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Digital Human Resource Management Adoption in Higher Education: An Integrated TAM, TPB and Diffusion of Innovation Framework

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Abstract
Digital transformation has moved Human Resource Management (HRM) from largely administrative record keeping toward technology-enabled recruitment, performance management, learning, analytics and strategic workforce decision-making. Higher education institutions are an important setting for this transformation because they manage knowledge-intensive workforces while operating through complex professional and administrative structures. Yet explanations of Digital Human Resource Management (DHRM) adoption remain theoretically fragmented. This paper develops an integrated theoretical account by bringing together the Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), and Diffusion of Innovation (DOI) theory. A structured integrative literature review was used to synthesize theoretical and contextual evidence, with particular attention to higher education and the Indian context. The synthesis indicates that TAM explains how perceived usefulness and perceived ease of use shape individual acceptance; TRA explains the influence of social expectations; TPB adds perceived behavioral control and therefore accounts for capability and contextual constraints; and DOI explains how an innovation moves from individual acceptance toward institutional diffusion. The paper argues that these theories should not be treated as competing explanations. Instead, they can be positioned as complementary layers within a micro–meso–macro framework. The resulting framework identifies technological characteristics, organizational readiness, leadership, digital literacy, infrastructure and resistance to change as important boundary conditions. The paper concludes that successful DHRM transformation in higher education depends on the alignment of technology perceptions, employee capability, social support and institutional innovation readiness. The framework offers a basis for future empirical research without claiming new primary-data evidence..

Keywords: Digital Human Resource Management; higher education; Technology Acceptance Model; Theory of Planned Behavior; Diffusion of Innovation; digital transformation; HR analytics; technology adoption

1 Introduction

Digital transformation has become a defining feature of contemporary organizational management. Within HRM, the transformation is visible in the movement from paper-based records and manually coordinated processes toward Human Resource Information Systems, cloud platforms, digital recruitment, learning management systems, workforce analytics and increasingly automated decision-support tools. Digital HRM therefore involves more than replacing physical documents with

electronic files. It changes the speed, structure and informational basis of HR activities and can alter the relationship between employees, managers and HR professionals (Bondarouk & Brewster, 2016; Strohmeier, 2020).

Recent scholarship emphasizes that the conceptual boundary between e-HRM, digital HRM and digital HR transformation is still developing. Digital HRM can be understood as the integration of human activities with advanced technologies, whereas digital transformation involves broader changes in capabilities, workflows, employee experience, information use and organizational decision-making. This distinction matters because an institution may digitize an existing HR process without fundamentally transforming the way HR decisions are made.

Higher education provides a distinctive setting for examining this transformation. Universities and colleges are knowledge-intensive organizations with diverse faculty, administrative and support workforces. HR processes must accommodate academic recruitment, faculty development, performance appraisal, promotion, training, attendance, payroll, employee communication and increasingly data-informed workforce planning. The thesis underlying this paper situates this problem in Faridabad and emphasizes that digital HR adoption is shaped by technological readiness, socio-economic conditions and behavioural acceptance. It also identifies TAM, TRA, TPB and DOI as complementary theoretical foundations for understanding the process.

In the Indian higher education context, digital transformation has also been accelerated by broader policy and institutional pressures. The thesis notes that national initiatives such as Digital India and NEP 2020 create a supportive macro environment, while local institutions continue to face differences in infrastructure, readiness and stakeholder attitudes. Faridabad is therefore useful as a contextual setting because the adoption of digital HRM cannot be assumed to be uniform across institutions. The local institutional environment may include fragmented systems, resource constraints, legacy processes and differences in digital literacy.

Technology adoption is consequently not a purely technical decision. Employees may reject a system that they perceive as difficult, irrelevant or threatening even when the technology is available. Conversely, employees may accept a system but institutional implementation may remain partial when leadership commitment, infrastructure or organizational compatibility is weak. This explains why a single technology-acceptance model may not fully capture DHRM transformation in higher education.

The purpose of this paper is therefore to develop a theory-driven framework that connects individual technology perceptions with social influence, perceived behavioral control and institutional innovation diffusion. The paper addresses three questions: how TAM, TRA and TPB explain individual acceptance; how DOI explains institutional diffusion; and how the four perspectives can be integrated into a multi-level explanation of DHRM adoption.

2. Methodology

This paper adopts a structured integrative literature review rather than an empirical survey design. The objective is theoretical synthesis: to compare established explanations of technology acceptance and organizational innovation and determine how they can be combined to explain DHRM adoption in higher education. The approach is appropriate because the thesis identifies theoretical fragmentation as a central problem and explicitly combines TAM, TRA, TPB and DOI in its conceptual architecture.

