

**UDC 338:330.8**

## **Evaluation of effectiveness of investments in training by financial and non-financial indicators**

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### **Abstract**

The article deals with the answer to the following questions: How do businesses ensure results from their training investments? How do they measure the outcome of corporate training programs? In many cases, it is very difficult to measure the financial impact of training events, or it cannot be measured at all. But nevertheless, it is necessary to show the business impact or value of training. This article introduces the algorithm of evaluating training impact, using the multidimensional integrated approach to organizational effectiveness. The following should be noted: the impact or value of training programs should be measured; strictly formal quantitative calculation of the return on investment has its limits; the practical guide for measuring the value of training programs has developed in this article helps to show the business impact of learning; one of the significant outcomes of the mentioned steps of the study is uncovering a significant segment of the trainees who never used training (training's leaning points) in the job, and excluding these employees from the future programs is a saving to the organization. The results of the research allows of making conclusions about training needs, as well as about the general situation of Human Resource management in a company.

**For citation**

Aksenova, O.A. (2014) Evaluation of effectiveness of investments in training by financial and non-financial indicators. *Ekonomika: vchera, segodnya, zavtra* [*Economics: Yesterday, Today and Tomorrow*], 6-7, pp. 10-25.

**Keywords**

Training, investment, return on investment, evaluation of effectiveness, financial and non-financial indicators.

**Acknowledgments**

The article summarizes the author's 10-year experience of working as a trainer and consultant in RJR and JTI companies in various countries and could not have been written without assistance and support of the Human Resources managers of the companies' divisions in Switzerland, Russia, Kazakhstan, Ukraine.

## Introduction

One of the most difficult methodological problems faced by Human Resources managers is to assess the effectiveness or impact of training conducted by the organization / company. Has the new knowledge obtained by trainees improved the work of the organization?

### **Evaluation of effectiveness of investments in training by financial metrics**

According to the Human Capital theory, investment in human capital is related to education, accumulation of experience, health, etc. Therefore, funds spent on training and development programs are investments, because they are moved from the present to the future: investors donate part of their income in the present in order to obtain a higher income in the future.

From this point of view, assessing of the actual effectiveness of investment in employees' training and development, like in other areas, is an important part of

the firm's financial monitoring, controlling, and can be carried out with the help of a common approach to the assessment of the effectiveness of investment.<sup>1</sup>

According to this approach, each training program (as an innovative project) is connected with a specific cash flow, which consists of net outflows and net inflows and is determined by the number of criteria, based on comparison of investments and generated cash inflows. Of course, more justified criteria are dynamic (time-sensitive), because they more accurately reflect the investment processes and their impact.

The efficiency can be calculated with the help of the formula for Net Present Value (NPV) or Profitability Index (PI), which is calculated as the ratio of the sum of all discounted cash income to total discounted investment cost.

Some experts<sup>2</sup> suggest assessing the effectiveness of training with the help of another metric (also used for evaluating the effectiveness of investment projects), the Return on Investment (ROI) that can be calculated as

$$ROI = EBIT : A$$

Where EBIT (Earnings Before Interest and Taxes)<sup>3</sup> is a company's earnings before interest and taxes, and A – a company's assets.

It should be noted that in most cases the actual financial impact of training on a company is very difficult to measure, indicators are hard to calculate, since the rate of return (profitability) depends on many factors which affect this indicator. It is particularly difficult to determine the "net effect" of training, since the effectiveness of investment should be calculated not on the basis of the total revenue (or income) increase for a year, but on the basis of the amount which is caused by (or attributed to) a specific investment (in our case, in training and development).

In practice, this causes considerable difficulties, since it is hard to isolate the part which is associated with these projects from the total growth, in other words,

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1 Miller, N.N. (2005) *Finansovyi analiz v voprosakh i otvetakh [Financial analysis in a question-and-answer format]*. Moscow: TK Velbi, Prospekt.; Markar'yan, E., Gerasimenko, G., Markar'yan, S. (2002) *Finansovyi analiz [Financial analysis]*. Moscow: MarT Format.; Van Adelsberg, D., Trolley, E. (1999) Running training like a business. In: *The forum corporation*, pp. 27-32.

2 Phillips, J. (1997) *Return on investment in training and performance improvement programs*. Houston.

3 Bodie, Z., Kane, A., Marcus, A.J. (2004) *Essentials of investments*. Bostock.

to determine whether there have been improvements in the financial situation of a enterprise as a result of the use of new knowledge or due to some other, extraneous circumstances.

