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Employee experience –the missing link for engaging employees: Insights from an MNE's AI-based HR ecosystem

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Abstract

Analyzing multiple data sources from a global information technology (IT) consulting multinational enterprise (MNE), this research unpacks the configuration of a digitalized HR ecosystem of artificial intelligence(AI)-assisted human resource management (HRM) applications and HR platforms. This study develops a novel theoretical framework mapping the nature and purpose of a digitalized AI-assisted HR ecosystem for delivering exceptional employee experience (EX), an antecedent to employee engagement (EE). Employing the theoretical lenses of EX, EE, AI-mediated social exchange, and engagement platforms, this study's overarching aim of this article is to establish how AI-assisted HRM fits into an organization's ecosystem and, second, how it impacts EX and EE. Our findings show that AI-assisted applications for HRM enhance EX and, thus, EE. We also see increases in employee productivity and HR function's effectiveness. Implications for research and practice are also discussed.

KEYWORDS
artificial intelligence applications, employee experience, engagement, engagement platforms, HR ecosystem, hyper-personalization, India, individualization

1 | INTRODUCTION

With increased digitalization at the workplace, especially as we manage HR ecosystems, the use of artificial intelligence (AI) and other disruptive technology platforms for enhancing the employee experience (EX) of HR practices and employee engagement (EE) at work is gaining importance (Bersin et al., 2017; IBM & Globoforce, 2016). As workplace digitalization increases, employees interact with the various digitalized assets in an organization's ecosystem, yet, the ability of HRM to cope with the challenges of an AI-assisted HRM remains a concern (Budhwar et al., 2022; Charlwood & Guenole, 2022; Swart et al., 2020). We know from prior research that introducing AI-assisted HRM applications in an organization's ecosystem creates anxieties among employees and can adversely (Presbitero & Teng-Calleja, 2022; Suseno et al., 2022) or positively affect employee and business outcomes (Malik, Budhwar, et al., 2021; Malik, Budhwar,

et al., 2022). Nevertheless, little research examines the impact of AI adoption in HRM on EX and EE (Braganza et al., 2021). Despite its increase, there is a limited theoretical basis for understanding how AI-assisted HRM infrastructure fits into an organization's broader ecosystem and how firms design and implement an HR ecosystem and a configuration of digitalized AI applications to cater to the firm's digital, human and physical aspects of the work environment for improving EX and EE levels. Examining the adoption of AI-assisted HRM in a firm's ecosystem is also critical, especially as firms have faced EX and EE issues since the pandemic began (Hancock & Schaninger, 2020). Theoretically, this problem is further compounded as there is significant diversity in the conceptualizations of EX (Bersin et al., 2017; IBM & Globoforce, 2016; Malik, Budhwar, et al., 2022; Malik, De Silva, et al., 2021; Maylett & Wride, 2017; Morgan, 2017; Plaskoff, 2017) and EE (Gruman & Saks, 2011; Kahn, 1990; Macey & Schneider, 2008; Saks, 2019; Saks & Gruman, 2014; Sun &

Bunchapattanasakda, 2019) and the approaches employed (MacCormick et al., 2012; Mirvis, 2012). The above inconsistencies lead to problems of measurement and validity for advancing scholarly work. Though the theory of EE is well established, the term EX is often used interchangeably to misrepresent EE. Therefore, this article reviews the literature on EX, delineates the differences between the two concepts and suggests the relationship by offering an integrated definition of EX and its conceptualization. This is an important contribution to the literature on EX, especially in integrating AI-assisted HRM into an organization's ecosystem. It is critical to clarify how EX in the AI-assisted HRM applications in a firm's ecosystem critically influences EE (Shenoy & Uchil, 2018). Our review and empirical data confirm that EX is an antecedent of EE, thus allowing further research on the topic.

AI-assisted HRM applications can capture continuous and real-time employee data and perceptions from all aspects of an employee's physical, human, and digital work environment. This view is akin to the emerging literature on customer engagement platforms (Breidbach et al., 2014) and a recent conceptualization of customer experience (Becker & Jaakkola, 2020). Therefore, understanding how firms develop a configuration of AI-assisted HRM applications and platforms and fit it as part of their broader ecosystem is timely and needed for delivering the right set of EX and EE outcomes. Further, the strategic choices and knowledge regarding the configuration and quality of AI-assisted HRM applications designed and implemented are needed in the domain of HRM to achieve high levels of EX and EE. This approach highlights how HR leaders can exercise strategic choices to create a digitalized HR ecosystem for higher levels of EX and EE. Thus, based on the above, *this research aims to establish how AI-assisted HRM fits into an organization's ecosystem?* A related sub-aim is to investigate *the impact of such AI-assisted HRM applications on EX and EE?*

To summarize, this study offers the following distinctive contributions. First, it contributes by showing how AI-assisted HRM fits into the literature on HR ecosystems. Second, the impact of a firm's digitalized HR ecosystem comprising a configuration of AI-assisted HRM platforms on EE and EX (Gheidar & ShamiZanjani, 2020; Kim & Gatling, 2018; Shivakumar, 2020). Third, it clarifies the ongoing debates in the literature on EX and EE in using an AI-assisted technology-mediated social exchange. Finally, we develop an integrated theoretical framework for understanding how a configuration of AI-assisted HR applications fits into a firm's HR ecosystem and impacts EX and EE. We do this by employing the theoretical lenses of AI-mediated social exchange theory, EE, and engagement platforms (Blau, 1964; Breidbach et al., 2014; Kahn, 1990; Ma & Brown, 2020; Macey & Schneider, 2008).

Our choice of the above theoretical frameworks is relevant as, firstly, social exchange theory (Blau, 1964) is a foundational theory for EX and EE programs, as it is built on the foundations of trust and exchange of value between an employee and its workplace practices. Employees experience stimuli from various sources and will thus react and respond to each stimulus based on their perceptions. Second, the AI-mediated social exchange theory (Ma & Brown, 2020) is also timely

as employees interact and share knowledge through technologically-mediated AI applications that are part of a firm's digital HRM ecosystem. Third, the nature of the technologically mediated social exchange through these AI-based technology platforms invariably invokes a norm of reciprocity between the HR designers and employees (Ma & Brown, 2020), which affects the quality of EX. Similarly, the literature on EE (Bakker & Albrecht, 2018; Burnett & Lisk, 2019; Kahn, 1990; Smith, 2019) and the use of platforms that can enhance EX (Bersin et al., 2017; Burrell & Gherson, 2018; Shivakumar, 2020) is vital in understanding how and why firms exercise strategic choices in developing their digitalized HR ecosystem of AI-assisted HRM applications. This article develops a theoretical framework and explains how firms can design and deliver excellent EX using various AI-assisted HR applications in their HR ecosystem by making certain strategic choices. The rest of the article is organized as follows. First, a literature review on EX and EE, including social exchange theory and its new variant of AI-mediated social exchange, is offered (Blau, 1964; Ma & Brown, 2020). Second, literature on digitalized EE platforms and AI applications (Breidbach et al., 2014; Gheidar & ShamiZanjani, 2020; Kim & Gatling, 2018; Shivakumar, 2020) in studying the missing link – EX – in influencing EE is presented. Third, the research methodology employed, analysis and findings follow. Finally, a discussion of the findings and a conclusion with implications for theory and practice.

2 | EX AND EE—A LITERATURE REVIEW

Extant literature suggests that a positive EX leads to higher levels of EE (Itam & Ghosh, 2020; Morgan, 2017; Plaskoff, 2017) and positive employee and business outcomes, such as work performance, discretionary effort and retention (IBM & Globoforce, 2016). However, a significant trend affecting work design and HR policies is the technologically savvy multi-generational workforce that demands a new way of thinking about their EX (Bersin et al., 2017; Burrell & Gherson, 2018; IBM & Globoforce, 2016; Shivakumar, 2020) and EE at the workplace (Kahn, 1990; Macey & Schneider, 2008). This approach departs from the current episodic and event-based system of EE (Budhwar & Bhatnagar, 2007) and exclusive talent management focusing on an exclusive rewards and benefits menu for key talent (Cappelli, 2008; Farndale et al., 2020; Scullion & Collings, 2011). Further, in large firms, new technologies can enable effective EE and management of diverse generational talents, using an AI-assisted HRM engagement platform for managing people in a firm's HR ecosystem (Malik, De Silva, et al., 2021). The review begins by explaining the differences between EE and EX and then presents a review, definition and reconceptualization of EX, positing it is a vital and missing link for high levels of EE.

2.1 | EX – the missing link for EE

Employee Engagement. In his seminal ethnographic work, Kahn (1990: p. 694), inspiring much of the scientific work on engagement, stated

engagement as "harnessing of organization members" selves to their work roles; by which they employ and express themselves physically, emotionally, and cognitively during role'. The seminal work by Kahn (1990) conceptualizes EE as the psychological conditions (of meaningfulness, safety, and availability) of an individual's engagement or disengagement at work. Employees express themselves cognitively, emotionally and physically in their tasks when engaged. Therefore, this approach highlights the exercise of rational choice and individual agency on the part of employees (Cole et al., 2012). Others, such as Macey and Schneider (2008), used three different types of engagement—psychological state, behavioral engagement, and trait engagement as critical elements of EE, whereas, Schaufeli et al. (2002) defined engagement as "a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption" (p. 74). In practice, however, the dominant approach to EE is often measured as an episodic, one-off event or a series of time-bound activities, as evidenced through popular surveys like Gallup's Q12 survey (Gallup, 2021). Such approaches, though popular, are reactive and implement changes in EE levels post hoc. The temporal and contextual influences on engagement have only recently gathered attention in an emerging stream of research on EX (see, for example, Morgan, 2017; Plaskoff, 2017).

