THE IMPACT OF AI ON TALENT MANAGEMENT

Dora Ioana DAMIAN [a*], Corina FRĂSINEANU [b]

[a, b] Bucharest University of Economic Studies, Romania

ABSTRACT

In the context of a digital economy marked by constant technological advancements, including artificial intelligence, big data, cloud computing, and the Internet of Things, organizations are evolving into interconnected entities. This interdependence necessitates simultaneous changes across all departments, particularly human resources, which serves as the catalyst for modern organizations. Traditional HR approaches are increasingly inadequate in meeting the demands of this dynamic environment, failing to efficiently manage talent identification, selection, development, retention, and overall workforce engagement.

Given that talent is the most valuable asset for sustained organizational success, it is imperative to explore innovative methods for talent management. The era of artificial intelligence (AI) offers transformative opportunities to revamp the HR framework. AI's capabilities in data collection, analysis, and processing can address the limitations of conventional management methods, fostering a more accurate and efficient approach to talent management. This research paper investigates the impact of AI on talent management, focusing on how contemporary organizations can leverage AI to enhance HR functions.

The study utilizes data from IBM's Smarter Workforce Institute, which conducted 20 in-depth structured interviews with senior HR executives responsible for integrating AI into HR across various fields. The analysis reveals that AI-powered systems improve the identification of employee skills, optimize talent alignment, and enhance employee satisfaction through predictive analytics. Additionally, AI supports data-driven salary decisions, equitable compensation practices, and tailored training programs, fostering a continuous development culture within the organization.

Despite the transformative potential of AI, challenges such as data quality, financial costs, and ethical concerns persist. Addressing these issues requires further research to enhance data validity, develop cost-effective AI approaches, and establish ethical guidelines to mitigate algorithmic biases. This paper concludes that integrating AI into talent management provides organizations with a competitive advantage, promotes continuous improvement, and adapts to the evolving digital landscape. By leveraging AI, organizations like IBM can optimize their talent management strategies, ensuring sustained success and workforce engagement.

KEYWORDS: *Artificial Intelligence (AI), Human Resource Management (HRM), IBM, Talent Alignment, Talent Management.*

DOI: 10.24818/IMC/2024/02.03

1. INTRODUCTION

In a digital economy marked by the constant development of technology, encompassing artificial intelligence, big data, cloud computing, the Internet and, Internet of Things, borderless organizations

* Corresponding author. E-mail address: *damiandora226@gmail.com*

are conceived. These organizations begin to behave like organisms due to their characteristic of interdependence, all their departments undergoing changes simultaneously, especially the human resources one, which is the catalyst of any modern organization. Based on this, traditional organizations no longer meet the development requirements, facing both new challenges and opportunities. The complex nature of the human resource management domain represents a constant challenge for modern organizations, traditional management approaches showing inefficiency in accomplishing the established objectives. These conventional approaches strive to objectively and rationally gather in-depth data on employees' attitudes and personalities to analyse the compatibility between talents and job entries, higher-management, and subordinates. Also, traditional methods fall short in facilitating the precise and scientific management of talent identification, selection, employment, training and development, retention, and maintaining a talent pool. Such inefficiencies obstruct the continuing development of both organizations and their employees and moisten the workplace well-being and engagement of the workforce (Khang, 2024).

Given that talent is the most valuable resource for an organization's durable success, there is a continuous need to investigate innovative methods for talent management. The era of artificial intelligence (AI) provides a transformative opportunity to reshape the human resource management framework. Artificial Intelligence's competencies in the spectrum of data: collection, analysis, and processing can face the constraints of conventional management methods, generating an accurate and efficient approach to talent management. This research paper aims to investigate how AI impacts and can be utilised to increase the quality of talent management in contemporary organizations. In this context, the research question of this article is surrounded by the dynamic nature of the current working environment and challenges imposed by the increasingly transformative digital era, more exactly:

What is the impact of Artificial Intelligence (AI) on talent management for modern organizations?

To answer this question, a study on IBM, a multinational company, is presented, showing how AI reshaped all the aspects of talent management.

The transformative force of artificial intelligence (AI) has perfused almost every element of the corporate world, significantly changing the framework of talent management. As organisations aim for a competitive advantage in every area of their business, the implementation and integration of AI technologies create both expansive opportunities and significant challenges. By analysing the present AI impact on Human Resources systems through a case study on a multinational company, this paper provides a holistic and comprehensive understanding of how AI shifts the future of talent management and its implications for organisations and their workforce.

The introduction of AI in the HR spectrum, such as in the hiring procedures, has resulted in considerable changes. AI-powered tools and techniques have the ability now to improve applicant matching rates, lessen biases, and expedite the recruiting process. For instance, Harvard Business Review (2023) states that these technologies utilise machine learning algorithms to evaluate significant volumes of data, guaranteeing a more efficient hiring process. The exploration of AI in the recruitment process reduces human biases, guaranteeing a more equitable assessment of applicants while also increasing the speed and accuracy of hiring decisions.

Another important spectrum where AI is making an impact is employee engagement. Real-time analysis of employee feedback by AI-powered applications and platforms can provide improvement areas and insights into overall employee satisfaction. AI integration in performance management systems allows continuous improvement and customised development plan creation, generating a more engaged workforce. Based on this, according to the Yale Task Force on Artificial Intelligence and Life, One Hundred Year Study on Artificial Intelligence, Report, and Study Panel (2016), HR professionals can increase job satisfaction by utilising AI's ability to analyse vast datasets to tailor engagement strategies and methods for the individual workforce.

