impact International Journals and Publications

© IIJP 2026 | Volume 2, Issue 4, pp. 1137-1151 | ISSN: 2636-4484

BEYOND RESKILLING AND UPSKILLING: HUMAN RESOURCE DEVELOPMENT AS A STRATEGIC CAPABILITY FOR WORKFORCE RESILIENCE IN THE AGE OF ARTIFICIAL INTELLIGENCE

Maxwell Akonjom Anyang[1], Franca Imhande Anyio[2] & Prof. Silas F. Anyio[3]
[1,2,3]Department of Public Administration, Ahmadu Bello University, Zaria, Nigeria
Email: maxwellanyang@gmail.com[1], francaanyio5@gmail.com[2], anyiosilas@gmail.com[3]

ARTICLE INFO
Article No.: 0708
Accepted Date: 13/10/2026
Published Date: 20/11/2026
Type: Research

ABSTRACT
The advent of artificial intelligence (AI) is accelerating change in tasks, skills, and learning, and organisations are responding through reskilling and upskilling programmes. However, this paper contends that these initiatives, while vital, are also conceptually inadequate. They see capability gaps as separate deficiencies that need to be addressed through one-off training, but they ignore the organisation's ongoing capability to adapt to disruptions, learn and conserve resources needed for adaptation in the future. Integrating findings from an integrative review of the literature published from 2021 to 2026 in the areas of human resource development (HRD), AI at work, learning agility, resilience and technostress, this paper identifies four gaps in skills-based approaches to workforce change (outcome, construct, level and governance) and suggests strategic HRD capability as an organisational-level solution for fostering workforce resilience. Dynamic capabilities and conservation of resources (COR) are combined into a theoretical framework of resource-sustaining reconfiguration that explains how an organisation can rejuvenate its workforce capability while not consuming the workforce itself. The framework yields five HRD domains, three proximal resilience resources, two boundary conditions and nine empirical propositions, among which is a resource-balance proposition that puts a cap on the reconfiguration intensity. The paper repositions HRD conceptually from training to workforce capability, distinguishes workforce resilience from other change concepts, and combines organisational renewal with employee resource conservation.

Keywords: human resource development; workforce resilience; artificial intelligence; reskilling; upskilling; learning agility; dynamic capabilities; conservation of resources

© IIJP 2026 | Volume 2, Issue 4, pp. 1137-1151 | ISSN: 2636-4484

Introduction

Artificial intelligence (AI), and especially generative AI, change the nature of the problem at the core of workforce development of organisations. Previously, technological systems of work created an environment within which a relatively stable skill gap was diagnosed and addressed through training and overcoming. With the use of AI, tasks, information flows, and cognitive division of labour are changing rapidly enough for the skill inventory to become outdated almost immediately after it is established. The displacement of worker groupings from tasks in which they had a competitive advantage (Acemoglu & Restrepo, 2022) constantly redraws the contours of work. Workforce development is no longer a matter of having the requisite skills in the context of a new technology but also being able to learn, structure work, and function in an environment of constant change.

The main way in which organisations respond to the problem is reskilling and upskilling, and a good body of literature supports this approach. The works of Ekuma (2024), who looks at the effect of AI and automation on HRD, Li and Kim (2024), who consider developing AI literacy through HRD, and Korzynski et al. (2024), who describe the integration of skill gap analysis, personalized learning programs, and job crafting in the context of generative AI, are the works that contribute much to the research. The contribution of these papers is clear – they pose a question of how HRD can enable employees to gain skills necessary for AI-enabled work, but not how organisational capability allows for continuous workforce renewal and maintaining employee well-being at the same time.

The difference between the two approaches is critical. The skills-focused approach presupposes an implicit logic (diagnosing the gap, training, certification) that implies a static target, which keeps moving under AI-driven changes. Meanwhile, employees face growing learning requirements and increased levels of uncertainty (Wankhede & Khandelwal, 2026; Zhang et al., 2025), while AI simultaneously empowers and challenges employees' autonomy (Raisch & Krakowski, 2021). Hence, a workforce can be retrained again and again and still end up exhausted. Workforce resilience is the ability of the workforce to resist disruption, learn from it, and adapt and is thus the outcome that goes beyond just skill acquisition.

The literature that exists provides all the ingredients but does not provide the recipe. AI literacy research identifies competencies (Li & Kim, 2024); learning agility research explains constant learning (Milani et al., 2021, 2024); resilience research explains positive adaptation (Panda et al., 2024; Park & Park, 2021); technostress research explains depletion of resources (Wankhede & Khandelwal, 2026); AI and HRD literature describes the current practices (Arghode & Nafukho, 2026; Korzynski et al., 2024). All these streams have developed largely independently of each other. Two theories which provide the best link are dynamic capabilities and conservation of resources. While the first one explains renewal (Teece, 2007; Chen et al., 2023) and the latter one describes employee stress (Hobfoll, 1989; Liao et al., 2022), none of the two explains how an organisation builds the resources of its employees in the process of renewal. What is needed is a theoretical framework that would explain how HRD can be an organisational capability to renew workforce capability without depleting the workforce.