EX. Research points to a correlation between the quality of EX and firm performance, wherein companies with excellent EX have outperformed the S&P 500 firms by 122% (IBM & Globoforce, 2017). The research on critical drivers of EX highlights HRM practices, leadership, and managerial support. Specifically, it includes *meaningful work*, *empowerment* and *voice*, *feedback*, *recognition* and *growth*, *coworker relationships*, *organizational trust*, and *work-life balance* (IBM & Globoforce, 2017). Several conceptualizations of EX exist in the literature. Morgan (2017, p. 8), for example, defined EX as "the intersection of employee expectations, needs, and wants and the organizational design of those expectations, needs and wants", whereas Plaskoff (2017) defined EX as "the employee's holistic perceptions of the relationship with his/her employing organization derived from all the encounters at touchpoints along the employee's journey" (p. 137). Morgan (2017) provided three key touchpoints for EX: technology, physical space and cultural experience. Based on several other conceptualizations of EX, such as by Maylett and Wride (2017), Bersin et al. (2017) and IBM & Globoforce, 2016, substantive research covering millions of employees, HR, and technology leaders have identified various touchpoints and drivers of EX. These touchpoints typically fall into three categories of physical, emotional and social aspects of the employment life cycle and EX of HR practices generates stimuli received from these touchpoints and the wider environment.

We differentiate and build a deeper understanding of EX by drawing upon service management and customer experience literature. The literature review on customer experience notes three main approaches in explaining customer experience formation concerning accessing a service: individual, contextual or a mix of both (Becker & Jaakkola, 2020; Lipkin, 2016). We focus on the first approach– the individual—wherein individuals may be active or passive participants

with some control over the experience formation process. In this stream of literature, most studies focus on the stimulus-organism-response (SOR) model (Mehrabian & Russell, 1974) or a sensation-perception framework (Fechner, 1860/1966), which has its theoretical roots in the environmental and behavioral psychology. The basic thrust of this approach is that an individual receives stimuli from the external environment, which affects an individual's (organism's) cognitive and affective state and leads to a behavioral response.

Similarly, the sensation-perception framework (Fechner, 1860/1966) argues that external environmental sensations trigger an individual's internal perception process, leading to a response. Both theoretical streams characterize perception as a process of interpreting responses through an individual's internal cognitive and affective state and attaching a meaning to the stimuli/sensations from the external environment (Goldstein & Cacciamani, 2021). Thus, perception is an intermediating mechanism between an individual's interactions and reactions to his/her external environment (Pareigis et al., 2012).

Building on the above concepts of customer experience management, Abhari et al. (2008) coined the term EX management, viewing employees as internal customers, and that firms must motivate their employees by delivering the right brand experiences and value-added offerings through five experiential needs of employees (cognitive, emotional, social, sensorial, and practical needs: p. 1). These experiential needs are well-documented in the literature on customer experience management (Becker & Jaakkola, 2020). Employees receive a vast range of stimuli from the external environment, and emotions are a generic term through which we express our experiences (Gordon, 1987 in Harikkala-Laihinen, 2020). Emotional reactions are used to express our day-to-day experiences of the work environment. So, as employees receive stimuli from the environment, after cognitive and affective processing of the stimuli, they express their experience via an intermediating process of perceptions and frame a response. For example, an outcome of disengagement is triggered by poor experiences of sadness, despair or helplessness. The stimuli are received at multiple touchpoints in an employee's lifecycle, and these stimuli may not always be under complete managerial control; indeed, some stimuli may be coming from a dynamic interplay between work and non-work domains. Depending on the quality of reactions and responses to these stimuli, this article argues that employee's reactions and responses to their physical, digital, and human aspects of work will affect their EX, which is why this article argues that EX is a critical antecedent (Plaskoff, 2017; Shenoy & Uchil, 2018) of EE (Kahn, 1990).

Therefore, this article defines EX as continuous, non-deliberate, spontaneous, and real-time employee reactions and responses to diverse *stimuli from the AI-assisted HRM applications in a firm's workplace ecosystem*. We conceptualize EX based on three sub-dimensions: the *stimuli' extent, nature, and perceived relevance*. The extent of stimuli is the degree, strength, or frequency of stimuli employees perceive as available. The nature of stimuli is the diversity or range of stimuli and their perceived availability across multiple touchpoints. Finally, the *perceived relevance* of a stimuli captures, for example, employee
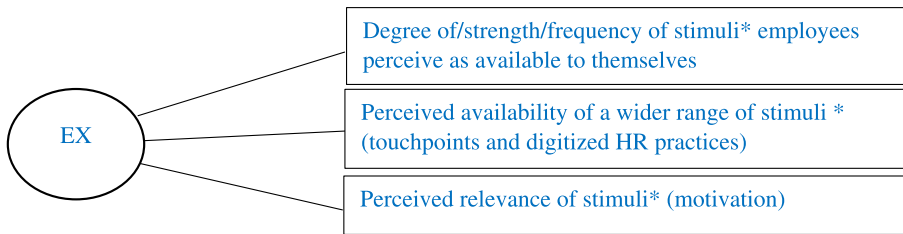
FIGURE 1 Key dimensions of EX. *Stimuli are characterized by AI-assisted HRM Applications

motivation to respond to stimuli. See Figure 1 for a graphical model of EX. Several studies within the HRM literature have attempted to capture EX for specific areas of HR services, such as performance appraisal (Farndale & Kelliher, 2013) and flexible work arrangements (Chen & Fulmer, 2018). Often, the experience of such practices has been examined by characterizing employee perceptions. In this study, employees who receive stimuli from AI-assisted HRM applications and HR platforms would reasonably expect to associate it with a promise of increased social exchange with such AI-driven applications and an ongoing long-term exchange with the employee-organization relationship.

EX versus EE. Several differences exist between EX, a holistic, dynamic, longer-term, and employee-centric (Morgan, 2017; Plaskoff, 2017), and EE, an episodic, shorter-term, and organization-centric approach. The literature on EE and EX suggests two distinct approaches—one where EE and EX are treated as unrelated concepts, and the second, where EE is viewed as a result of methodically planning EX. The former views EE as a set of actions and argues that EX affects EE. For example, if employees have a great experience at work because of the culture, technology, or physical spaces, they are much more likely to be engaged. Further, given the multitude of stimuli that employees receive from diverse sources at multiple touchpoints in their employment lifecycle, it makes it difficult for employees and their managers to process and analyze all their reactions, responses, and experiences due to issues, such as bounded rationality, memory recall or other organizational and individual constraints. EE is, therefore, a continuous and dynamic phenomenon and could change over time, based on EX—be it for a single transaction or several transactions. At a minimum, EX must be consistent and honor the EE's core tenet of a psychological contract as fulfilling a psychological contract antedates EE.

2.2 | Digitalized employee engagement platforms

Successful IT services firms have developed technology capabilities for leveraging business intelligence systems to respond to the diverse needs of internal and stakeholders by balancing multiple levels of strategic, horizontal, employee, and market fits (Breidbach et al., 2014; Boon et al., 2011; Malik et al., 2018). Moreover, with greater technological maturity and disruptions at work, the design of workplace and HRM practices are changing at both local and global levels (Lepak & Snell, 1999, 2002; Morris et al., 2016), as evidenced by the debates on Industry 4.0 (Schwab, 2017) and increasing adoption of AI-enabled HR applications (Jaiswal et al., 2022; Vrontis et al., 2022). Consequently,

digitalization and HR-focused AI applications at the workplace have freed employees' time to focus on non-routine and intrinsically rewarding tasks, thus increasing their overall EX of HRM practices (Malik et al., 2020). However, some scholars have noted this as an attempt by HR to establish its legitimacy (Mahadevan & Schmitz, 2020). In addition, increased digitalization offers greater scope for integration and convergence of diverse stakeholder needs. Therefore, firms need to revisit their work and employment practice architecture to deliver sustained performance (Lepak & Snell, 1998; Snell & Morris, 2019; Swart & Kinnie, 2014) and EX through such platforms (IBM & Globoforce, 2016; Shivakumar, 2020).

With the increasing digitalization of EX touchpoints, EX of HRM practices in the physical, digital, and cultural domains through an AI-mediated social exchange is relatively unexplored (Malik et al., 2020; Malik, De Silva, et al., 2021; Nguyen & Malik, 2021). EE and EX approach in a digitalized workplace are rapidly changing (Breidbach et al., 2014; Kim & Gatling, 2018). The literature on virtual and AI-based EE and EX platforms notes positive results from using such platforms. Accenture (2018), for example, found that companies with highly engaged workforces are 21% more profitable than those with low engagement.