Furthermore, by enabling a data-driven decision-making process, AI is revolutionising performance management practices. More exactly, AI tools can monitor employee performance indicators and metrics, such as KPIs (Key Performance Indicators), and offer useful insights to managers, helping them identify strengths and improvement areas. This data-powered approach establishes that performance evaluations are objective, eliminating human biases, and accurate, generating a more informed decision-making process and more efficient talent management practices. As mentioned by the Yale Task Force on Stone et al. (2016), AI's analytical capacities may significantly enhance the precision and equity in the performance assessment processes.

Another significant effect of AI on talent management is the incremental building of a data-powered organisational culture. Through exploration of the AI technologies, organisations can create a direct bridge to their workforce, collecting and analysing important amounts of employee performance, engagement, and satisfaction-related data. Based on this data-driven perspective, HR specialists make well-informed decisions with empirical evidence rather than anecdotal information or a subjective approach (AlOwaish et al., 2023). According to the Harvard Business Review (2023), a data-driven culture not only encourages innovation and continuous improvement, but it also improves the decision-making process.

In this context, organisational performance is marked by numerous and different determinants, including both external and internal influences, individual characteristics, and organisational behaviour. The external influences encompass industry market competitiveness, regulatory and political factors, technological developments, and challenging economic environment, while internal pressures are determined by factors of the organisational structure such as: culture, and operational inefficiencies. The effect of the workforce's characteristics such as: attitude, perception, personality, expertise, abilities and motivation directly related to cohesive and high-performing personnel. Organisational behaviour is tailored by governance, policies, leadership styles, communication methods, and decision-making processes, with a strong accent on culture promoting collaboration, innovation, and continuous improvement. Aligning the employees' professional aspirations with organizational goals is a determinant aspect in achieving the organization's overall success. Also, by addressing and analysing skill gaps through specific training and development plans, organizational capability and competitiveness will be increased, with talent pool acquisition being one of the solutions for this skill-gap challenge. The retention of top talent involves the creation of a positive working environment where employees are recognized, engaged, and inspired to excel. According to research by Chris Zook and James Allen from Bain, 94% of today's organizational challenges are internal, underscoring the necessity for internal adjustments to achieve overall success.

The AI incorporation in talent management is changing the manner in which companies identify, engage, and administrate their workforce. Based on this, AI is reconstructing the face of talent management by improving hiring procedures, employee engagement and performance management practices, creating a data-driven organizational culture. This paper aims to analyse the impact of AI on talent management, as it is important to understand the ramifications of this technological development process to create and adapt maximization strategies for AI's potential benefits.

2. LITERATURE REVIEW - A HOLISTIC EXPLORATION OF THE ARTIFICIAL INTELLIGENCE'S ROLE IN TALENT MANAGEMENT

2.1 Talent Management – the ability to transform human resources to human assets

Strategic Human Resource Management (SHRM) and talent management are subject to a contested terrain by defining and distinguishing of these two fields which need clear theoretical boundaries. In the academic context, it is a clear need that these approaches to be separately conceptualized, works by Iles et al. (2010), and Lewis and Heckman (2006) highlighting this debate. A definitional consensus emphasizes on the necessity for a deeper understanding between talent and talent

management, as focusing exclusively on definitions can divert attention from more critical management practice issues. Based on this, having a holistic perspective on talent management, redirects the focus on the importance of practical applications, resolving organizational debates to effectively and efficient workforce management, aligning with strategic and financial objectives, and employee well-being.

Talent is a collective knowledge, skills, abilities, experiences, values, habits, and behaviours of the employees (Schiemann, 2014). Further, Zook and Allen (2016), Stuart-Kotze and Dunn (2008) revealed that talent is about outstanding characteristics of human beings to do something different or a higher order of difficulty and complexity in the current and future time period. It comprises special groups such as senior leadership, middle-level employees with leadership potential, key contributors or technical experts and entry-level employees with leadership potential (Elegbe, 2010). Zhang and Bright (2012) gave new characteristics of talented employees in term of 'guanxi', which revealed that talented employee should have trust, shared vision, harmonious relationship with colleagues, and external social network for future benefits. But, according to Elegbe (2010), Stewart (2014), Clake et al. (2020) talent is related to situation-specific characteristics that cannot be defined without the relationship with the environment (social and cultural) and the individual context because it can only be understood to exist through behaviour.

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Talent can be perceived as a rare attribute, a collective set of knowledge, abilities, experiences, values, habits, and behaviours, being crucial for organizations in search of a qualified workforce (Schiemann, 2014). Also, Zook and Allen (2016), Stuart-Kotze and Dunn (2008), stated that talent represents an exceptional set of cognitive characteristics of human beings, providing them the ability to do something different or with a higher level of difficulty and complexity in the current and future context. Across different organisational fields, individuals who show and demonstrate exceptional abilities, are perceived as talented, being scarce and highly competitive resources, assets. Based on this, it includes not only senior leadership, middle-level employees with leadership potential, but also operational experts (technical) and entry-level employees with leadership potential (Elegbe, 2010). In this context, Zhang and Bright's (2012) vision on talent in an organizational environment is centered on trust, shared perceptions, harmonious relationship with both internal and external stakeholders. Elegbe (2010), Stewart (2014), Lima and Machado (2024) perceive talent differently as it should be related to a situation-specific context, demonstrating characteristics that are interdependent with the social and cultural environment, and also the individual context as it can only be understood to exist through behaviour.