This paper contributes to the research in five ways. Firstly, it reconceptualises HRD from skill gap closing to workforce renewal capability. Secondly, it integrates dynamic capabilities and COR theory in a perspective of resource-sustaining reconfiguration, a multilevel mechanism which is missing in either of the theories. Thirdly, it clearly distinguishes workforce resilience from adaptive performance, learning agility, and other related constructs and describes the mechanisms through which HRD can develop workforce resilience. Fourthly, it considers

human-centric governance of AI as a boundary condition within which workforce development can promote or challenge resilience. Finally, it advances a resource-balance proposition that imposes a limit on the intensity of reconfiguration.

Method

The current study relies on an integrative conceptual review that is appropriate in addressing a problem that cuts across HRD, organisational behaviour, strategic management, information systems and occupational wellbeing and requires theorisation but not effect estimation. Literature searches encompassed peer-reviewed articles published between 2021 and 2026 from journals in the fields of HRD, management, organisational behaviour and information systems. Key search terms comprised HRD, artificial intelligence, resilience of workforce/employees, reskilling, upskilling, learning agility, technostress, job insecurity, psychological safety, conservation of resources and dynamic capabilities. Systematic review articles and papers that were theoretically driven were preferred. The databases searched, search dates, inclusion and exclusion criteria as well as the number of sources searched and finally selected are reported in Table 1. The fundamental tenets of dynamic capabilities theory and conservation of resources (COR) theory (Hobfoll, 1989, 2001; Teece et al., 1997; Teece, 2007) were consulted from original sources, whereas recent reviews were used to identify subsequent developments in both theories. All sources were validated against published bibliographic sources. The current review is neither systematic nor comprehensive.

Table 1 *Review Protocol*

Element	Description
Review design	Integrative conceptual review (non-systematic), synthesised through a critique-and-connect approach.
Databases searched	Scopus and Google Scholar.
Date of search	Late October to early November 2026. Final verification of all sources against published bibliographic records: 19 November 2026.
Publication window	2021 to 2026 for the literature review. Foundational statements of the two theories were added irrespective of date.
Search keywords	HRD; artificial intelligence; workforce and employee resilience; reskilling; upskilling; learning agility; technostress; job insecurity; psychological safety; conservation of resources; dynamic capabilities.
Inclusion criteria	Peer-reviewed journal articles in English, published between 2021 and 2026 in HRD, management, organisational behaviour, information systems or occupational wellbeing journals; addressing AI at work, HRD, workforce resilience and related constructs, or the microfoundations of dynamic capabilities and COR theory. Systematic reviews and theoretically oriented papers were prioritised.
Exclusion criteria	Non-peer-reviewed material (for example, blogs, practitioner reports and unrefereed preprints); publications outside the window other than the foundational theory statements; studies without an organisational or workplace focus.

Element	Description
Records screened	68 studies were recorded and screened, and only 26 paper largely comply with the target of systematic review and theoretically oriented work, were considered appropriate; others were dropped, some due to duplications of publications, publications without verifiable bibliographic details, Publications outside the selected scope and period, and more.
Sources included	26 in total: 21 publications from 2021 to 2026, and 5 foundational or theory-development statements on COR and dynamic capabilities (Hobfoll, 1989, 2001; Hobfoll et al., 2018; Teece, 2007; Teece et al., 1997).

Note. Authors' review protocol. The review is not systematic and is not intended to be comprehensive. COR = conservation of resources; HRD = human resource development.

The synthesis used the critique and connect methodology. For each theme, the review makes a point, assesses the available evidence, notes convergence, divergence or conceptual gap, and links the conclusion to the conceptual framework. Given that the current knowledge on AI-era HRD is quite new, predominantly cross-sectional and case-study-based, it is taken as a basis for theory-building. The propositions put forward in Section 5, therefore, require empirical testing.

Critical review of the literature

Skills-centred responses: What the evidence establishes and what it leaves open

The literature on the role of AI in HRD needs to be interpreted as a map of applications and competencies. The contribution of Ekuma (2024) is an effort to map the entry of AI and automation into HRD processes and conceptualise HRD-AI synergy; Li and Kim (2024) examine the development of AI literacy; Korzynski et al. (2024) illustrate the use of generative AI in integration of skill gap analysis, personal development and job crafting. All these studies clearly define the developmental mandate. There is, however, a common flaw in their outcome logic. The outcome of interest is skills or improvement of processes. How long those skills will remain relevant after the next technological shifts is not made explicit.

From task-based economic literature, there is a clue to the reasons for the vulnerability of this logic. As long as automation keeps pushing worker groups off tasks (Acemoglu & Restrepo, 2022), the subject of reskilling is a moving target formed by technological changes. Faster feedback and the potential of AI-based skill gap analysis (Korzynski et al., 2024) reduce the time lag but not the essence of the problem: people have to keep processing the feedback, experimenting, learning and dealing with the next change request. This capacity is captured by learning agility. The concept has been incorporated into models of talent and development (Milani et al., 2021), and Milani et al. (2024) offer a 11-item measure validated across several countries. At the same time, the literature treats learning agility as an individual difference. The organisational aspect of the HRD problem remains unexplored: how the organisation develops, maintains and exploits this capacity in its workforce. Reskilling addresses what the employees have to learn, while learning agility addresses their capacity to keep learning. Neither addresses how an organisation maintains this capacity during repeated cycles of changes.