The review proceeded in four stages. First, the core concepts of digital HRM and digital transformation were defined. Second, literature associated with TAM, TRA, TPB and DOI was examined to identify their

central assumptions and constructs. Third, the theories were compared according to their explanatory level, from individual cognition to social influence and organizational diffusion. Fourth, the overlapping constructs were integrated into a conceptual framework and a set of theoretical propositions.

The review emphasizes foundational theoretical contributions together with recent DHRM and higher education scholarship. The thesis was used as the primary contextual source for the Faridabad setting, including its discussion of digital HRM, theoretical underpinnings, research gaps and institutional barriers. Contemporary peer-reviewed literature was used to situate those arguments within the wider DHRM field. No new questionnaire responses, interviews, statistical tests or model estimates are introduced in this paper. Accordingly, the Results section reports outcomes of the theoretical synthesis rather than empirical coefficients. This distinction is important because the purpose is to generate a theory-driven article from the thesis rather than reproduce its empirical chapter.

Table 1. Theoretical perspectives synthesized in the paper

Theory	Primary level	Core constructs	Contribution to DHRM
TAM	Individual	Perceived usefulness; perceived ease of use	Explains acceptance of digital HR technologies
TRA	Individual/social	Attitude; subjective norms; intention	Explains social influence on behavioural intention
TPB	Individual/contextual	Attitude; subjective norms; perceived behavioral control	Explains intention under capability and constraint
DOI	Organizational	Relative advantage; compatibility; complexity; trialability; observability	Explains institutional diffusion

3. Results

3.1 Digital HRM as a socio-technical transformation

The first result of the synthesis is that DHRM should be conceptualized as a socio-technical transformation rather than as software implementation. Digital technologies influence processes, but the consequences of those technologies depend on employee perceptions, organizational routines and institutional conditions. The thesis similarly distinguishes the strategic transformation of HRM from simple automation and identifies data-driven decision-making, digital recruitment, learning systems and analytics as components of the broader transformation.

A useful conceptual distinction is between digitization, digitalization and transformation. Digitization converts information from physical to digital form. Digitalization uses digital technology to improve an existing process. Digital transformation changes the logic through which activities are organized and decisions are made. In HRM, a digital transformation can therefore involve real-time analytics, integrated

employee platforms, algorithm-supported recruitment and personalized learning rather than simply electronic personnel records.

The distinction has theoretical implications. A digitized system can exist without meaningful user acceptance, while a transformed HR system requires sustained interaction between technology and people. The adoption question therefore becomes both behavioural and institutional: employees need to accept the system, while the organization needs to embed it into routines, governance and strategic decision-making.

