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A SYSTEMATIC LITERATURE REVIEW-WORKFORCE AGILITY: AN INNOVATIVE DRIVER

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ABSTRACT

In today's turbulent business environment, organizational innovation is increasingly shaped by management practices. Within this domain, workforce agility has emerged as a critical yet underexplored dimension of organizational performance. While organizational agility has long been examined from technological or structural viewpoints, scholarly attention to the workforce as the core enabler of agility remains limited. Workforce agility, defined as the HRM-driven capability of employees to respond quickly and efficiently to environmental threats and opportunities, is still conceptually fragmented in literature. This paper addresses this gap by conducting a systematic literature review of published research on workforce agility. Findings reveal that agile employees consistently demonstrate four interconnected qualities—proactivity, adaptability, resilience, and competence—supported by HRM practices such as organizational learning, flexible structures, technology adoption, and team-based work. The review emphasizes the strategic value of workforce agility and highlights its potential to contribute to competitive advantage.

Keywords: Workforce agility, Innovation drivers, dimensions of workforce agility

1. Introduction

Organizations worldwide operate in environments characterised by continuous change driven by technological advancements, globalization, evolving markets, and shifting customer expectations. Several managerial approaches—ranging from reengineering to flexible manufacturing—have attempted to address this turbulence, and agility has increasingly been positioned as a central strategic response. Organizational agility, understood as the capacity to adjust products, processes, and services rapidly in response to change, has become essential for sustaining competitive advantage. Central to this agility is the workforce, as employees provide the behavioural, cognitive, and functional capabilities necessary for adaptive action. Despite its importance, research on agility has historically centred on technical and structural elements rather than the human dimension. This paper therefore explores workforce agility and consolidates research on its drivers, strategies, and development.

2. Workforce agility

Felipe, Roldán, and Leal-Rodríguez (2016) developed an explanatory and predictive model highlighting how organizational agility enables firms to respond effectively to dynamic environments. Complementing this perspective, Bowen and Ostroff (2004) emphasized that the strength and coherence of the HRM system play a critical role in linking HR practices to firm performance, thereby supporting agile outcomes. Further, Harsch and Festing (2020) demonstrated that dynamic talent management capabilities significantly enhance organizational agility, particularly when firms operate under conditions of rapid change. Similarly, Shafer,

Dyer, Kilty, Amos, and Ericksen (2001) illustrated through a detailed case study how a strategically crafted HR approach can directly foster agility by aligning people practices with organizational needs.

3. Research objective

This study aims to advance the research field by clarifying the growing importance of workforce agility and synthesizing existing work on its definitions, theoretical foundations, measurement approaches, and the HRM practices that support it. Building on our findings, we seek to enhance conceptual clarity by theorizing workforce agility and proposing a framework suited to dynamic organizational environments. We also outline a research agenda to guide future studies in this evolving domain. The paper is structured with an introduction to organizational and workforce agility, followed by the methodology, key findings on theoretical development, measurement, and HRM's contribution, and a theory-based framework for fostering agility. The paper concludes with future research directions and limitations.

4. Methodology

We conducted a systematic literature review to ensure a transparent and replicable examination of existing research, drawing on the methodology proposed by Tranfield, Denyer, and Smart (2003) for evidence-informed management reviews. Guided by our focus on definitions, measurement approaches, theoretical foundations, and HRM's role in shaping workforce agility, we manually searched Google Scholar for peer-reviewed English-language articles using keywords such as "agility," "agile," "workforce," "employee," and "HRM role in agility." Reference lists of selected studies and special issues on agility were also reviewed, and we included the foundational thesis by Sherehiy (2008), which has informed much subsequent work in this field. The search window began in 1991, when agility first gained prominence through the industry-led framework proposed by Nagel and Dove (1991), and continued until September 2022. After removing duplicates and screening abstracts and full papers, a total of 53 studies were identified, drawn from database searches, cross-referencing, manual searches, and one key thesis.

