

## NET PRESENT VALUE (NPV) AS THE EVALUATION METHOD FOR THE INVESTMENTS IN HUMAN RESOURCE (HR) DEVELOPMENT

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### **Abstract**

*First of all we have to realize that human resources are the most valuable asset of the company. Effective human resource management (HRM) is not only to ensure the wellbeing of employees, but also is a valuable foundation for creating and maintaining a sustainable culture. This paper explores the challenges of HRM in the context of aligning financial objectives with human resource (HR) development goals. It would be helpful to estimate the future value of the impact of HR development on a company's revenue. When financial and HR managers evaluate an opportunity to invest in HR, they can use the Net Present Value (NPV) method. In literature is NPV defined as the sum of investment's expected cash flows discounted back to their present value at a company-agreed risk-adjusted rate. The model of NPV presented by Matei et. al. (2024) provides us the view of HR development as a project which allows setting up the priorities in comparison with the company's current activities. But this model doesn't consider the possible risk that may occur from external or internal environment of the company. Some of them we pointed out on the concrete examples of the investment area in HR development and the risk groups that might affect the NPV evaluation. By applying data collected from questionnaire, analysis of external environment and literature we set up the research goal. The question is if the proposed model of NPV calculation is applicable for HRM development. There is potential for further exploration.*

### **Key words:**

*Human resource (HR) development, sustainability, investments, net present value (NPV), job satisfaction questionnaire, risk-adjusted rate*

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### **INTRODUCTION**

COVID-19 pandemic completely changed the landscape of organisations. Lot of challenges especially for HRM professionals have been raised. They had to work closely with management to cope with the transformation changes. Organizations were forced to adapt the way they organized the work and design the job (Collings 2021). Working in teams turned into virtual teams at the time of the pandemic. Companies had to schedule working hours for their employees to stay happy and maintain their performance. The employees had to face the communication problems, lack of motivation, family problems and fear for their health. The areas such as morale management and motivation, health and wellbeing, communication were identified at that time as the main challenges of the pandemic in the field of human resource management (Wenham 2020).

The challenges associated with sustainable HRM often lead to reduce the investments into employees. Therefore it is important to align the company's financial targets with HRM objectives. When financial and HR managers evaluate the opportunity to invest in HRM development, they can use NPV method. The definition of NPV is based on the discounted future cash flows. The companies assume that the same amount of the money in the present has higher value than in the future. Therefore the future cash flows are discounted to their present value. Discount rate reflects the time value of cash flows and the risk of future cash flows which should be consistent with economic condition of the company.

First part of the research is devoted to a brief literature review and applied formulas, material, methods when the research question is formulated. The results of our research are presented in the part under discussion and

conclusion. The paper is enclosed by references to used resources.

## 2. Literature overview

It is a well known fact that the most important factor in the successful company is its human potential. The basic determinant of an enterprise's productive capacity is the potential of labour. It means the level of employment, the qualification of employees, their skills, experience and the efficiency of their work expressed in terms of their labour productivity (Kotulič 2010). The results of Shantini, Ferdinand and Suparti's research showed a significant effect of motivation, leadership and work environment on employee performance. While motivation was the most dominant factor influencing employee performance, job satisfaction played the most important role in the development of employee satisfactions (Shantini 2021). Expected results of the individual and the whole team work depend on motivation. It is the key for managers to increase the productivity of the work through motivation program (Gozora 2017). We agreed with Asthana in her study with general statement that workforce diversity, leadership development, change management, organizational effectiveness, globalization, e-commerce, succession planning, and pay are just a few issues that HR must handle (Asthana 2024).

Digital transformation and HRM is vital in every organization. The implementation of automation in manufacturing processes, artificial intelligence and cloud computing through digital transformation initiatives has brought the need of employees to obtain new skills. The organizations give an emphasis to support the employees through various strategies, such as training and development programs, providing access to online learning resources, and promoting the continuous learning. Based on study of Kaur et. al. digital transformation is crucial for modern organizations. HR plays a critical role in this process by supporting the adoption of new technologies and adapting to new ways of working. By doing so, organizations can improve their effectiveness and remain competitive in today's rapidly changing business environment (Kaur 2023).

