

**O. Kamenska,**  
*PhD (Economics),*

**N. Vesela,**  
*PhD (Philological),*

*Donetsk University of Economics and Law, Bakhmut, Ukraine*

## ESTIMATION OF HUMAN CAPITAL IN THE STRATEGIC BUDGETING SYSTEM

**Preliminary Findings and Conclusions.** Nowadays human capital is the main value of our society, and the determining factor of the steady development and economic growth, as competitive positions of economic systems are mostly achieved not by means of natural resources but through knowledge, information, and innovations, the source -of which is always a human being. Human capital, unlike tangible equity, is mainly targeted at creating long-term enterprise value, thus it is directly connected with its strategy. Without general strategy consideration it is impossible to create strategic responsibility, which makes it difficult to execute long-term planning in the changing environment of global competition [1].

One of the key factors in achieving long-term competitiveness in modern economy is constant improvement of human resources strategic criteria, which requires financial grounding of enterprise's fund allocation in the system of strategic budgeting. In contrast with traditional budget management, strategic budgeting is mostly focused on non-financial factors, which are targeted at implementation of strategic aims via setting non-financial strategic budgets. Without estimating the strategic quality component of human capital, it is problematic to anticipate the outcome of co-workers partnership accurately, to assure positive feedback, while referring their performance to the standards, to choose the work which deserves award, and to back up decisions concerning localization of resources, projects and completion schedules subsequently. Therefore, presently, the estimation of non-financial strategic factors of human assets is the first-order condition of efficient strategic management of an enterprise.

**The last research analysis.** At the present stage of economic transformations the problem of evaluation of human capital in enterprises is becoming increasingly important. The first measurement pattern to estimate the value of an able-bodied person, used by V. Petty, assesses the value of the stock of human capital by capitalization of earnings as a life annuity with a market interest rate [2]. A. Smith explained the differentiation in wages of skilled and unskilled workers through difference in time, labor and cash costs incurred by the first to obtain the necessary knowledge, skills, and mastery [3].

This paper is devoted to a large number of works of foreign and domestic authors, the analysis of which shows the diversity of existing approaches and methods. Such Western economists as V. Petty, A. Smith, Fitz As

[4], J. B. Sey, S. Fisher, L. Valras, Sidgwick, G. Becker [5], T. Schultz [6], I. Ilyinsky [7], when considering the issue of investment in human capital, give special attention to investment in the capital education. It is obvious that today, the education is a vital base for future permanent development.

The income generated by the implementation of the labour resources can be used for their improvement and growth, which means that both initial and continuous accumulation of productive skills take place here. From this perspective, the use of the term «capital» in connection with labour resources at the present stage of their development is justified.

**The aim of the article** is to develop approaches to ensure the complex assessment of human capital indicators of industrial enterprises in the strategic budgeting.

**Findings.** Investment in the human capital is a means to increase its value. They create the conditions for the development of the inherent person's abilities as well as for the improvement of their life-long gained skills and competencies in any production sphere. Whereas under modern conditions the cost of the staff can exceed 40% of total corporate expenditures, measurement of investment in human capital returning coefficient is particularly important [4, p. 82]. Unlike the means of production, human capital is not owned by the company. The human capital is embodied in the personality of its owner and cannot act as a subject of purchase; it is only possible to rent it by entering into a hiring – labour agreement. The reality of the current economic conditions requires measurement of human capital in cash. The assessment of human capital is necessary for evaluating the economic efficiency of enterprises. While assessing human capital, employee's competences are evaluated [8]. Nowadays methods of human capital evaluation can be divided into two groups:

1) individual assessment methods, which are based on the study of individual employee's qualities (method of assessing human capital through capitalization, method of assessing human capital similar to the physical, cost approach, income approach, the assessment of human capital based on competency models, etc.);

2) group estimate methods, which are based on the comparison of the employees' effectiveness (classification, parameters comparison, specified distribution method).

Existing assessment methods analysis revealed their imperfections, such as lack of a clear methodology, since the human capital valuation has not practically been carried out for a long time in Ukraine. Company's value assessment without human capital as a part of the business is at least incorrect. Human capital plays a key role in all four aspects of the business (finance, customers, internal processes, learning and development), because the realization of the other components' objectives in the strategic development of the company depends on the competences and skills of employees. The company provides a high return on intangible assets by developing and integrating its human capital, and bringing it in line with the most important strategic processes.