5. Analysis and results

5.1 Evolving information about the research

Research on workforce agility began in 1997 and grew gradually until 2007, after which the field expanded more rapidly, particularly following the introduction of the measurement scale developed by Sherehiy (2008), Relationships between agility strategy, work organization and workforce agility. Prior to this, only a few studies existed, most of which examined agility primarily through cross-training, defined as the ability of employees to perform a wider range of tasks, as discussed by Sumukadas and Sawhney (2004) in Workforce agility through employee involvement. Between 2008 and September 2022, approximately 50 additional empirical, conceptual, and review studies were published across countries such as India, Iran, the USA, China, Germany, and the UK. Most research centred on manufacturing and mixed manufacturing–service contexts. In alignment with our research objectives, the analysis is organized into three areas: theoretical development of workforce agility, measurement approaches, and HRM's contribution to fostering agility.

5.2 Theoretical development

Across 40 papers, definitions of workforce agility vary widely, though most emphasise operating in dynamic environments marked by unpredictability, speed, proactivity, and continuous change. This diversity—reflected in behavioural, attitudinal, and ability-based perspectives—shows the lack of consensus on what agility means at the employee level. Over time, several definitions have emerged. For example, Plonka (1997) and Van Oyen, Gel, and Hopp (2001) described workforce agility in terms of flexibility across roles and competencies, while Breu, Hemingway, Strathern, and Bridger (2002) highlighted responsiveness to customer needs, rapidly evolving skills, and adaptability across projects. Hopp and Oyen (2004) emphasised flexible work hours, cross-trained employees, and coordination mechanisms, and Jordan, Inman, and Blumenfeld (2004) as well as Sumukadas and Sawhney (2004) underscored cross-training as a central element of agility.

Chonko and Jones (2005) viewed agility through the context of sales responsiveness, whereas Joiner and Josephs (2007) conceptualised leadership agility across dimensions such as context-setting, stakeholder responsiveness, creativity, and self-leadership. Sherehiy (2008), and later Sherehiy and Karwowski (2014), synthesised prior work by defining workforce agility as comprising three core dimensions—proactivity, adaptability, and resilience. Qin and Nembhard (2010) described agility as a deliberate response to uncertainty, and Hahn et al. (2012) and Hosein (2012) linked agility to accumulated competencies, experience, and emotional intelligence.

Muduli (2013, 2016, 2017) further described agile employees as self-motivated, well-trained, comfortable with technological and market changes, and capable of applying the right competencies at the right time. Alavi, Wahab, Muhamad, and Shirani (2014) similarly emphasised cross-training, flexibility, and organisational learning as antecedents of agility; Sohrabi, Asari, and Hozoori (2014) framed agility as rapid response to environmental intelligence; Wendler (2013) viewed agility as adaptability and speed; and Al-Kasasbeh (2016) stressed timely responses to internal and external changes. Later contributions by Goswami and Kumar (2018), Muduli and Pandya (2018), and Pitafi, Liu, and Cai (2018) presented people agility as the capacity to convert unexpected change into opportunity. Additional perspectives include agility through organisational learning (Abdelhamid & Sposato, 2019), innovation-oriented agile leadership (Bushuyeva et al., 2019), behavioural features such as resilience, teamwork, decision-making, independence, and courage (Doeze Jager-van Vliet, Born, & van der Molen, 2019), and agile sales behaviour (Frino & Desiderio, 2019). Leadership agility during uncertainty is further emphasised by Muafi and Uyun (2019), while Al-Faouri, Al-Nsour, and Al-Kasasbeh (2014) linked agility to organisational memory, and Müceldili, Tatar, and Erdil (2020) connected agility to curiosity and cognitive style.

Across these contributions, some agreement emerges around essential elements such as adaptability, innovation, rapid response to change, resilience, proactivity, flexibility, and cross-training. However, substantial conceptual fragmentation remains, especially regarding whether agility is best understood as behaviour, capability, or attitude. Labels such as “workforce agility,” “agile workforce,” “employee agility,” and “agile people” are used interchangeably, yet most definitions clearly refer to an individual-level capability rather than an organisational-level construct. Foundational work such as Sherehiy (2008) helped align important ideas, but theoretical clarity is still limited. This lack of precision constrains theory building, the development of robust measurement scales—as emphasised in scale development literature such as Hinkin (1998)—and the application of agility concepts in organisational practice.