This necessitates consideration of AI service quality and assimilation of the HR-assisted AI applications (Nguyen & Malik, 2021; Prikshat et al., 2021) to effectively monitor, track, and analyze employee reactions and responses from diverse sets of static and interactional stimuli employees receive from their environment, including interactions with such AI-assisted HRM applications. In addition, well-designed AI applications can offer personalized and hyper-personalized EX through AI-mediated social exchanges (Ma & Brown, 2020; Malik et al., 2020; Malik, De Silva, et al., 2021). This research suggests that the AI service quality and the perceived ease of using such AI-enabled applications positively impact EX and employees' usage intentions, thus, resulting in higher engagement levels. In addition, the use of AI-based applications for HRM practices has been linked to greater levels of personalization in learning and development (Whiteside, 2019), employee coaching (Barney, 2018), managing performance (Basu Mallick, 2019), administrative tasks (Haak, 2019) and other employee outcomes and HR effectiveness (Malik et al., 2020; Malik, De Silva, et al., 2021).

2.3 | Human and technologically-mediated social exchange theory

Building on the social exchange theory's key arguments (Blau, 1964), there are three fundamental aspects: relationship, reciprocity, and

TABLE 1 Contrasting AI-mediated with human-human social exchange

AI-mediated social exchange	Human-human social exchange
It is available at the click of a button	It depends on available opportunity(ies) to meet/speak
Leaves the interpretation on the receiver	Provides an opportunity to clarify through iterations
Can provide speedy and objective experience	It may be delayed, but the interaction is richer
Can resolve specific transaction-based challenges	It could be on multiple dimensions
Interactions triggers imageries but not ill-intention	Human-human can become specific and charged
Can manage scale without compromising on quality	Can produce variance based on contextual environment

Source: Authors' compilation.

exchange. In a human-to-human social exchange, following a workplace relationship, the exchange between two parties typically relates to an economic or social value exchange between the parties involved (Blau, 1964). The norm of reciprocity underpins it. Further, with the increasing adoption of AI applications in digitalized workplaces, an AI-mediated social exchange typically occurs between employees or humans with other humans through machines (e.g., an AI application or a bot). The scholarship on the use of AI-based HRM applications and experience of AI-based HRM ecosystems is on the rise and highlights a positive impact on EX and HR outcomes (Makarius et al., 2020; Malik et al., 2020; Malik, De Silva, et al., 2021; Shivakumar, 2020). AI autonomous applications can act human-like and use their agency in a technologically mediated social exchange (Ma & Brown, 2020). At the centre of this technology-mediated social exchange is the value derived by the individual or the firm through such an exchange, such that a positive exchange, resulting in productivity gains or a positive EX can lead to a range of employee outcomes, such as increased intention to use AI applications, high levels of engagement and lower intentions to quit (Kim & Gatling, 2018; Malik et al., 2020; Malik, De Silva, et al., 2021). The employee-organization relationship is an overarching term describing the relationship between the employee and the organization and includes micro-attachments such as the concepts of EE, psychological empowerment, and the psychological contract (Coyle-Shapiro & Shore, 2007). The exchange breaks down if there is a drop in such experience by either beneficiary involved. Thus, the AI-mediated social exchange is different from the traditional social exchange. See Table 1 below for differences between the traditional forms of social exchange and an AI-mediated social exchange. Unlike the physical forms of social exchange, an AI-mediated social exchange involves human interactions that are mediated through AI applications. The quality and extent of data democratization afforded by such AI-assisted applications increase the opportunities for employees' real-time, continuous, and hyper-personalized stimuli. This opens up opportunities for

employees' rich and relevant reactions and responses, thus affecting their EX.

3 | METHODOLOGY

As this research explores a relatively under-researched topic of using AI-assisted HRM in a firm's ecosystem, capturing diverse sets of EX through EE platforms, our choice of an in-depth single case qualitative design of a large, unusually representative, and revelatory MNE is appropriate (Eisenhardt, 1989; Yin, 2003). Moreover, the choice of a single, in-depth case study design can illuminate a new phenomenon if researchers have access to a diverse set of informants and can collect rich data from multiple sources for triangulation and trustworthiness of the findings (Pratt, Kaplan, & Whittington, 2020; Pratt, Sonenshein, & Feldman, 2020).

3.1 | Indian research context

We chose India for its extreme ethnic, political, cultural, business, and spiritual diversity (Budhwar et al., 2020; Mishra & Varma, 2019). It has a rich cultural heritage of ancient administrative guidelines of the *Arthasharata* dating back to 3000 BC, wherein the fundamental principles of holistic management practised in the past are still relevant to new knowledge-intensive firms in the Pharmaceutical, Ayurveda, healthcare, and IT industries (Malik et al., 2018; Malik, Budhwar, et al., 2021), including those at the bottom-of-the-pyramid (Basu et al., 2021). India is also home to the most highly sought-after technology talent globally (Pereira & Malik, 2015) and is indeed one of the most preferred geographical locations for MNEs seeking to establish their global innovation hubs in India (Malik, Sharma, et al., 2021; Pereira & Malik, 2015). Even though there is an acknowledgment of India's deep pockets of technical and highly skilled innovative talent, there is still a dark side and cultural issues that need recognition and attention to give due credit to the innovativeness of Indian knowledge workers; else they end up being affected by neo-colonial power excesses (Malik, Mahadevan, et al., 2021). The differences in values between Generation Y expatriates and Generation X managers have been problematic for mGen Y employees (Pereira et al., 2017). The Indian IT industry has employed innovative HR practices to offer a unique expatriation experience to Gen Y expatriates to deal with such differences and manage and retain a vast population of millennials in the workforce (Pereira et al., 2017). Shenoy and Uchil (2018) also highlight the importance of managing EX in driving EE outcomes in the Indian cultural context. More recently, Malik, Budhwar, et al. (2021), using evidence from the Indian IT industry, highlighted the importance of managing millennials' experience through AI-enabled HR applications for better employee and HR outcomes. Thus, our choice of an IT consulting MNE subsidiary operating in India engaged in designing and implementing AI solutions for various industries, client firms, and functions, including HRM, is timely.

TABLE 2 Interviewee details

Level in the organization	# of interviews	Gender (#of interviewees)	Functional area
Head of HR	4	Male (1)	HR
Senior HR Manager	4	Male (2)	HR
Middle HR Manager	2	Male (1)	HR
Head of Innovation	1	Male (1)	Technology & Innovation
IT Leader	2	Female (1)	Healthcare Innovation
Software Developers	4	Female (2), Male (2)	IT Employees
Senior AI Leader	1	Male (1)	Technology & Innovation
Senior Leader	2	Male (1)	Mining and Resources Lead
Subject Matter Experts	2	Male (1)	Technology & Innovation
Middle Manager	1	Male (1)	Business Development
Total Number of Interviews	**23**	**14**	

3.2 | About the case organization

To maintain the confidentiality and anonymity of the MNE's subsidiary operation in India, we use a pseudonym and refer to the MNE as BigTech Services. Pseudonyms are also used to describe BigTech's AI applications in its digitalized HR ecosystem. It employs over 100,000 highly skilled people serving more than 50 industries globally, with several ecosystem partners in digital, cloud, security, data and analytics, automation, AI, blockchain and industry X.0, and IoT technologies to offer immersive experiences and economic value and productive outcomes to its clients. Close to 90% of employees at BigTech Services are millennials and Gen Z and are a major driving force for BigTech Services' growth in the next 5 years. This generation typifies patterns of multiple buying, mobility, travel, and accommodation needs, enabled by BigTech's technology applications. Therefore, they expect a similar consumer-grade experience from their employer.

BigTech Services is part of the Indian IT industry's growth story driven by six disruptive technologies: *automation, robotics, cloud, IoT, AR/VR,* and *blockchain*. More efficient and value-focused business models are increasingly challenging the traditional volume-centric or service-level agreements to drive growth. Such a change required the HR managers and leaders teams to think afresh of their HR ecosystems, as these changes created different employee expectations from their employers. Towards the end of 2016, BigTech Services adopted digitalization and used a 4-S framework of automation: *Simplification, Seamlessness, Scale,* and *Sustenance*. It was a unique opportunity for BigTech to automate and provide simplicity at scale. The HR team at BigTech had to leverage technology and include business and technology people to co-create AI applications for enhancing EX.

3.3 | Data collection

The study's design involved questions to a vertical slice of the employees, managers and leaders (e.g., See interviewee details in Table 2). This strategy enhances the trustworthiness of the findings (Pratt, Kaplan, & Whittington, 2020; Pratt, Sonenshein, &

Feldman, 2020; Yin, 2003). The nature of the questions followed a semi-structured approach and included, for example, the following. First, the questions focused on the nature and extent of technological innovation designed and implemented by BigTech in AI technologies in various functional domains. Next, this was followed by focusing on how these applications were designed and implemented for their HRM function. The next set of questions examined how it affected the business and end-users experience (e.g., managers and employees) experience of these AI-assisted HRM applications. As part of this, the HR managers, designers of the AI-assisted solutions, and employees were asked further questions about their experiences of the HRM practices through these applications and with the broader AI-assisted workplace ecosystem comprising physical and digital artifacts. Some illustrative questions asked were: How clear are you about your goals and objectives? When was the last time you got recognized for your contributions? What promotes (and prevents) collaboration for you at the workplace? Are you able to speak without any fear of retribution? - these questions were aimed to elicit EX across various HRM processes. Finally, a deeper probe of the employees and managers focused on questions related to the end-users experience at an employee outcome level (e.g., satisfaction, loyalty, and commitment). These questions also examined the efficiency and effectiveness at a business and strategy level.