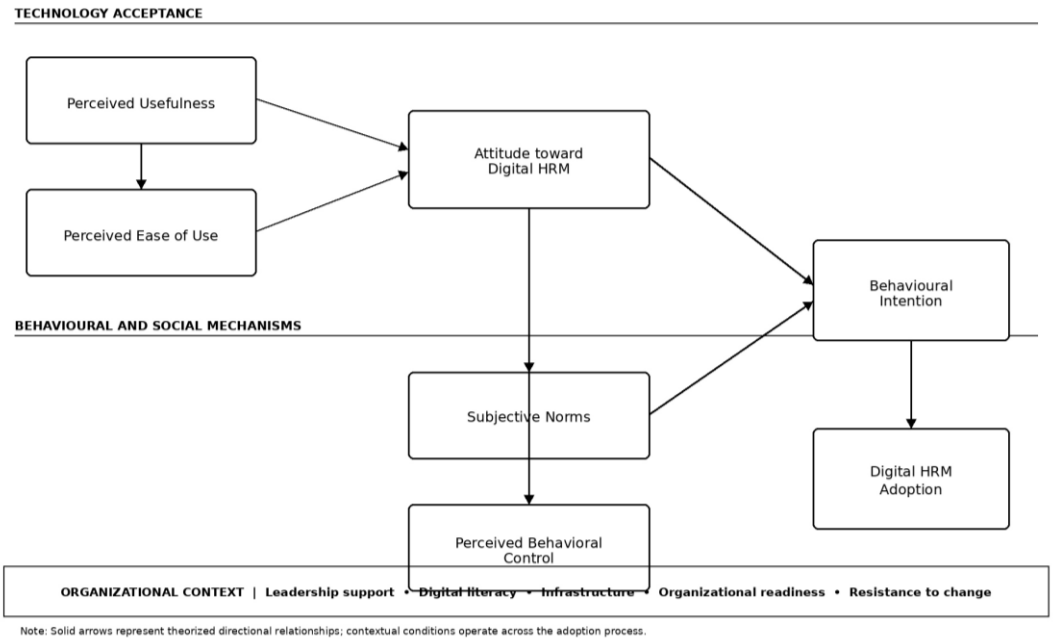

Figure 1. Integrated Multi-Level Framework for Digital HRM Adoption

3.2 TAM and individual technology acceptance

Davis's (1989) Technology Acceptance Model provides the most direct explanation of individual acceptance. Perceived usefulness refers to the degree to which an employee believes that using a technology will improve job performance, while perceived ease of use refers to the degree to which the technology is perceived as relatively effortless. The thesis applies this logic to higher education and argues that faculty and HR administrators are more likely to adopt digital HR systems when they perceive clear performance benefits and manageable effort.

In DHRM, perceived usefulness may arise from faster recruitment processing, easier access to employee records, more transparent performance information, automated leave management, personalized learning or improved workforce analytics. Perceived ease of use may depend on interface design, training, technical support and familiarity with digital systems. The two perceptions therefore operate not only as properties of the technology but also as perceptions shaped by organizational support.

TAM is particularly useful for explaining the initial cognitive response to a digital HR system, but its explanatory boundary is important. It says comparatively little about peer expectations, leadership, organizational culture or the way an innovation spreads across departments. These limitations create a theoretical need for TRA, TPB and DOI.

3.3 TRA and the social dimension of adoption

The Theory of Reasoned Action adds a social dimension by proposing that behavioural intention is influenced by attitude and subjective norms (Fishbein & Ajzen, 1975). In higher education, an employee's willingness to use a digital HR platform may be affected by colleagues, supervisors, department heads and senior leadership. A system that is accepted by respected peers can acquire social legitimacy, whereas a system perceived as imposed or unnecessary may generate avoidance.

Subjective norms are especially important in academic organizations because professional practices are frequently shaped by departmental cultures. If faculty members observe that colleagues routinely use a digital learning or performance platform, non-users may perceive stronger pressure to participate. Leadership communication can reinforce this process by explaining why the technology is being introduced and how it connects with institutional goals.

TRA therefore complements TAM rather than replacing it. TAM explains whether a system is perceived as useful and easy; TRA explains how those perceptions operate within a social environment. The combination begins to capture the behavioural and relational character of DHRM adoption.

3.4 TPB and perceived behavioral control

TPB extends TRA through perceived behavioral control (PBC), defined as the perceived ease or difficulty of performing a behavior and the resources or opportunities available to do so (Ajzen, 1991). This construct is particularly important for digital HRM because willingness to use a system does not guarantee actual use. Employees require digital skills, access, reliable infrastructure, technical support and sufficient autonomy.

The thesis identifies lack of technical skills and institutional support as barriers that can constrain adoption even when employees hold positive attitudes. This means that PBC provides a bridge between psychological intention and organizational reality. A faculty member may believe that an HR analytics platform is valuable, for example, but still be unable to use it effectively if training is unavailable or connectivity is unreliable.

From a managerial perspective, PBC implies that digital adoption should be supported by training, help desks, user guides, accessible interfaces and infrastructure. The theoretical implication is equally important: technology acceptance should be interpreted as a capability-dependent process rather than as a purely attitudinal choice.

3.5 DOI and institutional diffusion

Rogers's (2003) Diffusion of Innovation theory explains how innovations spread through a social system. The five characteristics of relative advantage, compatibility, complexity, trialability and observability provide an organizational-level explanation that is not available in TAM alone.

Relative advantage concerns whether digital HRM is perceived as better than existing arrangements. Compatibility concerns whether the innovation fits existing values, routines and professional practices. Complexity concerns the perceived difficulty of understanding or using the system. Trialability concerns whether users can experiment with the technology before full implementation. Observability concerns whether the benefits of adoption are visible to others.

In higher education, compatibility deserves particular attention because academic institutions contain established professional routines. A system that works well in a corporate environment may not automatically fit faculty appraisal, research evaluation or academic workload processes. Digital HRM therefore needs to be compatible not only with technical infrastructure but also with professional norms and institutional governance.

DOI also explains why adoption can vary across institutions even when the same technology is available. Differences in leadership, innovation climate, resources and organizational culture can accelerate or slow diffusion. The thesis explicitly positions DOI as the macro-level complement to the individual-level behavioural theories.