In order to overcome this situation, supporters of the evaluation of training based on financial metrics suggest using a "control group"<sup>4</sup>, i.e. it is recommended to select two groups from similar business units, one group receives training, the other does not. If they have the same conditions, the difference in the financial results of their activities will reflect the extent of the impact on knowledge, information, skills, abilities, etc.

But the problem is that most organizations cannot afford the luxury of having two similar groups of people, which deal with the same thing, but are at the same time isolated.

Everyone who has tried to somehow prove the effect of training in terms of "return on investment" or other quantitative indicators faced the following problem: their calculations and analysis are almost as expensive as training itself. Taking into account the experience of the consulting firm Booz Allen Hamilton's Center for Performance Excellence (CPE), which repeatedly carried out such assessment, one can conclude that work relating to the assessment of complex programs based on calculating ROI takes about 6 weeks and costs more than \$ 10,000 if the necessary data are available to consultants, and this analysis has already been done<sup>5</sup>.

Only 3% of American corporations and businesses with extensive experience in assessing the effect of training have made some effort to assess the impact of learning on business results<sup>6</sup>, this is quite enough, if each program would be evaluated in some other way. The peculiarity of the situation in Russia is that most business units do not monitor or record data on the level of individual performers, being trained and obtaining new knowledge, but it is the data we really need, so it's difficult or impossible to measure the effect of training on the basis of financial indicators.

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4 Wallach, E. (2002) I before E: investment cost must be tied to education programs to be effective. *Journal of property management*, 67 i5, pp. 42-48.

5 Wagner, R., Weigand, R. (2004) Can the value of training be measured? *The health care manager*, 23 i1, pp. 71-83.; Ellis, K. (2005) What's the ROI of ROI? *Training*, 42 i1, p. 16.

6 Ellis, K. (2005) What's the ROI of ROI? *Training*, 42 i1, p. 16.

In view of the above, we can draw the following conclusion: using financial indicators to assess the effectiveness of the training is appropriate only for certain types of programs, namely:

- programs closely related to the manufacturing of a product or service (e.g. training in new technologies, new forms of services, training in new techniques of quality control, etc.)
- programs whose effect is easy to measure/ calculate (e.g. safety training courses)
- programs which involve a large number of participants, and in which it is important to find out what has changed and what the value of this is (e.g. training in the use of new software)
- permanent programs, such as an induction program for new staff/ new leaders, and it is necessary to periodically show the value of these programs for a company
- very expensive programs (in order to prove that the continuation of investing is cost-effective and agree upon the training budget)

### **Critical questions**

Many experts have questioned the ability to measure the impact of training by only one metric such as reducing costs or increasing income in order to prove its effectiveness.<sup>7</sup> A particular difficulty when trying to implement a standard instrument of measuring the efficiency of investment (e.g., ROI) for evaluation of training programs aimed at the development of nontechnical skills such as performance and leadership skills, are so called "soft skills". The examples of such programs include the training of "Leadership and Motivation", "Conflict Resolution", "Team Managing", "Problem Solving and Decision Making". These programs are designed to help managers fulfill their roles, improve the interaction with subordinates, etc. How can the outcomes or the value of these programs be measured?

So it is necessary to find and use other approaches to evaluating the effectiveness of investment in personal training and development. One of these, called Kirk-

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<sup>7</sup> Goldwasser, D. (2001) Beyond ROI. Employee training as more than return on investment. *Training*, 31, pp. 2-5.

patrick's 4 levels Model of training evaluation has been the most applied guide to assessing the effectiveness of training since its inception in 1959. The author –Donald Kirkpatrick – posits that the effectiveness of training is best evaluated at four progressively difficult and valuable levels. These are the reaction level, the learning level, the behavior level, and the results level.<sup>8</sup>

Professionals working in this area, note the positive aspects of this approach, although for almost 50 years the debate and discussion about Kirkpatrick's model are still continuing.<sup>9</sup> It is obvious that the main information blocks of this model are not linked, besides there are no feedback mechanisms that enable one to manage the training process. The weak points of this approach also deal with the absence of procedures for the data collection and data processing. Some experts believe "that time and effort spent trying to make this model work might be better used"<sup>10</sup>.

Therefore, the search for methods to evaluate the effectiveness of training and development of human resources for the organization<sup>11</sup> are ongoing.