In the process of setting a strategic budget for an organic unit like an enterprise, the horizontal structure of management shall be combined with the vertical integration of the system of short-term finance indicators. Traditionally, the budgeting process is represented as an enterprise's development forecast for the future. This process is composed on the basis of the retrospective analysis of an enterprise's financial performance and the assessment of the influence of different factors on key indicators of its activity. The process of strategic budgeting is aimed at the arrangement of correlation between planning and supervising the performance of strategic and tactic objectives of an enterprise; it provides the consistency of plans of all divisions of an enterprise and their orientation on achieving the same objectives; it measures the human capital and manages intangible assets according to company's strategy; it reinforces the financial discipline and constraints individual structural units' interests to goals of the whole enterprise; it helps managers to control their actions by the comparison of the planned and actual enterprises' performances within a reported period and to plan without additional resources; it creates a database that in conjunction with the system of financial indicators may be a source of motivation for personnel.

One of the main tasks of strategic budgeting is to measure levels of investment in human capital to achieve its goals and to evaluate the effectiveness of investments. In order to make an informed decision about

investing in human capital, the company needs to determine the payback period of these investments. The criteria used to select the investment in human capital, based on the strategic direction of the company, make it possible to evaluate the effectiveness of investments by calculating the coefficients of strategic human capital with subsequent their monetary expression in strategic budgets and tracking the process of their implementation. Evaluation of human capital in the strategic budgeting is presented in table 1.

Forming strategic budgets aims primarily at achieving non-financial strategic objectives of the company, through its ability to influence the final financial results of operations, and setting priorities in the allocation of resources in the budgeting process. Within strategic budgeting it is advisable to use a matrix of ranking priorities according to the degree of urgency that allows to make decisions on how to organize various strategic human capital indicators [9].

Strategic human capital budgets of industrial enterprises allow not only to calculate the necessary expenditure on the implementation of strategic initiatives, but also to predict the costs on an accrual basis. Let us consider the implementation of this methodological approach with help of materials of «NKMZ». All indicators were increased by 10% in the strategic human capital budgets for 2009 taking into account the 10% buffer.

In this case, the final budget items are no longer equal to the sum of all of lines-components, because a buffer of 10% is also laid in them. For example, the item «The expenditures for development of strategic competencies and attraction of the most talented employees» is no longer equal to the sum of lines: «staff hiring costs», «development and implementation of corporate culture costs», «costs for the payment of premiums for rationalization proposals, creative ideas and inventions», «costs for the payment of premiums for reducing labor and saving different types of material resources», «labor costs, benefits and compensation», «personnel training and retraining costs», «costs for staff training at universities and post graduate schools». It is calculated as follows:

$$\begin{aligned} \text{Costs for the development of strategic competencies and attraction of especially} \\ \text{talented employees} = (2218757 + 219918 + 13342553 + 1921517 + 406431803 + \\ + 5316491 + 466787) * 1,1 = 472909610 \text{ UAH.} \end{aligned} \quad (1)$$

Thus, the total expenditure in 2009 amounted to 472,909,610 UAH, which is 21% more than in budgeting without buffer. The budget figures are being increased by 10% annually and in 2013 (in 4 years) there is an increase in overall spending by 77%, or more than a half. The budget for 2022 (13 years) represents an increase of 318%, or more than three times.

The changes highlighted above are accompanied by an increase in prices and activity. However, signifi-

cant increase is due to the uncertainties and excessive reserve budget (table 2).

Overestimation of budget indicators takes place in case of impossibility to identify the exact ratio between the costs for necessary resources and financial results.

All the strategic indicators of human capital are non-financial, so such ratio is not measurable for them.

