

The Methodology for Determining and Evaluating the Effectiveness of Innovations in Human Resource Management

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Abstract: The In today's economic environment, renewal, continuous improvement, and innovation are essential not only for development but also for the survival of economic systems. Despite this, the primary focus tends to be on product and technological innovations, while the implementation of management innovations, such as those in HR management (HRMI), significantly lags behind. This disparity in the adoption rates of production and management innovations is known as organizational lag in innovation management. Nonetheless, the importance of HRMI for the successful implementation of product and technological innovations is equally critical, even though predicting their impact and efficiencies is more complex. This article aims to describe and categorize contemporary approaches to implementing innovations in HR Management (HRMI) and evaluate their efficiencies. The practical value of the article lies in its detailed examination of HRMI, which can be utilized to enhance and develop economic systems and create algorithms for assessing process efficiency. The findings of this article are beneficial for managers and organizational leaders in making decisions about adopting HRMI, selecting alternative organizational development strategies, developing performance measurement systems for HR management, and modifying HR management systems. Additionally, the article advances the scientific field by systematizing and evaluating organizational innovations.

1 INTRODUCTION

Any innovation implemented within an organization represents a complex process that affects many internal subsystems and has an indeterminate measure of implementation effectiveness. Currently, neither economic literature nor the legislative and regulatory framework provide universally accepted terminology in the field of innovation activities. Similarly, there are no universal indicators that allow for the evaluation of the effectiveness of any implemented or ongoing innovation. The definition of innovation, as stipulated by the International Standards in the Statistics of Science, Technology, and Innovation, is as follows: "Innovation is the outcome of innovative activity, embodied in the form of a new or improved product/technological process, introduced to the market, applied in production, or in a new approach to the provision of social services."

The concept of intra-organizational innovation, therefore, essentially encompasses all products, processes, or approaches to social services that are

new to a particular organization, regardless of whether they have been applied in other organizations. The goal of implementing any innovation is to improve the overall performance of the organization. As a result, the functioning of individual subsystems within the organization undergoes significant changes, while the activities of other subsystems are either partially affected or remain unchanged. HRMI are classified as managerial innovations with specific properties that influence the methods and possibilities for calculating their effectiveness. A managerial innovation is defined as any organized solution, system, procedure, or management method that significantly differs from the established practices within the organization and is being used by it for the first time.

The foundation for this article is contemporary domestic and international scientific literature, represented by the works of P. Drucker, N.P. Zavlin, E.A. Utkina, M. Armstrong, R. Dornbusch, S. Fischer, K.X. Abdurakhmanov,

G.K.Abdurakhmanova, A.B. Khaitov, I.Bakirova, A.B.Irmatova, S.B. Gaibnazarov and others.

The main reason for the need to distinguish management innovations as a separate category of innovations is the sociality of innovations of this type, which determines the presence of a set of aspects (Figure 1) specific to this type of innovation, which must be taken into account simultaneously when implementing and evaluating such an innovation. Such aspects include:

- technical and economic;
- organizational and economic;
- legal;
- socio-psychological.

The technical and economic effect in the sphere of management is achieved by reducing the labor intensity of performing procedures related to the direct implementation of management functions, including possible benefits from choosing the most cost-effective management methods. The economic effect in production arises as a result of the improvement in productivity and quality of labor associated with the implementation of a management innovation and being its indirect consequence.

The evaluation of the effectiveness of managerial innovations, therefore, requires consideration of both types of economic effects that arise. This poses certain difficulties due to the large number of non-production and production factors that these effects can influence, as well as the complexity of converting all components of economic effects into a unified measurement system to calculate the overall effect.

When assessing any managerial innovation, it is necessary to account for the synergistic effect. Managerial innovation primarily impacts the intangible aspects of a company's activities and is weakly linked to the financial outcomes of the organization's operations.

The analysis of scientific literature, including the aforementioned sources, shows that the majority of works primarily focus on narrowly specialized issues directly related to personnel management processes and lack results with practical value for evaluating effectiveness. Studies addressing the evaluation of personnel management effectiveness and the effectiveness of innovations in personnel management predominantly do not differentiate between these categories. Moreover, it is important to note the actual absence of works that primarily aim to address the evaluation of the effectiveness of innovations in personnel management.

Overall, theoretical approaches to defining the effectiveness of innovations in human resource management can be classified according to two criteria.