In addition to the abovementioned interviews, the nature of documents and other sources of data analyzed include: non-participant observations, interactive communications with the AI applications, organizational records, client case studies and testimonials, HR policies, user satisfaction data, leadership, and strategic values framework, post-hoc Q12 EE reports, attrition reports, performance management analytics, code of business ethics surveys, staffing reports (which helped us understand the pattern of skill adoption and skill inventory), culture surveys, candidate experience analytics, and employees' exit interviews. Additional secondary data were accessed through its website. The use of additional data sources allowed for data triangulation and supplemented the themes analyzed. For example, end-user surveys of employees and frontline managers on using these applications and reports focusing on the PeopleXp framework were highly beneficial in corroborating evidence from more than one data source.

The number of interviews (23, in this case) is vital for data saturation (Saunders & Townsend, 2016), which occurred in the first 14–15 interviews. Only incremental new information was added through subsequent interviews or review of additional organizational data. Hence, findings from interview data, organizational records, and non-participant observations were triangulated to strengthen the replication of themes. Our interviews' adequacy and lack of new incremental knowledge from more data align with Guest et al.'s (2006) findings. They calculated Cronbach alpha scores of thematic prevalence mapped against the number of interviews. They found that at 12 interviews, the Cronbach's alpha was 0.70; after 18 interviews, 0.79; after 24 interviews, 0.85; after 30 interviews, 0.88; after 36 interviews, 0.88; after 42 interviews, 0.89; after 48 interviews, 0.90; after 54 interviews, 0.91; after 60 interviews, 0.93. They concluded that this measure was reliable early in the process and improved at an ever-decreasing rate, concluding that most of the data saturation had occurred at the end of 12 interviews, and the identification of new categories or modifications of existing codes was very incremental.

3.4 | Data analysis

Interview data, organizational documents, white papers, HR policy framework, clients' case studies, and publically available information from the MNE's website were analyzed. More than 125,000 words, non-participant observation, and informal communications with AI applications formed the total pool of data analyzed. Access to these rich sources of case study data facilitated a deeper understanding of EX's contextual influences and employees' perceptions and interactions with an AI-mediated social exchange.

Following transcription of interview data and collation of additional documents, concepts, and themes were developed using traditional manual coding approaches. The manual coding generated the following first-order codes: people, teams, rewards, projects, work, diversity, needs, knowledge, innovation, technology, ideas, experience, voice, solutions, and problem-solving. This was followed by coding a targeted theoretical second-order coding of theme, such as values, HRM practices, physical, digital, and values ecosystem, and EX and EE, using a theoretically informed abductive logic approach (Dubois & Gadde, 2002; Van Maanen et al., 2007) for our analysis. A theoretical coding process followed the preliminary coding of the first-order codes from the raw textual data. Abductive theorizing requires going back and forth between the data, relevant theories, and the case phenomenon. Where it was necessary to resolve an emerging puzzle from the phenomenon regarding the relationships or new concepts, a constant interplay between data, theory (Blau, 1964; Breidbach et al., 2014; Kahn, 1990; Macey & Schneider, 2008; Ma & Brown, 2020), and phenomenon was employed. Theoretical coding was undertaken using theories such as HRM, AI adoption, EX, and engagement. Next, this theoretical coding led to developing our theoretical framework and mapping the nature and extent of EX and its diversity (Figure 2).

In line with Yin's (2003) recommendation of literal replications, themes that had three or more observations were included in the final analysis. Analyzing internal reports, documents, clients' testimonials,

and secondary data available through the organization's website was analyzed using the above abductive approach. Overall, four meta themes were identified through our data analysis: *integrating an HRM practice ecosystem, mydigital, myphysical,* and *myvalues and culture.* This first meta-theme has six sub-functional themes (*myTeam/Unit, myCareer, myWellness, myRecognition, myTalent,* and *myVoice*) and captures the key domain of HRM practices employees experienced through the AI-assisted HRM system. The remaining three meta themes underpin the first theme. For example, the theme focusing on disseminating BigTech's values of a holistic approach to managing employee health and wellness by focusing on the mind, body, heart, and soul needs was embedded in several AI-assisted applications that formed a part of its digitalized HR ecosystem and EE platform and underpinned each of the six sub-themes. Similarly, the mydigital and myphysical theme shows BigTech invested in AI-assisted applications that deliver a digitally accessible workplace, meeting employees' physical and digital needs by offering a continuous and seamless social and mobile experience (See Table 3 for details).

The nature and extent of stimuli and their perceived value by employees for various AI-assisted HRM applications meant that EX from an AI-mediated social exchange using varying degrees of personalization, hyper-personalization, and individualized exchange for sharing information and knowledge between the employees and the AI-enabled applications was present. Careful choices exercised by the HR managers and leaders at BigTech led to the development of a diverse set of AI-assisted applications in its digitalized HR ecosystems, catering employees' psychological, social, and physical safety and brand affiliation needs. This diversity of such applications (from low-touch AI to high-touch AI) resulted in different EX outcomes and is captured in our theoretical framework based on the work on customer engagement platforms by Breidbach and colleagues (2014) (See Figure 2).

4 | ANALYSIS AND FINDINGS

This section begins with how BigTech designed AI-assisted HRM to improve EX and EE outcomes in its ecosystem. Next, an analysis of four meta themes is presented, and where applicable, integration of the findings with our theoretical model.

5 | BUILDING AN AI-ASSISTED HR ECOSYSTEM FOR EXCELLENT EX

The analysis suggests that EX is not a discrete phenomenon confined only to office hours and traditional work boundaries. Instead, employees continuously receive stimuli from work and non-work domains as the boundaries become blurred. Therefore, EX is the responsibility of both HR and business leaders to get involved and co-create an AI-based HR ecosystem for delivering exceptional EX. While traditional EE relies on "events" across "locations" and has its advantages, EE depends on the quality of EX that employees have had as
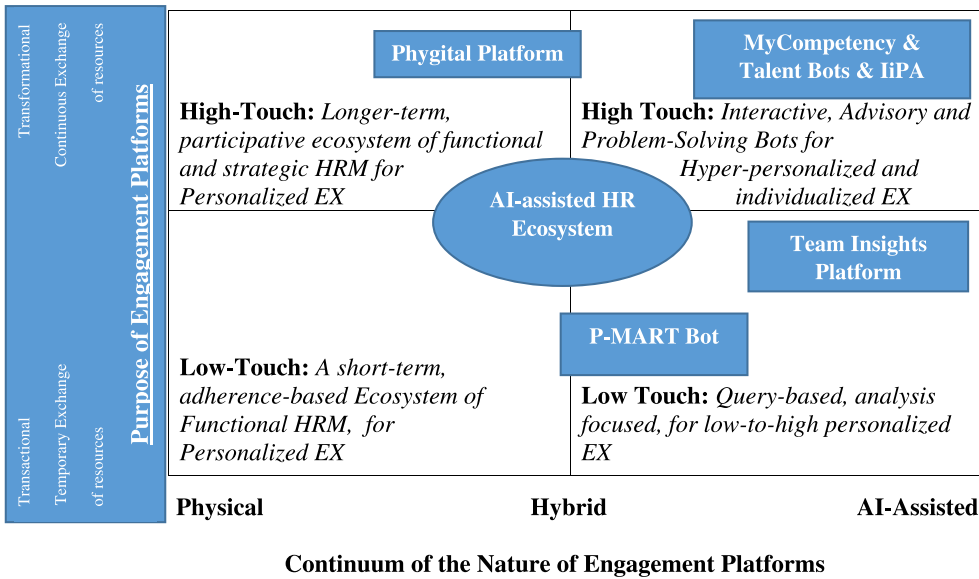
FIGURE 2 Towards a theoretical framework of AI-based HR ecosystem for EX

TABLE 3 PeopleXp framework: HR ecosystem, values, digital and physical ecosystem

Integrating an HRM practice ecosystem					
myTeam/unit	**myCareer**	**myWellness**	**myRecognition**	**myTalent/passion**	**myVoice**
Building engaging and high performing teams and creating a culture of ongoing meaningful conversations through the platform	Enhance competencies, build experts and define career paths to realize aspirations through the platform	Ensure the platform allows the adoption of healthy practices and creates a culture of wellbeing	A platform to build a culture of real-time, ongoing recognition where people feel valued	Provide a platform to pursue and showcase other talents in arts and sports in the workplace	Allows people to be heard through a platform and by active listening to seek feedback and opinions
myDigital: Design digitally-enabled agile technology platforms to create a seamless social and mobile experience					
myPhysical: Shift to a digitally enabled, safe, seamless and accessible workplace					
myValues and culture: Influence the shift to a culture of Humane HR values incorporating a holistic focus on the mind, body, heart and soul					

they react and respond to diverse stimuli they continuously receive from the ecosystem's physical, digital and cultural domains. The HR team at BigTech Services explored ways to offer continuous, relevant, and meaningful EX. For example, as employees join a team, they look to build careers, be recognized, stay healthy while balancing work and personal life, and follow their passion and voice their opinions.

6 | INTEGRATING AN HRM PRACTICE ECOSYSTEM

As part of the *human* element of the *PeopleXp* framework (see Table 3), six thematic HRM practice verticals or employment lifecycle touchpoints are analyzed that an employee goes through and are also supported by three underpinning horizontals of *myValues*, *myPhysical*, and *myDigital* continuum of BigTech Services' HR and people management ecosystem. The six vertical HRM themes and three enablers are

captured in the integrated *PeopleXp* framework in Table 3. Excerpts of interviews for all themes are in Table 4.

