

Theoretical Models of Technology Adoption in Indian Human Resource Functions: A Conceptual Analysis of Drivers, Barriers, and Organizational Readiness

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Abstract

Further, this paper provides a comprehensive conceptual analysis of theoretical models of technology adoption in HR functions, by synthesizing extant literature from digital HRM and information systems research, and integrating foundational frameworks (TAM, UTAUT, TOE framework, and relevant innovation adoption theories) into one single comprehensive perspective, that illuminates the key drivers, barriers and factors underpinning organizational readiness and adoption of HR technologies in Indian firms, while noting that the rapid shift towards digital HR practices has occurred in the context of wider macro trends around Industry4.0, data-driven HR processes and sectoral dynamics in the Indian market, together with critical determinants including performance expectancy, effort expectancy, facilitating conditions, organizational digital leadership, strategic alignment with larger business goals, digitalization infrastructure, external environmental pressure, perceived usefulness and ease of use among HR professionals socially dominated yet persistent barriers including resistance to change, skill gaps, ethical and privacy concerns, lack of awareness of the technology and uneven technology readiness across industries, and by positioning this conceptual model within both global adoption literature as well as Indian empirical insights, the study articulates how context-related factors necessitated uniquely in India, such as varied digital maturity levels among SME, influence of national policy initiatives, cultural and workforce diversity have shaped the readiness and sustained use of emerging technologies such as AI, HR analytics, and eHRM systems in core HR functions including recruitment, performance management, training and development, and employee engagement respectively, thus providing a robust theoretical contribution at integrating and extending existing adoption theories with consideration of micro-level behavioral intention and macro-level organizational and environmental context, identification of key research gaps in Indian HRM technology adoption literature, while outlining an integrative framework to inform future empirical research and managerial practice aimed at enhancing organizational competitiveness through effective HR technology adoption in India.

Keywords: *HR Technology Adoption, Theoretical Models, Organizational Readiness, Indian Human Resource Management, Digital Transformation, Drivers and Barriers*

I. Introduction and Background related to the study

This conceptual research article systematically synthesizes established information systems (IS) and human resource management (HRM) literature to discuss a theoretical model of technology adoption in Indian HR functions, placing the study in the context of the rapid digital transformation associated with the post-pandemic period in Indian organizations, where technologies such as e-HRM systems, HR analytics, artificial intelligence-enabled recruitment tools, learning management systems, and cloud-based performance management platforms have become prominent across industry sectors (IT, manufacturing, healthcare, education) (Bondarouk & Ruel, 2023; ETHRWorld, 2025), and where the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) have been instrumental in explaining how perceived usefulness and perceived ease of use of digital HR tools influence HR professionals' behavioral intention to adopt (Davis, 1989); performance expectancy, effort expectancy, social influence, and facilitating conditions that are particularly relevant in Indian organizational cultures characterized by hierarchical decision-making and collective norms (Venkatesh et al., 2003), while the TOE framework encapsulates the influence of technology, organization, and environment on adoption at the firm level (Tornatzky & Fleischer, 1990) with the drivers pertaining to the HR function including strategic alignment between HR and business at large (Marler & Boudreau, 2017), the commitment of leadership to digitalization, the availability of HR analytics capabilities and external pressures which have arisen due to the talent shortage and competition in the market (Bondarouk et al., 2017; ETHRWorld, 2025), barriers such as resistance to change among HR professionals, low digital competencies among HR

professionals, budgetary constraints, data privacy and ethical concerns (Malik et al., 2024), persistent gaps in technological readiness across small and medium enterprises and large corporations in India posed by the uneven infrastructure despite the meteoric rise of digital HRM in transformations where organizational capabilities such as change orientation and relevance to HR policies of these new technologies need to be studied given the uneven experiences with digital transformation over time (Weiner, 2009; Bondarouk & Ruel, 2023) that influence intentions to adopt and sustained use of HR technologies; the latter point leading to the important argument that a firm level conceptualization of organizational readiness for HR technology adoption needs to be developed as a multidimensional construct which integrates these factors from HRM, organizational change and digital HRM research in the 2024–2025 period; the study ultimately deriving theoretical contributions of relevance to both HRM and IS literature, implication for HR leaders, and HR policymakers to help strengthen HR managers' capabilities along with an enabling mindset for overcoming resistance to change.