AI as both resource and demand: Reconciling divergent evidence

The literature on the impact of AI on employees is contradictory. On the one hand, in their three-wave study involving 274 US employees, Do et al. (2025) discover that AI-enabled HRM enhances resilience and adaptive performance through employee exploration with the help

of AI trust. On the other hand, in their systematic literature review on technostress due to AI and HRD intervention strategies designed to tackle it, Wankhede and Khandelwal (2026) identify adverse consequences of AI on employees. Zhou et al. (2023) summarise adverse effects of algorithmic characteristics of AI-based HRM on employees. Raisch and Krakowski (2021) help understand the source of this divergence: automation and augmentation are interdependent. An organisation cannot pursue one of them and ignore the other.

From the career literature, we observe the same divergence. Burhan (2025) establishes that beliefs about dominance of AI in the labour market relate to increased career adaptability because of career insecurity and skill development. In a survey of 437 employees across five industries in China, Zhang et al. (2025) establish that co-skilling reduces job insecurity mostly due to improved mental well-being and skill confidence, and perceived organisational support is the best buffer against it. In other words, the same stressor can act as a stimulus to adaptation or a source of insecurity depending on the resources people have.

Two insights come out of this set of findings. First, conditionality, rather than diverging results, accounts for this divergence. Different studies vary in the extent to which employees keep their trust, agency and resources to appraise change as a challenge. That is why trust in AI moderates the relationship in Do et al. (2025), why perceived organisational support is the best buffer against job insecurity in Zhang et al. (2025) and why Arghode and Nafukho (2026) talk about human-centred collaboration and ethical learning design as the foundation for the HRD response to AI. Second, the positive results are related to AI-based HRM, not HRD as a developmental capacity. They confirm that AI-driven practices encourage exploration but fail to describe the developmental structure that enables safe, consistent and equal exploration. We argue that AI is neither resource nor demand in its pure form. It turns into either of the two depending on the development system and its governance.

Resilience and its neighbours: Construct clarity and levels of analysis

In comparing six change-oriented constructs (adaptive performance, proactivity, resilience, role flexibility, learning agility and workforce agility), Park and Park (2021) reveal that they all have the same change orientation but differ in emphasis. For AI-era HRD, the lesson is that these constructs should not replace each other. Adaptation addresses effectiveness under changing demands, learning agility – learning from experience, and resilience – positive functioning and recovery from adversity. Researches that equate resilience to adaptive performance or see agile learners as resilient in themselves expose themselves to the construct inflation warned about by Park and Park. The workforce can effectively adapt through constant overload and, in the process, lose the resources needed for the next change cycle. Hence, adaptation without resource preservation is not resilience.

The second gap pertains to the level. Whereas Do et al. (2025) consider resilience at the level of employees, the review of how AI facilitates human resource resiliency (Panda et al., 2024), which is based on the synthesis of 98 Scopus-indexed papers, examines resilience as a consequence of AI-supported human resource functions such as competency development, performance management and risk management. In between those two levels of analysis lies the level at which resilience is jointly performed by the workforce, and the link between investment in development and that level of analysis is unclear. There are two additional resources that are rarely considered in AI-era HRD research, namely career adaptability (Burhan, 2025) and psychological safety. Career adaptability represents a direct response to career insecurity created by AI, while psychological safety determines whether people are willing to put up with their temporary incompetence in learning, and the studies of it focus on learning practices and

organisational capacity for learning and operation in dynamic environments (Edmondson & Bransby, 2023).

Synthesis: Four gaps and an authorial position

The four gaps identified by the review can be named as follows. First, an outcome gap: skills-focused HRD studies hardly ever discuss sustainable capabilities amid continuous change. Second, a construct gap: resilience is often equated with adaptive performance or learning agility. Third, a level gap: organisational renewal and employee resource dynamics are viewed separately. Fourth, a governance gap: development is seen as separate from AI systems and managerial decision-making that would determine whether it is beneficial or not. Our position is that those gaps share the same root cause: the way in which HRD is conceived of as a source of interventions rather than as an organisational capability.

Table 2 *Reskilling and Upskilling Versus Strategic HRD Capability*

Dimension	Reskilling and upskilling	Strategic HRD capability
Logic	Diagnose a gap, train, certify	Sense, mobilise, renew and protect resources
Time horizon	Episodic; aimed at a defined future role	Continuous; aimed at moving requirements
Success criterion	Skills attained; programme completion	Sustained adaptation with resources preserved
View of AI	Tool or system to be mastered	Resource and demand shaped by design and governance
Employee resources	Largely unaddressed	Built and monitored as an explicit objective
Level of analysis	Individual skill gap	Organisational capability enacted through the workforce

Note. Authors' conceptual synthesis.

