = i \cdot j$

The ponderability coefficients calculation is performed only on the condition of experts' opin-

ions consistency; the concordance coefficient is calculated and compared to the table one for that. On the ground of the ponderability coefficients distribution histogram constructed on the values got the components of little value are hewed off. At that, the amount of the rejected components should not exceed fifty per cent.

Under the restriction (7) the matrix norm  $R$  has the following limit

$$\lim_{\forall k_{ij} \rightarrow 1} \|R\| = \lim_{\forall k_{ij} \rightarrow 1} \sum_{i=1}^n \sum_{j=1}^n (k_{ij} \cdot v_{ij}) = 1, \quad (9)$$

which characterizes the limiting (best) state of the training system aggregate resource defining the best internal state of the factors forming the specialist's competitiveness.

Considering the matrix  $R$  norm value at some real values  $k_{ij}$  we'll get the graduated specialist's competitiveness resource estimation  $C$  (9) in the range from 0 to 1:

$$C = \|R\| = \sum_{i=1}^n \sum_{j=1}^n (k_{ij} \cdot v_{ij}). \quad (10)$$

The considered resource approach to the graduated specialist's competitiveness estimation, taking into account the influence of weight characteristics of the competitiveness factors, has definite advantages. First, the investigator gets a convenient form of the graduated specialist's competitiveness estimation value (from 0 to 1). Second, it becomes possible to determine the development potential of the specialist's competitive advantages. Third, it is possible to develop the graduated specialist's competitive advantages with maximal economical efficiency.

The last activity can be put into effect on the ground of the resources utilization matrix anal-

ysis. With the help of the matrix  $R$  one can estimate the factors revealing the graduate's resource potential absolutely. The weakest competitiveness factors are represented by the values deviating from their maximal potential (unit) in a greater or lesser degree. The factors, which work for the expression  $(1 - k_{ij}) - 0$  in a greater or lesser degree, one can call the most competitiveness defining.

The general competitiveness level of the graduated specialist can be increased by implementing the underused potential of weak competitiveness forming factors. However, not always the liquidation of the maximum deviation gives the most favourable results for the graduated special-

ist's competitiveness recovery. For the defining of optimal improvement sequence of the factors able to provide the graduate's competitiveness edge to the maximum it is necessary to take into account the weight of the factor in the competitiveness bulk and invest cash assets and time into the development of competitive advantages in their weight decreasing order.

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The article is admitted to the International Scientific Conference « Modern Education. Problems and Solutions », Thailand (Bangkok, Pattaya), December 19-27, 2007, came to the editorial office on 03.12.07

#### **APPROACHES TO REGIONAL SOCIO-ECONOMIC DEVELOPMENT STABILITY ASSESSMENT**

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The embodiment of the idea of stability or stable socio-economic development not destroying the environment and oriented to the needs of the present and future generations can happen at all favourable conditions at a distant enough prospect. The transfer to the stable development itself should take place in the current XXI century, in its first half. The International Summit in Johannesburg (2002) affirmed that the world community goes on moving according to the unsustainable development scenario. In the UN organization documents it is emphasized that it is necessary to charge oneself with the strengthening and consolidation of the sustained development foundations – economical, social development and environment protection at local, national and regional levels. At that, every country should observe a variety of principles, implement certain imperatives and take into account the indicators established by the UN organization on the characteristics of economy, ecology, social sphere in their interaction.

In 1996 the Concept of the RF transfer to sustainable development was accepted. The sustainable development is defined there as the development "guaranteeing a balanced solution of socioeconomic problems and the problems of the environment and natural-resources potential pres-

ervation for the purpose of the present and future people generations' wants satisfaction" (1). In the Ecological Doctrine of the RF (2002) it is underlined that "the sustainable development of the Russian Federation, the high quality life and health and also national security can be guaranteed only on the conditions of natural systems preservation and the quality conforming environment maintenance" (2).

The transfer of the RF to the sustainable development is possible only in the case of the sustainable development provided in all its regions. That is why the regional imperative of the sustainable development is in defining goals and regional development mechanisms by means of sustainable development strategy working out, that helps integrate the social, economical and ecological policies.

The regional model of sustainable development should be based on the scientific paradigm of social evolution in the eco-compatible form and involve the body of principles and requirement (imperatives) for the economy system and structure, the mode of functioning and interaction of its subsets providing the harmonization of relations in the triad "human being – natural environment – economy".

Therefore, while working out regional concepts of socioeconomic development, it is necessary to proceed from the principle of observing the main imperatives of the economic systems' stability. Among Russian regions, the Republic of Buryatia excels as the one most fully meeting socioeconomic and ecological imperatives of sustainable development. The Republic of Buryatia takes a special place due to the lake of Baikal and natural specifics in Russia. The ethno-cultural features of the folks living in the territory of the Republic are unique. In the XXI century the Republic of Buryatia will play the role of a natural geographical socio-cultural bridge connecting becoming integrated Europe and the quickly developing Asia-Pacific Region. The lake Baikal and the Baikal natural site have a special status fixed not only at the federal butt also at the world's level as the Region of the world's environmental heritage of UNESCO.

The Uniqueness of the lake Baikal sets a number of environmental requirements including the Baikal natural site ecological zoning carrying out. In the Baikal natural site there are 3 ecological zones marked:

- the central ecological zone - is the territory, which includes the lake Baikal with the islands, the contiguous water conservation zone and also natural areas of preferential protection;
- the protective ecological zone – is the territory beyond the central ecological zone including