5.3 Workforce Agility attributes

Efforts to develop workforce agility span multiple disciplines and operate at different organizational levels, resulting in diverse terminologies and classification approaches. Consequently, the literature presents a wide range of attributes used to describe employee agility. Across studies, researchers identify a wide range of attributes associated with workforce agility. Breu et al. (2002) highlight intelligence, competencies, collaboration, culture, and information systems. A large group of scholars—including Sherehiy (2008), Hosein and Yousefi (2012), Al-Faouri et al. (2014), Muduli (2017), Alavi et al. (2014), Sherehiy and Karwowski (2014), Sohrabi et al. (2014), Alavi (2016), Cai et al. (2018), Müceldili et al. (2020), Varshney and Varshney (2015), and Wei et al. (2019)—consistently emphasise three core dimensions: proactivity, adaptability, and resilience. Suofi et al. (2013) add attributes such as intelligence, maturity, perseverance, creativity, responsiveness, flexibility, and communication Fachrunnisa et al. (2019) focus on shared responsibility, problem recognition, decision-making, adaptive systems, and structural flexibility, while Muduli (2017) and Muduli and Pandya (2018) reinforce adaptability and flexibility. Storme et al. (2020) link agility to flexibility, collaborative behaviour, speed, information use, and competency development. Pitafi et al. (2018) further incorporate resilience, self-management, integrity, communication, teamwork, conflict handling, creativity, and harmonisation as key behavioural elements of an agile workforce.

Many studies build upon the attribute set proposed by Sherehiy (2008), who identified proactivity, adaptability, and resilience as the core dimensions of workforce agility. Beyond these, researchers frequently emphasise intelligence, flexibility across structures, teams, tasks, and systems, and the role of information systems in enabling agile behaviour. Proactivity reflects the degree to which employees take initiative and contribute to organisational progress, while adaptability captures the behaviours, attitudes, and skills that allow individuals to adjust effectively to changing tasks, roles, and work conditions. Resilience, closely linked to both adaptability and proactivity, refers to a positive orientation toward change, new technologies, innovative ideas, and emerging ways of working, as highlighted by Muduli and Pandya (2018).

5.4 Endorsing Workforce Agility

As we seen difficulties in defining workforce agility as well as diverse agility attributes relating to different sectors, Industries and continent. In the same manner it is difficult to endorse and imbibe the concept of employee agility in practical world. Table 2 reviews the diverse viewpoints and the key policies, strategies, and actions recognized as probable mediators and agents of an agile workforce. This cataloguing is extensive for enterprise working in environments of ambiguity and rapid changes.

Across the literature, several categories of characteristics contribute to workforce agility. Training and learning-related attributes—such as cognitive skills, practical application of knowledge, organisational learning, and cross-training—are highlighted by Van Oyen et al. (2001), Hopp and Oyen (2004), Sumukadas and Sawhney (2004), Qin and Nembhard (2010), Alavi (2014), Muduli (2017), and Sohrabi et al. (2014). Job-demand factors including self-managed teams, job enrichment and enlargement, job rotation, teamwork, collaboration, and autonomy are emphasised by Sherehiy and Karwowski (2014), Sumukadas and Sawhney (2004), Muduli (2016, 2017), Qin and Nembhard (2010), Varshney and Varshney (2015), and Hopp and Oyen (2004). From an HRM perspective, agility is supported through team-based incentives, non-monetary rewards, talent management, staffing, feedback, and goal setting, as noted by Sumukadas and Sawhney (2004), Muduli (2016, 2017), Qin and Nembhard (2010), and Harsch and Festing (2020). Finally, cultural and structural enablers—such as horizontal structures, effective communication, shared vision, empowerment, autonomy, and decentralised decision-making—are discussed by Sohrabi et al. (2014), Alavi et al. (2014), Muduli (2016, 2017), Muduli and Pandya (2018), Sumukadas and Sawhney (2004), Cai et al. (2018), and Pitafi et al. (2018).