Theoretical foundation

Dynamic capabilities: Organisational renewal

Dynamic capabilities theory explains organisational performance in changing conditions by sensing opportunities and threats, and seizing and reconfiguring resources. According to Teece et al. (1997), dynamic capabilities are defined as the capability of an organisation to integrate, create and reconfigure internal and external competences in order to react to rapidly changing environment, and Teece (2007) disaggregates these capabilities into sensing, seizing and reconfiguration capacities. Modern reviews discuss human and behavioral microfoundations of dynamic capabilities that can be divided into individual, interpersonal and organisational components with reconfiguration having a strong relation to knowledge management, leadership, talent management and capacity building (Chen et al., 2023; Gheitarani et al., 2023). With the growing impact of AI on changing requirements to skills, there is a need for sustaining capability of sensing emergent needs in competences and renewing human capital. Strategic HRD can be regarded as one of such microfoundations: capability sensing is related to sensing; investments in learning, mobility and human-AI collaboration allow seizing; reskilling, job redesign and redeployment make possible reconfiguration.

However, the theory is organisation-centric. It explains why renewal occurs but underspecifies the human cost of repeated reconfiguration. Research on HR microfoundations leads to the same conclusions: Sheehan et al. (2023) theoretically develop and empirically verify the numerical flexibility and training as two types of HR microfoundations that have distinct

impacts on incremental and radical innovations, and warn about wrong assumptions about positive impacts of all resource-mobilization efforts. A workforce can experience repeated redeployment in conditions of exhaustion, insecurity and loss of professional identity. Thus, organisational adaptability is not enough evidence of workforce resilience.

Conservation of resources: Employee resource dynamics

According to COR theory, people try to obtain, maintain and protect valuable resources and experience stress when these resources are threatened, lost or not obtained despite investments made in obtaining (Hobfoll, 1989). Among the main principles of the theory are the primacy of resource loss over gain, investing resources for protection from losses and resource loss and gain spirals (Hobfoll, 2001; Hobfoll et al., 2018). The theory became essential for organizational behaviour studies of stress and motivation despite criticism about the unclear scope of resources (Liao et al., 2022). Uncertainty related to AI fits perfectly the logic of the theory as people can feel the threats to their competence, status, autonomy and employment, whereas opportunities to learn, relationships, efficacy and career prospects can function as resources. Thus, COR theory allows explaining why development is beneficial and detrimental to individuals: it increases resilience through expanding resources reservoir and decreases if additional demands in learning are imposed to people who do not have enough resources to cope with them.

The claims about spirals though important for COR theory (Hobfoll, 2001) have to be approached carefully. Cross-lagged panel study of personal resources and work-family conflict did not show any evidence of loss spirals on the meso-term level, which suggests that chronic factors and adaptation prevent resource levels from changing (Ford et al., 2023). Taking into consideration this result, the framework proposed below regards loss spiral as a hypothesis rather than axiom and formulates the threshold criterion (Proposition 9) instead of spiral inevitability.

Integration: Resource-sustaining reconfiguration

These theories complement each other. Dynamic capabilities theory provides the organisational mechanism of continuous renewal but does not explain its human cost, and COR theory explains the human cost but does not offer the organisational mechanism for resource replenishment. The integration of these theories brings the central argument of this paper, called resource-sustaining reconfiguration: organisational reconfiguration is sustainable in case when investments in employees' resources keep up with resource demands caused by reconfiguration. Strategic HRD acts as the integrative mechanism. It allows organisational renewal through continuous building of resources for employees, and its success should be measured not only by the renewing capabilities but also by whether the workforce performing this renewal possesses enough resources to sustain it.

Strategic HRD framework for workforce resilience

Core constructs

Strategic HRD capability is the repeatable capability of an organisation to sense emerging capability needs, mobilise developmental resources, ensure continuous learning and reconfigure workforce knowledge and behaviour in reaction to changes in work while maintaining resources of those experiencing reconfiguration. It is different from a training program as a capability is different from an activity: reskilling, upskilling, coaching and AI literacy programs are the interventions within this capability, and the capability determines when, where, for whom and how they should be used. Workforce resilience is the capability of employees collectively to withstand AI-related disruption, preserve or restore their effectiveness, learn from changes and

adjust to them constructively without depletion of their resources for future changes. The last element makes workforce resilience different from adaptive performance as is shown in Table 3.