Criterion 1: According to the Type of Calculated Effectiveness

- Economic effectiveness
- Social effectiveness

Economic effectiveness of innovations in human resource management is assessed as the resultant change in the company's financial indicators (profit, cost, etc.) expected or actualized after the implementation of the innovation in human resource management. This type of effectiveness is relatively under-researched in the theoretical literature. The primary obstacles to calculating this type of effectiveness are considered to be:

- The impossibility of translating changes in qualitative indicators into a monetary equivalent
 - The difficulty of accounting for all consequences of the innovation implementation when determining the overall impact on financial results.
- Analyzing scientific concepts, two approaches to evaluating the economic effectiveness of human resource management can be identified.

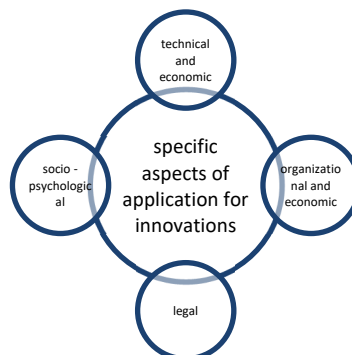


Figure 1: Specific aspects of application for innovations

The first approach suggests considering the entire organization's workforce as a single "aggregate" worker. The second approach involves differentiating labor by products and types of work. Social effectiveness of innovations in human resource management is viewed from the perspective of assessing the potential to achieve positive and eliminate negative (socially) changes within the organization, as well as attaining any goals not aimed at changing financial indicators.

Thus, positive changes associated with the implementation of innovations and measurable through the calculation of social effectiveness may include:

1. Providing personnel with a proper level and quality of life (favorable working conditions, decent wages, necessary social services, etc.);
2. Offering employees conditions that allow them to realize and develop their individual abilities;
3. Granting a degree of autonomy (decision-making opportunities, determining task methodologies, establishing work schedules and intensity, etc.);
4. Developing a positive socio-psychological climate (communication opportunities, information access, increasing the degree of conflict-free relationships with management and colleagues, etc.).

Social effectiveness of innovations in human resource management also considers the prevention of negative changes, including:

1. Damage caused by unfavorable working conditions (occupational diseases, workplace accidents, etc.);
2. Harm to individuals (due to intellectual and physical overloads and underloads, stressful situations, etc.).

Several authors, including G.K. Abdurakhmanova, note the positive social outcomes formed outside the organization as a component of the social effectiveness of implementing innovations in human resource management.

Such social outcomes may include:

1. Improvement of the organization's image;
2. Creation of new jobs;
3. Establishment of stable regional employment levels;
4. Enhancement of the safety of production results for consumers and reduction of negative environmental impacts.

Depending on the goals of the innovation implementation, social outcomes of improving the system and technology of human resource management are considered separately for each

component of the human resource management system:

- i. Subsystem of Personnel Planning and Personnel Marketing (improving the utilization of the organization's employee potential, achieving alignment between employees' individual abilities and interests and their job content, reducing negative consequences of employee layoffs, ensuring personnel stability, and enhancing the organization's favorable image);
- ii. Subsystem of Recruitment and Personnel Accounting (hiring personnel who quickly adapt to the organization, justifying personnel decisions regarding staff movements);
- iii. Subsystem of Working Conditions (compliance with psychophysiological, ergonomic, and aesthetic requirements, implementation of occupational safety and health standards, level of work humanization, reduction of negative environmental impact);
- iv. Subsystem of Labor Relations (timely identification of problems in team relationships, raising ethical standards in relationships, positive influence on organizational culture, improvements in interaction mechanisms for resolving issues in social and labor relations);
- v. Subsystem of Personnel Development (organizing employee adaptation, enhancing job content, improving professionalism and competitiveness of personnel, achieving alignment between employees' and managers' goals in career management);
- vi. Subsystem of Motivation and Incentives (creating a link between work efficiency and remuneration, personal development of employees, creating conditions for managing business careers, professional advancement of personnel, improvements in the personnel motivation system);
- vii. Subsystem of Social Development (increasing the level of satisfaction of personnel needs, fostering a favorable socio-psychological climate, positively impacting feedback with employees, providing opportunities for employees to socialize outside of work and participate in public life, positive changes in employees' living conditions);

- viii. Subsystem of Organizational Structure Development (improving the ability to restructure organizational structures in response to environmental changes, clear articulation of goals and objectives to support decision-making, ensuring clear definition of employees' rights and responsibilities);
- ix. Subsystem of Legal Support (personnel decisions compliant with labor legislation, justification of personnel decisions, legal protection of employees);
- x. Subsystem of Information Support (providing management with information necessary for managing the HR system, successful management of information quality, timeliness, and justification, equipping employees with technical tools).