### Alternative approaches to assessment

From our point of view to solve this problem, would be reasonable to use the existing alternative approaches for assessing organizational effectiveness. They can be roughly divided into four groups<sup>12</sup>:

- 8 Kirpatrick, D. (1959) Techniques for evaluating training programs. *Journal for American society of training directors*, 13 (3-9), pp. 21–26.; Kirpatrick, D. (2004) AT+D classic: how to start an objective evaluation of your training program. In: *T&D*, 5 i 5.
- 9 Habbard, A. (2001) Training evaluation. *Mortgage banking*, 61, I 7, pp. 115-117.; Aksenova, O.A. (2006) Ekspertnye protsedury pri otsenke effektivnosti investitsii v obuchenie personala [Expert procedures in the assessment of the efficiency of investments in staff training]. *Nauchno-tehnicheskie vedomosti Sankt-Peterburgskogo tekhnicheskogo universiteta* [*The scientific and technical bulletin of St. Petersburg technical university*], 1, pp. 167-175.
- 10 Habbard, A. (2001) Training evaluation. *Mortgage banking*, 61, I 7, pp. 115-117.
- 11 Wilson, D. (2004) Measuring and proving the value of training. In: *An Elearnity viewpoint paper*.; Benefits of training and development for individuals and teams, organizations, and society (2009). *Annual review of psychology*, 60, pp. 451-474.
- 12 Goodman, P., Pennings, M. (1990) *New perspectives on organizational effectiveness*. San Francisco: Jossey-Bass.; Cameron, K. (1988) Critical questions in assessing organizational effectiveness. In: *Organizations close-up*, pp. 34-51.; Steers, R. (1991) *Organizational*

1. The first approach defines the effectiveness in terms of how well the organization achieves its goals, that is, the closer an organization's output parameters come to meeting its goals, the more effective it is – (the goal approach model).

2. The second approach expects that the effectiveness of the organization is based on the ability of the organization to find, keep and use the necessary resources—that is, the more resources the organization obtains from the environment, the greater its efficiency – (the system resource approach).

3. The third approach to effectiveness of the organization focuses on internal processes. The organization is effective, if it is a "healthy system". There are no internal resistance and strain, information flows smoothly both vertically and horizontally, when members of the organization are highly integrated into the system, the internal interactions are characterized by benevolence, trust and so on. – (internal processes approach).

4. The fourth approach to effectiveness of the organization focuses on the degree of satisfaction of the strategic constituencies organization—which can include those who provide resources, community services (product), the producers of a product or service, as well as other groups, cooperation with which is essential for the survival of the organization. The effectiveness of the organization is the extent to which these groups are satisfied with the work of the organization (participant satisfaction approach model).

These approaches could be a guide line for the systematic assessment of the effectiveness of training sessions as well as long time training complex projects for the development of human resources. Measurable indicators of the effect of training might include increased productivity, improved quality, decreased costs, increased sales, etc. Intangible, but very important results (effect) of training might include greater job satisfaction, cooperation or collaboration (both between departments and among employees), building and maintaining a productive corporate culture.

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*effectiveness: A behavioral view.* Santa Monika, Calif.: Goodyear Publishing.; Sowa, J., Selden, S.C., Sandfort, J. R. (2004) No longer unmeasurable? A multidimensional integrated model of nonprofit organizational effectiveness. *Nonprofit and Voluntary Sector Quarterly*, 33 (4), pp. 711-728.

## Several dimensions of training impact

Sometimes it is possible to find and show a direct link between training and the business results of the company; in other cases we can show only an indirect link. Such an indirect link between learning and business results for organizations or commercial companies could be the impact of training on several dimensions of their activity<sup>13</sup>:

– "Efficiency" (how well the organization achieves its goals) increasing efficiency of employees, departments, or organizations can be measured by indicators such as the reduction in the use of materials, reduction of hours or the number of personnel to do the same job or an increase in production at the same number of hours (productivity), cost reduction.

– "Group cohesion" (internal processes). A group of workers can operate effectively or ineffectively. An effective and united group (team) will help each other, or support in case of need, and generally represents a more productive working environment. This translates into a reduction of overtime, a reduction in the cost of training (team teaches its members), a reduction in the need for management efforts and increases employee satisfaction.

– "Customer service" (satisfaction constituencies groups). Customer satisfaction the quality of the service, product or service has a significant impact on the bottom line of business financial stability and results of the company.