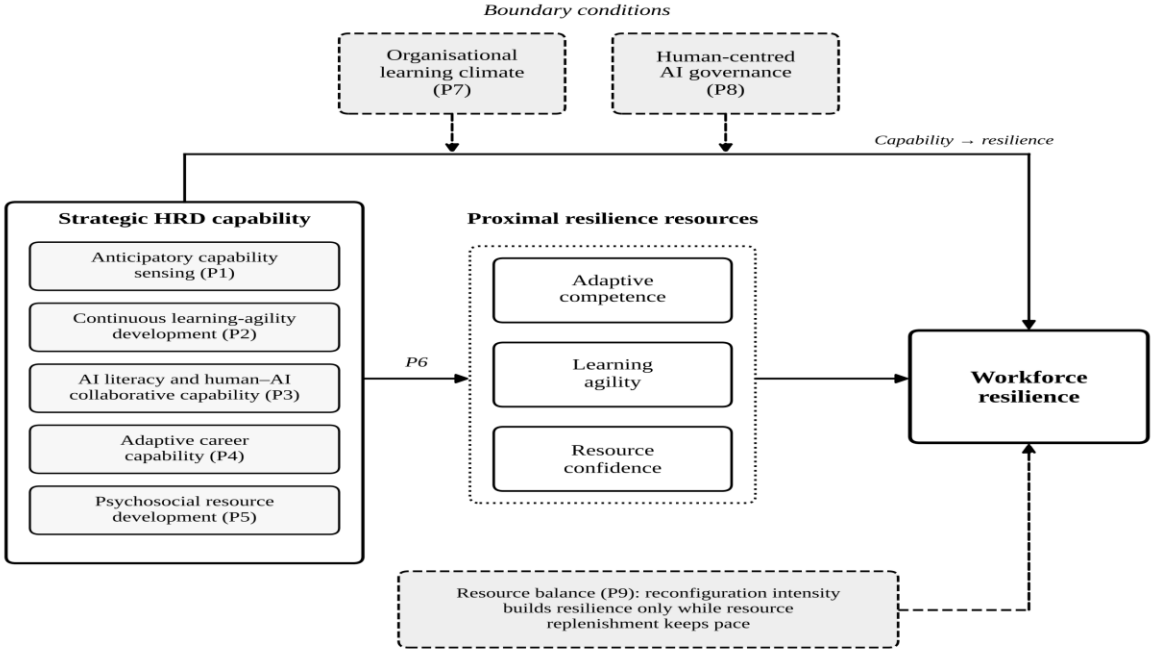
Table 3 *Workforce Resilience and Adjacent Constructs*

Construct	Core question	Level	Role in the framework
Adaptive performance	Is the employee effective under changing demands?	Individual	Related outcome, not equivalent to resilience
Learning agility	Can the employee learn from experience and transfer it?	Individual	Proximal resource
Workforce resilience	Can the workforce keep adapting with resources preserved?	Workforce (collective)	Focal outcome
Strategic HRD capability	Can the organisation repeatedly sense, mobilise and renew?	Organisational	Focal antecedent

Note. Authors' conceptual synthesis, building on the construct comparison in Park and Park (2021).

As shown in Figure 1, five complementary HRD domains create three proximal resilience resources that enable workforce resilience, where learning climate and human-centered AI governance determine whether the investment results in resilient behavior.

Figure 1 *Strategic HRD Capability Framework for Workforce Resilience*



Five domains of strategic HRD capability

1. Anticipatory capability sensing: This domain refers to the ability to identify changes in task and capability requirements before the acute performance deficiency emerges. While AI analytics can be used for anticipatory capability sensing (Korzynski et al., 2024), sensing should be based not only on data analysis but also on managerial and employee knowledge and should consider capability trajectories, not job descriptions: what capabilities are augmented, what judgement is required, what skills transfer, and where is the greatest disruption.

Proposition 1. Anticipatory capability sensing is positively related to workforce resilience because of earlier and targeted development resource allocation.

2. Continuous learning-agility development: This domain includes embedding learning in work through challenging tasks, reflection, feedback, experimentation, peer learning, and job crafting. Since learning agility is experience-based and refers to adapting to new situations, the authors, following Park & Park (2021), consider learning agility as a separate resource and mechanism, distinct from resilience which is an outcome.

Proposition 2. Continuous learning-agility development is positively related to workforce resilience.

3. AI literacy and human-AI collaborative capability: This domain combines technical skills with judgement. The benefits of AI literacy and AI-enabled HRD are considered in works by Li & Kim (2024) and Korzynski et al. (2024), while Arghode & Nafukho (2026) emphasize human-centred approaches to AI-human collaboration and learning design with the help of AI. Based on these works, the authors argue that capability should go beyond technical knowledge, including understanding of what an AI tool can and cannot do, how to verify its outputs, how to protect confidential information, and what tasks should remain human-led. This capability should allow avoiding unnecessary anxiety and uncritical dependence in line with the automation-augmentation trade-off of Raisch & Krakowski (2021).

Proposition 3. AI literacy and human-AI collaborative capability are positively related to adaptive competence and workforce resilience.

4. Adaptive career capability: This domain refers to the ability to interpret the changed opportunity structures, to translate skills into new roles and to take purposeful actions in times of technological change. It is developed through career conversations, internal mobility, recognition of transferable skills and open learning-to-opportunity pathways. Burhan (2025) proves that career insecurity induced by AI can be transformed into adaptability through skills development, while Zhang et al. (2025) prove that job insecurity reduces when skills confidence and organizational support are present. Without this domain, reskilling can result in well-qualified but still insecure and frustrated employees. From the COR perspective, perceived options expand the resource pool; from the dynamic capability perspective – help to redeploy knowledge rather than lose it.

Proposition 4. Adaptive career capability contributes to workforce resilience through expanding perceived and real options of coping with AI-induced changes in employees' roles.