In this case, the strategic budgeting involves the following steps:

Table 1

Assessment of the performance of human capital in the strategic budgeting [original development]			
Strategic budget	Value of Human Capital	Calculation of the human capital	Strategic west
1	2	3	4
Budget for development of strategic competencies	<ul style="list-style-type: none"> <li>-percentage according to corporate employee personal goals;</li> <li>-percentage of profit from the implementation of creative ideas;</li> <li>-promising professionals</li> </ul>	$\% \text{ profit from the implementation of creative ideas} = \frac{\text{profit, which is obtained through the implementation of new products}}{\text{total income}} \times 100\%$ $\% \text{ perspectives of professionals} = \frac{\text{number of innovation s}}{\text{number of profession als}} \times 100\%$ $\% \text{ personal goals according to corporate size} = \frac{\text{average wage}}{\text{value sales}} \times 100\%$	<ul style="list-style-type: none"> <li>-disclosure of new employees' potential and encouragement of creative endeavors;</li> <li>- professional relevance;</li> <li>- ability to work in team and to demonstrate leadership qualities when necessary;</li> <li>- communicative competence;</li> <li>- ability to cope with stress</li> </ul>
Budget for motivating and encouraging staff	<ul style="list-style-type: none"> <li>- staff motivation index;</li> <li>- staff satisfaction index;</li> <li>- turnover of key employees index;</li> <li>- trust company employees index</li> </ul>	$K_{\text{motivation staff}} = \frac{\text{number of employees are awarded for the implementation of creative ideas}}{\text{multitude staff}}$ $K_{\text{match results of the post remuneration}} = \frac{\text{value prizes for achievement of strategic performance}}{\text{value volume production}}$ $K_{\text{turnover of key employees}} = \frac{\text{number released on their own or in violation of labor discipline}}{\text{multitude staff}}$ $K_{\text{confidence company}} = \frac{\text{number released on their own}}{\text{number of released guidance}}$	<ul style="list-style-type: none"> <li>-transition to flexible pay systems that makes employees focus on effective work at their workplaces in connection with strategic goals;</li> <li>-improvement of the motivation system of the company, which would be focused on the implementation of strategies</li> </ul>

Ending of Table 1

1	2	3	4
<p>Budget for teaching and training</p>	<p>- index of employees' training;                      - coefficient of efficiency in relation to staff's training;                      -percentage of staff involved in professional development programmes;                      -number of trainings per employee</p>	<p><math display="block">\frac{\text{the\_number\_of\_employees\_who\_qualified\_on\_the\_strategic\_relevance\_of\_his\_post}}{\text{the\_number\_of\_employees\_trained\_of\_program\_strategic\_development}} \times 100\%</math></p> <p><math display="block">K_{\text{training per employee}} = \frac{\text{total\_value\_of\_training\_at\_the\_company}}{\text{multitude\_staff}}</math></p> <p><math display="block">K_{\text{efficiency of production}} = \frac{\text{of\_profits\_that\_is\_received\_from\_the\_sale\_of\_new\_products}}{\text{costs\_for\_staff\_training}}</math></p>	<p>Employees' engagement in learning process:                      -classrooms provided with modern equipment;                      - development of creative atmosphere during learning process</p>
<p>Budget for staff training results</p>	<p>- number of rational proposals per employee;                      - percentage of promotions based on learning outcomes;                      - share of employees who proved adequateness to their post</p>	<p><math display="block">\frac{\text{the\_number\_of\_professionals\_who\_have\_been\_vetted}}{\text{multitude\_staff}} \times 100\%</math></p> <p><math display="block">\% \text{ perspective professionals} = \frac{\text{number\_of\_employees\_who\_were\_promoted\_position}}{\text{number\_of\_employees\_trained}} \times 100\%</math></p> <p><math display="block">K_{\text{innovation s of offers}} = \frac{\text{total\_value\_of\_innovations\_in\_the\_year}}{\text{multitude\_staff}}</math></p>	<p>entitling employees with the authority to implement their rational proposals and involving them into the process of search and evaluation of solutions aimed at achievement of the strategic goals of the enterprise</p>