Everything we pointed out so far suggests that investments in HR development are

essential to secure its sustainability. In the theory and practice of financial management exists several methods which are used for the effectiveness of the project evaluation in HR. NPV is one of the most useful and precise techniques. NPV is defined as difference between net price values of all future cash income from investments and all net values of capital expenditures spent on related investment (Janekova 2010). In the research of Matei et. al. (2024) they propose the integration of financial tools into sustainable HRM strategies, with a specific focus on sustainable practices. By employing the adapted NPV and future value (FI) methods to establish the feasibility of HR development, the quality of sustainable HRM in a company can be enhanced. This in turn, enables companies to grow in a sustainable manner. However this proposed model should be tested in practice and make adjustments if necessary (Matei M. 2024).

For the initial investments the influence of the seasonal and random changes in the general environment on the companies' activity through modification of the discount rate is illustrated in the research focused on factors influencing of cash flows (Hoshovska O. 2023). They declare the same as authors above that one of the most effective means to access the effectiveness of an investment is NPV, the total amount of discounted net cash flow. In their model they focus on different factors impacting the discount rate on the financial result of NPV calculation. Considering the presented data, the risk of a critical characters and random factors influencing the meaning of discount rated therefore they should be monitored at the first place.

## 3. Goal and Methodology

The research is focused on company which performing its business as a supplier for automotive industry, established in Slovakia. This industry sector was very sensitive to any changes especially of external environment during COVID-19 and energetic crises. Firstly we did some short overview about the current situation and challenges in the area of HR on Slovak market. Then for the analyses of internal environment we identified the factors that could affect the labour productivity through created and in this company applied questionnaire. The

population for this study were all internal employees of the company who are directly involved into production process, in total of 46 employees. Except of applied questionnaire we use other methods like observation and interview with management team of the company about the potential investments into HR in an effort to improve the employees' satisfaction and labour productivity.

By analyzing the external environment we identified the opportunities and threats to current situation on labour market as of 2024 on Slovak market. The results of internal and external environment analyses could bring us some ideas about possible investments in HR development. For the further exploration of investment opportunities we use model of NPV calculation, proposed by Matei et. al. (2024). This approach treats HR development investments as a project similar to other economic project within the company.

Applying NPV method:

$$NPV = PV - IC \quad (1)$$

NPV - net present value

PV - present value of the future increase in the firm's revenues

IC - implementation cost for the HR development method i.e., the amount that must be paid for the training session or for the course. Calculation of present value of future impact of the investment:

$$PV = FI / (1 + r)^n \quad (2)$$

where:

PV - the present value of the future impact of the investment

FI - the future impact of the investment

r - the average profit rate at the firm's level

n - the number of years in which the impact should happen.

Further methodology used for this study is qualitative research using document analyses, case studies and comparative studies which are available in literature. The scientific methods were the elements to develop the selected topic

with the intention of answering the research question:

“Is the proposed model of NPV calculation as investment evaluation applicable for the financial substantiation of HR development?”

#### *External factors influencing HR in Slovakia*

Employers on the Slovak market are facing with the challenge how to fight with the labour shortage. There is a shortage of skilled specialists as well as workers for manufacturing plants and the food service sector. Slovakia has a major demographic problem. People born between 1970 and 1985 are the strong generation of productive age in their fifties. Companies need to keep highly skilled employees in middle age, because replacing them might be too difficult and expensive in this period. Automation, digitalization, robotics and artificial intelligence (AI) are rapidly transforming the way of people work.

Employees looking for meaningful work, flexible working hours that fit into their lifestyles, opportunity continually develop new skills, adequate compensation. To succeed, the organizations must also have clear their attitude on social, political and environmental issues. The pandemic has changed the work environment and opened discussions about the priorities of employees versus the requirements of employers. For example the employees are emphasizing on work life balance, especially at younger age. Up to 55% of managers predict that investments on green business transformation and environmental issues will become a major source of new jobs over the next 5 years. Therefore a key role of managers in Slovakia is to support the continuous improvement of employees' qualifications in connection with the changes in working process (Trend 2024).

