



Impact of Digital Transformation on Talent Management: Developing and Testing KPI-Based Evaluation Models in Innovation-Driven Organizations

Yue Wang*, Xingang Liu

Shanghai Academy of Culture & Tourism, Shanghai, 200085, China

*E-mail: 114489941@qq.com

Abstract. Digital transformation is changing business management and talent evaluation methods, especially for innovative organizations where employee skills are crucial. Traditional evaluation systems, not suited for rapid digital changes, are being replaced by a new framework based on key performance indicators (KPIs). This framework aims to align employee contributions with organizational strategic goals, particularly during innovation and tech disruptions. The paper presents KPI-based models that help measure performance, develop digital agility, and foster a culture of continuous innovation. Results show that KPIs improve the match between individual and organizational goals, offering insights for talent development and organizational resilience strategies in digital transformation.

Keywords: Digital transformation, Talent management, KPI-based evaluation model, Innovation-driven organization, Employee performance, Digital agility

1 Introduction

The increasing complexity and speed of technological change highlights the need for flexible talent management systems that not only assess historical performance, but also consider employees' future potential in a rapidly changing business environment [1,2]. Traditional talent management models often evaluate employee performance based on fixed standards such as sales targets or productivity indicators, but they are no longer applicable in innovation-driven organizations [3,4]. The performance of employees in these organizations is often multifaceted, involving not only technical skills, but also collaboration, adaptability, and leadership in digital projects. Therefore, there is a need for a more dynamic and prospective approach to performance evaluation — an approach that reflects both tangible and intangible contributions to the organizational strategic objectives [5-7].

Integrating KPI into the talent management framework also provides a promising avenue to address these challenges. Not only does KPI provide a clear set of performance indicators, but also foster a culture of accountability and continuous improvement. By integrating KPI that focus on both short-term outcomes and long-term de-

velopment goals, organizations can better support employees. The KPI hierarchy [8,9].

This paper explores the impact of digital transformation on talent management by proposing a KPI-based evaluation model to adapt to the needs of innovation-driven organizations. The model focuses on measuring key performance domains such as digital agility, innovation contribution, collaboration, and leadership in digital transformation initiatives. By testing this model in the real world, we aim to gain insight into how organizations use KPI to assess and develop talent in a digital-first setting.

2 Research Methods

The research methodology of this study combines qualitative and quantitative approaches to develop and test a KPI-based assessment model suitable for innovation-driven organizations undergoing digital transformation. The study was conducted in three stages: model design, pilot testing, data collection, and analysis.

2.1 Model Design

The first stage involves designing an evaluation model based on KPIs, developed with HR professionals and senior managers from innovation-driven technology organizations. Key performance dimensions essential for organizational success in the digital age include digital agility, which measures employees' adaptability to new technologies; innovation contribution, assessing direct contributions to new ideas and processes; collaboration and teamwork, focusing on effective collaboration in cross-functional teams on digital projects; and digital transformation leadership, evaluating employees in leadership roles for digital initiatives. These carefully selected KPIs reflect the dynamism required in a digital, innovation-driven environment.

In the second phase, the KPI-based assessment model was pilot-tested in three large technology companies undergoing a digital transformation. The pilot project involved 150 employees, ranging from middle management to senior management. These employees were evaluated within six months using the newly developed KPI model. Feedback was collected throughout the pilot, from employees, managers and HR professionals to ensure that KPI accurately reflects performance in the digital age.

3 Results and Analysis

3.1 The KPI Hierarchy

Figure 1 illustrates the employee-centric KPI hierarchy, divided into four levels: integration, process, function, and human factors. This framework emphasizes a logical progression: Integration involves adapting infrastructure, law, security, and technology, such as data privacy and network capacity; Process focuses on the production cycle, quality, and raw material utilization; Functionality reflects digital capabilities like

automation and AI prediction; and Human Factors address soft indicators including worker safety, well-being, and job satisfaction. The multilevel structure highlights the synergy between levels—for instance, the technical foundation of integration ensures efficient operations in processes, while the intelligence from functionality fosters a safe working environment in the human factors layer. This hierarchical approach also facilitates cross-company and cross-industry comparisons, particularly in the human factors layer, using both qualitative and quantitative data to recognize workers as vital in digital evaluation, thus supplementing traditional KPI methods.

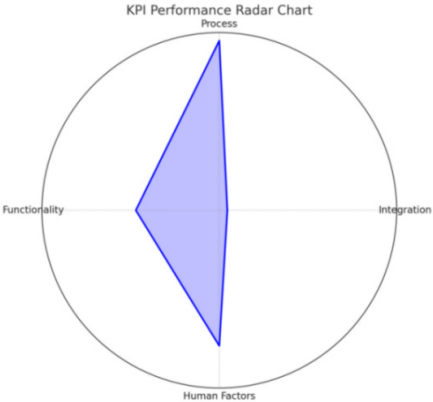


Fig. 1. KPI performance radar chart

3.2 Consistence Between Company Priority and Actor Subject (AI Index)

The AI indicator analysis (as shown in Figure 2) shows that Company A has an average AI of 1.09, indicating that it values robotic operations, but there is a lack of consistency between employees and management. Company B has an AI of 1.56, showing strong consistency in production efficiencies such as data tracking and quality control. Company C has an AI of 1.33 and focuses on data deployment and digital transformation. AI data reveals differences in how companies balance stakeholder needs with their overall goals. Company A needs to better balance priorities across HR related key performance indicators. Company B has demonstrated a good balance of quality, process, and data priorities, while Company C, despite investing in digital transformation, needs to refocus between management and employees to achieve a more balanced approach.