Table 2

**Formation of Strategic Competencies of Employees Budget at «NKMZ» [original development]**

The objectives of the strategic map of «NKMZ»	Budget article	The amount of costs, uah				
		2009 year (with no buffer)	2009 year (buffer 10%)	2013 year (buffer 10%)	2017 year (buffer 10%)	2022 year (buffer 10%)
To make employees aware of their belonging to «Planet NKMZ»	Costs of development of strategic competencies and attraction of extraordinary talented employees	390834388	472909610	695569256	1018382947	1640115920
To help employees acknowledge corporate values of NKMZ	- costs related to hiring staff	2017052	2218757	3248482	4756103	28600945
To implement corporate culture	- costs of development and implementation of corporate culture	199925	219918	3214982	4707055	4118942
To design and produce products at minimal cost	- costs of paying rewards for rational proposals, creative ideas and inventions	12129594	13342553	19534830	28600945	871222665
	- costs of paying rewards for reduction of manpower input and savings of material resources	1746834	1921517	2813293	4118942	11396371
To motivate employees to achieve strategic goals	- costs of salaries, benefits and compensations	369483457	406431803	595056803	871222665	1000598
	- costs of training and retraining of staff	4833174	5316491	7783875	11396371	28600945
	- costs of graduate and postgraduate study	424352	466787	683422	1000598,2	4118942
Total		390834388	429917826	632335687	925802679	1491014473

- Development and approval of strategic human capital budgets by heads of departments;  
 - Consolidation of the budgets of all departments;  
 - Forming 10% budget buffer for each department;  
 - Informing heads of departments that if additional funds are required, they can use a buffer if the heads of other departments approve the decision.

The calculation for different strategic human capital budgets is carried out similarly. The evaluation of human capital through the strategic budgeting using buffer projects has the following advantages:

1) simplicity of use – unlike zero-based budgeting, the strategic budgeting procedure does not provide for a constant re-evaluation of the projects and their ranking to justify the cost efficiency indicators. In addition, the strategic budgeting can be implemented relatively quickly, without counting possible surplus budget, but simply dividing a budget in half and creating a buffer;

2) employees motivation - by eliminating unjustified reserves in budgets, budget implementation is becoming one of the key performance indicators of individual employees and therefore a powerful motivational factor. If the employee has reached the target values of the indicators without the buffer, they receive compensation according to the current system of motivation in the company;

3) strategic justification of costs - in most companies employees are responsible for over-budget, so they tend to overestimate their supply needs and spend all budget funds by the end of the year. The strategic budgeting suggests that employees have only part of the budget excluding the buffer at their disposal, and that

they may exceed the limit only under condition that employees from other departments approve of the necessity of those expenses. This approach may reduce departmental expenses by 20%;

4) integrated approach to cost calculation is a system of the strategic budgeting which helps reduce the costs in those areas only where the money is overspent and invests extra funds into solution of prioritized tasks. Those employees of departments who are positive that planned expenses are necessary can always obtain funding from the budget buffer;

5) establishment of a close link among departments – the strategic budgeting motivates departments to achieve holistic results, which involves coordination of actions, elimination of functions, duplication, saving resources, as well as cooperation while completing current tasks [10].

Disclosure of cash flow mechanism in the strategic budgeting process is essential for the investment activity of the company, as these cash flows represent the level of strategic objectives achievement with the help of key non-financial indicators of human capital.

Conclusions. To enable efficient budget management as a part of strategy, financial reports have to allow to draw operational conclusions about the enterprise growth value and implementation of future development investments. These strategic goals of the company are successfully implemented in the strategic budgeting of non-financial indicators, including indicators of human capital. The aspect of the human capital of the company describes the company's ability to develop in the long term and it is a prerequisite for successful long-term sur-

vival. Strategic budgeting system provides a comprehensive assessment of quantitative and qualitative indicators of human capital. For the integrated assessment of the strategic indicators of human capital in the strategic budgeting the enterprise should identify a list of key indicators in accordance with the strategic goals and allocate them according to the presented categories. For each category, only those key indicators should be selected that are fully able to reflect their weight in total goals structure.

In general, it should be emphasized that the use of the strategic budgets for the human capital evaluation makes it possible to improve the quality of current and strategic planning of the enterprise, and makes it an effective element of management system.