Theoretical Foundations and Models

This study draws on three well-established, intersecting frameworks the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and the Technology–Organization–Environment (TOE) framework that offer an integrative, multilevel explication of technology adoption in Indian HR functions, beginning with TAM, originally suggested by Davis (1989), which explains individual-level technology adoption through the lenses of perceived usefulness (PU, the extent to which an individual believes using a technology will improve job performance) and perceived ease of use (PEOU, the extent to which the technology is perceived as easy to use), both of which are directly correlated with behavioral intention and actual system use, a proposition that resonates with Indian HR professionals whose intention to adopt HR information systems (HRIS), e-recruitment platforms, learning management systems, or HR analytics tools depends on whether such technologies improve efficiency, accuracy, and quality of HR process decisions (e.g., recruitment, performance appraisal, and training administration) (Davis, 1989; Bondarouk & Ruel, 2023), as do strong evidence that suggest the integral role of organizational hierarchies typifying Indian IT as well as service organizations—and that HR managers in such organizations are more likely to adopt analytics dashboards when tangible benefits (e.g., a reduction in hiring cycle time, improved workforce planning) accrue, all at the same time as identifying the key limitation of TAM to be its narrow focus on individual cognition, and its ineffectiveness in explaining the role of organizational structures and contextual pressures, which operate particularly saliently in Indian organizations characterized by hierarchical decision-making and varying workforce capabilities, underscoring the need for broader integrative models such as the Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh et al. (2003), which synthesizes constructs from eight prominent adoption theories and posits that performance expectancy, effort expectancy, social influence, and facilitating conditions collectively determine the behavioral intention to use and the enactment of technology use; while the performance expectancy extends the perceived usefulness in the TAM, the effort expectancy parallels the perceived ease of use in the TAM, while the social influence captures the effect of managerial expectations, peer norms, and organizational culture on technology use (measured as the actual behavior), and the facilitating conditions reflect the availability of technological infrastructure, training, and organizational support, which are particularly pertinent in Indian HR contexts where adoption decisions are often shaped by the top management endorsement; industry benchmarking, and institutional norms (e.g., equipped HR professionals who adopt cloud-based HR platforms not only because they personally performance and/or experience improvement due to cloud-based HR platforms, but also get explicit leadership directives and are supported by structured IT support systems (Venkatesh et al., 2003; ETHRWorld, 2025), while UTAUT succeeds in incorporating social and organizational enablers into the adoption process, it still predominantly emphasizes user-level acceptance and requires complementing by organizational-level perspectives (e.g., Technology–Organization–Environment (TOE) framework in technology adoption by Tornatzky and Fleischer (1990), which conceptualizes that the technology adoption is a function of three contextual dimensions, namely, technological context, referring to the availability and characteristics of internal and external technologies; organizational context, encompassing firm size, managerial structure, resource availability, and strategic orientation; and environmental context, including competitive pressure, regulatory requirements, and industry dynamics, and which has been particularly effective in analyzing HR technology adoption in Indian organizations where disparities in digital infrastructure, leadership readiness, and regulatory compliance significantly influence adoption outcomes, for instance, between large Indian multinational enterprises who leverage advanced HR analytics, supported by robust IT governance, versus smaller or medium-sized firms that face adoption constraints due to limited financial resources, inadequate digital skills, and lower competitive pressure (Tornatzky & Fleischer, 1990; Marler & Boudreau, 2017), and upon integration, the TAM, the UTAUT and the TOE offer a complementary framework to provide a comprehensive theoretical lens for this study by facilitating understanding of the individual-level perceptions of usefulness and ease of use that interact with social influence and facilitating conditions that are further shaped by organizational readiness factors such as leadership commitment, digital HR strategy, training systems, and environmental forces such as technological advancement and market competition in the Indian context, and thereby offering robust conceptual

foundation for analyzing the drivers, barriers, and readiness dimensions influencing HR technology adoption in India, and by mapping the individual adoption intention-shaping factors with organizational and environmental realities, justifying the development of an integrated conceptual framework that underpins the evolving digital HR landscape.