Criterion 2: By Approach to Evaluating the Effectiveness of Innovations in Human Resource Management

Based on the analysis of scientific literature, two approaches to evaluating the effectiveness of innovations in human resource management can be identified:

Approach 1: The effectiveness of innovations in human resource management can be measured as the increase in the effectiveness of the entire HR management system or its individual subsystems. In this case, the effectiveness of an HR innovation is calculated as the difference between specific indicators used to evaluate the effectiveness of the HR system at reporting dates before and after the implementation of a particular innovation. The number of methods for calculating the effectiveness of HR innovations is quite large, as it is derived from the numerous methods for assessing the HR management system and its individual subsystems. The effectiveness of HR innovations is determined through the construction of econometric models that relate the company's final financial result (profit) to changes in specific HR management system indicators.

The most relevant work on this topic is the dissertation by M.A. Mitrofanova¹, where the author proposes the following methodology for evaluating

the effectiveness of innovations in human resource management:

1. Conduct regular quantitative and qualitative assessments of HR management subsystems. The assessment method includes calculations (for quantitative indicators) and surveys (for obtaining qualitative indicators);
2. Convert the obtained qualitative results using a developed expert scoring system;
3. Develop an econometric model, where the endogenous variables represent changes in the obtained indicators, and the exogenous variable represents changes in the company's financial results;
4. Identify the quantitative relationship between changes in profit and changes in indicators reflecting the results of implementing innovations in human resource management.

Approach 2: The effectiveness of an innovation is determined by its impact on specific, predetermined indicators of the organization's success. In this case, the effectiveness of the innovation refers to the organization's achievement of its strategic and tactical goals—both at the organizational level and at the departmental level.

This approach is developed in the scientific works listed in Table 1.

The concept of evaluating the effectiveness of human resource management, as found in the works of both foreign and domestic authors, shares common features: it is proposed to determine the effectiveness of human resource management by comparing the costs and benefits of applying specific working methods in the HR management system.

The components of economic effectiveness in human resource management, according to L. Vodachek and O. Vodachkova, include:

1. Ratio (economic result/costs) as the central component of HR management, viewed as the determination of the degree of the organization's strategic goals.
2. Degree of achievement of long-term components of economic effectiveness in the HR management system, reflecting the contribution of employees to the company's activities and development in the long term, including:

¹ Alberg, V.F. (1993). *Formation of a Personnel Management System at an Enterprise Using Functional

System Analysis: Organizational and Economic Aspect* (Ph.D. dissertation, Moscow).

Table 1: The methods for assessing the effectiveness of innovations through organization performance indicators

Assessment Method	Description	Advantages	Disadvantages
ROI (Return on Investment)	Calculating the return on funds invested in innovation	Clear financial metric, easily understood	Only considers financial aspects, doesn't show long-term impact
KPI (Key Performance Indicators)	Measuring key performance indicators	Flexible, applicable to various fields	Can be difficult to select the right indicators
Balanced Scorecard	Balanced assessment of financial and non-financial indicators	Comprehensive, linked to strategic goals	Complex, time-consuming
Patent Analysis	Studying the number and quality of patents	Clearly shows innovative activity	Not all innovations are patented
Customer Satisfaction	Studying customer opinions and satisfaction levels	Shows market relevance	Can be subjective
Employee Productivity	Measuring employee efficiency	Shows internal impact of innovation	Difficult to isolate from other factors
Market Share Change	Tracking changes in the company's market position	Indicates competitiveness	Can be heavily influenced by external factors

- Stability, ensured by smoothly running personnel-related processes (succession planning, reliability in task performance without tension and conflicts within the team);

- Flexibility, indicating employees' ability to adapt their work to new conditions in response to changes (e.g., the ability to develop new solutions to emerging problems and implement them, actively participate in organizational changes, and be prepared for conflicts when necessary to implement innovative concepts).

