

Key factors for the implementation of technologies supporting Talent Management

Helena Rodrigues Ferreira¹, Arnaldo Santos^{2, 1} and Henrique S. Mamede^{2, 1}

¹ Universidade Aberta, Lisboa, Portugal

helena.ferr09@gmail.com,

² INESC TEC, Porto, Portugal

arnaldo.santos@uab.pt; jose.mamede@uap.pt

Abstract. Although implementing technologies is a continuous practice observed in organizations, many need help to achieve successful implementations and recognize its impact on their operations and outcomes. Therefore, this review paper aims to present the critical success factors that organizations consider when implementing technology in the Talent Management field. A comprehensive understanding of the technological implementation phenomenon requires adopting a strategic perspective. Consequently, this literature review centres on three clusters: challenges organizations are addressing (Challenges), the technological capabilities and the implementation/adoption process (Technology), and the expected impact (Impact). Findings indicate that a central area of research is the integration of technology in recruitment and, particularly, in the context of Small and Medium Enterprises. Digital Transformation, the Industrial Revolution, and a more diverse workforce are challenges that organizations face. Organizations aim to streamline Human Resources Management (HRM) practices, prioritizing data-driven decisions.

Keywords: Workforce Transformation, Talent Management, Human Resources Management, Technology Implementation, Technology Adoption

1 Introduction

The scientific community has recognized that Digital Transformation is not just a technological change but also requires the adaptation of various factors such as strategy, workforce, culture, talent development, and leadership [1]. To enable organizations to embrace in the new ways of working possessed by digital transformation, human resources (HR) and IS (information systems) play a crucial role. They are instrumental in cultivating the requisite culture for talent to excel in this evolving environment and in orchestrating the planning and development of systems within Human Resources Management (HRM) [2,3]. This represents a "double disruption": responding to the business's digital transformation needs and simultaneously adapting to the rapid and extensive technological changes that are reshaping HRM, particularly in talent management. Talent management is recognized as a decisive factor of success, and management is recognized as a decisive factor in the success of organizations with a high demand for skilled individuals [4]. In this context, as organizations adopt technology in Talent Management, they foster an enriched digital employee experience that begins at the hiring process and extends to performance management and development [5] until the offboarding. Although implementing technologies is a continuous practice observed in organizations, many need help to achieve successful implementations and recognize its impact on their operations and outcomes [6]. The "HR tech market" becomes more massive daily with new Artificial Intelligence (AI)-driven platforms being announced. Some raise cautionary flags over the cost justifiability of different technologies, tools, and applications. Others sound alarms over their practical implications. Still, others ask whose needs are being served and for what purposes they adopt or integrate a particular technology tool or application [7]. In this way, designing strategies for implementing technologies in Talent Management within organizations is hard to overview. Consequently, we aim to answer the following main research question (RQ):

What are the Critical Success Factors that drive the implementation and adoption of technology in Talent Management within organizations?

A strategic perspective on the technological implementation phenomenon is crucial to comprehend fully. For this reason, our literature review focuses on three clusters: the business needs that organizations are addressing (Challenges), the technological capabilities and the implementation/adoption process (Technology), and the anticipated impact or established metrics (Impact). [Due to the robust theoretical and empirical support in IS of the Technology-Organization-Environment \(TOE\) model, we integrated it with the cluster of Challenges and Technology \[8, 9\].](#) Lastly, key performance indicators (KPIs) organize the Cluster Impact. Our study offers two contributions. First, it provides a review integrating the current knowledge of the technology being implemented in the Talent Management context from a strategic standpoint. Second, it proposes further research directions and a future framework with theoretical and practical implications. The remainder of this paper is structured as follows. The next section (section 2) presents a preliminary study of essential concepts. Section 3 presents the research that was performed according to the proposed methodology.

The results of the study are presented in Section 4. Finally, the conclusion follows in Section 5

2 Theoretical Background

The following sections analyze the definitions of Talent Management, its supporting technology, and the TOE Model.