5. Psychosocial resource development: This domain helps employees to deal with uncertainty by developing adaptive self-efficacy, social support, reflective coping, realistic workload, and psychological safety (Edmondson & Bransby, 2023). Evidence of accumulated stress factors related to AI (Wankhede & Khandelwal, 2026), the role of organizational support in reducing AI-induced job insecurity (Zhang et al., 2025) and the role of trust and exploration in increasing resilience (Do et al., 2025) suggests that technical capability alone is not sufficient. Learning requires temporary incompetence, asking questions and experimenting without too much fear.

Proposition 5. Psychosocial resource development is positively related to resource confidence and workforce resilience.

Proximal resilience resources

Three proximal resources are suggested to mediate the effect of the five domains of strategic HRD capability. Adaptive competence is the integrated capability to perform and use

judgement in new conditions. Learning agility is the capacity to continue learning and transferring skills. Resource confidence is the belief in possessing enough resources to cope with the change ahead. This explains why the same training investments result in different outcomes: employees may gain competence but lack confidence, have confidence but no agility for learning, and vice versa.

Proposition 6. Adaptive competence, learning agility and resource confidence jointly mediate the relationship between strategic HRD capability and workforce resilience.

Boundary conditions and resource balance

The organizational learning climate, meaning availability of time, feedback, experimentation, and permission to learn from errors, likely determines whether formal training translates into better performance in work, as evidenced by learning behaviours in the psychological safety literature (Edmondson & Bransby, 2023). Thus, it determines whether strategic HRD capability emerges or not. The human-centred approach to AI governance, meaning clarity about accountability, data use and protection, verification and contestability of decisions, determines whether AI is perceived as a resource or a black box (Arghode & Nafukho, 2026; Zhou et al., 2023).

Proposition 7. Organizational learning climate positively moderates the relationship between strategic HRD capability and workforce resilience.

Proposition 8. Human-centred AI governance positively moderates the relationship between AI-oriented development capability and workforce resilience through enhanced trust, agency and perceived fairness.

The resource-sustaining reconfiguration perspective offers another proposition, which distinguishes this framework from the capability-only perspective. Since the development process itself creates demands, the additional positive effect of reconfiguration depends on whether employees' resources are replenished at the same speed. Beyond the point when replenishment becomes slower, further training, reassignments and redesign will reduce employees' resources, rather than develop them (Liao et al., 2022; Sheehan et al., 2023). As the empirical evidence regarding the loss spiral is contradictory (Ford et al., 2023), the proposition offers a boundary condition, rather than a spiral.

Proposition 9. Relationship between reconfiguration intensity and workforce resilience is positive only when resource replenishment keeps pace with the demands of reconfiguration; otherwise, the relationship is reduced and may become negative.

Rival explanations and disconfirmation

The theory is falsifiable. It would be falsified if (a) skills attainment alone predicted resilience as effectively as strategic HRD capability after controlling for learning climate and governance; (b) the proximal resources did not mediate the relationship, hence implying that the capability acts through skills; or (c) resilience decreased or reversed its positive direction when reconfiguration intensity exceeded replenishment. The alternative explanation is that resilience depends on stable personal factors and that HRD only sorts resilient people; hence, it predicts no effect of HRD capability after controlling for individual differences. Longitudinal designs with pre-implementation baselines can help differentiate between these two explanations.

Discussion and theoretical contributions

Skills-based perspectives are concerned with the presence of necessary skills in the employees to meet the changing requirements of work (Ekuma, 2024; Li & Kim, 2024). A workforce-resilience perspective raises a more demanding question: can an organisation repeatedly renew capability and still retain sufficient resources to meet further changes? The

more demanding criterion corresponds to the challenge of AI transformation in requiring a balance of automation and augmentation (Raisch & Krakowski, 2021), and it resolves the spurious dichotomy of performance and wellbeing, since depletion impairs adaptability.

The current paper contributes in five ways.

1. Capability versus Intervention. Contemporary HRD literature emphasizes applications and competencies (Ekuma, 2024; Korzynski et al., 2024). It fails to identify the organisational capability that determines the timing and nature of interventions and their renewal. The strategic HRD capability is such a concept.
2. Reconciling contradictory findings. On the one hand, AI-enabled HRM has been found conducive to building resilience (Do et al., 2025), on the other hand, it creates technostress due to its algorithmic nature (Wankhede & Khandelwal, 2026; Zhou et al., 2023). At the same time, the same insecurity provokes adaptation in one study (Burhan, 2025) and persists in another where the skill confidence and organisational support are lacking (Zhang et al., 2025). The resource-sustaining reconfiguration logic explains this contradiction: AI-enabled development fosters resilience if replenishment meets demand and depletes it otherwise. The integration thus adds a cost logic to the theory of dynamic capabilities and an organisational investment mechanism to COR theory.
3. Clarification of construct and level. The constructs of adaptive competence and learning agility are identified as antecedents, while resilience is defined as sustainable, resource-preserving adaptation. This helps resolve the overlapping construct problem identified by Park and Park (2021). The paper also closes the gap between resilience evidence at the employee level (Do et al., 2025) and systematic literature reviews at the HR system level (Panda et al., 2024) by locating resilience at the workforce level.
4. Governance as a boundary condition. Human-centred AI governance makes the difference whether development preserves or depletes resilience (Arghode & Nafukho, 2026; Zhou et al., 2023). Consequently, development cannot promote resilience if the implementation of AI is obscure, unfair or reduces the employees' agency.
5. Falsifiable limit. Proposition 9 sets a falsifiable limit for the reconfiguration logic which the skills-based perspective lacks and which does not rely on loss spirals, for which recent evidence is ambiguous (Ford et al., 2023).