– "Communication in the business environment" (internal processes, absence of strain and resistance). Good business communication and interaction is one of the most intangible and at the same time, important factors for the successful functioning of the organization. "Good" means fewer employees complaints, fewer mutual insults and claims. Along with improvements in teamwork good communication can result in reduced staff turnover, which in turn will reduce the costs of hiring and training new employees, reduce lost output while vacancies exist.

– "Functional flexibility" (the ability to find and use the resources). This reflects workers' willingness and ability to perform various tasks, not always associ-

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13 Wagner, R., Weigand, R. (2004) Can the value of training be measured? *The health care manager*, 23 il, pp. 71-83.



ated with their own specialization. In the absence of "flexibility", any person who is "a consumer" of services of another department or an employee could wait for service while one employee is overworked, and the other four are sitting and watching it. It is possible that in this case, the task is not included in their work. But with an increase in the flexibility, the employees are not only able to fulfill other roles, but also want to do it. This increasing customer satisfaction, reduces time for service both external and internal customers, reduces temporary staffing.

– "Sick time and delaying" (satisfaction constituencies groups). It is reasonable to assume that employees' attitudes toward their work environment, the style of leadership and managerial skills, has an impact on the amount of sick time and lateness.

– "Stabilization of staff and employee turnover" (use of resources). Direct and indirect expenses of employees turnover include the cost of recruiting and training of new staff members. Also the cost of products or services output lost while replacing vacancies. Most of this data is difficult to get, but it can be done by using of data on the payment of overtime, hiring temporary workers or outsourcing of jobs, previously carried out by the company.

Depending on the data and information collected, one can use the method of calculating financial indicators (net present value-NPV) described above or approach based on expert review-sequence.<sup>14</sup> Using the last we can design the "algorithm assessing the business impact of new knowledge" and construct the profile of the impact of training on the most significant dimensions in activities of the company.

### **Algorithm assessing the business impact of new knowledge**

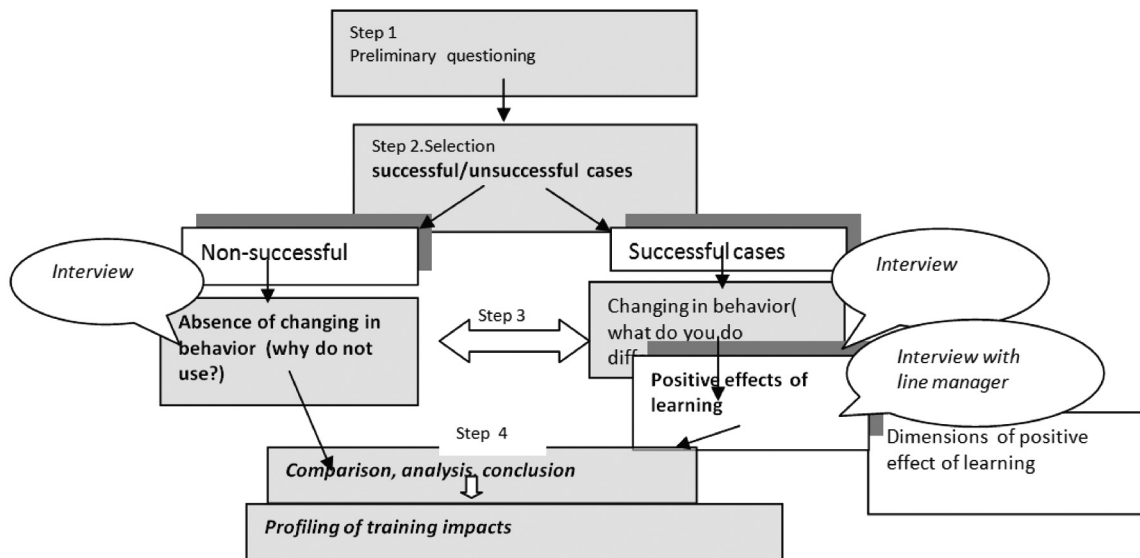
The purpose of the proposed algorithm is to fix and show the results of training through expert procedures identifying successful cases of using the new knowledge (skills, information, etc.) and its positive impact on the business. Application of expert technologies in this case is grounded on the fact that only an individual can

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14 Dressler, D. (2002) Training ROI: How Compaq uses the success case method to provide ROI of training (Triad Performance Technologies Inc.). In: *Managing training & Development*, pp. 2-10.

apply the received knowledge and also be able to assess changes in their work. Also we should take into account that evaluation of the effectiveness of investment touch the social subsystem of enterprise where the cause-and-effect relationships are not so clear, and refers to loosely structured decision-making tasks.<sup>15</sup>

The algorithm consists of the following steps (Figure 1).