The six HR theme verticals are *myTeam and Unit*, *myGrowth and Career*, *myHealth and Wellness*, *myReward and Recognition*, *myTalent and Passion*, and *myVoice*. These verticals represent sources of external stimuli to employees during their employment journey. The HR leaders and technology leads at BigTech Services developed several AI-based HRM applications to offer seamless access and scale for handling employees' interactional queries and solutions to provide personalized, hyper-personalized or individualized EXs. These AI applications employed a humane and value-based approach and had digital ease of use functionality for millennials and Gen Z employees to deliver high EX levels. We now elaborate on the framework and its use of multiple AI-based HR applications in the MNE's HR ecosystem for delivering EX and business value.

myTeam and Unit. Analyzing an internal survey document provided by BigTech, 950 C-level executives, and their direct reports

TABLE 4 Excerpts of interviews from the four meta themes with interviewee designations

Theme	Sub-theme	Sample quotes
Integrating an HRM practice ecosystem	*myCareer*	*And now we have built a platform that does a few things like, first what we did is we built a complete relationship between skills… The demographics you will see new joiners in the last 30 days you have on entry levels, and other people joined later. … 1980 people who have joined the last 30 days literally, it is a rolling number. By skills, what other kinds of star populations get as the primary skill you take for your assessment and proficiency in each function. …. So you can go down to any of these and drill down to what you want to see, how you want to see, and then engage in a conversation with people and leaders who are supposed to be there* [HR General Manager]
	myWellness	*Of course, happiness is you having a balance in your personal life. … Let us say somebody could be having a singularly limited responsibility. Someone may have the responsibility of parents. Someone may have a family, a husband and a child. So different dynamics and different levels of pressure, it would be for the challenges within the family someone to seek some other conflict. One does not know, right. One does not know there could be many things. So I am, I think yes. So, for example, physical well-being and mental well-being to parts. So if my both things are affected, I think that I'm not fine. I can tell for myself I'm not contributing 100% definitely.* [AI Software Developer- Employee]
	myRecognition	*The TOPSTAR* [pseudonym for a talent recognition program] *is that you get an opportunity at Middle management, your managers, senior managers, have data on a program that is run at MIT - One year-long certification program you go through. All focus is on technology.* [Technology Manager] *…So you have the differentiated rewards you could differentiate learning opportunities you are differentiated.* [HR Manager]
	myTalent	*And you are calling out the set of people who are against whatever numbers that you may have, who are shortlisted for being given this kind of opportunity, where you get 65,000 entries for an innovation contest…in that, you are going to select the top 16 ….in that 16 your, you get your top three. So that's the level of filtration. When you come down to that, you are really quite literally 1% of the population…so literally …. "lakhon mein ek"* [a Hindi expression for *one in a* 100,000]. [Senior HR Leader]
	myVoice	*For myVoice, if I look at the business side, I would offer feedback engines for experiences. People go through….a question that would be damn straight saying that OK …How satisfied are you about your current ABCD [role, manager etc], or it's a very simple one. Happy, sad or normal. This is we go back and ask those people in projects what is right or wrong. We engage in focus group discussions. Now, we have all this information to come back to and see what is working for a particular account or a project or a location versus what should not be done at a generalist level. So this also becomes a medium for capturing the mood of the organization.* [Senior HR Leader]
myPhysical, myDigital and myValues and AI-assisted HRM applications	Intelligent Interactive Personal Assistant (IiPA)	*IiPA has a very smart way of working with a team member. We were pretty much working from ideation to pilot, and then coming to the sponsors like XXX (Sponsor's name) and business sponsorship …we know our own complexity …we have to tackle each HR process area, there is there's a lot, and the bigger thing is that we were trying to tackle so many HR policies and processes out there, making them consumable to employees and understood well in a manner that they get it right…. how do you translate that lingo which is out there in policy documents and the way the processes are documented into a simple format, conversational format, was our biggest challenge …[Technology Leader and Developer of IiPA]*
	Mycompetency	*We have something called myCompetency… At any given point in time, we only have about 40% of the organization which is new to the business. So I have on a monthly basis, I would be tracking P4, P3, P2, and P1. P5 is the highest, and [rest are] the lower level of proficiency. P5 means you are convincing people as you are working on it because Proficiency Level 1 is what you said they would be, level 2 is experienced, level three is expert, level four is super-advanced, level five is master – you are an acknowledged expert! But there are about 66,000 people who have not been assessed for various reasons, of which you will have 20,000 people who are at entry-level. So P1 is a beginner. P2 is intermediate, P3 is advanced, P4 is expert, [and] P5 is master, and you will also see how many people like at what career levels go into the Proficiency level proficiency P4, P5 is all there in terms of how you want*

(Continues)

TABLE 4 (Continued)

Theme	Sub-theme	Sample quotes
		to get those people into it. So, this is all to do with mycompetency and skills. [HR Manager]
	PMART	*What happens is the person gets trained in a skilled in this vertical, the way this works is that we have a repository of skills. Very well defined, it gets refreshed every quarter, and each employee goes into a dashboard room of myCompetency, updated skill after an assessment. So that's how the skill flows into the staffing platform.* [AI Technology Leader]

equally split between HR and non-HR leaders from eight countries, found that employees valued ongoing *coaching* and *feedback* conversations to impact individual performance (BigTech Survey, 2017) positively. Further, millennials wanted greater *flexibility, autonomy*, and *learning opportunities*, value *emotional* factors, such as *engagement, quality of life*, and *status* and switched employers to get them. The survey also revealed that AI and automation could help deliver personalization and overcome frustrations employees face in various HR matters. Therefore, HR managers and leaders at BigTech focused on creating a digitalized HR ecosystem that employed several AI-based HR applications and enabled an AI-mediated social exchange between the AI applications, managers and employees to deliver high-quality EX and, consequently, higher levels of EE. As a result, there was an increase in informal performance conversations in a team, timely feedback was provided to employees, and their expectations were adjusted.

Further, team cohesiveness and engagement were essential measures of a team's success. As an individual contributor, work output is determined by individual performance and merit. For team leads, the number of variables to manage increases significantly. Through the *myTeam* theme and HR vertical, seasoned business and HR professionals identified and coached the first-line people leaders to handle exception management, engage with their team members in meaningful conversations, and manage and recognize high-performing teams. It entailed setting the tone for frequent conversations around a team member's performance and ensuring no performance expectations mismatch between the leader and the team member. The HR managers co-designed the AI-assisted applications by drawing team insights from the MNE's subsidiaries to develop coaching and mentoring support tools for helping managers and employees plan and build their goals. These tools further provided a constant and real-time pulse of EX, so the platform supported HR and line managers' decisions. The platform also generated team composition insights for innovative work. Table 4 has examples of sample quotes.

myGrowth and Career. The technical expertise is expected to change with a changing business and technology skills landscape. For an employee at the mid-career level exploring skill enhancement for a career shift, the *myGrowth and Career* theme provided a framework to take specific actions. It is supported by an AI-based interactive Bot that provides employees with an awareness of the opportunities within BigTech. By sharing relevant insights about their career and personal growth information, the stimuli received from the Bot and other AI applications helped employees improve their EX and, as a result, stay motivated for their growth and learning. In addition, it provided a sense of care to employees—someone in the organization values their contribution from the past and is willing to stay invested as they pivot to future skills, leading to higher levels of engagement. These AI-mediated exchanges (Ma & Brown, 2020) increased the EX and were valued by employees. It created a norm of reciprocity and trust (Blau, 1964) among employees, leading to higher EE and commitment to the organization. Once an employee is recognized as an expert, s/he tends to benefit from experts' in similar networks. The platform captures the employee journey at different touchpoints in time and on an ongoing basis. It recommends proficiency levels and skills for new roles, thus enabling managers to assist (see Table 4 for interview excerpts).

myHealth and Wellness. The *myvalues, mydigital* and *myphysical* horizontals extensively supported this vertical. For example, work-life synergy replaced work-life balance. BigTech Services recognizes that both are interdependent factors that are complementary. When a person receives stimuli from diverse work touchpoints and is supported by the diverse set of AI applications through the platform, it improves their whole self, and work is aligned with their strengths.