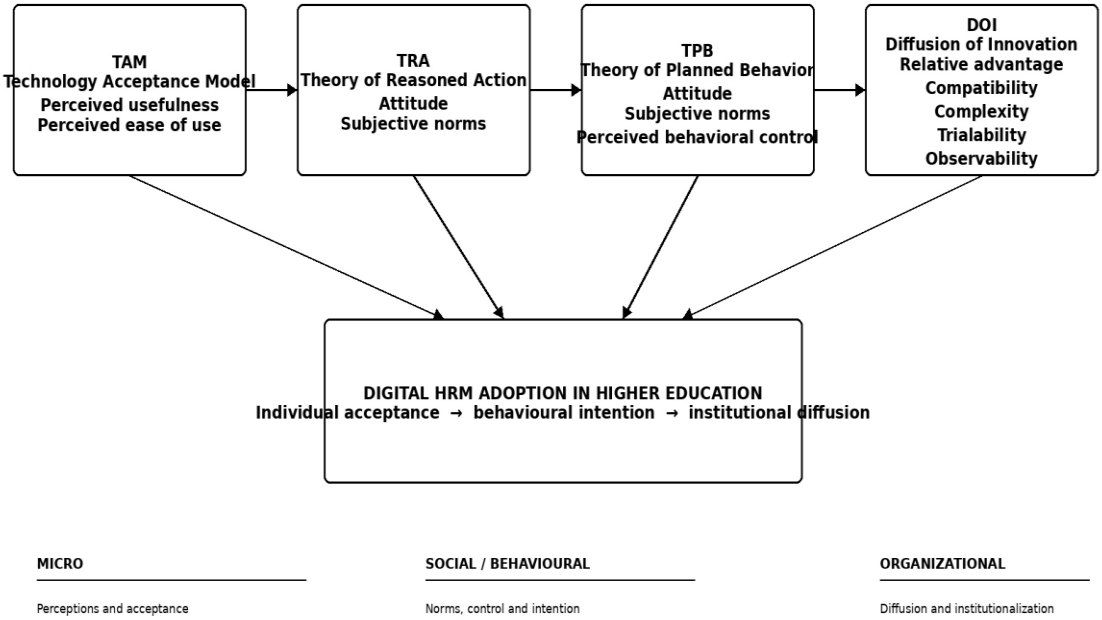

Figure 2. Complementarity of TAM, TRA, TPB and DOI

3.6 Digital literacy as a boundary condition

Digital literacy emerges as a central boundary condition because the perceived difficulty of technology depends partly on user competence. The thesis identifies limited digital literacy among staff as an implementation challenge. Digital literacy affects both perceived ease of use and PBC: employees who possess stronger skills are more likely to understand system functions and feel capable of using them.

This suggests that training should not be viewed simply as an implementation activity. It can alter the psychological conditions under which adoption occurs. Training may increase PBC, reduce perceived complexity and indirectly improve attitudes toward the technology. Consequently, digital capability development should be integrated into the DHRM strategy from the beginning rather than added after implementation problems emerge.

3.7 Leadership, organizational readiness and resistance

Leadership support connects individual acceptance with institutional implementation. Leaders determine priorities, allocate resources and communicate the legitimacy of new systems. When leadership demonstrates consistent use of digital processes and provides visible support, employees may perceive stronger subjective norms and greater organizational readiness.

Organizational readiness also includes infrastructure, budget, data governance and technical support. The thesis identifies budget constraints, technological infrastructure gaps and digital literacy as barriers. These conditions determine whether positive individual intentions can become sustained organizational use.

Resistance to change represents a further boundary condition. Digital HR systems may alter routines, increase perceived monitoring or create fears about technological displacement. Resistance can therefore weaken the transition from intention to adoption. Effective implementation requires participation, transparent communication, phased deployment and opportunities for feedback. These practices reduce uncertainty and can improve compatibility and trialability.

4. Discussion

The integrated synthesis suggests that TAM, TRA, TPB and DOI should be treated as complementary rather than competing theories. TAM is strongest at explaining individual perceptions of a technology; TRA adds social influence; TPB incorporates perceived capability and constraints; and DOI explains institutional diffusion. Their integration creates a coherent micro–meso–macro account of DHRM.

At the micro level, employees assess whether a digital HR system is useful and easy to use. At the social level, employees interpret the expectations of colleagues, supervisors and institutional leadership. At the organizational level, the institution evaluates compatibility, relative advantage, implementation resources and observable outcomes. Adoption is therefore produced through interactions among these levels rather than through a single causal mechanism.