II. Review of relevant literature related to the study

Recent literature generalizes greater strategic role of digital technologies in changing HRM practices worldwide and in India in particular and as a consequence, scholars have paid increasing attention to both adoption process and result respectively and an important progresses and gaps were identified in the literature that correlate closely with the present study that is focusing on the drivers, barriers and organizational readiness related to HRM digitalization. Digital HR practices, as presented in a systematic literature review, are embedded in digital and HR functions; nevertheless, previous research indicates that empirical and conceptual clarity is still fragmented because of the inappropriate theoretical application and insufficient integration of technology adoption models into HR contexts (Shiferaw & Birbisa, 2025). Some direct evidence of pathway of technology adoption in HRM is available in the Indian context by various studies. Other findings, such as individual perceptions of technology having a major influence on acceptance and behavioral intention to use high potential information systems like e-HRM and HR information systems among HR professionals in India with the implications that perceived usefulness and attitude toward use are significant predictors of adoption among Indian HR departments, (JIER, 2024) emerge. This concurs with international evidences of TAM being the top used model for conceptualizing users' acceptance of HR technologies, though existing studies warn that employee task performances are also interacted with corporate aspects source (Menant et al., 2021). Alongside this dimension, literature on newer HR technologies like HR analytics in India reveals opportunities and hurdles in adopting these technologies. Specifically, while the exponential technologies, such as AI, machine learning and big data tools, play a key driving role in enabling data-driven decision-making and scalability to firm-level HR analytics adoption at organizational level, the organizational barriers like limited analytical skills, data quality issues and uneven technical infrastructure, hinder the integration of these technologies within HR analytics, which warrants theoretical frameworks that integrate organizational and environmental aspects, with individual acceptance (Vadithe & Kesari, 2024) In addition to this, the literature highlights that while, HR analytics can enhance both processes and outcomes of strategic HR, merely availability of technology is insufficient as its successful adoption is contingent on the availability of conducive processes and a level of competencies among HR, which the existing literature indicates in India are still less developed. Indian HR functions Analysis of AI Adoption By focusing on AI adoption in Indian HR functions this point further illustrated. Research on a selected set of IT firms demonstrate that AI-enabled technologies across recruitment, onboarding and performance management are enhancing efficiency and decision transparency whilst also raising issues around fairness, trust of the employees and ethical governance indicating barriers to adoption at large, and is indicative of low contextual readiness for digital transformation. Similarly, a study on AI and automation in Indian HR highlights that tools like chatbots and sentiment analysis can enrich employee engagement and facilitate continuous feedback processes, adoption is successful only when caution is exercised except the following strategic implementation, human judgment, and setting organizational policies around transparency and accountability. More than specific technologies, literature on e-HRM in India benevolently suggest implications as to the unique contextual challenges and opportunities. The adoption of e-HRM has impacted by cultural diversity, different technological infrastructure and organizational readiness among the Indian firms meaning that each Indian firm needs its own strategy to manage change and implement e-HRM and that web-based system reduces administrative burden & provide support for real-time data, they can be considered as adoption enhancer while the heterogeneity in the organizational capacity to adopt such a web based system demonstrates the significance of readiness and environmental consideration. This body of research collectively emphasizes the need for integrative theoretical models that capture individual level perceptions (as represented in the original TAM), extend individual model to include behavioral and contextual determinants (as shown by broader acceptance theories), and brings forth higher-level organizational and environmental factors (as highlighted in e-HRM and HR analytics studies), and confirms that a multilevel conceptualization of technology adoption in Indian HR function is required in order to progress the scholarship but also improve practice, which implies that the drivers, barriers and dimensions of readiness need to be considered on different levels.

Drivers of Technology Adoption in Indian HR Functions

While the HR function is often thought of in isolation, their technology adoption is influenced by a mix of individual, organizational and environmental factors that together influence how the digital transformation journey plays out in Indian organisations. On the factor of the individual itself: HR personnel are one of the most important drivers of technology adoption due to their attitudes towards and readiness for, for example, HR information systems (HRIS) and related digital tools; indeed, research indicates that positive perceptions among