Consequently, they feel engaged and empowered in other aspects of their lives. The *myHealth and Wellness* theme and HR vertical help inculcate healthy habits among employees to effectively manage their work-family lifestyle. The technology applications prompt employees with ongoing stimuli to take regular breaks and reduce the monotony using campaigns, such as the "biggest loser" as the winner—a program aimed at weight loss. To this end, several third-party health apps were co-created, integrated, and launched in the HR ecosystem to inculcate healthy habits. These AI-mediated stimuli (Ma & Brown, 2020) generate positive reactions to care, and employees respond through the norm of reciprocity (Blau, 1964) with higher commitment levels and loyalty. In its new avatar, the *myHealth* and wellness vertical also has mental health focus area to support employees in their transitions in life—from campus through corporate to marriage, parenthood, etc. It helps them navigate work and non-work stimuli and explore mental health and wellness solutions most suited for each individual. Such individualized EX helps them deal with the societal stigma associated with discussing mental health issues, as they perceive the AI application as a neutral and less value-laden resource to find their way into executive wellbeing. Further, creating an independent, third-party helpline with specialized and confidential support drew senior colleagues who willingly volunteered their time

for the cause. This generated an awareness of the drivers of employee health and wellbeing.

myRewards and recognition. Appropriate recognition and rewards at the workplace can help extract an employee's discretionary efforts. However, for any reward or recognition initiative to be effective, it needs to be timely and visibly impact the employee's social currency. In other words, the recognition needs to be real-time, and employees should feel valued by their managers in front of the employees' peer group. The *myRewards and recognition* theme and HR vertical provide transparency and rigor by providing employees with ongoing reward and recognition points during the financial year. The framework goes beyond monetary rewards in its new technology-mediated avatar and lets employees define what recognition means for them. This shift in co-creating the meaning of rewards is significant in how BigTech wants to define recognition vis-à-vis what an employee thinks recognition is. The development of such programs was possible through the stimuli and reactions received from multiple EXs. As a result, BigTech offered these through the digitalized platform to better engage with the employees, though some programs require nomination and support from the leaders. Further, providing several positive stimuli in the form of stories of past winners of competitions and learning rewards were made available through the platform. In addition, rewarding and recognizing talent occurs through its *Talent bot* and is linked to a series of reward programs.

myTalent and passion. Employees bring more than their professional competence to work. This is where managing work and non-work stimuli for excellent EX comes into play. BigTech recognized the need to allow employees a social vent and a physical platform to express their other non-work talents, which greatly mattered to employees, thus increasing their EXs. Organizations need to identify, appreciate, and, more importantly, create a platform to recognize this "personal" side. The *myTalent and passion* theme and HR vertical helped employees bring their side to life through sports, culture, and performing arts initiatives. When employees discover that the person next to them is a state-level badminton player, has sung a popular song in a full-length commercial motion picture, or is an Olympics medal winner, the level of admiration goes up several notches. Thus, acknowledging and addressing non-work-related issues and providing support helps increase employee motivation and commitment (Mohamed et al., 2006). Such applications allow individuals to showcase their talent and be recognized for unique talents among peers and the organization. Millennials are a generation that thrives on dopamine and love to create positive experiences. These initiatives will likely succeed if employees co-create at the ideation and creation stage. The *myTalent and passion* HR vertical delivers just that.

myVoice. Employees can provide feedback anytime without waiting for annual EE and climate surveys through a technology-mediated feedback mechanism. A quick dipstick and pulse check helps the program teams sense employees' moods and calibrate their future actions accordingly. These six verticals create specific touchpoints for employees to influence each other and weave a more holistic and complete narrative, providing the much-needed digitalized HR ecosystem for the six verticals to thrive.

7 | MYDIGITAL, MYPHYSICAL AND MYVALUES, AND CULTURE HORIZONTALS

Our analysis suggests that HR managers created relevant value and culture systems (myvalues and culture) through their digitalized HR ecosystem. This included several AI-assisted HR applications enabling technology-mediated exchanges (mydigital) and provided physical infrastructure support for consistency in workplace interventions to take care of employees' psychological safety and relational needs (myphysical). BigTech Services' digitalized HR ecosystem shaped the *interactions that count* to create a multitude of personalized EXs, as evidenced in Figure 2 of our model.

BigTech Services could launch its AI and automation efforts at scale to make a demographically consistent employee base. However, given the service diversity at BigTech Services, this would have probably delivered sub-optimal results. The efforts under the framework needed to be personalized. This was achieved by defining the typical "persona" of employees who will experience the initiatives and actions that align with the persona's traits. For example, a persona could be of a (1) young executive entering the organization from campus, (2) first-time/new manager leading a team, (3) mid-level career professional wanting to explore opportunities within, or (4) professionals across the hierarchy wanting to express themselves through their passion beyond work, and so on. The list of personas can be lengthy, and it would be a humongous task for HR and business teams to define a single program that suits all personae's needs. In line with prior studies, the traditional one-size-fits-all approach to managing employees was considered, at best, sub-optimal (Kinnie et al., 2005). Instead, BigTech Services decided to engage with employees in a long-term symbiotic relationship. BigTech Services' digitalization approach integrates technology with how the world of work is organized. This framework straddles the *cultural*, *digital*, and *physical* continuum and sets the foundation for developing BigTech's AI-based HRM ecosystem for EX. We refer to this as *PeopleXp*, a framework that provides a platform(s) to engage with employees holistically and continuously, and consistently. The framework is agile, employee voice-driven, and iterative.

8 | LEVERAGING VALUES, DIGITAL, AND PHYSICAL ENABLERS

The *PeopleXp* framework is meant to engage with employees as it is designed collaboratively by business and HR teams with sponsorship from senior-most business and HR leaders at BigTech's Technology and business division. Each framework element is co-owned by a business lead and an HR professional to deliver its intended agenda. Extensive intra- and inter-team collaboration focus on areas to synergize efforts. The business teams find immense value in work delivered through the three horizontal elements of the framework (*myvalues and culture*, *mydigital* and *myphysical*) using AI-based applications in the HR ecosystem. In addition, they provide a real-time focus through the AI applications in typical customer engagement and experience domains.

9 | THREE HORIZONTALS: MYVALUES AND CULTURE, MYPHYSICAL AND MYDIGITAL

Corporate values co-created by the senior leadership team and HR leaders were based on internal staff surveys, EX reactions and responses, and the MNE headquarters values. These values underpinned all HR activities of the previous HR practice theme and HR's focus at the Indian subsidiary (See Table 3 for details). In addition, the underpinning of values and cultural reference points were embedded within different AI applications at the co-design and development stage. Doing so allowed BigTech to incorporate valuable insights in training these AI applications. The myPhyscial horizontal focuses on providing a holistic EX on physical infrastructure. BigTech has attempted to replicate EX similar to what employees experience outside of their work. Some of myPhysical horizontal initiatives were co-created with employees, including a 100% digital solution for end-to-end transport operations and implemented across BigTech's locations in India. This helps an employee in managing their commute to work seamlessly. Finally, the myDigital horizontal aimed at supporting the entire digitalized ecosystem of AI-assisted HRM applications and helped integrate all the elements and themes presented in Table 3. Further analysis of this theme led to the development of our theoretical model (see Figure 2). Below are several AI-assisted applications that BigTech's digitalized HR ecosystem employed across the MNE's geographies, offering diverse EXs, and varied levels of AI-mediated social exchanges.

Phygital. The *Phygital* platform was used to digitalise employees' physical ecosystem is a critical part of the overall HR ecosystem. Also, as part of the *Phygital* platform, having user-friendly cashless digital applications to order food at employees' convenience has been implemented across the Indian subsidiary. As a result, 100% of employees have downloaded this app. An extension of this was the digitally enabled hot beverage vending machines offering freshly brewed coffee and natural beverages free from preservatives and sugar (Malik, A., Personal Observation, 2019). Another major part of the *Phygital* platform was developing online taxi bookings, food ordering, and securing entertainment events. This was particularly relevant for showcasing events to employees, who exhibit a vital social need for connection and sharing their social skills and expertise with other colleagues within the social relations at work. This engagement is of high cultural value in an Indian setting. Thus, this app focused on creating workplace pilot designs that support flexible and fluid working methods while addressing the human need for social interaction. Although these are just a few benefits, employees can experience an engaging workplace, conveying a sense of wellbeing and care.

Team Insights. A team of three functional experts, 10 leads from the field HR team, and two from the Analytics Centre of Excellence collaborated with 10 technical experts to design and deliver 60+ reports through their technology platform. This team created a data visualization tool called Team Insights, which integrates all HR analytics models in disparate HR sub-systems. It is built on the QlikView technology platform. With an exponential increase in employee headcount, the human resource function and its sub-functional domains, such as recruitment, workforce planning, rewards, training, engagement and retention, were integrated with this interface to deliver focus at scale. As the fulcrum of any business transformation lies in talent transformation, the business leaders must effectively plan their workforce. This dashboard provides insights into a report and correlates it with additional (and supporting) data to support managerial decision-making.

The *Team Insights* portal captures trends and is highly flexible and agile, enabling a thorough deep-dive into various people analytics using associative data modeling techniques. It provides customized insights by role and level of the end-user and can be scaled up in volume. This AI-based technology platform helped save nearly 24,000 human hours each year, improving productivity (BigTech Services Document, 2019). EE is another area supported by the *Team Insights* dashboard using sentiment analysis of EX. Responses and reactions to diverse employee stimuli and employee sentiments were assessed using data triangulation from various sources like attrition analytics, focused group discussions, pulse surveys, Q12 engagement (monthly) assessment by Gallup and talent heat map analytics of 5000+ senior executives in the organization (Internal Dashboards, 2019). Integrating these assessments of the impact of sentiments percolates below to employee levels, showing care, and concern for employees. Some additional benefits accrued to the business and HR teams include assessing the quality of campus hires (leading to a classification of colleges into Top, Middle, and Bottom quartile), enabling role rotation and sufficient staffing, competency building, and assessing employee pulse through sentiment and prediction analytics (Internal Document, 2019). The transparency and ease of use of the *Team Insights* portal, as part of the mydigital horizontal, supported several of the six HR verticals, especially the myTeam and unit vertical.