### References

1. **Суков Г. С.** Управление развитием персонала на машиностроительном заводе. Теория и практика / Г. С. Суков, И. Я. Тупик. – К. : КНЕУ, 2008. – 232 с.
2. **Пети В.** Антология экономической классики / В. Пети, А. Смит, Д. Риккардо. – М.: Экономклуб, 1993. – 574 с.
3. **Смит А.** Исследование о природе и причинах богатства народов / А. Смит; пер. с англ. – М.: Прогресс, 1989. – 650 с.
4. **Фитц-енц Як.** Рентабельность инвестиций в персонал : измерение экономической ценности персонала / Як Фитц-енц ; пер. с англ. [Меньшикова М. С., Леонова Ю. П.] ; под общ. ред. В. И. Ярных. – М. : Вершина, 2006. – 320 с.
5. **Беккер Г.** Экономика семьи и макроповедение / Г. Беккер // США: экономика, политика, идеология. – 1994. – № 2. – С. 99–107; № 3. – С. 93–98.
6. **Shultz Т.** Investment in Human Capital / Т. Shultz. – N. Y. – L. – 1971. – 270 p.
7. **Ильинский И. В.** Инвестиции в будущее: образование в инновационном воспроизводстве / И. В. Ильинский. – СПб.: Изд. СПбУЭФ., 1996. – С. 30, 163.
8. **Носкова К.А.** Оценка человеческого капитала i-го сотрудника организации // Актуальные вопросы экономических наук: материалы II междунар. науч. конф. (г.Уфа, апрель 2013 г.). – Уфа: Лето, 2013. – С. 4–8.
9. **Мягков Е.** Бюджетирование на промышленном предприятии: опыт ОАО «Днепроспецсталь» / Е. Мягков // Бухгалтерский учет и аудит. – К., 2006. – № 3. – С. 23–31.
10. **Нечипоренко В.** Погляд у майбутнє: Стратегічне планування у страховій компанії / В. Нечипоренко // Управленческий учет и бюджетирование. – К., 2008. – № 2. – С. 63–65.
11. **Правила** внутреннего трудового распорядка и принципы корпоративной культуры ЗАО «НКМЗ» – Краматорск, 2009. – 16 с.
12. **Харкянен Л.** Інвестиції в людину – фактор розвитку економіки / Л. Харкянен // Віче. – 2000. – № 11. – С. 97–105.
13. **Хруцкий В. Е.** Внутрифирменное бюджетирование: настольная книга по постановке финансового планирования / В. Е. Хруцкий, Т. В. Сизова, В. В. Гамаюнов. – М.: Финансы и статистика, 2002. – 440 с.

### **Каменська О. О., Весела Н. О. Оцінка людського капіталу в системі стратегічного бюджетування**

У статті запропоновано метод розрахунку оцінки трудових можливостей робітника у системі стратегічного бюджетування промислового підприємства, який базується на основі синтезу складових кваліфікаційних ознак робітника підприємства та, на відміну від існуючих, враховує взаємозв'язок між стратегічними цілями та статтями витрат у бюджеті підприємства. Цей метод дозволяє визначити потенційну цінність людського капіталу та відповідність його якості стратегічним пріоритетам підприємства.

*Ключові слова:* стратегічне бюджетування, стаття бюджету, стратегічна відповідність, промислове підприємство, нефінансові показники людського капіталу, стратегічний бюджет, оцінка людського капіталу.

### **Каменская О. А., Веселая Н. А. Оценка человеческого капитала в системе стратегического бюджетирования**

В статье предложен метод расчета оценки трудовых возможностей работника в системе стратегического бюджетирования промышленного предприятия, который базируется на основе синтеза составляющих квалификационных признаков работника предприятия и, в отличие от существующих, учитывает взаимосвязь между стратегическими целями и статьями затрат в бюджете предприятия. Этот метод позволяет определить потенциальную ценность человеческого капитала и соответствие его качества стратегическим приоритетам предприятия.

*Ключевые слова:* стратегическое бюджетирование, статья бюджета, стратегическое соответствие, промышленное предприятие, нефинансовые показатели человеческого капитала, стратегический бюджет, оценка человеческого капитала.

### **Kamenska O., Vesela N. Estimation of human capital in the strategic budgeting system**

This paper proposes a method for calculating assessment of employees working abilities in the system of strategic budgeting of an industrial enterprise, which is based on the synthesis of components of the qualification indexes of employees and which, in contrast to the existing ones, takes into account the relation between the strategic objectives and cost items in the budget of the enterprise. This method allows disclosure of the potential value of human capital and the compliance of its quality with strategic priorities of the company.

*Keywords:* strategic budgeting, budget item, strategic compliance, industry, non-financial indicators of human capital, strategic budget, estimation of human capital.

Received by the editors: 06.12.2016  
and final form 28.12.2016