2.1 Revision of the Talent Management Concept

Opinions differ about the definition of talent management, but it is recognized that the concept has appeared in the research published by McKinsey's studies on "talent war" [10]. Ashif [11] has considered talent management as the platform to achieve competitive advantage for businesses. It encompasses the core issues of talent management: recruitment, selection, recognition, and development. According to al Dalahmeh [12], three talent management perspectives exist. From the first perspective, talent management is a set of functions and practices such as planning, training, development, and retaining. For example, Creelman [13] defines talent management as recruiting, developing, and maintaining talents, which is close to the traditional definition of HRM. The second perspective says that the organization is designing talent pools of employees who are called exclusive people who can make an essential change in the future and current performance of the organization. The third perspective assumes that talent management is related to specific positions, called vital positions in organizations.

2.2 Technology supporting Talent Management

There is no universally agreed definition of "talent technology" in the literature, and researchers tend to define it based on their specific fields of expertise and interests. This has resulted in multiple definitions, adding complexity to the understanding of this topic. For this study, we consider all the technological advancements involved in the Talent Management cycle, which includes three main areas: identifying and attracting talent, retaining talent, and developing talent [14]. Integrating cognitive computing into the Talent Management field marks a significant advancement with the potential to enhance Talent Management practices. This evolution signifies a transition from the electronic era to the intelligent phase. The primary distinctive feature of this phase is its reliance on AI-driven technologies [15] that organizations increasingly depend on to recruit, select, and manage their workforces [16].

2.3 Technology - Organization - Environment conceptual model (TOE)

In an attempt to provide clearer decision-making lenses, many IS studies integrate the strengths of rational and techno-economic perspectives in determining adoption while also considering the impact of imitative behavior and social pressures on the adoption of technology [16]. An example of this integrated model is the TOE framework, first developed by Tornatzky et al.[8]. The TOE analyzes and understands the contextual factors that influence an organization's decision to adopt and implement new technologies, as well as assesses the impact of these technologies [8]. It categorizes the factors into three dimensions: technology, organization, and environment. The technology dimension connects to the cluster "Challenges" as technology can trigger these challenges and impact the

processes and effectiveness of the implementation itself [9]. The organizational context affects both the readiness to adopt new technology and the challenges of technological implementations across various areas of the organization. The environmental context relates to the external environment in which the organization operates [blue] and how it influences the evolution of the technology.

3 Research Method

This review adopts a three-step process. Initially, EBSCO was used as the source to search for papers using keywords related to organizations, technology, and Talent Management. We included exclusion criteria for papers in a high-education context at this step. Second, we applied quantitative exclusion criteria, such as considering papers published before 2020. This exclusion is intended to account for the rapid changes brought by the COVID-19 pandemic, acknowledging the necessity for organizations to adapt. Thirdly, we performed a qualitative content analysis, incorporating additional exclusion and inclusion criteria. This analysis involved excluding articles where technology-related terms were solely mentioned in the method section or footnotes and were not directly relevant to Talent Management. Table 1 summarizes both inclusion and exclusion criteria in each of the steps.

Table 1. Inclusion and exclusion criteria

	Inclusion Criteria	Exclusion Criteria
First Step	Relevant to HRM or Talent Management, Technology Implementation, and Adoption	Related to higher education, university context
Second Step	Published from 2020 to 2024 Academic Publications & Specialized Publications Peer-reviewed	Published not in the English language Not full text available Duplicated
Third Step	Present empirical research	Grey literature (white papers, editorial comments, book reviews) Related to innovation not focusing on technology

As shown in Figure 1, thirteen publications were finally selected, representing 4.9% of the total publications after the quantitative analysis (2nd step).

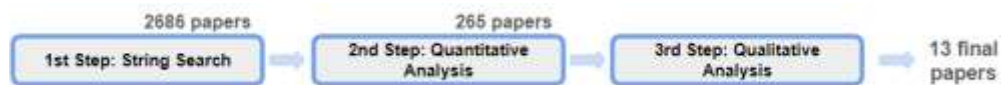


Fig. 1. Literature Review: Three-step process approach (Source: authors)

In the next section, we present the findings of the analysis of this output.