Nevertheless, talent as an individual characteristic does not guarantee the organisational success because of the need of effective talent management: the manner in which these talents are valued to their maximum potential (Ansar, 2018). Based on this, the conceptualization of Talent Management (TM) has its historical roots back in 1957 through an American Management Association document and the 1970s business literature. The McKinsey's 1998 study, "The War for Talent," brought a lot of attention to this field, increasing interest and also research. Moreover, in 2017, a Google search for

"Talent Management" yielded 24.9 million results, compared to 5,750,000 in 2007 (Hughes & Rog, 2008) and 2,700,000 in 2004 (Felix & Manuel, 2016), indicating the field's growing importance (Lawler, 2017). With this in mind, due to the global shortage of highly skilled workforce, caused by the differential market opportunities, corporate demands have driven both academic and practical interest in talent management, especially. Consequently, identifying, recruiting and managing a workforce that is considered to be imperative for the organization's long-term success, is now a key attribute for Human Resource Management practices. The McKinsey's 1998 article portrayed talent as a competitive differentiation, emerging into the continuous development of talent management field as a specialized HR area.

The area of talent management still remains without a universally academic accepted definition. It only has different academic perspectives with various conceptualizations on this field. In this context, by analysing the concept of talent management's evolution, it can be observed that multiple perspectives were raised over the years. It is imperative for researchers to examine the meaning of talent management and how various organizational stakeholders understand and implement it in their current operations, despite the ongoing academic debates. Organizations commonly state that they invest in talent management, but they do not possess a clear internal definition for this concept (CIPD, 2024). According to Gallardo-Gallardo et al. (2019), many scholars mention the talent management concept in their research papers without a clear view of the concept, offering only vague descriptions. In Table 1, a set of definitions of the talent management field were selected and analysed by perspective, helping in the creation of a potential universal conceptualisation. More exactly, talent management represents the process of identification, selection, development and retention of potential top key actors in terms of capability and performance, encompassing an organizational talent pool which will ultimately contribute to the organization's sustainable competitive advantage.

Table 1. Talent Management Definitions

Definitions	Source	Perspective	Keywords
Proactive talent management ought to be based upon the identification, selection and nurturing of key performers, the sourcing, development and allocation of replacements for key personnel, and the allocation of resources to key talent; contingent on their potential value to the firm	Berger and Berger (2003)	Management of designated individuals, a set of practices	Identification, selection, nurturing, allocation of resources
Talent management includes sourcing, screening, selection, retention, development, and renewal of the workforces with analysis and planning	Schweyer (2004)	Similar to HRM, creation of talent pools	Sourcing, screening, selection, workforce planning, development, retention

Definitions	Source	Perspective	Keywords
Talent management processes include workforce planning, talent gap analysis, recruiting, staffing, education and development, retention, talent reviews, succession planning, and evaluation	McCauley and Wakefield (2006)	Similar to HRM, creation of talent pools	Workforce planning, gap analysis, recruiting, staffing, education, development, retention, reviews, succession planning, evaluation
Talent management is the additional management processes and opportunities that are made available to people in the organization who are considered to be „talent"	Blass (2007, p. 3)	Management of designated individuals	Additional opportunities
Organization's ability to attract, select, develop, and retain key employees (in a global context)	Stahl et al. (2012)	A set of practices, management of designated individuals	Attraction, selection, development,retention
Talent management starts with identifying the most suitable individuals within an organization, who will ultimately contribute to the organization's sustainable competitive advantage	Van Dijk (2008)	Integrated approach to managing a career from attracting, retaining, and developing to transitioning the organization's human resources.	Attraction, development, retention.
Talent management and employee potential. Talent management typically focuses on a specified pool of employees who "rank at the top in terms of capability and performance.	Mäkelä, Björkman, and Ehrnrooth (2009)	Creation of talent pools	Attraction, development, retention.
Talent management is aimed at the systematic attraction, identification, development, engagement/retention, and deployment of high-potential and high-performing employees to fill key positions which significantly influence the organization's sustainable competitive advantage.	Gallardo-Gallardo et al. (2019, p. 50)	A set of practices	Attraction, identification, development, engagement, retention, deployment.

Source: Adapted from McDonnell and Wiblen (2020)

This research paper examines talent management (TM) as a multifaceted phenomenon involving interconnected process stages, starting with the workforce talent identification and selection, extending to talent development, retention and succession planning, as mentioned in the literature review (Table 1). The interrelated nature of these approaches is examined through a reflective model, as showed in Figure 1. It details potential predictors for each talent management practice and their financial and non-financial implications at both organizational and employee levels. In a reflective model, a latent variable is considered the underlying cause of the behavior of the interconnected items or indicators. This model is used when observed variables are selected and measured because they are believed to reflect an underlying theoretical latent construct (Coltman et al., 2008).

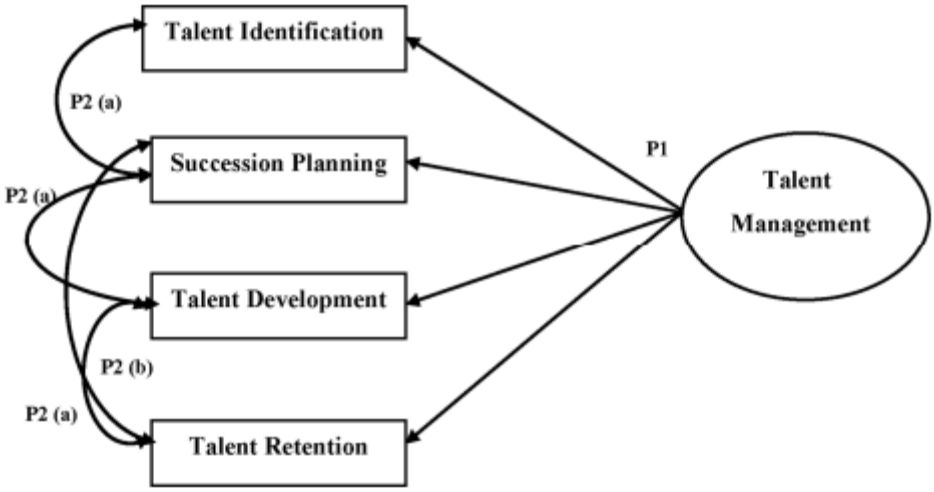

Figure 1. Talent Management reflective model
Source: Adapted from Coltman et al. (2008)