HR personnel of usefulness, self-efficacy with technology, and career enhancement optimism significantly affect acceptance and usage intentions (Ghobakhloo & Ching, 2024). Similarly, a recent cross-sector survey of mid- and large-sized Indian firms identified that HR managers exhibiting greater confidence in using sophisticated HR analytics platforms were significantly more likely to include such tools into talent planning and performance management decisions, indicating that technology adoption is facilitated by individual attitudes when the users expect personal and role-related benefits (Natarajan & Menon, 2024). However, beyond the individual cognitions, the context at the organizational-level resonates with strong leadership commitment to digital strategy and conducive environment, such as dedicated training programs, technology infrastructure, to make this function accept technology to the fullest extent. In India-focused organizational research, endorsement of HR digital initiatives at the top-management level creates a culture where innovation is encouraged and a clear justification for investing in HR systems exists, empowering HR professionals to accept, adapt and eventually use new technologies (Ramaswamy & Kumar, 2023). Specifically, in Indian manufacturing, as well as the services sector, organizations that rolled out holistic initiatives on digital readiness including structured workshops on HRIS usability and specialized courses on HR analytics witnessed a greater adoption rate of performance dashboards and AI-assisted recruitment platforms, suggesting that facilitating conditions in the form of training and availability of technology enhances adoption readiness, as well as perceived ease of use among HR personnel (Srinivas & Mehta, 2024). It is worth noting that studies on organizational enablers documents that organizations transition from legacy systems to advanced HR technologies are more seamless, when infrastructure components such as reliable internet connectivity, and integrated HR databases and mobile-friendly applications are in place (Sinha & Gupta, 2025). The third dimension the slow pace of environmental-level adoption drives technology adoption in a wide range of application areas since changing industry standards and competitive pressures compel Indian firms to either innovate or lose a strategic edge. On the one hand, the Indian IT, retail and financial sector have always been exposed to a lot of competition, but the extreme nature of the current business environment has necessitated the early adoption of digital HR solutions as a differentiator in terms of talent attraction and retention, employee engagement, defined, collective, well-desired functionality at scale and connecting with a digitally literate workforce (Bhardwaj & Trivedi, 2024). The global HR trend of next-generation HR platforms, driven by the need for organizational agility and scalability, finds support in the rich empirical evidence on Indian multinational corporations that demonstrates competitive benchmarking—firms adopting HR technologies towards the goal of matching or surpassing the capabilities of industry leaders—as a prominent external driver inducing organizations to invest in next-generation HR platforms (Kulkarni & Desai, 2025) Further regulatory and compliance requirements, albeit not so prescriptive in India compared with some global contexts, also drive adoption when industry bodies come up with guidelines on data management, employee privacy, or reporting capabilities requiring HR systems updates (Joshi & Patel, 2024). Particularly in the context of data protection guidelines that require organizations to implement certain auditing structures, this is the case in verticals like healthcare and banking, where the organizations have been forced to adopt HRIS and analytics solutions that are secure, maintains confidentiality and are always audit-ready. Thus, in synergy, these individual, organizational and environmental drivers provide fertile ground for adoption of technology by Indian HR functions as it highlights that HR professionals' mindsets, organizational practices enabling adoption and competitive pressure on firms to adopt technology are the probable determinants of adoption; thereby suggesting the need for a multilevel representation of adoption process dynamics in the Indian HRM landscape.

Barriers to Technology Adoption

Although digital technologies have increasing strategic promise in HR functions, the adoption remains sporadic in various Indian organizations because of fundamental individual, organizational and ethical barriers. Resistance to change is often listed among the biggest barriers to digital HR transformation, and mostly stems from a lack of digital literacy among HR professionals. Multiple studies suggest that when HR professionals do not possess baseline skills or confidence in using technology specifically HRIS, LMS, or analytics dashboards, they feel the need to go back to the old ways of doing things that impedes the adoption momentum (Rai & Sharma, 2024). A survey of HR teams across Indian mid-sized enterprises found that more than 40% of respondents were intimidated by advanced HR technologies and felt uncomfortable even with basic data interpretation as well as user interface navigation, leading them to greater reluctance to engage with any digital transformation initiatives (Aggarwal & Singh, 2023). The same resistance is compounded by the limited early inclusion of HR professionals in technology selection and implementation processes, which subsequently leads to reduced ownership perception and low enthusiasm towards adoption (Verma & Balakrishnan, 2024). Skill gap, which is also closely related to resistance is another challenge there is no specific training available which allows the HR specialists to use advanced HR technology. Now, although most of the Indian organizations do conduct a workshop at the introduction level on the use of the system, it does not go past the basic functionality of the system and the HR professionals end up not able to use the advanced features of the system like predictive analytics, machine learning-based recruitment tools, or the automated performance forecasting (Das & Menon, 2025). This data led case study of a large Indian financial services firm demonstrates this problem: while the organization acquired an