4 Discussion

In summary, the review indicates that research in this field is approached from distinct perspectives, with no identified study identifying Critical Success Factors across all clusters, as presented in Table 2. Moreover, the literature review demonstrates a growing emphasis in academic research on the domain of recruitment within Talent Management, with a recurring

focus on Small and Medium Enterprises (SMEs). This emphasis is attributed to the acknowledgment of financial and resource constraints that may affect the implementation of Talent Management practices in these organizations. The following subsections detail the Critical Success Factors identified in the literature review for each cluster.

Table 2. Critical Success Factors across Challenges – Technology – Impact Clusters

		Selected Papers												
		[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]
		(Schroeder-Stroing et al. 2024)	(Srivastava & Bajaj, 2022)	(Marin Diaz et al. 2023)	(Baloger et al. 2021)	(Mihai et al. 2023)	(Costa Melo et al. 2023)	(Oei, 2022)	(Malki et al. 2022)	(Renanto & Himmam, 2021)	(Akasheedi et al. 2022)	(Nerrin Kigi, 2021)	(Tanner y et al. 2021)	(Schmitt et al. 2023)
Challenges	T					X	X	X	X	X	X		X	
	O			X							X	X		
	E							X		X	X		X	
Technology	T	X	X	X	X			X	X			X		X
	O		X		X				X				X	X
	E					X			X					
Impact	KPI	X	X			X			X			X		X

4.1 Challenges

This analysis is conducted with the TOE framework as its foundation, explicitly focusing on the challenges presented to organizations.

Technology Most studies have recognized that emerging digital technologies are a factor compelling talent management transformation [22, 23, 24, 25, 26, 27, 29]—particularly the Internet of Things [24] and the AI Bots and virtual agents [25].

Organization The swift evolution of the labour market has been significantly influenced by a growing phenomenon termed 'involuntary turnover,' indicating employee departures contrary to the employer's intentions [20]. This challenge falls under the broader umbrella of Workforce Transformation, commonly denoting changes in the workforce involving both 'people changing' and 'changing people' [27]. Alongside the difficulties in retaining digitally skilled talent, other organizational challenges include the need for more suitable candidates with the requisite skills. Traditional approaches to the recruitment process can be costly, time-consuming, and inefficient, given the high volume of job applicants [20, 27, 28]

Environment Studies have recognized Industry 4.0 and Digital Transformation [24, 27] as the primary external drivers for adopting technology in Talent Management, accelerated by COVID-10 [29]. This aligns with our earlier findings. Additionally, a newly identified driver is associated with the New Generation, specifically Generation Z [26], a significant part of

the workforce. It holds a key role in shaping HRM practices and adopting technology supporting them.

4.2 Technology

The examination of the technology cluster is also rooted in the TOE framework, focusing on the technology's attributes, internal organizational factors, and external environmental factors that influence its implementation and adoption.

Technology: The review revealed organizations' interest in utilizing AI technologies, particularly in recruitment [21, 25]. The term "AI" was commonly used without specifying the particular type. Notably, Explainable Artificial Intelligence (XAI) and Assistive AI were emphasized in connection with data-driven decision-making [20, 30]. Additionally, the integration of Blockchain in Recruitment was identified [28]. In Talent Management, the literature underscores IS's significance in employee performance [19]. Furthermore, scenarios involving virtual training were highlighted in the review [18].