Based on this, talent management practices are crucial for the overall success of any organization. For example, in 2013, Microsoft, a multinational company in the Information Technology (IT) sector, restructured all its departments, to realign the entire organizational's direction to a new technological perspective: the transition to cloud services, AI, and software development. This migration involved not only a reconstruction of the company's business model, but also a shift in the organizational culture and a configuration of the workforce's skills gap. The transition from a conventional software company to an important actor in the cloud computing field imposed a tremendous cultural shock. Employees needed to adopt an agile and innovative mindset to overcome this challenge (Ballmer, 2022) . Also, this migration process revealed various operational and managerial gaps in the existing workforce's aptitudes, requesting extensive upskilling and reskilling approaches to ensure a swift transition. Talent Management practices sustained the Microsoft's transition process by attracting, developing, and retaining the needed talent, while creating a culture of continuous improvement for its workforce (Lewis & Heckman, 2006).

2.2 AI – the new cognitive engine

In the context of a digital economy, Artificial Intelligence (AI)-based technologies and solutions are now among the top investment priorities, being designed to find applications in the fields of special value to humans, including education. The fourth industrial revolution, which will replace not only manual labor but also cognitive tasks, poses the need for new forms of work and innovative approaches to business education. Based on this, it is crucial for humans to truly comprehend AI

systems, engage directly with them, and build trust in their use, as "the measure of success for AI applications is the value they create for human lives" (Olney et al., 2024, p. 33).

Defining AI is crucial for both the academic and business worlds, as it helps distinguish AI from other related fields and concepts, creating a clear communication and public understanding, reducing the misinformation and fear of the unknown. In this context, John McCarthy was the first author who mentioned the term "artificial intelligence" in 1956, during the Dartmouth Summer Research Project on Artificial Intelligence. This event united researchers from various disciplines, including language simulation, neuron nets, and complexity theory, to discuss what would ultimately become the field of AI, developing concepts around "thinking machines". The term "artificial intelligence" was selected due to its neutrality, avoiding highlighting one of the then-prevalent tracks, such as cybernetics, automata theory, and complex information processing.

The proposal for the conference stated the study is "to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can, in principle, be so precisely described that a machine can be made to simulate it." (McCauley & Wakefield, 2006). This hypothesis constructed a bridge for future research in this area of interest. Currently, artificial intelligence is defined in correlation with computer science, being a sub-field in this context, describing how engines can imitate human intelligence. According to the English Oxford Living Dictionary (Oxford Reference, n.d.), AI is "the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages."

Despite the fact that the major technological companies have not yet established a dictionary-type AI definition, the importance of this field can be extrapolated by their research areas. For example, Google AI offers an enormous focus on machine and deep learning areas in order to foster a smarter and more practical technological environment for their end-users. This focus extends to various fields, such as translation and healthcare. Also, IBM focuses on three areas of AI development:

- AI Engineering, building scalable AI models and tools;
- AI Tech where the core capabilities of AI such as natural language processing, speech and image recognition and reasoning are explored;
- AI Science; where expanding the frontiers of AI is the focus.

In 2016, the Partnership on AI to Benefit People and Society was created by various industry leaders, such as: Amazon, Apple, DeepMind, Google, IBM and Microsoft. This partnership was intended to create and share a set of best practices, educate the public in the AI field, foster an open area for discussion and to recognize aspirational efforts in AI for a positive social impact (Marron-Partridge, 2020).

These modern definitions encompass AI's role in replicating human-like capabilities rather than becoming indistinguishable from humans, reflecting the practical and theoretical advancements made since McCarthy's seminal workshop.

AI reshaped the entire global ecosystem, developing various fields through its capacity to work with large sets of data. It provided contributions to different areas, including the public health sector, education, business and management fields. More precisely, AI-driven technologies were created for healthcare prediction purposes. For example, the COVID-19 pandemic provided the context where AI-powered models were vital. They generated a forecast for infection rates and assessed the treatments' efficacy. As a study by IntechOpen stated, the utilization of both AI and traditional statistical methods increases the prediction's accuracy and efficiency of the established solutions (Stone et al., 2016). Moreover, AI-powered early warning systems for different diseases analyse online data to generate epidemiological patterns. These systems help the healthcare sector to prevent and prepare for potential crisis by using automated alerts. According to The World Economic Forum,

these systems generated a 30% reduction rate in response time to emerging health outbreaks (World Economic Forum, 2024).
Also, AI had an important impact on education. According to a 2024 systematic review, AI-powered tools supported the education system by improving the learning methodologies through quizzes, assessment technologies, and academic performance predictions. With this in mind, the study shows a significant increase in the overall students' performance (15%) after the integration of AI tools into the curriculum (Ch & Singha, 2024).
In the business sector AI plays a key-role as a report by MIT Sloan Management Review demonstrated. Integrating AI technologies to statistical methodologies can enhance prediction accuracy by 25%, improving the overall business outcomes. This approach supports an informed decision-making process for businesses, generating a 20% enhancement in operational efficiency (MIT, 2024).
In this context, these examples highlight the importance of AI, supported by statistical evidence. It impacts various fields, enhancing efficiency, accuracy, and overall impact.