**Figure 1. Algorithm assessing the business impact of new knowledge**

Step 1: Preliminary questioning. Short post training survive, conducted through the 1-3 months after the training, the results are sent to the HR Department or Counseling Center, where they are processed. In small groups of trainees (up to 20 people) all of them could be questioned. In spite of the of training objectives the following questions should be included:

1) "Do you use the knowledge and skills you have got on (name of program)?"

2) "How do you asses the positive impact of training on your work (with customers, employees) on a scale from 1 (no influence) to 5 (strongly influenced training)?"

<sup>15</sup> Aksenova, O.A., Fedotov, A.V. (2004) Vyyavlenie ekspertnykh znaniy pri reshenii slabostrukturizovannykh zadach upravleniya organizatsiei [Revelation of expert knowledge in solving poorly structured tasks related to running an organization]. *Nauchno-tekhicheskie vedomosti Sankt-Peterburgskogo tekhnicheskogo universiteta* [The scientific and technical bulletin of St. Petersburg technical university], 2, pp. 186-192.

**Table 1. Report on the training results (fragment)**

<i>Business Impact of "Basic Management Skills" program on the organization... delivered(dates...) for managers' staff of 'A' Department</i>		
<p><b>I. Cases successful using new knowledge</b></p> <p>1. "On business meetings we use the format of "Effective Meeting", skills of planning and conducting effective business meeting"</p> <p>2.....</p> <p>3.....</p>	<p><i>The outcomes analysis</i></p> <p>1. Time spent on weekly meetings of top leaders has decreased on average from 3.5 to 1.5-2 hours. The meetings usually have 11 people, the cost of 1:0 of work ranging from 1100 to 2000 rubles (without regular bonus). Weekly savings from reduction of time only on this type of meetings is 18050-44000 rubles.</p>	<p><i>Recommendations</i></p> <p>1. Continue the program, enlarge the "Effective Meeting" module and invite as participants the specialists who are in duties to conduct regularly meetings.</p>
<p><b>II. Low successful Cases (No utility on the job)</b></p> <p>1. "I have no idea why I was sent to training, I do not need it at my job"</p> <p>2. "I do not use the new knowledge, because I believe I am good at dealing with my work without it"</p> <p>3.....</p>	<p><i>Problem analysis</i></p> <p>1. Training "Learning points" was not connected with the individual trainee's demands, job responsibilities and carrier development</p> <p>2. No individual needs for development and achievements. The person never used the new knowledge on the job and not going to do it in the future.</p> <p>3.....</p>	<p><i>Recommendations</i></p> <p>1. To form the training groups more carefully, avoid the "sheep-dip" training</p> <p>2. Taking an account the facts of min cost 2 days outside training program is 20 000 rub / person, discovering and eliminating employees who never used the new knowledge of the training on the job from the training programs represents the considerable savings to company.</p> <p>3.....</p>
<p><b>III. General Conclusions.</b></p> <p>1) The most positive impact of the "Managing Basic Skills" program was noticed in the following dimensions: "Efficiency", "Stabilization of staff and employee turnover", "Communication in the business environment", "Functional Flexibility".</p> <p>2)The reasons for which the skills are not used or do not have a positive impact on business, the following:</p> <ul style="list-style-type: none"> <li>– 5% employees are provided training regardless of their jobs responsibilities, utilities on the job etc. – <b>In the composition of groups of learners should be taken into account</b> the results of training and development human resource needs assessment.</li> <li>– Managers of 7% trainees do not show the interest, nor demonstrate themselves and support applying the new skills and knowledge on the job place. –Involve the all level managers in training planning process as well as evaluation of its efficiency, beginning with the executives.</li> <li>– 15 % trainees are not going to apply the new knowledge on the job. – Uncover and eliminate those employees from the training plans, it considerably reduces the training cost and the company's funds allocated for training.</li> </ul>		

Step 2. Selection. Comparison and synthesis of the replies to the questions let us select the 5-10 most "successful cases", i.e. people who uses the knowledge gained, and note the positive impact of training on the job. And also select "unsuccessful" cases, 5-10 participants, who pointed out that the impact of the training on their work is low, very low or none.