Previously, the research has considered AI-enabled HR practices as a source of resilience (Do et al., 2025; Panda et al., 2024). This paper shifts the focus of analysis and considers which capability determines whether the AI-enabled HR practice fosters or depletes the resilience of the workforce, and identifies resource conservation as the standard of success.

For HRD practitioners, the strategic function transforms from making sure that there are courses to learn before skills get outdated to creating a system which detects capability shifts, manages learning, supports transitions, and preserves developmental resources.

This paper has limitations. Being conceptual, it formulates propositions which need to be tested. The evidence is recent and limited to specific contexts, and the constructs require further development. Limiting the literature review to 2021-2026 implies that the evidence about AI-era HRD comes from the recent literature. While the statements which lay down the foundations of both theories have been directly consulted, the later developments have been mostly retrieved through the recent reviews, and the theoretical claims should be verified against the wider body of theoretical literature in implementing the framework.

Implications for HRD practice

Six implications follow.

1. Redesign the skills inventory to capture capability sensing. Determine the nature and extent of the change, the role of AI in expertise, and the groups who are supposed to go through the most transition.
2. Build learning agility into reskilling. The completion certificate tells little about the employees' ability to transfer the knowledge when the technology changes.
3. Teach AI literacy along with judgement and governance. Teach verification, confidentiality, bias, escalation, and accountability with real tasks.
4. Combine career development and reskilling. Use visible career paths and internal mobility to make employees more qualified and more secure.
5. Incorporate resource measures in HRD reporting. Measure learning agility, adaptive confidence, perceived employability, and trust in AI. Figure out whether resource replenishment trails the demands of development.
6. Integrate HRD into AI governance. It is strategically inconsistent to exclude HRD from the decisions about transparency, participation, data use, and human supervision and then rely on HRD to manage resistance.

Research agenda

The framework opens six avenues for empirical investigations.

1. Measurement. Conceptualise strategic HRD capability as a higher-order construct. The five dimensions can provide an initial framework for measurement, and the scale of learning agility developed by Milani et al. (2024) can be a possible indicator of a proximal resource.
2. Longitudinal designs. Multi-wave research should explore the connection between the resources of HRD measured prior to AI implementation and adaptation, recovery and learning later, since resilience reveals itself through the experience of change.
3. Resource dynamics. Explore the cycles of resource gain and loss, as well as Proposition 9, through cross-lagged or latent growth models. Curvilinear and threshold effects of reconfiguration intensity should also be studied. In addition, the mixed evidence on spiral effects (Ford et al., 2023) should be resolved.
4. Contexts and technologies. Further research should differentiate between AI technologies and occupations. Generative AI, algorithmic decision-making, and predictive analytics create different HRD challenges. Proposition 9 should be tested in resource-constrained contexts and public organisations, where replenishment capacity may be weaker.
5. Levels. Multi-level modeling must take into account that capability and governance work at the organizational level, learning climate – at the team level, while competence and confidence operate at the individual level.
6. Equity and moderators. Inequality of access to developmental experiences, mentoring, and learning time should be studied. Moderating effects of organizational support and employee readiness for AI should be tested (Zhang et al., 2025). Field and qualitative studies are required to compare traditional training in tools with resilience-oriented development.

Conclusion

Reskilling and upskilling are essential responses to artificial intelligence. However, they are insufficient because the target keeps shifting. This paper makes the case for the challenge being workforce resilience and HRD as a strategic capability to respond to it. Five domains are functioning through adaptive competence, learning agility, and resource confidence, conditioned by learning climate and human-centered AI governance, and constrained by the balance between

reconfiguration and resource replenishment trade-off. The sustainable value of HRD lies not in its ability to close the current skill gap, but in developing people and systems capable of continuing to learn, adapt, and function in responsible ways during future technological changes without having to start from scratch.

References

Acemoglu, D., & Restrepo, P. (2022). Tasks, automation, and the rise in U.S. wage inequality. *Econometrica*, *90*(5), 1973–2016. https://doi.org/10.3982/ECTA19815

Arghode, V., & Nafukho, F. M. (2026). Human-centered AI in human resource development: Reframing human–AI collaboration, trainer roles, and ethical learning design. *Human Resource Development Review*. Advance online publication. https://doi.org/10.1177/15344843261488197

Burhan, Q.-u.-A. (2025). Unraveling the AI enigma: How perceptions of artificial intelligence forge career adaptability through the crucible of career insecurity and skill development. *Management Research Review*, *48*(3), 470–488. https://doi.org/10.1108/MRR-01-2024-0022

Chen, Y., Liu, L., Li, W., Xie, Z., & Wei, C. (2023). Microfoundations of dynamic capabilities: A systematic review and a multilevel framework. *Management Decision*, *61*(6), 1717–1753. https://doi.org/10.1108/MD-05-2022-0615