2.3 AI and Talent Management – a technological alchemy

In analogy with AI, talent management can be perceived as the symphony of an orchestra where each employee is represented by a uniquely talented musician, with the talent management team being the orchestra's conductor who ensures a cohesive and harmonious performance. The conductor needs to analyze musicians' strengths and weaknesses to provide guidance and support. In this context, AI plays the role of advanced sheet music and a metronome that creates a precise timing. This helps the conductor through a data-driven decision-making process, generating a unique performance.
Significant breakthroughs across various sectors, including the Human Resource Management one, have been discovered since the introduction of Artificial Intelligence (AI). Due to its ability to improve different HR functions, including: recruitment, performance management and employee engagement, through the data-driven decision-making process, the AI integration in talent management approaches attracted scholars' attention.
The recruitment process represents one of the most important AI integration in talent management area. The recruitment approaches were reshaped through AI-driven tools (machine learning algorithms), reducing human biases and enhancing hiring process efficiency. According to Dastin (2018), AI-integrated tools have the capacity to managerial large amounts of data, in this case candidates' profiles, and rapidly process them, enhancing the candidate-job fit. These tools are based on natural language processing (NLP) and predictive analytics techniques which support the profile suitability matching, improving the overall recruitment process (Upadhyay & Khandelwal, 2018). AI has also been instrumental in enhancing employee engagement and experience. AI-powered platforms provide personalized feedback and career development recommendations by analyzing employee interactions and performance metrics. According to Malik et al. (2022), AI systems can identify patterns in employee behavior, allowing for proactive management of engagement levels. Additionally, AI-driven sentiment analysis tools assess employee mood and satisfaction, facilitating responsive and adaptive HR strategies (Ch & Singha, 2024).
Based on this, AI is a multifaced phenomenon, including both advantages and disadvantages, especially in the talent management area, in the current global digital economy, as described in table 2.

Table 2. Advantages and Disadvantages of AI in the context of Talent Management

Advantages	Disadvantages
Improved Decision-Making Process: AI-driven applications can examine large amounts of data to create an overview of different topics of interest, generating an informed decision-making process for the HR professionals (The benefits and challenges of using AI in human resources, 2023)	**AI-Generated Errors**: AI-powered systems, despite the fact that they reduce human bias, they can generate errors, more exactly, if the databases are not valid or incomplete (Roslansky, 2024)**.**
Enhanced Workforce Experiences: AI can improve various HR processes, including: selection, recruitment, onboarding, generating an efficient and user-friendly framework (Harmon, n.d.)	**Continuous Biases**: If not correctly administrated, AI-driven systems can reinforce current biases in the hiring and promotion processes (Roslansky, 2024).
Task Automation: AI-powered applications can avoid repetitive tasks for humans, including screening process and scheduling interviews through automation (Harmon, n.d.).	**Human Integration Need**: Accuracy and validation of data is still needed to be reviewed by human intervention, to establish a coherent view of the tasks in cause (Harmon, n.d.).
AI-Powered Insights: AI-driven tools can generate various and valuable employee insights, identifying areas of improvement and workforce trends (Roslansky, 2024).	**Cybersecurity Challenges**: Sensitive employee data can be compromised due to cyber-attacks and information leaks generating reputational risks (The benefits and challenges of using AI in human resources, 2023)
Reduce Human Bias: AI-powered tools can reduce unconscious human bias through an objective data-view, rather than the subjective human nature one (Roslansky, 2024).	**AI-based Decisions feasibility**: A skeptical view is imposed by AI decision-making process to both employees and managers (Roslansky, 2024).

Source: Own data

Advantages of AI in the context of Talent Management include an improved decision-making process, workforce and management experience through task automation, AI-driven employees' insights and reduced human bias. On the other hand, the disadvantages in this area include AI-driven errors, perpetual biases, cyber-attacks and human integration need through a reduced AI-based decision feasibility.

3. AI TRANSFORMATIVE TALENT MANAGEMENT: IBM'S NEW WORK LANGUAGE

As stated by Diane Gherson, Chief Human Resource Officer at IBM, the Human Resources framework faces significant challenges, especially in the digital economy context, being on the brink of an enormous disruption. The ubiquity of new technologies focused on user-centricity reshaped the workforce's expectations. Based on this, the massive technological impact and change of the business models across various industries restructured the talent acquisition approach, highlighting the critical need for a continuous improvement culture. Chief Human Resources Officers (CHROs) stand now at the intersection of new market demands, declining budgets and operational challenges.
In this context, this represents a pivotal moment for AI - HR integration. Through Gherson's expertise, this can be perceived as an opportunity to address talent identification challenges, employees' concerns, and to provide career opportunities and increased salary investment guidance, using an automated approach and generating a continuous improvement culture.

With a healthy dose of technical curiosity and ethical operating policies, the HR functions can now develop an upskilled workforce, driving strategic and competitive advantages.
Tina Marron-Partridge, the Managing Partner, Global Leader Talent and Engagement, Global Business Services at IBM, mentions that Artificial intelligence (AI) transcends every aspect of both life and work. In this context, leading organizations adapt to this AI impact, resulting in new business models, workforce demographics, and evolving customer and employee experiences' expectations. The homogenous combination of AI and strategic insight generates new business opportunities and reshapes the role of HR to an organization's competitive advantage.
In this context, this study examines how AI impacted the Talent Management area at IBM, a multinational technological company, through an analysis of 20 in-depth structured interviews conducted with senior HR executives.