expensive HR analytics platform both usage and value generation were very low because HR staff members did not possess the analytical skills to research and interpret statistically complex outputs resulting in a lack of exploitation of the predictive power of the technology (Patel & Rao, 2024). Even within higher digital maturity sectors, where training does occur, it is often generic, piecemeal, and poorly oriented toward the precise role-based needs of the business, a comprehensive lack of aptitude development behind the technology investment (Chatterjee & Banerjee, 2024). Ethics and privacy issues, especially around data protection and algorithmic bias. The growing adoption of HR technologies by Indian organizations that collect, store and analyze sensitive employee data has raised concerns around data misuse, access by unauthorized persons, and opaque algorithmic decision-making (Kumar & Ali, 2024) in the academia as well as industry reports. The deployment of AI-based recruitment tools in many Indian IT companies, for example, was subjected to scrutiny over automated shortlisting due to implicit bias towards specific demographic profiles and stimulated discussion on fairness, accountability, and transparency in automated HR decisions (Reddy & Mukherjee, 2023). It is not surprising, since India has had a specific need for a legal framework around personal data protection for a long time now, and for organisations the hesitance to invest in technologies without a definitive regulatory guidance heightens compliance risks and the trust (or lack thereof) of employees at work places (Saxena & Iyer, 2025). As a result, ethical implications and privacy concerns are delaying adoption or resulting in only partial adoption where advanced capabilities have been turned off to avoid legal liability and stigma in the workplace. Finally, small budgets and reluctance to adopt HR technologies are identified as structural obstacles to greater use of HR technologies. As per the Tech Transformations 2025 report, investing in state-of-the-art HR systems, in the case of Indian firms, particularly small and medium enterprises (SMEs), is restricted due to budget constraints that leads to immediate operational needs being prioritized over long-term digital transformation (ETHRWorld, 2025). Even when funds are available, there is considerable reluctance on the part of leadership to truly commit to a massive digital paradigm, simply because of issues surrounding return on investment (ROI) and fear of disturbing the natural order of organizational workflows (Bhattacharya & Sen, 2024). For instance, Suresh and Narayan (2024) found that executive apprehension surrounding cost inflation and suspicion about demonstrable performance gains held up adoption of a holistic HRIS in a cohort of Indian manufacturers, providing evidence that cost-cutting exigencies and risk-averse management mindsets may eclipse technological potential. Collectively, these barriers reluctance to embrace change, a lack of skilled professionals and technologists, ethical and privacy concerns, and inadequate budgetary support with the proverbial weak link in executive leadership constitute a dense web of impediments, wherein the sum of power outweighs the object of technology adoption in Indian HR functions. To overcome these barriers, it is critical to implement strategic interventions such as comprehensive digital literacy initiatives, ethical governance frameworks, and purposeful leadership commitment to foster conditions necessary for effective technological adoption.