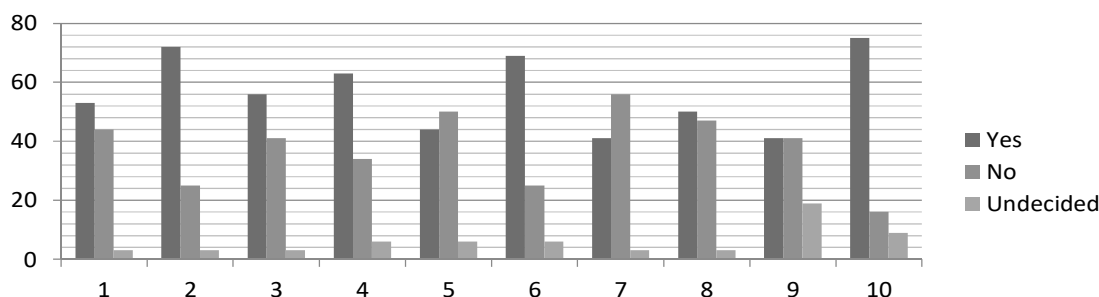
#### *Employees Satisfaction Survey Questionnaire*

The questionnaire can be used as a supporting method complementing other methods of the research study, which helps us to get a deeper understanding of the current internal situation of the manufacturing enterprise. The aim of the questionnaire was to obtain feedback from the company's employees on their satisfaction with the working environment,

working equipment and working processes. The questionnaire was anonymous, consisting of semi-opened questions with predefined alternatives for answers. It offers also the possibility of expressing the own opinion by the end of each question. The predetermined answers were “Yes” or “No”. Those who marked both answers we put in the undecided or “Don’t

know” category. We approached the sample of respondents who are directly involved in the production process. From 46 respondents, 32 respondents (70%) participated on the survey, which can be considered as a successful return rate. Return rate between 60-70% is considered as acceptable (Reichel 2009). The results of the questionnaire are shown in the chart below.

Fig.1. Questionnaire evaluation results



Source: author's calculations

*Detailed evaluation of the questionnaire – internal factors*

*Question 1: Are your work tasks clearly defined and communicated to you?*

*Result:* feedback from respondents between yes (53%) and no (44%) was almost equal. Those who were not satisfied had comments like: even the jobs tasks are clearly defined, over sometime they are forgotten; the communication between each shift doesn't work effectively; the reason for the poor communication is pointed out on the way how the communication is handled from the direct supervisor to the foreman; negative side is that the important information is shared too late, usually when a problem occurs.

*Suggestion:* investment in professional communication trainings in terms of improving the soft skills of the employees. Trainings within small groups of employees together with the direct supervisor would be useful. Based on the research of Fasiha, it was proved that the organizational communication significantly influences employee job satisfaction. For this reason, PT Hadji Kalla Toyota Company should properly maintain and improve organizational communication by creating a work environment that is not rigid, because a rigid work environment can cause that the communication

between employees would decrease (Fasiha 2023). Effective communication is not only the bridge that connects the leaders and team members but also ensures that the company's vision, mission and innovation goals are clearly communicated throughout the organisation (Sudirjo 2023).

*Question 2: Are there many processed and procedures in your work area that are not working well?*

*Result:* there was a significant difference in the answers. Up to 72% respondents say that work processes are not working properly. Again, the emphasis is on the lack of communication at all levels. Another aspect leading to dissatisfaction are missing well prepared work procedures and processes, e.g. the procedure for packaging for some specific production is the most repeated problem.

*Suggestion:* digitalization, expending the AI solutions and robotics preparing the ground for new industrial trends that make the framework for a new industrial era. These trends are having the serious impact on human resource management and the work performed by people. At the same time they represent important key matters regarding security threats to organization (Maddikunta 2022). Organization should give an

attention to transition from Industry 4.0 (technology-driven) to Industry 5.0 (value-driven) (Putra 2024).

*Question 3: Do you have the necessary tools and resources to do your job effectively?*

*Result:* more respondents (56%) were satisfied with the availability of tools and resources supporting their work. Nevertheless, there are the areas and processes where the necessary tools are missing or have some deficiencies.