3.1 Research Methodology

This study analyses the data gathered from the IBM's Smarter Workforce Institute. It conducted 20 in-depth structured interviews of 60 minutes each, on senior HR executives. The participants have expertise in the analysed area, being responsible for integrating AI into HR at IBM in various fields, including:

- talent acquisition;
- testing and selection;
- learning and development;
- talent management; compensation and benefits;
- performance management;
- engagement and culture;
- employee and labor relations;
- computer science;
- analytics;
- HR technology;
- general HR.

Different topics were discussed during the 20 HR executives' interviews, including objectives of AI in HR and types of projects, funding, timelines, bias, diversity, and inclusion, but the focus of this study was on talent management in the context of AI.
The responses were analysed to identify how AI is impacting the IBM's current talent management approaches and presented throughout this paper.

3.2 IBM's history

IBM was founded back in 1911, and in 1914, Thomas J. Watson joined the company as CEO, implementing a set of defining policies, such as the well-known formal dress code for the sales department, highlighting the corporate pride and loyalty values. He also introduced the lifetime employment approach, and the slogan "THINK," encompassing a strong and powerful work ethic. In 1952, after 40 years of both economic and cultural growth, Watson Sr. turned over the CEO role to his son, Thomas Watson, Jr. Watson Jr. led IBM to a dominant role in the technological industry, especially with the development of the IBM System/360 computer. This computer had a breakthrough approach by eliminating the vacuum tubes, using semiconductor chips and interchangeable component. Under Watson Jr's management, IBM innovated also the computer language field through FORTRAN, a disk storage, and point-of-service machines used by banks and supermarkets. Moreover, ISM's dominance in the technological industry was so prominent that by the 1960, a 13-year antitrust action was imposed by the U.S. Justice Department, which ultimately was unsuccessful. The IBM PC was launched in the 1980s, becoming an immediate commercial success, exceeding all forecasts. However, until 1990 IBM's main focus remained on mainframe computers. In that year,

IBM was the second most-profitable global company, with a net income of US$6 billion, but by 1991, it suffered a loss of $2.8 billion. Critics and scholars stated that IBM failed to adapt to market needs, more exactly to client-server computing, and ignored the growing importance of networked systems. More agile companies like Dell and Compaq gained massive market share in the technical sector, highlighting IBM's internal inefficiencies. In this context, IBM was perceived as a bloated organization through its vast business network and product range. This period represented the IBM's first-ever forced employee layoff, continued by numerous layoffs in 1992 and 1993.

As part of IBM's succession planning approach, Lou Gerstner entered IBM as CEO in 1993, with many analysts having a skeptical view on the future of this company. Gerstner highlighted the value of IBM's synergies, taking cost-cutting measures and focused on solutions rather than products, according to market needs. With this in mind, by 1994, IBM increased its profitability, taking advantage of the growing internet industry in the 2000s. Gerstner introduced the "e-business" strategy in 1995, focusing on business-to-business e-commerce. This approach generated IBM's growth through numerous investments in acquisitions, including Lotus Development Corporation and Tivoli Systems. Also, new partnerships were embraced by IBM as part of its new growth strategy, being perceived as an integrator and solutions provider. Palmisano, a 31-year veteran of IBM, who ran IBM's integrated global services group between 1996-1999, was transitioned to president and COO in 2000, taking over as CEO in 2002. Under his leadership, IBM focused on a holistic approach ("One IBM"), providing integrated and personalized services that were locally innovative and yet globally synergistic. In 2003, IBM acquired PWC Consulting, under the Price Waterhouse Coopers organization, consolidating its global presence and innovation capabilities.

By the late 1990s and early 2000s, IBM's most promising clients were represented by various enterprises, which were becoming increasingly demanding, requesting cloud integrated IT services. Under Sam Palmisano's leadership, an externalization of the IBM's revenues from outside the Americas by 2009 was adopted, and by 2003, 57% of IBM's revenues were generated outside the Americas, with $34.8 million from the United States, $3.5 million from other countries in the Americas, $29 million from Europe/Middle East/Africa, $19 million from Asia Pacific, and $2.6 million from other regions. IBM's approach is different from Intel's or Microsoft's, as it lies in its operational know-how and service delivery. This meant that IBM's competitive advantage was focused on globally optimizing service delivery, while client operations might span multiple countries. Therefore, IBM's main focus was on developing its global workforce to meet different clients' needs, thereby maintaining its competitive advantage (Boudreau, 2010).

3.3 AI integration to Talent Management at IBM

As shown in figure 1, AI can be implemented in the HR functions through the entire talent lifecycle.

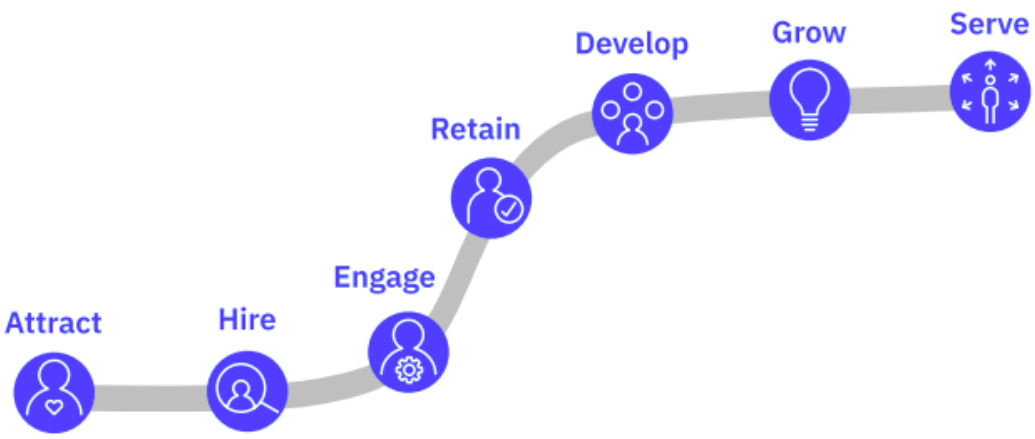

Figure 2. Deployment of AI in HR can occur across the entire talent lifecycle

Source: adapted from Guenole et al., (2018)