Do, H., Chu, L. X., & Shipton, H. (2025). How and when AI-driven HRM promotes employee resilience and adaptive performance: A self-determination theory. *Journal of Business Research*, *192*, Article 115279. https://doi.org/10.1016/j.jbusres.2025.115279

Edmondson, A. C., & Bransby, D. P. (2023). Psychological safety comes of age: Observed themes in an established literature. *Annual Review of Organizational Psychology and Organizational Behavior*, *10*, 55–78. https://doi.org/10.1146/annurev-orgpsych-120920-055217

Ekuma, K. (2024). Artificial intelligence and automation in human resource development: A systematic review. *Human Resource Development Review*, *23*(2), 199–229. https://doi.org/10.1177/15344843231224009

Ford, M. T., Wang, Y.-R., Matthews, R. A., & Wayne, J. H. (2023). Energy, attentional resources and work–family conflict over the meso-term: Resource loss spirals revisited. *Journal of Organizational Behavior*, *44*(8), 1204–1229. https://doi.org/10.1002/job.2710

Gheitarani, F., Nawaser, K., Hanifah, H., & Vafaei-Zadeh, A. (2023). Human-behavioural micro-foundations of dynamic capabilities: A systematic review of the last two decades of research. *International Journal of Management and Decision Making*, *22*(1), 1–26. https://doi.org/10.1504/IJMDM.2023.127685

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*(3), 513–524. https://doi.org/10.1037/0003-066X.44.3.513

Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology*, *50*(3), 337–421. https://doi.org/10.1111/1464-0597.00062

Hobfoll, S. E., Halbesleben, J., Neveu, J.-P., & Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*, 103–128. https://doi.org/10.1146/annurev-orgpsych-032117-104640

Korzynski, P., Kim, S., & Egan, T. (2024). Bridging human resource development processes through generative artificial intelligence. *Human Resource Development Quarterly*, *35*(3), 247–256. https://doi.org/10.1002/hrdq.21551

Li, H., & Kim, S. (2024). Developing AI literacy in HRD: Competencies, approaches, and implications. *Human Resource Development International*, *27*(3), 345–366. https://doi.org/10.1080/13678868.2024.2337962

Liao, H., Huang, L., & Hu, B. (2022). Conservation of resources theory in the organizational behavior context: Theoretical evolution and challenges. *Advances in Psychological Science*, *30*(2), 449–463. https://doi.org/10.3724/SP.J.1042.2022.00449

Milani, R., Setti, I., & Argentero, P. (2021). Learning agility and talent management: A systematic review and future prospects. *Consulting Psychology Journal: Practice and Research*, *73*(4), 349–371. https://doi.org/10.1037/cpb0000209

Milani, R., Sommovigo, V., Ghirotto, L., & Setti, I. (2024). Individual differences in learning agility at work: A mixed methods study to develop and validate a new scale. *Human Resource Development Quarterly*, *35*(4), 455–475. https://doi.org/10.1002/hrdq.21528

Panda, G., Dash, M. K., Samadhiya, A., Kumar, A., & Mulat-weldemeskel, E. (2024). Artificial intelligence as an enabler for achieving human resource resiliency: Past literature, present debate and future research directions. *International Journal of Industrial Engineering and Operations Management*, *6*(4), 326–347. https://doi.org/10.1108/IJIEOM-05-2023-0047

Park, S., & Park, S. (2021). How can employees adapt to change? Clarifying the adaptive performance concepts. *Human Resource Development Quarterly*, *32*(1), E1–E15. https://doi.org/10.1002/hrdq.21411

Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation–augmentation paradox. *Academy of Management Review*, *46*(1), 192–210. https://doi.org/10.5465/amr.2018.0072

Sheehan, M., Garavan, T. N., & Morley, M. J. (2023). The microfoundations of dynamic capabilities for incremental and radical innovation in knowledge-intensive businesses. *British Journal of Management*, *34*(1), 220–240. https://doi.org/10.1111/1467-8551.12582

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, *28*(13), 1319–1350. https://doi.org/10.1002/smj.640

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509–533. https://doi.org/10.1002/%28SICI%291097-0266%28199708%2918%3A7%3C509%3A%3AAID-SMJ882%3E3.0.CO%3B2-Z

Wankhede, V., & Khandelwal, K. (2026). A systematic review of AI induced technostress and human resource development interventions. *Discover Artificial Intelligence*, *6*, Article 1553. https://doi.org/10.1007/s44163-026-01855-3

Zhang, Y., Liu, X., Yan, Q., & Na, M. (2025). Empowering workforces in AI-driven environments: Co-skilling, organizational support, and mitigating job insecurity. *Frontiers in Psychology*, *16*, Article 1700129. https://doi.org/10.3389/fpsyg.2025.1700129

Zhou, Y., Wang, L., & Chen, W. (2023). The dark side of AI-enabled HRM on employees based on AI algorithmic features. *Journal of Organizational Change Management*, *36*(7), 1222–1241. https://doi.org/10.1108/JOCM-10-2022-0308