

TRAINING AS INVESTMENT INTO HUMAN RESOURCES

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Introduction

Investment is of key importance for corporations, and investment into their human resources is also essential. Companies calculate the return of any kind of investment, in case of human resources it is a more complex issue, because it is not easy to quantify “soft” parameters featuring human resources. Managers, just like shareholders want to know if it is worth investing into human resources and to what extent and in how long a period these investments are returned.

All the interest groups of a company – the owners, the management, the customers, the employees of the company and the authorities – are affected by finance. All these interest groups have the same goal, to improve the profitability and the competitiveness of the company they are all involved in, thus the return of capital investment into the operation of the company should be as fast and as effective as possible. In order to explore it we should find out how to improve the resource which is closely connected to all the other resources of the company, namely its human resources. Many researches have been conducted to explore the objective side of human resources. The soft elements have to be connected to objective facts and calculations.

The aim of the present essay is to show training as an investment into human resources and display the different ways of calculating the return of investment into training with measuring the input and the output of trainings. In the first part a short theoretical background of human resources is presented, then training as a kind of human capital investment is introduced. After that different methods are displayed for the calculation of the return on the investment into human resources.

Theoretical background

Human Resources – Human Capital

Human resources are renewable, improvable, cannot be sold, and are able to think. In the present essay the analysis is based on the theory of Theodore Schultz¹. He was the most remarkable theoretician who analysed the relationship and cohesion

¹ Theodore Schultz and William Arthur Lewis gained the Nobel Prize in 1979 for their pioneering work in the field of economic development research, with particular attention to the problems of developing countries. (www.nobelprize.org/prizes/economic-sciences)

of investment into human resources and the earnings and the formation of materialized capital. He worked out the theory of “Investment into Human resources”.

Schultz wanted to use the term “capital” in a wider sense. He stated that scientific research, education, training and other skill-related activities are fields where new, efficient forms of “capital” is formulated. According to him, the role of human resources in economy is of vital importance and human knowledge is the result of a long, costly procedure, which is mostly similar to an investment process. He underlines that the most part of what we call consumption means investment into human capital.²

These kinds of investments into human capital explains the major part of increase of real income of an employee. In spite of the fact that the human part of all capital is quite big, the emphasis which is put on human capital is not big enough. The big emphasis is usually put on non-human capital. Nevertheless, if human capital is not in line with corporal capital, it can become the barrier of economic growth.

Schultz makes five major categories of activities that improve human skills and abilities³:

1. health institutions and services affecting people’s life expectancy, power, stamina and vitality;
2. training during work;
3. formal, organized primary, secondary and tertiary education;
4. adult training programs,
5. mobility of individuals and families to adopt to the changeable work opportunities.

Schultz tried to measure changes of “intellectual capital”, and he found that being qualified is more durable than most forms of non-human reproducible capital.⁴ According to this theory, human education and training are investments into their own productivity. Thus the market value of their productivity, efficiency and work will increase a great deal. All the above mentioned categories of activities which raise productivity can be considered investment into human capital.

They are considered investments because financial and non-financial means are devoted in the hope of future profit. When education and training costs are meant an investment into human capital, we state that similarly to materialistic capital investment costs, in case of human capital investment, the size of capital can be measured with the costs of making the capital itself and the profitability of the investment can be measured with a cost-profit analysis. So, the same general method could be used for human capital.

² SCHULTZ 1983, 48.

³ SCHULTZ 1983, 60.

⁴ SCHULTZ 1983, 141.

The concept of Human Capital

Schultz⁵ said that human capital is a form of capital with the following main special features:

- it is part of the person, cannot be divided from the personality,
- it cannot be sold in free societies or cannot be spread in the market,
- it can be reached by investing into ourselves,
- it has two parts: inherited and gained skills,
- it cannot be seen.

According to the human capital theory, before choosing a university, the individual has to calculate the costs and profits. The costs are the following: education fee, prices of textbooks, living costs, late entry into the labour market, etc. The profit side includes the income due to qualifications, and other, not “hard” parameters like pleasant working conditions, or social prestige of the job.⁶

As Samuelson and Nordhaus see it, human capital should be considered and handled as a useful and valuable knowledge base, which is accumulated by education and training.⁷ This is why we focus on training in the present essay and try to find out the return of investment into training.

The basic model of Human Capital Investment

Human capital – combined of human skills and productive knowledge – is different from the other resources in a way that it is the result of economic activities and is a basis for further production.⁸ It is different in a way that the return of investment on human capital is a long-term procedure.