As mentioned by the respondents of this study, the attraction of talented candidates is an important part of the talent life-cycle. AI-integrated tools can identify and select high-quality profiles even if the candidates did not apply yet for the open position. Sourcing as many potential candidates is one of the main objectives in the candidate attraction phase, identifying the profiles with the required skills and attracting them to apply for current, suitable roles. For example, the use of chatbots allow candidates to ask questions that are analyzed, interpreted and answered through natural language processing (NLP), helping them to discover more about the company before applying. Also, compared to traditional keyword-based methods, AI-powered chatbots generate better job matching, candidates' resume abilities being aligned with open roles through skill-matching algorithms, providing personalized recommendations and increasing the possibility of converting candidates into employees. In this context, IBM's objective is to provide a meaningful experience for job seekers, starting with their first interaction. Developing the Watson Candidate Assistant (WCA), which revolutionized IBM's candidate interaction with the company. Candidates and employers are no longer meeting through job interviews, as they can interact in real-time via an AI-powered chatbot, generating in a candidate tailored application process. These chatbots use the data gathered from each interaction to enhance its overall talent attraction process, integrating videos to provide a realistic glimpse of working at IBM. This new approach enhanced the high-potential, talented candidates' application rate. A report concluded that WCA's conversion rate from exploration to application is 36%, compared to 12% for a traditional static website. Net Promoter Scores (NPS) were also higher for WCA, and the time from application to interview has significantly decreased, dramatically improving the matching of candidates to jobs and reducing time-to-hire.

The hiring phase in the talent lifecycle is centered on the recruiter role. These roles face various challenges, including time constraints, profiles' complexity, and role volumes' limitations. In this context, recruiters must have a prioritization strategy and an objective view of the different candidates who compete for the same position. An ineffective approach to these challenges can generate the wrong role prioritization and unsuitable candidates' selection. Based on this, AI can help recruiters through time prediction for the position completion based on historical data usage, helping them to adjust their priorities. Moreover, job requisitions can be matched to candidates' profiles through AI-driven tools, using the data collected during the application process to provide predictions on the candidate's future performance.

In the context of a multinational organization which must prioritize the recruitment demands, IBM launched the Watson Recruitment (IWR), an AI tool that explores data about the current job market and experiences of hiring candidates to forecast job filling times and identify the potential candidates. AI extracts the required skills from job requisitions, creating resumee-matching scores, and forecasts job performance using biographical data. IWR enhances the hiring decision-making process, reducing human bias and generating a faster, more accurate hiring process.

The engaging phase requires the AI integration, as it can enhance employee motivation through the use of talent alerts and engagement exploration tools for managers. The AI-integrated talent alerts tools can notify managers about potential highly skilled team members, providing an informed decision-making framework based on comprehensive data. For example, team managers can receive promotion or retention alerts for highly skilled employees. Moreover, IBM developed an internal AI integrated application, 'Engage at IBM' which is based on the continuous learning approach. More precisely, leaders provide feedback on the recommendations, and the system will integrate the improvements.

The retention phase is a crucial aspect for talent management approaches as the resources used for identifing and hiring the high-skilled employees are involved. In this context, AI can improve the compensation planning by supporting managers with an informed and accurate decision-making

process. By using an AI-integrated decision support tool, IBM can analyze different vectors, including: employee performance, aptitudes' market rates, and job demand trends. IBM's AI-driven application combines both external (for example the Bureau of Labor Statistics) and internal data, generating an optimal base pay decisions and reducing human bias. With this in mind, human involvment is still in place as managers are able to override the tool's suggestion, offering continous learning and improvment data-sets for the system. This tool generated faster and more accurate compensation decisions, establishing a stable payment for employees (not overpaid nor underpaid), maintaining market standing transparency.

The develpment phase in the talent management life-cycle is a complex aspect as the human nature is differently constructed and a holistic approach for all the talents will not ecompass tailored startegies. Numerous studies in the business sector demonstrated a direct link between learning process and business performance, showing that employees with a higher willingness to professionally develop and learn, have better overall performance. Based on this, AI can significantly improve personalized learning experiences for employees by increasing aptitude development at both individual and organizational level. For example, AI introduces metadata lerning content, helping learners to search and reuse training materials. In this context, IBM developed an open learning platform that includes multi-sourced data, providing unlimited access, employee-centered experience through learning suggestions tailored to job roles and skill sets. IBM's platform named "Your Learning" was accesed by 98% of employees quarterly, reducing an average of 60 learning hours per year per each employee. This platform provides various learning resources and a 24/7 AI-integrated learning chatbot, enhancing enrollments, course completion rates, and the strategic aptitude acquisition process. IBM demonstrated throgh statistical data, the correlation between an employee's amount of learning and his level of engagement.