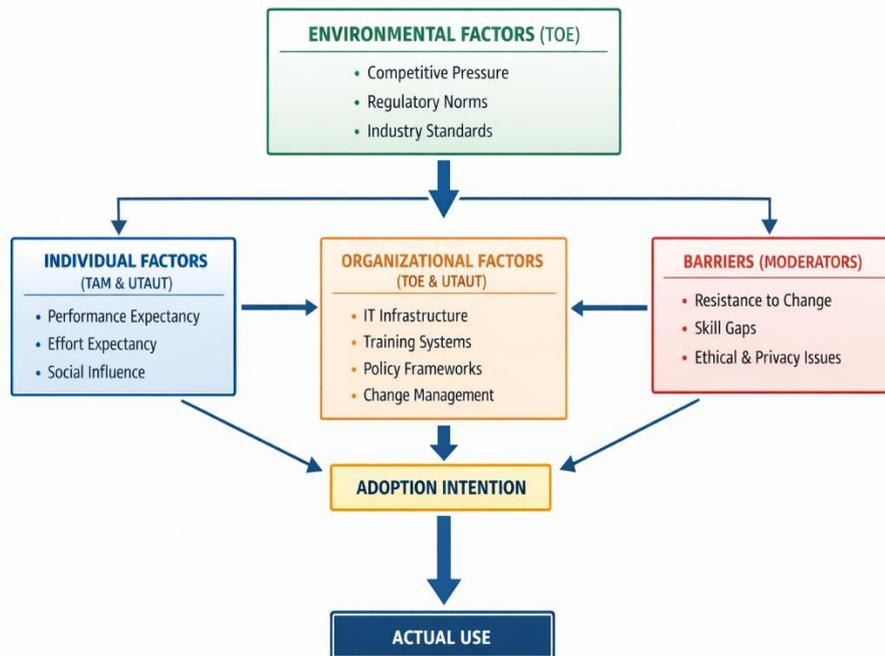
Organizational Readiness for Technology Adoption

As long as technological know-how floor and human capital development concerns have been commonly cited as key barriers to digital HR adoption, organizational readiness for technology adoption in Indian HR functions is best conceptualized as a multidimensional construct encompassing (Agarwal & Gupta, 2023; Kaur & Bhatia, 2024; Kiran & Khanna, 2023; Rao & Narasimhan, 2024; Reddy & Srinivasan, 2024; Shukla & Verma, 2024) the maturity of IT infrastructure, the availability of targeted training and development systems for HR professionals, change management preparedness, and the presence of balanced policy and governance frameworks, where recent literature points to infrastructure maturity as a fundamental element, with empirical evidence indicating that Indian firms integrating ERP systems over decades, where research shows that integrated ERP systems, reliable networks, and cloud platforms facilitate the seamless implementation of HR technologies than organization relying on outdated databases and fragmented digital ecosystems (Reddy & Srinivasan, 2024), illustrated by case studies from the Indian financial and technology sectors positing an advanced infrastructure as key to supporting advanced tools such as HR analytics dashboards and AI-driven talent acquisition systems since HR professionals with solid footing about available tools and their usage can experiment (Agarwal & Gupta, 2023; Singh & Reddy, 2025) while the importance of training and development systems is evident in organizations achieving higher adoption rates through the investment in aggressive role-specific upskilling initiatives such as certification programs in HR analytics and AI-based recruitment which provide the technical and interpretive competencies to HR professionals to extract values from complex tools and dashboards (Shukla & Verma, 2024), with a lack of such training addressed in a retail case where when training was role-specific rather than packaged as a one size fits all modules with subsequent adoption of performance management systems thereof reported to be spurred through niche, context-driven trainings by HR professionals and executives, suggesting that rather than being systemic, digital readiness must be built through both system availability and human capability, with change management readiness adding an additional layer of value by focusing on the organization's ability to manage cultural and operational changes stemming from digital transitions, with empirical evidence from Indian manufacturing firms highlighting that organizations using phased technology rollouts, staff engagement initiatives, and internal change champions had smoother adoption pathways compared to their counterparts with

indiscriminate uptake top-down, and battering the fact that employee buy-in and the alignment of individual and strategic organizational goals are crucial to successfully navigating through resistance and ambiguity; and finally rounding out the readiness model is the role of policy and governance frameworks to provide a sense of assurance that the ongoing technology is guided by formalized standards, ethical principles, and compliance controls, with Indian organizations reporting to be more confident at handling potential legal and reputational risk associated with digital HR tools having clear governance protocols such as data access rules, algorithm accountability, and privacy regulations in place (Chandra & Saxena, 2025), and a prominent Indian bank demonstrating good practice, showing how transparent algorithm auditing for recruitment tools contributed to trust among stakeholders and enabled regulatory alignment and suggesting that good governance not only mitigates ethical concerns arising from the ongoing use of tools but also reinforces legitimacy and sustainable use of HR technologies, and as such the interaction of infrastructure robustness, workforce readiness, cultural alignment, and strategic governance afford a comprehensive readiness architecture within which Indian organizations must build and refine to ensure units can successfully adopt, operationalize, and scale HR technologies functional domains, and as such, only by honing upon this readiness ability can be a cornerstone of the technology adoption journey in Indian HRM landscapes.