The framework also clarifies why technology investments sometimes produce limited outcomes. An institution may purchase a sophisticated HR platform but fail to achieve transformation if users lack skills, perceive little value, or believe that leadership is not committed to the change. Conversely, a relatively simple system can become highly effective when it fits institutional routines and is supported by training and leadership.

The theoretical contribution is consequently not the addition of another isolated predictor. It is the integration of established theories into a layered framework that explains different stages of the same transformation process. Such integration is particularly appropriate for higher education because the sector combines individual professional autonomy with institutional governance.

Table 2. Boundary conditions identified through the theoretical synthesis

Contextual condition	Primary theoretical function	Expected influence
Digital literacy	Capability / PBC	Facilitates actual use
Leadership support	Subjective norms / legitimacy	Strengthens intention and adoption
Infrastructure	Facilitating condition	Enables sustained use
Organizational culture	Compatibility	Shapes acceptance and diffusion
Resistance to change	Constraint	Weakens implementation
Trialability	DOI	Reduces uncertainty
Observability	DOI	Makes benefits visible
Resource availability	Organizational readiness	Supports institutionalization

4.1 Theoretical propositions

P1. Perceived usefulness positively influences attitudes toward Digital HRM.

P2. Perceived ease of use positively influences attitudes toward Digital HRM.

P3. Positive attitudes toward Digital HRM positively influence behavioral intention.
P4. Subjective norms positively influence behavioral intention toward Digital HRM.
P5. Perceived behavioral control positively influences Digital HRM use.
P6. Digital literacy strengthens the relationship between perceived ease of use and Digital HRM adoption.
P7. Leadership support strengthens the influence of subjective norms on behavioral intention.
P8. Relative advantage positively influences institutional Digital HRM adoption.
P9. Compatibility positively influences institutional Digital HRM adoption.
P10. Perceived complexity negatively influences institutional adoption.
P11. Trialability positively influences institutional adoption.
P12. Observability positively influences institutional diffusion.
P13. Organizational readiness strengthens the translation of individual intention into sustained institutional adoption.

4.2 Implications for higher education

For institutional leaders, the framework suggests that DHRM investment should begin with readiness assessment rather than software procurement alone. Institutions should evaluate employee skills, workflow compatibility, data governance, infrastructure and leadership capacity before implementation.

For HR professionals, the framework indicates that adoption is partly a communication problem and partly a capability problem. HR teams should communicate the practical value of digital tools, provide role-specific training and maintain accessible support channels. For academic leaders, visible participation is important because social norms can influence employee willingness to adopt.

For policymakers, the framework highlights the need to consider institutional differences when promoting digital transformation. National policy can establish direction, but local institutions require resources and capability-building mechanisms to translate policy into operational change.

5. Future Research Agenda

Future research should empirically test the integrated framework using structural equation modeling, longitudinal designs or multilevel analysis. Longitudinal studies would be particularly useful because technology adoption is dynamic. Employees may initially resist a system and later accept it after training and exposure, while early enthusiasm may decline if organizational support is weak.

Comparative research should examine public and private universities, metropolitan and Tier-II institutions, and faculty versus administrative staff. Such comparisons can determine whether institutional governance and professional role alter the relative importance of the theoretical constructs.

Further research should also examine emerging technologies such as AI-enabled recruitment, predictive people analytics and generative-AI HR assistants. These technologies introduce additional issues concerning algorithmic transparency, privacy, fairness and employee trust. The existing framework can be extended by incorporating ethical governance and perceived risk as additional contextual variables.

6. Conclusion

This paper developed an integrated theoretical framework for understanding Digital Human Resource Management adoption in higher education. The synthesis demonstrates that DHRM cannot be adequately explained by technology availability or individual acceptance alone. TAM explains the role of usefulness and ease of use; TRA explains social influence; TPB adds perceived behavioral control; and DOI explains

institutional diffusion.

The integrated framework positions DHRM as a socio-technical transformation in which individual cognition, social expectations and organizational conditions interact. Digital literacy, leadership support, infrastructure, organizational compatibility and resistance to change act as important boundary conditions. The model is particularly relevant to higher education because institutions must balance technological modernization with professional autonomy, established routines and complex governance structures.

The principal contribution is therefore a coherent theoretical architecture that connects the question of individual acceptance with the broader question of institutional transformation. Future empirical research can test the propositions across different higher education settings and technologies, thereby refining understanding of how digital HRM can become a sustained organizational capability rather than a collection of disconnected digital tools..

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