Growth is an important aspect of talent management. In this context, career coaching approaches have been used by numerous companies to improve work experiences, generating higher productivity and powerful succession pipelines. Due to its high costs, the career coaching approach was reserved for IBM's selected employees but, through its holistic and inclusive view, the Watson Career Coach (WCC) was developed, aiming to democratize this approach. WCC represents an AI-integrated assistant that ensures career guidance to all IBM employees. It offers tailored professional advice by integrating both historical data and natural language (NLP) interactions. Moreover, it also integrates a role opportunity match component, providing suitable positions based on resumes available in the database or skill-related entries. For career planning, the tool integrates a career navigator feature which supports employees' targeted professional development process by preparing them for the desired positions. Based on this, this current AI-powered approach integrates continuous professional development and increases employees' performance.

In the serving phase of the talent management lifecycle, IBM developed a 24/7 AI-driven chatbot, revolutionizing the employee interaction process. More concretely, the AskHR IBM chatbot comprehends natural language, acting like an AI-driven digital assistant. It also improves various HR functions as it provides timely responses to HR-related queries, supports tasks like benefits enrolment and compensation planning, and offers tailored assistance to employees. During the seasonal high-demand periods, the AskHR Chatbot still manages to automate over 100 processes and handle more than 1.5 million employee conversations annually with 700 queries daily. This supports the repetitive task reduction and HR professionals to focus on different strategies, generating an overall efficiency and employee satisfaction, including talent management within IBM (Guenole & Feinzig, 2018).

4. DISCUSSIONS AND CONCLUSIONS

The Artificial Intelligence (AI) integration into talent management shows an important development of HR practices, especially in the current digital economy context. Through the AI technologies

incorporation, organizations, such as IBM, can overcome challenges in the talent management spectrum and optimize the overall workforce capabilities.

Based on this, the transition from previous conventional and reactive HR methods to new proactive and data-driven approaches is supported by the integrative AI approach which is adopted by IBM. This migration is pivotal for a comprehensive and holistic view of current labour market dynamics and the required skill sets. With this in mind, AI has the capacity to storage and interpret large amounts of data that can map employees' skill gaps and set talent management strategies according to them, creating a continuous improvement organizational culture and agile mindset.

In this context, the current study on IBM's integrative AI approach to talent management from the perspective of several company executives, revealed different practical implications in this spectrum. AI powered systems can use historical data to accurately identify employees' abilities and align them with current fit-roles, supporting an optimal talent employment. Also, AI-integrated predictive analytics applications can map employee satisfaction level in a timely way, proposing retention suggestions and strategies. From the salary investment perspective, AI-powered tools can generate a guidance based on the insights provided by the data involved. This can help managers in the informed-decision making process for salarial matters, enabling competitive and equitable compensation approaches. Automatization is another key aspect of the AI integration in HR avoiding repetitive administrative tasks, and improving efficiency by allowing HR professionals to focus on employee engagement and strategic initiatives. Lastly, AI-driven platforms enable tailored training experiences for employees, promoting a continuous development culture.

This study involved multiple limitations, including the data reliance, as only 20 interviews were analysed. Also, a longitudinal integrative approach should be involved to support the reliability of the current results. From a theoretical perspective, AI integration in the talent management field poses several limitations. In this context, a critical challenge is represented by the quality and validity of data, as AI technologies require extensive and high-quality databases for an accurate result. Invalid or biased data can affect the entire decision-making process in the talent management spectrum. Moreover, the financial investment posed by the AI integration process requires considerable budgeting efforts for any organization. Also, developing the infrastructure and training elements can be perceived as challenges, especially for smaller organizations. Ethical concerns can be raised in this context based on algorithmic bias, privacy, and the potential over-reliance on automation practices. These elements require constant monitoring, strong ethical guidelines and policies, maintaining an equilibrium between automated processes and human cognition.

Based on this, these limitations can be addressed by extensive further research focused on data quality and validity improvement, creating cost-effective AI approaches, and developing agile frameworks to analyse and reduce algorithmic biases. Also, research in the AI-powered automation practices and human decision-making process fields is important, generating an optimal balance approach for this area of interest. A responsible use of AI can be investigated, as it is crucial to develop a comprehensive ethical policy and compliance guidelines. These directions for further research can integrally weight the AI impact on talent management, mitigating potential risks.

In order to respond to the current research question related to the impact of AI on talent management, the IBM's multifaceted case can be used. More exactly, it examines how AI improves the recognition of employee's skill gaps, optimizes the talent acquisition processes, and supports the employee retention strategies. AI-driven insights enable informed salary decisions, fostering equitable compensation practices. Moreover, AI supports a culture of continuous learning and adaptability by providing personalized training resources.

In conclusion, an important development element in the Human Resource field, especially in the context of a digital economy with smart organisations is represented by the integration of Artificial Intelligence (AI) into talent management. Based on this, AI provides a favourable data-driven framework for organisations like IBM to optimize their workforce capabilities and address various

challenges in the talent management spectrum. Moreover, an in-depth understanding of the of labour market dynamics is generated through this current transition from traditional to AI-improved approaches. More concretely, the AI's capacity to evaluate vast amounts of data determines an accurate skill shortages identification process, promoting a continuous development and an agile organizational culture. Practical advantages, including enhanced talent alignment, effective employee satisfaction surveys, and informed salary decision-making process, are revealed through IBM's AI integrative study. On the other hand, multiple challenges are imposed by this AI transition, including data quality, costs, and ethical concerns, providing a theoretical base for further research. Through the integration of AI in the talent management area, smart organisations can improve their talent management strategies and processes, providing them a competitive advantage and encouraging a continuous improvement culture.

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