Step 3. Meetings and interviews. The interviews are conducted with selected groups of people:

a) interviews with "successful cases". With each of the selected participants a 15-20 minute interview is conducted, to find out: how they apply the new knowledge; why they do it; whether to apply these skills to other staff and why; why it has a positive effect on the activities of the company as a whole.

b) interviews with the line managers. It is carried out in order to confirm whether there was a link between the identified changes in the behavior of the trained and positive effect on business.

c) interviews with "unsuccessful cases", i.e. with 5-10 participants with the lowest ranks obtained in the previous step, help the specialist of Training Department understand why training has had a negligible impact on the business.

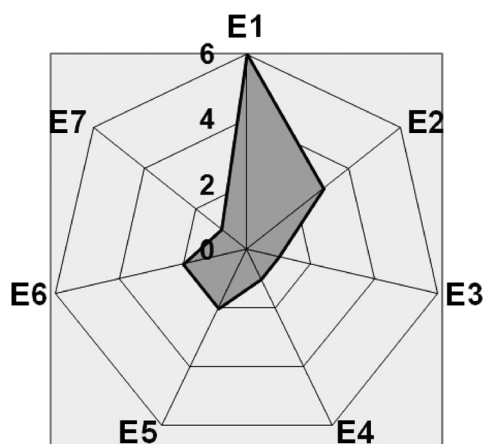
Step 4. Business impact of training. After processing all information mentioned above, the most valuable finding are combined in special written form (Table 1), which includes a description and analysis the cases of positive business impact, and cases with the lack of positive changes. Also it contains an analysis of the reasons for small positive impact on the business and recommendations concerning the last. As a conclusion, the total cumulative effect of new knowledge is summarized and a general conclusion made about "utility" of the training course and is it expedient or not to continue it. Also what has be changed in this learning process, as well as within the organization to improve.

### **Profiling the impact of training (new knowledge)**

Analysis of the successful of learning on several dimensions of company's activity mentioned above, can be represented graphically (Figure 2).

The numbers on the chart represent the frequency of various forms of positive effects, where E1 is "Efficiency" (time savings, increased production, reduction

of costs, etc.); E2 – "stabilization of staff numbers" (reduction of the employees turnover); E3 – "Sick time and tardiness" (reduction of amount of sick time, and delaying for arriving at work, etc.); E4 is "Group cohesion" (mutual support, team trains members itself etc.); E5 – "Functional flexibility" (workers ' willingness and ability to perform various tasks and to fill other roles, the expansion of duties); E6 – "communication in the business environment (effective /assertive style in business interaction, reduction of conflicts and employee complains)"; E7 – customer service (reduction customer complains, increasing of positive feedback).



**Figure. 2. Profile of the impact of new knowledge (learning) on the dimensions of business activities**

## Summary and Conclusion

Summarizing the above, it should be noted that

- regardless of the nature of training programs and content, their impact or value should be measured, for financial or non-financial indicators to monitor and make changes;

- it is important to note that strictly formal quantitative calculating the return of investment has its limits, which may be lost the quality, depth and completeness of understanding reality;

- the practical guide for measuring the value of training programs has developed in this article helps to show the business impact of learning;

- one of the significant outcomes of the mentioned steps of study is uncovering a significant segment of the trainees who never used the training (training's lean-

ing points) on the job, and eliminating these employees from the future programs represents a saving to the organization.

The step by step finding allows make deeper conclusions about the training needs, as well as about the general situation of Human Resource management in company.

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## **Оценка эффективности инвестиций в обучение персонала с помощью финансовых и нефинансовых показателей**

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### **Аннотация**

В статье рассматриваются проблемы, связанные с измерением рентабельности инвестиций в обучение персонала. Автор использовал многоаспектный интегрированный подход к организационной эффективности для создания алгоритма, с помощью которого можно оценить влияния обучения персонала на эффективность компании. Результаты проведенного исследования позволяют оценить потребности в обучении, а также управление персоналом в компании.

### **Для цитирования в научных исследованиях**

Аксенова О.А. Оценка эффективности инвестиций в обучение персонала с помощью финансовых и нефинансовых показателей // Экономика: вчера, сегодня, завтра. – 2014. – № 6-7. – С. 10-25.

### **Ключевые слова**

Обучение, инвестиции, рентабельность инвестиций, оценка эффективности, финансовые и нефинансовые показатели.