*Suggestion:* managers should give their attention how to increase the productivity in manufacturing firms. This area is very important for the survival and sustained achievement of company's goals. Organizations should measure the productivity by how well resources are combined and use it in terms to achieve the desired outcomes and needs.

*Question 4: Do semi-automated or automated devices help you in your daily work?*

*Result:* 63% of respondents expressed the satisfaction that process automation which helps them at work. Dissatisfied were 34%, stating that most workstations do not work properly or that automation is placed only for one project.

*Suggestion:* various studies highlight the importance of up skilling the workforce to keep the trend with automation. The future of manufacturing depends on matching technological innovations with a skilled and adaptable workforce. It leads to support the symbiotic relationship between humans and machines (Olurin 2024).

*Question 5: Is the equipment used in your work sufficiently reliable?*

*Result:* around 50% of respondents were dissatisfied. They claim that everything is fine for new machines but not sufficient maintenance is done for older ones. Another claim is that there is missing an approach to find some solution how to avoid the regular breaking down of some older machines.

*Suggestion:* the robotic system automation is considered as a key technology of the Industrial Revolution 4.0. It is necessary to implement elements of *smart factory* in production process. Smart manufacturing supported by robotics enables interactive communication between intelligent machines to exchange data and information which is essential for complex systems to make real-time decisions and secure

the on-time maintenance in their work environment.

*Question 6: Would you change the system of your work performance recording?*

*Result:* up to 69% respondents were inclined to the opinion that they would like to change the system of work performance recording, 25% were satisfied and 6% had no opinion. There is a need to improve this system because of large differences between the operators performance are not compensated equally.

*Suggestion:* in the production process, the productivity improvement means to produce more products or to reduce the cost of the products. Labour productivity is one of the main indicators of continuous performance improvement and determines successful fulfilment of the company's goals. Its measurement evaluates the efficiency and the effectiveness of the used resources, thus productivity becomes the most realistic path to sustainable growth (Krauszová 2007). HRM must ensure that the employee's measurement is fairly recorded and subsequently fairly rewarded.

*Question 7: Are you comfortable with the ergonomics and layout of the workplace?*

*Results:* positive view expressed 41% of respondents, negative 56%. One of the opinions was that the layout of the production hall doesn't fulfil the ergonomic requirements and material flow diagrams. Complaints are mainly related to small and narrow spaces in the workplaces.

*Suggestion:* the *direct* employee usually fights with high psychological stress due to characteristics of the environment, complexity or the repetitiveness of the task or the organization of the work. Modern technology reduces heavy physical work, speeds up the work processes and increases the flexibility. On the other hand incompleteness systems, lack of experience, inadequate training and inappropriate workplace design can lead to musculoskeletal diseases (Swaroop 2022).

*Question 8: Are you satisfied with the equipment from the safety point of view?*

*Results:* 50% of respondents were satisfied, 47% not satisfied.

*Suggestion:* in a study of Wang when he investigate the reasons of workplace injuries in manufacturing process. Their found that 88% arising due to *unsafe movements* and 12% due to

*unsafe situation.* Safety management is essential to ensure human-centred manufacturing as defined in Industry 5.0 (Wang 2023). Safety at work must be at first place in each organization.

*Question 9: Does the company give enough space to implement the employee's or new innovative ideas of the organization?*

*Results:* 41% were positive, 41% were negative, up to 18% don't comment it. The company gives the space for improvement suggestions implementation. Of course it depends on the cost.

*Suggestions:* the employees need to have a confidence that their ideas have some value. The company must provide them with communication channels that allow them to express their ideas without any fear or barriers. It is important to note that reward policy should be integrated into human resource management strategy in order to motivate employees for generating innovative ideas. Recognizing and rewarding innovative achievements create a work culture that supports employee creativity.

*Question 10: Would you welcome innovative solutions to make your job easier despite the increase of work performance requirements?*

*Results:* up to 75% respondents would welcome innovative solutions, 16% were negative, 9% did not express any opinion. Technical and technological problems usually slowed down the performance and it resulted to lower motivation.