Interactive Intelligent People Advisor– IiPA. Subsidiary operations of BigTech Services India have expanded significantly, and with its focus on building next-generation skills and technologies, BigTech Services hired, on average, 2000 employees each month in 2019 (Internal Document, 2019). Most new hires are Millennials and Gen Z and have new-age technology skills, such as AI, Machine Learning, and Blockchain. Disseminating organizational information, keeping communication channels open, and retaining a personal touch across the growing employee base are some of BigTech Services' foremost HR challenges. This digitalized AI-assisted application connects with the workforce, speaks in their digital native language and offers an excellent digital end-user EX.

IiPA uses AI-powered interactive chatbot and helps employees navigate the complex organizational landscape. *IiPA* has gained significant traction at BigTech Services with help from an expert team of technology specialists, researchers, UX (user experience) designers, and HR professionals, who worked fast to create a prototype. As a result, *IiPA* brings a digital consumer-grade experience to BigTech Services' employees. It provides accurate responses on HR processes, policies and procedures, and enables a personalized experience for every employee. *IiPA's* powerful AI engine is trained on exhaustive repositories of organizational information and fetches quick, accurate

responses to employee questions. In addition, IiPA provides personalized reactions and responses to individual employees on their queries through its "Assist mode", thus crafting a superior and personalized EX.

Accessible round-the-clock, IiPA is designed to inform, assist, and coach employees in multiple HR process areas, such as employee referrals, new joiners, personal information, career development, staffing, transfers and transitions, exits, workplace health & safety, time & expense, EE, compensation & benefits, leaves & holidays and HR tools. IiPA has now answered over 1 million queries with >80% accuracy (Internal Document, 2019). Of 60% of users, more than 50% were repeat users. In the fully mature "Coach phase" of its evolution, IiPA will serve as a solution provider, making proactive recommendations on a wide range of employee-related matters—from compensation break-up and vacation planning to career guidance and wellness.

myCompetency and Talent Bot. BigTech Services defines competencies as the combination of knowledge, skill, and process abilities that an individual requires to perform a job. According to an internal survey conducted by BigTech Services with more than 10,000 employees worldwide, 64% of respondents agreed that the pace of change in their job is speeding up due to technological change (BigTech Survey, 2019). Thus, finding the right employee at the right time with the required skillset from a large workforce base is akin to finding a needle in a haystack. With over 100,000 employees and considerable skills to map, the problem becomes complex. Running with an anachronistic annual performance management cycle can lead to only episodic training/skill need identification once a year. Performance and skill/competency development in the current digitalized disruption requires continuous review. This perhaps is the only way to match the external demand and internal supply source. If the demand is elastic, it could be fatal to have plasticity in internal processes. It would also be imprudent to forever recruit staff through external hiring due to cost and productivity challenges– increasing the hiring cost, uncertainty in staffing a project, and high assimilation and lead-up times for recruits.

BigTech Services transitioned from low or high skills (based on years of experience) through competencies (enabling and expecting more profound technological and domain expertise) to careers (providing a vector for employee growth) for the employees. The onus of competency development shifted gradually from the organization to employees, wherein the organization helps employees co-create the journey by offering in-depth expertise in diverse areas. The old model of a billable number of full-time employees is no longer a measure of growth and productivity. Business problems now have alternate solutions that are headcount agnostic. Deep expertise in technology is critical lest the new age start-ups topple the applecart of the headcount-based growth model. A critical enabler of this is identifying and embarking on continuous learning opportunities. In a learning context, personalization refers to instruction that is paced to learning needs, tailored to the specific interests of different learners (standard learning curriculum for all), and individualization refers to instructions that are paced to the learning needs of diverse learners (similar to homeschooling), and Hyper personalization refers to a learning scenario where a learner will have their curriculum, own teacher, and own books (online learning apps).

The myCompetency and Talent bot has helped achieve BigTech's innovating, originate, and automating business objectives. Over time, the employees are trained to be recognized as experts in their chosen specialization area. Consequently, the experts' staff turnover has reduced, as employees experience a sense of being invested in their career development. This leads to better EX, commitment, and loyalty.

P-MART. BigTech has 600+ technology/industry skills and over 100,000 employees to map for an organization of its size. This presented itself as a challenge of both complexity and scale. The staffing engine needs to be in harmony with business demands and employee aspirations to work effectively, efficiently, and consistently. It took multiple stakeholders (employees, staffing managers, hiring managers, and delivery managers) working with new methodologies (Design Thinking, Agile, User eXperience studies) and new technologies (Machine Learning, AI, and statistical modeling) to arrive at an algorithm that works concurrently to staffing needs. This led to the genesis of the P-MART (People Management & Resource Tracking) solution. It provides transparency, empowerment and ease of use for the delivery managers. The key features of P-MART are: a skill ontology of 8000+ skills and mapping the strength of its relationship with other skills to enable "nearby" skill-based staffing (Internal Document, 2019). The matching algorithm performs matching demands and employees to find optimal fitments. Gamified demand creation provides online statistics on the probability of fulfillment and expected lead time for assigned and deployed resources. An embedded interactive query assistant (EIQA) chatbot helps resolve staffing queries and training-based staffing. P-MART takes employees' training data as input and enables staffing based on trained skills. The chatbot has an interactive user interface for real-time query resolution. The chatbot opens multiple users' options based on the requisition number for a specific demand (e.g., an open position to be staffed). It ranges from providing an employee view of not yet staffed (i.e., employees "on the bench"), profiles available in other cities (for the user to determine the possibility of staffing a project from other locations) and a "near skill" match (for ascertaining the preparedness of an employee, and training needs).

This platform's active use has led to more than 1600 unique users (not to count the repeat users) and greater than 90% effectiveness in query resolution (Internal Dashboard, 2019). The technical resources helpdesk team were inundated with calls for staffing requirements, now has a zero backlog, and saves 25 h per month (Internal Dashboard, 2019). This new staffing solution has also led to behavioral change, wherein almost 95% of P-MART users are from business teams, and the business team now does 50% of staffing. It has also benefitted the business teams by reducing their staffing lead-up times by 20% and enabling customized staffing for niche skills (Internal Dashboard, 2019). A progressive deepening of the automation achieved the focused solution to specific business problems. The application now assesses effectiveness and impact on a personalized experience for each employee.

10 | DISCUSSION

The findings point to high EX levels (Plaskoff, 2017; Malik et al., 2020; Malik, De Silva, et al., 2021;), which positively impact EE (Kahn, 1990; Shenoy & Uchil, 2018) through the use of AI-assisted applications. As part of an engagement platform, these applications offer ongoing personalization and hyper-personalization of EX of HRM practices at different touchpoints in the employment lifecycle. In addressing the study's overarching aim, the role of AI-assisted HRM in a firm's ecosystem reflects the strategic choices leaders exercised to retain differentiated talent groups and ensure high levels of the psychological contract between the organization and these groups. The size of Big-Tech and workforce diversity was another motivation to manage large pools of people simultaneously. Thus, the design of the PeopleXp framework by HR managers and leaders involved a careful curation and selection of AI-assisted HR applications in BigTech's digitalized HR ecosystem. The sub-aim of this article was to analyze the impact of AI-assisted HRM on EX and EE levels. This study found that Big-Tech's strategic focus helped elevate talent's EX (Malik, De Silva, et al., 2021), thus, EE, leading to improved employee commitment, retention, and business level productivity outcomes (Malik et al., 2020). BigTech's HR managers' and business leaders' choice of investing in digitalized HR platforms created a positive EX for all three underpinning horizontals of human, digital, and physical domains (Bersin et al., 2017; IBM & Globoforce, 2016; Morgan, 2017; Plaskoff, 2017). The high quality of EX and personalized care through these AI applications triggered a norm of reciprocity and trust (Malik et al., 2020; Malik, De Silva, et al., 2021), resulting in better engagement, loyalty, and commitment levels. This relationship was stronger as most of the employees at BigTech were co-creators, designers, and consumers of these AI applications. For example, the *Phygital* platform was entirely driven by employees' emotional and physical needs; consequently, the buy-in and satisfaction with its usage were very high. Employees reciprocated through higher satisfaction and commitment levels as they adopted these workplace changes without resistance (Blau, 1964). They felt a sense of pride working at BigTech, and an innovative MNE brand's AI-mediated exchange (Ma & Brown, 2020) provided strong reciprocity (Becker & Jaakkola, 2020).

Our theoretical framework clarifies the purpose and nature of the AI-assisted HR ecosystem of EX and EE platforms (see Figure 2). Furthermore, this framework captures the interactions between diverse stakeholders in an HR ecosystem, such as employees, managers, expert developers, leaders at the MNE's Headquarters, subsidiary operations, and feedback loops from clients and platform partners. The theoretical framework classifies diverse AI-enabled applications at BigTech on two dimensions: the *purpose* of the AI-enabled applications (ranging on a transactional to transformative continuum and in terms of their impact, the extent of social exchange, and whether it is a short-term and one-off or a continuous exchange of resources using a technologically-mediated exchange), and second, the *nature* of the AI-based applications (wherein we view this as a continuum from physical through hybrid to AI-enabled digital platforms). The resulting configuration is akin to Breidbach et al. (2014) typology of virtual

engagement platforms in customer engagement. However, for this research, and considering the nature of AI-assisted HRM, EX, and EE platforms, we propose a 2 × 2 matrix of EX's low-touch and high-touch configurations. These EXs differ based on the purpose of the AI-enabled HRM applications. For example, the purpose of a low-touch HR design is to employ AI-based applications that offer a transactional and temporary exchange between the resources and use high-volume data analytics and transaction processing solutions at scale for just the right level of EX. The examples from BigTech include *P-MART* (which was more of a hybrid form) and *Team Insights* (a digitalized AI-enabled) HR platform. This engagement platform offered personalized and individualized EX outcomes and delivered efficiency and productivity gains. For example, *P-MART* is highly transactional and deals with a large volume of queries. However, P-MART delivers hyper-personalized experiences to its users across geographies and locations 24 × 7 seamlessly, and it is scalable using machine learning algorithms and interactive query assistant chatbots. The *Team Insights* platform is a bit more advanced, and while it still handles a large volume of queries, its use of natural language processing and a QlikView platform offers the ability to generate flexible and highly personalized EX to team members.