Gósi Zsuzsanna drew up a description of a model on the basis of the above detailed theory of “Investment into Human resources” and the concept of “human capital” combined.⁹

She says that the effective spread of resources is strongly in connection with the problem of increase. The sources of economic growth cannot be identified if work is considered homogenous. The basic question of identifying economic growth helped to improve the concept of human capital. She says that economic growth derives from the increase of human capital. Especially education can contribute to economic growth.¹⁰

Among the investment forms of human capital, education is in focus of scientific interest. For the individual, the return of education is the qualifications gained,

⁵ SCHULTZ 1983.

⁶ ROSEN 1998.

⁷ SAMUELSON – NORDHAUS 1992, 875.

⁸ GÓSI 2009.

⁹ GÓSI 2009.

¹⁰ GÓSI 2009, 25.

with the help of which his income increases and in the rest of his career the whole financial return is life-income growth.

The costs of human capital investment are partly indirect costs, and the value of time the individual spends with investing into human capital. She assumed that during this time people do not make money with work. The lack of income due to learning is a kind of indirect cost of education.¹¹

Gósi summarized the costs of improvement of human capital by training into three categories¹² that are direct costs (education fee, textbooks, other expenses), no income (no work temporarily during investing time), psychic loss (learning is often hard and boring).

This model assumes that when making decisions people want to see the financial side of it and they want to maximize the profit. She made us see these costs from the person's point of view.

Let us see the types of costs from the company's point of view. Similarly to the above mentioned categorization of costs of training, when the company arranges training for the employees the following costs occur:

1. Direct costs: education fee, textbooks, exam fee, travelling costs, accommodation costs, etc.
2. Indirect costs: employers do not work during the course, but wages should be paid to them, and other employees substitute people who attend the course.
3. Psychic loss may also occur: personal problems if the employee is away from his family and/ or work place problems being away from work for long.

Research questions, methods and examples

In the following part we are going to find answers for the basic questions of corporations about a kind of investment into human resources, whether the costs and the value of the training are in balance or not, also when the value of an investment into human resources will occur and if it is worth investing in human resources.

When the grown-up individual makes the decision to learn in order to improve his skills and knowledge with the aim of getting better possibilities in the labour market, or the employer chooses to invest in training of employees in order to improve their performance in their work place, they compare the input and output of the training.

For individuals, due to education, income is increased for the rest of their life, so the whole financial profit is an increase in life-income. The costs of human capital are partly direct costs and indirect costs of the value of time not working while investing, as it has been mentioned previously.

Before making the decision, the individual or the company compares the costs and possible profits, which do not occur at the same time. The costs occur at the time of the decision, the value and/or the profit occurs later on.

¹¹ GÓSI 2009, 25.

¹² GÓSI 2009.

In the following we are going to use different methods to find answers for the above written research questions. We have already listed the types of costs of education or training that may occur, these types of costs will be included in the calculations.

Methods of calculating value of human capital

The present value of human capital

The general formula of the present value method¹³ can be used to be modified for calculations:

$$CV = \frac{W_0}{(1+i)^0} + \frac{W_1}{(1+i)^1} + \dots + \frac{W_n}{(1+i)^n} = \sum_{t=0}^n \frac{W_t}{(1+i)^t}$$

Where symbols have the following meaning:

- CV → the present value of human capital
- Wt → net income at the time of t.
- I → interest rate
- N → life expenditure, or expectable length of active life

If individuals try to gain maximum profit financially, it is worth going to school, until the present value of the profit of human capital is higher than the present value of their education costs.

The net present value of human capital

The net present value of human capital is different from the present value method, in a way that in the latter formula the costs are deducted from the value that is gained altogether, so the net value remains. Based on the general formula¹⁴ the calculation regarding human capital is as follows:

$$NCV = \sum_{t=0}^n \frac{W_t}{(1+i)^t} - \sum_{t=0}^n \frac{C_t}{(1+i)^t}$$

Where symbols have the following meaning:

- NCV → the net present value of human capital
- Wt → net income at the time of t.
- Ct → the costs of gaining capital at period t.
- I → interest rate
- N → life expenditure, or expectable length of active life

¹³ SAMUELSON – NORDHAUS 1992, 247.

¹⁴ BOZSIK – SZEMÁN– SÜVEGES 2017, 46–47.

Index of return of human capital

It is common knowledge that employees' expertise and practice, knowledge of the company and the combination of their personality and life experience are special value for the company. In connection with employees there is an expectation on the part of the firm they work for, that they should increase the value of their company surpassing their income and extras.