Organization In recruitment, several AI Bots and virtual agents engage with employees or potential candidates to assess and shortlist candidate profiles. However, there are limitations to their adoption, including the complexity of HR [25]. Besides, employees' symbolic adoption of technology often precedes their actual adoption. Symbolic adoption refers to users' mental evaluation of the technology used in their work [19]. Challenges may arise from employee reactions to AI, driven by a need for more trust in AI predictions [30]. In addition, the research indicates that increased transparency may only sometimes lead to higher levels of trust or compliance regarding AI's predictions, classifications, or recommendations [30]. Organizations must address several key factors to mitigate the risks of reduced adoption. These include perceptions and attitudes toward technological change, developing necessary skills through training, fostering workplace resilience and adaptability, and promoting work-related well-being. Leadership, human resources, and organizational culture/climate are crucial in orchestrating these efforts [29]. Possessing the required skills is vital for guiding successful implementations [19]. Notably, the findings indicate that when employees symbolically adopt HR technology, they experience a better work-life balance [19]. Lastly, studies reveal a statistically significant correlation between the adoption of AI in HRM and the organizational EO. Adopting an emerging technology constitutes a sign that a company is willing to take risks and is open to innovation. These factors are indeed both encompassed in the measurement of Entrepreneurial Orientation [21].

Environment Using AI technologies in Talent Management can be accompanied by challenges, such as guaranteeing the fairness and integrity of recruitment processes and protecting personal data privacy and security [22]. This situation can generate ethical and legal constraints. This concern is often attributed to the small data size, a limited number of data points, and lack of diversity in data, leading to biases and ethical issues [25].

4.3 Impact

Decisions are only as good as the data upon which they are based, and the development of high-quality measures, seamless data collection systems, and modelling engines will be required [18]. The main KPIs identified in the literature review are return on investment (ROI) [18, 25, 28], work-related outcomes [19, 25], automation and optimization [22, 28], and data quality [28]. The prime difficulty in measuring the ROI of training is that the most important benefits are difficult to estimate, mainly the intangible measurements like skills proficiency. It is crucial to consider metric weightings across and within metrics, standardize metrics and weights, and pay close attention to the selection of data collection tools and the overall quality of data [18, 19, 30]. AI technologies can provide advanced solutions to automate, optimize, and choose people for management or recruitment decisions, such as identifying suitable candidates, automating the recruitment process, and evaluating employee performance [22]. AI can enable higher levels of employee engagement and return significant savings in HRM costs [25]. The results confirm that blockchain technology offers the following opportunities for recruitment processes: building a careers network in a digital, secure, and decentralized manner; providing effective, faster, and cheaper verification of candidates' credentials; facilitating performance reviews of employees; and conducting interviews on the metaverse. All these opportunities are expected to improve the quality of recruitment practices by enabling more effective job matching [28].

5 Conclusions

This paper draws attention to practical and research-related views on what we know and what we still need to learn about technological implementation in Talent Management. The originality of this paper is given by the multidimensional approach of the research topic: the comprehensive view of the technological implementation supporting Talent Management involves a holistic perspective on Critical Success Factors. Organizations are realizing the crucial impact of emerging digital technologies in steering the evolution of Talent Management. Involuntary turnover contributes to Workforce Transformation within the organizational landscape. External drivers like Industry 4.0 and Digital Transformation and the impact of new generations, especially Generation Z, continue to shape HRM practices and technology adoption. At the Technology layer, the review highlights organizations' interest in AI technologies for recruitment and blockchain integration. During the implementation and adoption process, challenges in recruitment include HR complexity, symbolic adoption, employee trust issues, and transparency concerns. Mitigating risks involves addressing perceptions, skills development, and promoting workplace well-being. The organizational Entrepreneurial Orientation can also contribute to a culture of innovation. Lastly, the anticipated impact is typically assessed through KPIs such as ROI, outcomes related to work, automation, and optimization of the tasks and process, as well as the quality of data that is used to drive decisions. As a result of this paper, the unfolding research paths are relevant, numerous, and extensive. [A strategic perspective that integrates different research areas, such as IS and HR, is notably scarce in the literature. This is evident from the 13 papers we have collected.](#) We are currently working on advancing this research following Design Science Research (DSR). We aim to extend the literature review systematically, complemented by interviews with relevant experts in the field [and additional databases](#). We intend to develop a

framework supporting technology implementation in Talent Management, emphasizing the holistic perspective: Challenges, Technology, and Impact. We will iterate on the framework through a survey to ensure its relevance and appropriateness to the context.

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