5.5 Scale measurement

We observed a significant diversity of measures to evaluate workforce agility, counting newly established scales as well and many researchers have occupied scales from previous studies

Studies measuring workforce agility vary widely in the number and nature of characteristics assessed. Sherehiy and Karwowski (2014) evaluated 10 attributes—such as intelligence, collaboration, culture, and information systems—using a sample of 515 employees. Sherehiy (2008) later proposed a more comprehensive 39-item scale capturing proactivity, adaptability, and resilience (PAR), which became the foundation for several subsequent measures. Building on this, Hosein and Yousefi (2012) assessed 25 PAR-based characteristics in a sample of 225 workers, while Al-Faouri et al. (2014) measured 13 similar attributes among 430 respondents. Suofi et al. (2013) focused on intelligence, maturity, perseverance, creativity, responsiveness, flexibility, and communication using a sample of 258 participants.Mooghali et al. (2014) examined 15 characteristics related to intelligence, collaboration, culture, and IT use among 285 employees. Muduli (2016), drawing from Breu et al. (2002), evaluated seven items reflecting adaptability, flexibility, collaboration, speed, information use, and competency in a sample of 40 employees. Other studies, such as Braun et al. (2015) and Goswami and Kumar (2018), measured five agility characteristics each, surveying 392 and 225 respondents respectively. Fachrunnisa et al. (2019), using Parker et al.'s (2015) framework, assessed four dimensions—shared responsibility, problem-recognition and decision-making effectiveness, adaptive systems, and flexible structures—across 519 participants.

5.6 Contribution with respect to scale usage

Measurement approaches for workforce agility show substantial variation across studies in terms of items, content, and sample sizes. Early work by Sumukadas and Sawhney (2004), drawing on Sawhney and Piper (1999), used a single-item measure with 58 respondents, while Joiner and Josephs (2007) and Alavi et al. (2014) applied a 25-item scale assessing personality development along with proactivity, adaptability, and resilience, based on Sherehiy's (2008) PAR framework, in samples of 384 and 161 participants. Sherehiy and Karwowski (2014) developed a 29-item PAR instrument grounded in Sherehiy (2008), tested with 176 respondents. Building on the same foundation, Sohrabi et al. (2014) and Alavi (2016) used 26-item PAR scales with samples of 144 and 161 employees. Muduli (2016) applied a 7-item scale focusing on adaptability, flexibility, collaboration, speed, information use, and competency, adapted from Muduli (2013), surveying 524 participants. Cai et al. (2018) used a 15-item PAR scale derived from Alavi et al. (2014) with 167 respondents, while Muduli and Pandya (2018) used a 7-item scale on resilience and adaptability derived from Sherehiy (2008) and Muduli (2017) with 344 respondents. Wei (2019) expanded this to a 12-item measure combining flexibility, collaboration, speed, information use, proactivity, adaptability, and resilience, based on Alavi et al. (2014) and Sherehiy (2008), with a sample of 161. Doeze Jager-van Vliet et al. (2019) assessed agility with a 31-item scale measuring adaptability and resilience using the Cubiks (2010) framework in a smaller sample of 32 employees. Frino and Desiderio (2019) employed a 6-item scale with 371 respondents, whereas Muafi and Uyun (2019) used five items adapted from Joiner and Josephs (2007), Joiner (2009), and Lediju (2012) in a sample of 170. Pitafi et al. (2018) and Müceldili et al. (2020) applied 22-item and 15-item PAR scales respectively, both based on Alavi et al. (2014) and Sherehiy (2014), with samples of 167 and 210. Storme et al. (2020) developed a two-part scale: a 7-item adaptability and flexibility measure derived from Muduli (2016) tested with 808 participants, and a 12-item scale assessing development, collaboration, and

speed, based on Muduli (2017) and Sherehiy (2014), tested with 256 participants.Our investigation discovered that nobody of the recently established scales had undertaken a general scale development procedure. In the situation of revised or adapted scales, researchers did not completely imitate scale testing. A comparatively great amount of the research used scales grounded on Sherehiy's measure (2008), and of these, again great variety of researchers used the scale in a reduced form.