The index of the return of human capital used by Bukovitz helps to solve this problem. Although this index does not show the represented value for the company, it only gives a base to be able to plan expenses in connection with human resources.¹⁵

The index is built on accountancy rules, and innovatively uses the evaluation techniques of mathematics and economy. The return index of human capital contributes to the profit of the company by showing the value that the individual represents for the company. It is connected to individuals, so it shows where value is created within the company and also shows the differences between the present and future costs of the employee's contribution.

It has to be made clear first, that the income of the employee is seen as an element of company costs. The index states that the employee's income (wages, extras, educational and improvement costs) is enough to determine the minimum value with which an employee can contribute to company performance. Otherwise it shows that this contribution surpasses the employee's wages, so he makes profit for the company. The company also has to make a comparison of the training costs of an energetic, effective, well-educated employee to employ further on and the costs of taking on and employing a new, similarly educated person, who does not need that training.¹⁶

After this comparison the management can decide whether to employ a new employee or to keep the 'old' employee. They can consider that e.g. the company's present employees mean value, because the company does not need to spend on job advertisements, making interviews, etc. and also the costs of dismissals (severance pay, etc.) can be saved. Some of these costs can be planned, some cannot, but the calculations help to make decisions.

*Examples for calculating value of human capital**(A) Discounting and calculating present value*

There is an offer for a 2-year training for a group of employees with two possibilities for payment:

- a) training to be paid before the course, the price is 1 million Fts;
- b) training to be paid after the course, the price is 1.4 million Fts

¹⁵ BUKOWITZ – WILLIAMS – MACTAS 2004.

¹⁶ BUKOWITZ – WILLIAMS – MACTAS 2004.

Solution: What is the present value of 1.4 M Ft now? The discount factor should be calculated:

$$\text{The discount factor} = 1 / [1 + (i/100\%)]^n$$

where i = interest rate, n = exploitation time in years.

Here the discount factor = $1 / (1 + 10\%/100\%)^2 = 1 / (1.1^2) = 1 / 1.21 = 0.8264$, if the interest rate is 10%.

Let us see the present value of 1.4 M Ft:

$$\text{Present value} = \text{Time factor} * \text{discount factor} = 1,400,000 \text{ Ft} * 0.8264 = 1,156,960 \text{ Ft}$$

Since 1 M Ft is less than the present value of 1.4 M Ft, with a 10% interest rate it is worth paying for the training before the course. So, we choose variation a).¹⁷

(B) Continuing Example (A)

The 2-year training course costs 1 M Ft. The employees will possibly make an extra amount of 0.8 M Ft yearly for the company after the course. The alternative investment yield is 10% yearly for the company (see *Table 1*).

Table 1. Alternative investment yield of the company

	Year 0	Year 1	Year 2	Year 3	Year 4
Costs and income	-1 000 000	0	0	800 000	800 000
Present value (PV)	-1 000 000	0	0	601 052	546 411
Cumulated PV	-1 000 000	-1 000 000	-1 000 000	-398 948	147 463
R = 10%					

Q1: Is the training worth its price?

Q2: What is the payback period of the investment?

Solution:

$$PV_3 = 800,000 * 1 / (1 + 0.1)^3 = 800,000 * 0.751315 = 601,051.8 \sim 601,052$$

$$PV_4 = 800,000 * 1 / (1 + 0.1)^4 = 800,000 * 0.683013 = 546,410.8 \sim 546,411$$

Calculating payback period:

$$T = t + (-kPV_t / PV_{t+1})$$

Where kPV_t = last negative element of the cumulated PV

t = the serial number regarding the above element

PV_{t+1} = PV regarding next year

$$T = 3 + [-(-398,948) / 546,411] = 3 + 0.7301 = 3.73 \text{ years}$$

¹⁷ www.ecovit.hu.

So, the payback period of the training course for the employees is 3.73 years. This is the answer for Q2.

The answer for Q1: Yes, the training course is probably worth the price, because the employees start making extra income for the company in the third year, after the course. The above calculations took only the costs of training into consideration, but there are a lot of other costs. We should find another way, where the above detailed types of costs are also taken into consideration.

The costs of human resources

According to Flamholtz, the following costs are considered to be costs of human resources: recruitment, selection, enrollment, appointment, placement, internal search, promotion, formal training, education, on-the-job training, time of trainer, lost productivity.¹⁸

Flamholtz examines what costs are added up until an employee is employed at a company. He divides these costs into the fields of gaining and training. He says, that the value determined by it can be activated as the cost of human resources.

He determined the costs of continuous work including the following: wages, income, expert and assignment fees, social insurance rate contribution, training costs, social expenses, operating a surgery, costs of excused or unexcused absence, sick pay, lost profit and extra expenses due to absence, etc. Costs of dismissal are severance pay, lost profit and extra costs due to dismissal, etc.¹⁹

Evaluation of trainings

One of the best, most properly detailed way of evaluation of the corporate sphere is the theory of *investment return/yield*. Big American companies use this method for the evaluation of their trainings.