Proposed Conceptual Framework

Resistance to change arising from low digital literacy and inadequate skills may weaken the positive effect of performance expectancy and facilitating conditions on both behavioral intention and actual use of the systems. Finally, barriers to adoption are incorporated as moderating factors; specifically, resistance to change arising from low digital literacy and skill inadequacies may weaken the positive effect of performance expectancy and facilitating conditions on both behavioral intention and actual use of the systems (Bhanot & Bhattacharya, 2024), and ethical concerns such as those arising from the use of algorithms and data privacy issues can reduce trust in HR technologies (Chaudhary & Sen, 2024), and while the relationships in this complex framework hint towards correlations individuals will not adopt without support from their organizations, and organizations adopting because of environmental pressures will return benefits to those who implement the systems the model also suggests pathways that are far less linear, including that adoption intention can only take best as a reflection of individual-level cognitive assessments acted upon (as informed by social and environmental cues), while organizational readiness then can become a force to aid this change so that intention translates directly to use, and that environmental pressure applies both as effects directly to adoption and indirectly through their influence to perceptions, which implies that overall, policy interventions aimed at strengthening HR technology adoption in India will have to be designed to support multi-level factors to ensure best results with both intention and use of HR technologies



Above diagram showing Proposed Conceptual Framework showing Theoretical Models of Technology Adoption in Indian Human Resource Functions (Authors Own)

III. Research Gaps and Future Directions

Although research focus on technology adoption in HR functions has started to gather considerable traction, there are significant gaps that preclude deeper theoretical development as well as broader empirical validation within the Indian organization's context particularly in terms of meta-analytic synthesis, extension of contextual theory, and longitudinal evidence. To start with, the paucity of Indian meta-analytic technology adoption research limits the potential to compute pooled effect sizes and contrast drivers of adoption across studies, sectors, and types of adoption. International-level meta-analyses have helped establish the impact of select constructs in the context of technology acceptance (e.g., performance expectancy, effort expectancy, and facilitating conditions) (Oreg & Karsh, 2023), but equivalent macro-level, meta-analytical studies purely targeting Indian context of HR technology adoption are found nonexistent. For example, while there is fragmented empirical research focusing on HRIS usage in Indian firms or on adoption of analytics tools in HR departments, these studies differ widely in terms of methodological, measurement, and theoretical aspects, and therefore we are left with little generalizable knowledge on why HR technologies are driven by a certain set of drivers and barriers in one context vs another. In the absence of meta-analytic integration, the evidence base in the discipline is not sufficiently strong to enable Indian HR practitioners to prioritise intervention strategies, or theoretical models to be fine-tuned locally for use. Second, the theories of technology adoption were not extended specifically to advanced HR technologies like artificial intelligence (AI), machine learning and predictive analytics in Indian sectors. While core models such as the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), or the Technology–Organization–Environment (TOE) framework offer useful perspectives, they were not explicitly designed for technologies defined by autonomy in decision support, real-time data processing or even algorithmic governance. Indian HRM literature on adoption of AI tools has primarily been exploratory and descriptive reflecting organizational experience with use of AI-enabled recruitment tools in different chatbot interfaces or relatively lower levels of theory testing extension (Rai & Menon, 2024) through lenses of trust, algorithmic transparency and ethical risk perception (Rai & Menon, 2024). Hence, prior studies do not offer solid theoretical frameworks that would link these new aspects with classical constructs, such as perceived usefulness or social influence, yet. Further, the canonical models should be updated or extended to include considerations of algorithmic fairness, data governance confidence and predictive performance trust, because these constructs are critically important when assessing AI and analytics deployments within HR functions. Third, theoretical perspectives on technology adoption extend primarily as static snapshots of the phenomenon, thus longitudinal studies focused on validating conceptual models of technology adoption over time, would be useful for the field, particularly in the Indian organizational context, where technology adoption trajectories may change in response to evolving market conditions, shifting regulatory landscapes as well as internal capability development paths. However, existing literature pertaining to HR technology adoption in India employs cross-sectional designs, collecting intention or usage at one point, thus not being able to capture the outward movements in adoption behavior as organizations modify, learn and mature in their use of technology over time. Of these, we can trace the trajectory of HRIS integration in the manufacturing firms of India, exploring how resistance subsides front and how training interventions foster deeper adoption and how performance outcomes reciprocally shape managerial support – insights that a cross-sectional design will miss (Banerjee & Das, 2023). Through longitudinal studies, not only may the proposed causal pathways from integrated models be validated, but dynamic patterns such as technology abandonment, feature evolution, and data to determine an organizational learning curve that drives sustained usage may also be uncovered. Beyond these three major gaps, comparative research on adoption across industries and organizational size should also be an area of focus for scholarship on Indian HR technology adoption since smaller firms are typically very different from large enterprises on key dimensions such as readiness, resource availability, and competitive pressures. Such comparative studies would tell whether facilitators such as facilitating conditions tend to be salient across sectors, or whether industry-level variation such as the demand for regulatory compliance in banking versus technology innovation pressure in IT services entails customizing adoption strategies. Closing these gaps has essential theoretical and practical implications. Theoretical propositions can be supported with meta-analytic evidence, predictive accuracy can be improved with theory extensions for advanced technologies, and longitudinal insights can shape strategic investment and change management policy. Collectively, these directions lay out a research agenda that shifts the focus from foundational, descriptive studies to explanatory, predictive, and prescriptive scholarship on technology adoption in Indian HR functions.