*Suggestions:* for the development of expertise and competences of the employees is essential to strengthen the organisation's innovation capabilities. Continuous learning and development programs that enable the employees to improve their skills and knowledge have become as a key issue. Visionary type of leadership and open communication are essential to create an environment that motivates employees for active participation on innovation process.

#### 4. Findings and discussion

From the questionnaire is determined the need for significant investment in personal training or specific training programmes with emphasis on professional development. Education positively affects innovativeness (Ključnikov 2021). One of the most monitor

indicators for managerial decision making is productivity. Labour productivity is carefully monitored and is one of the main indicators of continuous performance improvement. A qualified and competent workforce ensures higher productivity and efficiency. Educated employees represent a strategic advantage for the company. Furthermore, education influences the perception of business risk (Dvorsky 2021).

New technologies such as AI, cloud computing, and block chain offer promising opportunities to improve recruitment, training, performance evaluation, and other key HR activities. This indicates the need to ensure the right balance between automation and HRM needs. For example, the integration of smart technologies such as artificial intelligence (AI) and virtual reality (VR), can enhance training and development programs, improve recruitment processes, and provide better employee engagement tools (Destriani 2024). The biggest HRM challenges and issues will be the strategies in the area of the labour productivity, health and safety issues, up-skilling and re-skilling of workforce and staff (Kumar 2024).

Net Present Value (NPV) is a financial indicator often used for capital expenditure budgeting and investment planning. It could also be applied in HR development area. Matei et. al. (2024) introduced the method of NPV that could be valuable for estimation of the future value of the impact of HR development on the firm's revenues. They consider the average rate of return as an investment alternative instead of a risk-free deposit rate in a bank. If we take into account that HR development allows prioritisation against the company's activities and brings higher revenue than usual business operations, managers should support these activities. The authors highlight that estimating the future value of the impact on company's revenue is challenging as it depends on the nature of the company's activities and the scale and quality of the HR segment being developed.

The social and economic changes as the result of pandemic, as well as, the recent political and risk factors can affect the projected cash flows from investments in HR development. Hoshovska (2023) introduced a model using the risk-adjusted discount rate for NPV in the following way: risk-adjusted discount rate, which could be equal to risk-free

discount rate (for normal risk projects), higher (for above-normal risk project), or lower (for below-normal risk project), is applied for calculation of the discounted value of the

business cash flow. Data in table are taken from the result of the employees' satisfaction survey questionnaire.

**Table 1:** Factors relevant for NPV measurement

Investments (cost)	Benefit (revenues)	Risks-adjusted discount rate
communication trainings trainings to improve skills increase abilities and competencies preparation of HR for new industrial area (digitalization, AI solution, robotics) smart factory implementation innovation process participation	retained earnings increased labour productivity higher interest of employees for innovations, safety at the workplace, social responsibility lower employee turnover increased the competencies	demand risk competition risk demographic situation price risk state regulations seasonal fluctuation economics recessions political instability natural disasters

*Source: author's calculations*

To estimate the future value of the impact of investments in HR development on company's earning is challenging because it depends on the nature of company's operations, scope and quality of the HR segment being developed. Training and courses that improve the quality of HR required cost-benefit analyses. Decision whether to take temporary employees away from their normal tasks to attend courses also include the financial cost.

**Conclusion**

In conclusion, the integration of NPV into HR development processes presented by Matei et. al. (2024) could facilitate decision-making capabilities. However, the successful application of NPV method requires incorporates a range of financial and non-financial factors, as well as, to understand the strategic objectives of the organisation for HR development. Strategy

objectives for the current period are based on a diverse global workforce that is driven by purpose and committed to sustainability. Developing and implementing policies and programs that promote inclusive and diverse hiring, professional development opportunities, comprehensive benefits, and fair compensation is the key when aiming to attract, develop, and retain talent. Although it is very difficult to enrich the benefits of HRM development, we recommend that the companies should consider NPV method for calculation of investments.

Recommendations for future research would be for the practical studies which require using sophisticated statistical techniques to estimate future cost and revenues. The impact of changes of internal or external variables on company policy should be examined in terms of extensive sensitivity analysis.

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