6. Contribution of HR towards developing Workforce agility

Research highlights that multiple HR dimensions—such as training, cross-training, learning, job demands, and organic structures—significantly contribute to building workforce agility. Developing an agile workforce is essential for organizational survival and requires aligning HR capabilities with business goals while understanding both employee and organizational needs. Flexibility-focused HR policies, as emphasized in Cubiks (2014), enable organizations to respond effectively to competitive and rapidly changing environments. Agility also depends on employees' knowledge and competencies, a point underscored by Plonka (1997) and Hopp and Oyen (2004), as agile individuals use their skills to adapt and transform. Cross-training has been shown to be a strong enabler of agility, reinforced by the findings of Hopp and Oyen (2004). Reward systems—such as performance-based pay and performance-improvement incentives—further enhance agility. High-involvement practices like job enrichment and enlargement, demonstrated by Sumukadas and Sawhney (2004), also promote agile behavior. Teamwork remains a central factor, with Breu et al. (2002) stressing the importance of strong internal, external, group, and cross-functional collaboration. Additionally, technology plays a critical role in enabling speed, flexibility, and rapid decision-making, supported by communication and decision-support systems, as illustrated in Lediju (2016).

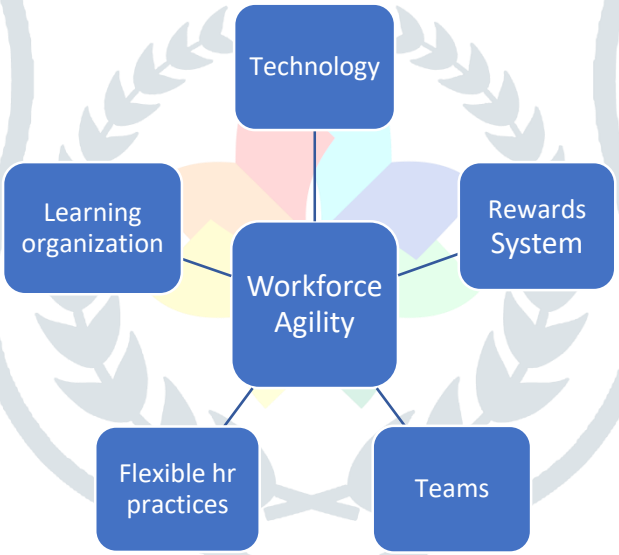

Figure 1 - HR practices enhancing workforce agility

The above discussed strategies can be concluded in fig 1 showing agile HR strategies enhance agility among employees.

7. Paving way for future researchers

We contributed into founding theoretical simplicity, progressing research areas, and weighing the importance of HR in workforce agility research surfaces the mode for more exploration. Illustrating on the conclusions generated by this literature review, we descend the subsequent forthcoming study avenues. Primary, grounded on the recommended explained definition, it is essential to progress measuring and respecting clear methodical, typical procedures [39], conduct next, contextualized pragmatic study, and examine the role of HR systems and strategies in nurturing workforce agility.

8. Conclusion

Our surrounding systematic literature review demonstrate that consideration to and the status of agility on the workforce level has vividly amplified in last few years. Hence, it is imperious to create a strong considerate of this area and of how firm's HR practices might cultivate it. This research marks some significant aids to this vital area. Our initial involvement is that we deliver essential methodical summary of concepts, academic basics (definitions, attributes and characteristics) , tags, scales, and the role of HRM as vital backbone that were pragmatic and enclosed in the studied researches. This directed to the examination of some inadequacies, such as the absence of a shared definition and tag, an theoretical base, and lack of studies towards part of HRM in this area, which has barred next step towards development and understanding of the field. Future research and business leaders can further speed up the detailed and universal study of agile workforce conceptually and how HR can contribute towards making agile workforce strategically fit to business goals.

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