On the other hand, the high-touch EE and HR programs have a transformational focus and continuous exchange of resources with the users, employing highly interactive, advisory, problem-solving, coaching, and complex solutions at scale. The examples from BigTech include *myPhygital*, *myCompetency* and *talent Bot*, and *IiPA* serving the hybrid or digital and AI-assisted HR platforms. At the more advanced end of the AI applications were *myCompetency* and *talent Bot* and *IiPA* applications, which delivered hyper-personalized EX to employees and managerial users at BigTech. The advisory, communicative, interactive, and problem-solving nature of services provided to managers and employees created positive EX and resulted in positive business outcomes and employee loyalty and commitment. Finally, like P-MART, the Phygital platform served the physical and digital aspects of BigTech's HR ecosystem. In addition, the *Phygital* platform delivered an ecosystem of a longer-term, participative and continuous social exchange (Ma & Brown, 2020). This created a positive affinity between the users and the platform, resulting in a highly personalized EX.

The presence of an AI-assisted HRM induces an AI-based social exchange that can elevate or lower EX and, consequently, EE. Our research clearly shows the theoretical choices firms can implement as they incorporate AI-assisted HRM in their ecosystem. Further, by explicating the differences between EX and EE and their relationship, a distinctive contribution we highlight is that EX is an antecedent of EE. This finding should encourage scholars and practitioners to move away from the passive, organizational, top-down organizational approaches to bottom-up, individual approaches to EX and EE. We note the continuous nature of EX and EE and highlight the need to differentiate this for different groups. The ability of a human HRM function to nuance this for organizations employing a large number of people is not practical. Hence, an AI-assisted HRM infrastructure that can enable personalization, hyper-personalization, and individualization of EX to scale is likely to lead to higher levels of EE.

11 | IMPLICATIONS FOR HR AND BUSINESS TEAMS

We identify several implications of our theoretical framework for theory and practice. First, we note an expanded role of HR leaders and managers as co-designers of an AI-assisted digitalized HR ecosystem of multiple HRM, EX, and engagement platforms (Breidbach et al., 2014). For HR managers to implement a new AI-assisted HR ecosystem and platforms, they must have developed digital and data science skills (Malik et al., 2020). In addition, they should show a change in their mindset and reimagine work and how to manage and work with people as they offer their core services. Second, HR leaders and managers must identify and address employees' latent needs in three domains: physical, digital, and human—from work and non-work environments and aim to offer outstanding EX. The contextual factors such as the nature (millennials) and size (large and geographically diverse) of the workforce and their organization's technological maturity (which was very high in the case of BigTech) are critical considerations in shaping the nature and extent of adoption of AI-assisted HRM applications. Third, the transactional costs of coordinating the resourcing of an HR ecosystem are other significant considerations in the automation and use of digitalized EX and EE platforms. We believe these drivers will be different for smaller firms and those not in the business of producing advanced AI-assisted applications. Finally, the technologies used and the state of BigTech's IT maturity, digitalization, and automation journey of its workplace processes are critical factors in creating its digitalized HR ecosystem. Again, we believe several firms are embarking on this journey, and their AI-enabled HR ecosystem may not be as diverse and mature as BigTech.

From an HR ecosystem theorization perspective, a critical point is the purpose and nature of platforms in a firm's digitalized HR ecosystem. BigTech's HR ecosystem positioned itself well to deliver high EX levels (Kim & Gatling, 2018; Malik et al., 2020; Malik, De Silva, et al., 2021). In developing such an ecosystem, HR managers must co-create applications by working collaboratively and with the direct involvement of a diverse group of stakeholders, including employees—to realize high levels of EX. Managers have an active communication role in ensuring employees have access to self-select menus with adequate flexibility in choosing a range of personalized and hyper-personalized HR solutions (Malik, De Silva, et al., 2021). Managers can leverage employees' skills by encouraging collaboration and knowledge sharing through traditional and AI-mediated social exchanges (Malik, Nguyen, & Budhwar, 2022; Nguyen & Malik, 2021, 2022). Evaluating reciprocity norms, employees assess their benefits from exceptional EX platform(s), and many work for an organizational brand that offers innovative technology-mediated exchanges (Ma & Brown, 2020). Finally, the new skills and HR competencies needed by employees and HR practitioners to continue to deliver value in digitalized HR ecosystems include digital savviness, data fluency, and technology coaching. In addition, working across disciplines and functional areas to collaborate and co-create and design AI applications requires new skills in working with cross-functional teams to design and deliver HR programs.

For organizations to succeed, their internal customers (employees) must have positive EX to reciprocate it by engaging and committing to their workplace for extended periods. Benefits would accrue to organizations as their employees are more satisfied and engaged with their workplace and have a lower intention to quit. The parameters to track would be attrition, revenue, profitability, and an employer of choice brand and employee and customer satisfaction at any predetermined/Adhoc point in time. The HR professional will need to make a gradual shift from having a process-specific (generalization) expertise through deep expertise (specialization) to personal mastery (personalization) and developing sound expertise in coaching (individualization). In addition to the skills noted below, these will be part of HR leaders' and managers' new and expanded role in supporting such an ecosystem.

Other competencies that HR practitioners will demand are digital savviness—a high technology quotient, data fluency from actionable insights, using advanced decision support systems, and undertaking an expanded coaching role. In addition, HR leaders and managers will require high emotional intelligence and creativity levels, a characteristic that is not the core of automation and digitalization yet. To align HR service delivery to the realities of the changing landscape, several new possibilities of automation for HR need exploring. The efficiencies that will be realized will reduce manual efforts and allow the HR team to focus on human skills—such as relationship building, critical problem solving, strategic thinking, and innovation.

EX, efficiency, and effectiveness are the driving forces underpinning a digitalized HR ecosystem. This will lead to leveraging automation efficiencies and evaluating effectiveness to provide individualized EX, an antecedent to EE. We also need a supportive company culture comprising collaborations, transparency, psychological safety, alignment, and sharing feedback. These elements collectively raise exit barriers and help create an ecosystem for employees to thrive and innovate. Further, looking at integrated facets rather than disparate focus areas can improve EX, characterized by personalization and individualization. Although personalization addresses the needs of *personae*, individualization makes it unique to an individual's needs.

12 | IMPLICATIONS FOR THEORY

The size and scale of the MNE and its work are indeed unique and may not present similar manifestations in other MNEs. Future research may consider the role of different actors in the ecosystem and their interdependencies on the quality of the developed AI-enabled applications. Further research is needed on actors' knowledge-sharing intentions and motivations when using an AI-mediated social exchange. This is critical as some actors in the ecosystem may be more skeptical of the advantages of an algorithmic system of AI-enabled HRM EX and EE platforms. A related question is whether such systems can create value for all actors in the ecosystem, or will only a few stand to benefit? As the boundaries between work and non-work domains become blurred, further research on managing non-work-related issues and talent on a

range of employee and business outcomes is warranted (Mohamed et al., 2006). Finally, from a strategic HRM perspective, future research might be needed to evaluate the impact of disappearing HR differentiation when there is a dominant network effect of AI-based HRM and engagement systems that firms normatively adopt. What conditions would foster differentiation, and what mechanisms and actions would be more suited for firms to carve out differentiation in such instances?

13 | CONCLUSION AND LIMITATIONS

In a supply-side labor market, employees are lured away by better wages, benefits, and cultural factors that encourage employee autonomy, well-being, and work-life balance. If the organizations can address these factors through the values, human, physical, and digital continuum, it augurs well for employees who see a lasting value in their association with the firm. Despite our novel findings, our study is not devoid of limitations. First, an in-depth single case study design from an emerging market context warrants further validation in other contextual settings. However, the generalizability of our study's findings is not to the wider population but the relevant theories employed. As our data were from a large technology MNE, our findings may be relevant to small IT service providers or larger domestic firms embarking on a digitalization journey of their HR ecosystem. Also, comparative case studies of advanced adopters of AI-enabled HR applications versus producers and consumers of AI firms would yield meaningful differences and insights into AI-enabled HRM practices. Second, we could not factor in macro-environmental factors such as the impact of major crises such as the pandemic or other significant events and how that might shape the digitalized HR ecosystems, a topic of further inquiry. Finally, our conceptualization does not investigate ethical challenges and the dark side of AI-enabled HR applications as part of a broader digitalized HR ecosystem. Future research can explore the impact of poor EX on adverse employee outcomes and ethical issues (Ma, 2019). Finally, our findings are more applicable to firms co-creating such AI-based applications with their employees, and such an experience may not eventuate in user firms who are buyers of such applications from a disparate vendor base.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are not available due to the University's ethical requirements and agreements with the participating case organization and interviewees.

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