The theory of "Investment return/yield"

According to Donald Kirkpatrick, regarding the effectiveness and success of any training, four phases can be differentiated, and Jack J. Philips added one more phase to them.²⁰

Phase 1: Measuring reaction of the participants of the training – standard questionnaires are used to ensure comparativeness.

Phase 2: Examining the acknowledgement of the aimed knowledge, skills, attitudes – measuring change – control group

Phase 3: The changed behaviour, the level of knowledge transfer which means using them at work

¹⁸ FLAMHOLTZ 1974.

¹⁹ FLAMHOLTZ 1974.

²⁰ GÖSI 2009.

Phase 4: Business efficiency – the business effect of the program – measuring results, work performance, quality change, reduction of costs, examining “soft” results like change in behaviour, atmosphere, fluctuation, new skills and improvement in initiation.

Phase 5: The yield of investment – financial comparison of it with the costs of the programme.

Let us have a closer look at the last, the financial phase, and examine the methods and formulas to see the “hard” factors regarding corporate training. In phase 5, called “The return of investment/yield”, the financial results of the programme are compared with the financial costs, which figures are displayed in percentages. This phase can only be executed effectively if the evaluation of the training has been done in the previous four phases and the data gained there can be considered in the calculation of the fifth phase.

Two formulas are used here for the calculations of investment earnings, one is the profit-cost rate (BCR), the other is the return on investment rate (ROI).

Benefit of programme:

BCR (Benefit-Cost Ratio) = Cost of programme,

So, the profit-cost rate is the quotient of the whole benefit of the programme and all the costs.

Netto benefit of programme:

ROI = Cost of programme

So, it is the quotient of the difference between the benefits and the costs and it is divided by the costs of the programme.

Any of these indexes can only be calculated if the costs and benefits of the programme are determined.

There are some methods for revealing these figures, like using a control group, using trend lines – examining performance indexes in case they are enrolled in the course. Also, the participants as well as the top management can evaluate the size of improvement, even clients can give feedback on it.²¹

Research – Example 2

Let me recall the example of my personal practice when I was working for a large, production company as a HR deputy director. There were different units operating in different functions, but the employees of the different units did not get on well with each other. The employees were all blue-collar workers working in four continual shifts.

The management decided to organize a training for the lower managers of the units in order to help communication between the units. The costs of the course

²¹ GÖSI 2009.

seemed to be high, but we had to take a chance. We were not sure if the long, undetermined conflict between the employers of the different units could be put an end to or not.

The results were better than we expected. (Not real figures are used, only the ratio is shown.)

Costs:

The costs of course for the two months for 25 people: 3 M Ft.

The wages for them for the period at the course, but not working: 25 people*4 hours * 8 weeks*2000Fts = 1 600 000 Ft

Total cost: 4.6 M Ft

Benefits:

The data regarding the benefits were gained from trend lines, we examined performance indexes. A performance evaluation system was in use at the factory connected to a bonus system. The evaluation and bonus system was based on company production figures. We compared the company performance indexes before the course and after the course and there was a big difference. Due to the better communication between the lower unit managers of the different departments, better production figures were completed. An average difference of 1.2 M Ft was between the production figures before the course and after the course.

In case we use the BCR index, it is clear that after the fourth month, the invested money came back, which is quite a short-term return.

Benefit of programme : **4.8 M.**

BCR = Cost of programme : **4.6 M.**

Summary

The aim of writing the present essay was to show the importance of improving human resources of a company in order to improve company performance. The essay dealt with the value and the methods of evaluating investments into human resources. There was a special focus on the important issue of training employees and the financial analysis of the evaluation of trainings.

On the basis of the above methods and calculations, we can conclude that evaluation of human resources is presented in many different ways but their everyday application is problematic and runs into difficulties. Company-specific methods for the evaluation of trainings should be developed that could be used by corporations, in order to be able to invest in the right course for the right people.

As a conclusion, we can say that there training can improve the value of human resources, education improves skills and knowledge. So, the evaluation of trainings should get an outstanding focus at the time of making corporate accounts. We have seen the different methods used in measuring human resources and the accompanying capital to them. Company performance should be supported by ensuring the possibility of trainings for employees.

For further research, it would be a complex task to work out a model and a system for companies with the aim of planning training courses, evaluating trainings and calculating the return of investment into trainings, they could use in their everyday practice. Another path of continuing the research topic could be to examine other types of organizations and institutions.

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