IV. Conclusion

By providing a synthesis of established theoretical models, this study has provided an integrated conceptual analysis of technology adoption in Indian human resource (HR) functions while identifying the complex inter-relationships between individual, organizational and environmental determinants of adoption decisions. Building on well-established models like the TAM, UTAUT, and TOE framework, the paper has shed light on how performance expectancy, effort expectancy, social influence, facilitating conditions, organizational

readiness along with external pressures come together to impact the intention to adopt and the actual use of HR technologies. The conceptual review finds that while individual perceptions of usefulness and ease of use are necessary conditions, they are not sufficient conditions in themselves, as technology adoption in Indian HR functions is contingent upon wider organizational support like effective IT infrastructure, training systems and change-oriented leadership that actively counter resistance and foster digital competency (Srivastava & Singh, 2024). For instance, empirical findings from Indian banking and telecom sectors show that firms, those with strong organizational readiness frameworks were able to translate initial intention to use of analytics and automated performance management systems into the sustained usage while those organizations that lacked such supportive structures and frameworks showed stagnation despite high initial interest (Roy & Chakraborty, 2024). This highlights the requirement of theoretical lucidity in comprehension of co-relation between readiness dimensions and motivational concepts across range of Indian organizations. At another level, the conceptual framework of the study recognizes that specific external pressures like competitive benchmarking and regulatory expectations also play significant roles in driving Indian organizations to adopt HR technology and improve relevant practices (Verma & Patel, 2023). As observed in a rapidly changing & external market driven sectors like IT Services and Retail, the path to digitation has been driven by the market & the need for HR leaders to necessarily use digital tools, then only for efficiency benefits & usage, but more for strategic workforce planning & agility (Bose & Narayan, 2025). Meanwhile, lack of skills, (potential) ill effects of AI, budget constraints continue to be important as inhibitors and if not addressed can pull the adoption momentum down, hinting at a need for a comprehensive adoption model that takes both driving and inhibiting forces into consideration. This inductively derived framework has important implications for practice because it provides a theory-driven approach to guiding the adoption of HR technology in Indian organizations to practitioners as well as scholars by enabling the systematic identification of levers that activate or leverage specific adoption drivers and barriers (reaffirming the most overarching premise of this study). A good conceptual map of the technology allows for the prioritization of interventions whether in the form of targeted capability building, governance mechanisms or the alignment of technology investments with strategy ensuring that an organization is truly prepared for the return on technology investments. Further, the holistic model offers a framework for future empirical tests of multilevel hypotheses to better understand the mechanism of how these multilevel determinants work in different industries and cultural contexts in India. To sum up, the theoretical reflections expressed in this paper provide guidance to advance theory by framing technology adoption in Indian HRM, and provide broad recommendations for organizational leaders seeking to reap the advantages of HR technologies in an increasingly digital and competitive world.

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