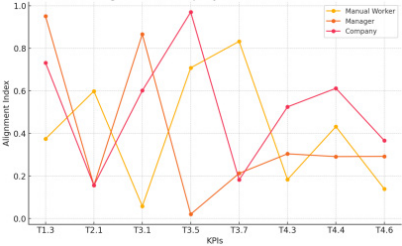


Fig. 2. Company priority alignment chart

3.3 Human Resource of Resource Investment (HRI Index)

HRI assessment combines quantitative and qualitative data to measure the effectiveness of human resource allocation. As shown in Figure 3, the HRI value of Company A is 0.225, and the safety and decision support index is the highest, which indicates that the input effect of company A on manpower and function is good. Company C has the lowest HRI of 0.0875, indicating that human resource investment may be inadequate or not effectively matching worker needs. The data reflect the effect of the company in resource allocation: the high HRI value of Company A in the human resource factor index indicates that it pays more attention to improving worker satisfaction, which helps to reduce the resistance to change; A low HRI value for company C indicates that resources are unevenly distributed and workers may encounter high resistance in adapting to new technologies.

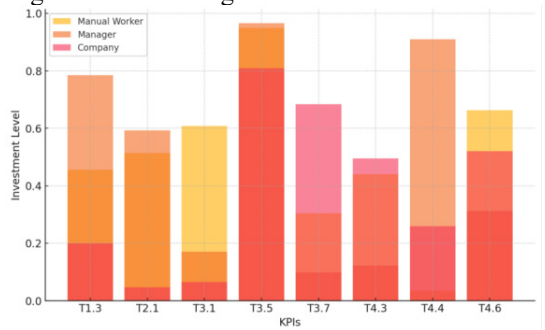


Fig. 3. Data flow for an improved heat map

3.4 Data Flow Improvement (DFI Index)

DFI measures the effectiveness of digital data flow coverage (as shown in Figure 4): Company A has A mean DFI of 0.6, especially on the data tracking (T3.7) and worker collaboration safety (T4.4) indicators. The average DFI of Company B was 0.44, which was slightly weak in functional data flow integration, but still had a strong performance in information availability (T3.7). The mean DFI of Company C is 0.49, and the data flow integration capability is between the digital to high DFI value indicates the importance of distribution breadth and utility of data flow to digital success: Company A performs well in data sharing and integration, especially in cross-role data information sharing, providing A solid foundation for production process optimization; Company B has outstanding performance in key areas, but the overall coverage may limit the scope of employees in digitization; the DFI results of Company C show that its data flow is relatively dispersed, and it is necessary to further optimize the utilization of data resources to increase information availability.

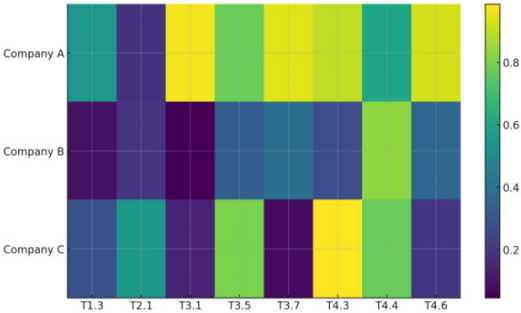


Fig. 4. Distribution map of the perceived income index

3.5 Comprehensive Comparison of Key Indicators of Different Companies

As shown in Figure 5, Company A: AI (1.09) and DFI (0.6) performed well, and HRI (0.225) also showed its advantages in human resources and data management. Company B: AI (1.56) and PBI (0.156) are the best, showing that they are better in the demand alignment and satisfaction of the actors. Company C: The performance of each indicator was relatively balanced, but the HRI (0.0875) and PBI (0.125) were low, indicating deficiencies in resource allocation and worker perception. From the overall data, different companies show different strengths and weaknesses: Company A needs to improve AI and PBI to improve the target consistency and perceived revenue of workers; Company B has the best performance in terms of human factors and perceived revenue, which is suitable for other companies to learn from their experience; Company C needs to optimize human resource allocation and employee satisfaction strategies to achieve a more balanced digital transformation.

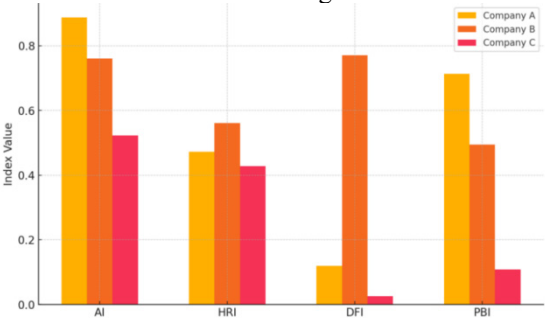


Fig. 5. Cross-company indicators comparison chart

4 Conclusion

KPI-based assessment models not only enhance consistency between individual and organizational goals, but also provide key insights into the development of strategies to promote talent growth and organizational resilience. Digital transformation requires major changes in talent management to adapt to the rapidly evolving digital environ-

ment. Innovation-driven organizations require dynamic and forward-looking performance evaluation methods to reflect employee tangible and intangible contributions to the organization's strategic goals. By testing KPI models in a real environment, research reveals how organizations use KPI to assess and develop employees in a digital environment, supporting digital agility and a culture of continuous innovation.

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