It is impossible to achieve complete stability and flexibility simultaneously, so the task of HR management is to find a balance between them, considering the dynamic conditions.

Thus, methods of evaluating the effectiveness of HR innovations based on calculating changes in individual performance indicators of the HR management system as a whole carry the same drawbacks as the methods of evaluating the HR management system from which they are derived. It is also important to note that evaluating the effectiveness of the HR management system is typically a process based on assessing a significant number of factors through expert evaluations. Calculating innovation effectiveness by comparing expert evaluations from different time periods can lead to substantial distortion in the resulting assessment due to differences in the subjective views

of the experts conducting the evaluation at different times.

In European countries, so-called "assessment centers" are common. These centers utilize experts and a specialized set of indicators to identify the potential abilities of management employees. When using such services, a company implementing an innovation conducts preliminary consultations with the assessment center experts. This allows for a qualitative preliminary measurement of the indicators, which are later compared with similar indicators calculated after the innovation has been implemented.

The national practice of evaluating the effectiveness of innovations in human resource management is still in its early stages, as evidenced by the limited amount of information available in open sources. This information deficit is partly due to the relatively small number of implemented innovations in human resource management in our country.

Conducting applied research on HR management processes based on the comprehensive use of statistical methods has recently become challenging in Uzbekistan. This requires the availability of long-term time series with simultaneous comparability across individual time periods/dates. However, most Uzbek companies have relatively short operational histories and are not inclined to disclose data regarding their HR management systems.

In analyzing innovations in HR management, it's crucial to employ econometric modeling to determine their effectiveness and impact. This section will conduct an econometric analysis to measure the efficiency of applying innovative approaches in HR management. We offer using statistical methods to identify the factors influencing the success of these HR innovations.

Variables: Include economic indicators such as employee productivity (production metrics), employee satisfaction (based on surveys and interviews), employee turnover, and financial outcomes.

Data Sources: The article's sources, surveys, interviews, company reports, and statistical data used to measure HRMI variables.

Descriptive Analysis: Describing the innovations being applied in HR management.

Regression Analysis: Using multiple regression models to identify key variables that influence the effectiveness of innovations.

Performance Indicators: Utilizing various metrics to evaluate the efficiency of innovative approaches.

A general form of regression model can be studied as follows:

$$E = \text{HRMI} + \text{EE} + \text{Tr} + \text{Mc} + \varepsilon \quad (1)$$

Where

E- Employee productivity indicator;

HRMI- Indicator of innovations applied in HR management;

EE- Employee training;

Tr- Employee training courses and sessions;

Mc- Model coefficients;

ε - Error term.

By analyzing data with this regression model we can identify which innovations are effective in HR management. Using the above mentioned methodology and econometric analysis, we can more precisely evaluate the efficiency of innovations in HR management and their positive impact on the organization's overall performance. This aids in further refining HR strategies and accurately pinpointing the implementation of innovations.

Thus, this article examined modern approaches to defining, classifying, and evaluating the effectiveness of innovations in human resource management.

1. Innovations in human resource management are a type of managerial innovation, which implies their close connection with the social environment and the necessity of considering the synergistic effect when evaluating the results of implementing such innovations.

2. The scientific literature notes the existence of two main concepts underlying the evaluation of the effectiveness of human resource management, which are found in publications in this field:

- The effectiveness of human resource management is assessed from the perspective of the unity of management and production processes; according to survey participants, the direct contribution of human resource management to production efficiency cannot be measured and is not measured;
- The effectiveness of human resource management is assessed as the determination of the contribution of human resource management to the overall effectiveness of the organization's activities.

Quantitative evaluation of such a contribution is challenging because reporting indicators that would allow for regular measurement have not been developed.

Thus, most methodologies for evaluating the effectiveness of human resource management are based on the first concept, i.e., they assess not so much the contribution of the HR management system to production efficiency, but rather its qualitative impact on such efficiency.

Effectiveness at the company level as an integral indicator can be transformed into many others at lower levels, reflecting the performance of specific HR management systems/subsystems.

In practice, organizations encounter difficulties when evaluating the effectiveness of innovations in human resource management. Existing methods are perceived as ineffective in establishing causal relationships between the innovation and its final result. There is a need for indicators that clearly reflect the impact of the implemented innovation in HR management on the company's performance indicators or that clearly demonstrate the extent to which the organization has achieved its goals as a result of implementing such an innovation.

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