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From Competence to Agility: A Systematic Review of Digital Competence and Employee Agility Effects on Employee Performance in Digital Transformation Era

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Abstract

Accelerating digital transformation has fundamentally reshaped employee competency requirements and work-related behaviors, compelling organizations to develop workforces that are both digitally proficient and highly adaptive. This study aims to systematically synthesize empirical evidence regarding the influence of digital competence and employee agility on employee performance across diverse organizational contexts. A systematic literature review was conducted following the PRISMA guidelines. Relevant peer-reviewed articles published between 2021 and 2025 were identified through comprehensive searches of Scopus- and Sinta-indexed databases. A rigorous multi-stage screening and eligibility process resulted in the selection of ten high-quality studies, which were subsequently analyzed using thematic analysis techniques. The findings indicate that digital competence generally exerts a positive influence on employee performance, operating through both direct effects and indirect mechanisms such as enhanced work efficiency, innovation, and technology utilization. However, the strength and consistency of these effects vary across organizational settings and sectors. In contrast, employee agility emerges as a more consistent and robust predictor of employee performance, functioning as a critical adaptive capability that bridges digital competencies with effective work outcomes in dynamic environments. Despite these insights, the reviewed literature reveals several limitations, including fragmented theoretical frameworks, inconsistent empirical findings, a predominance of cross-sectional research designs, and limited contextual diversity. This review contributes an integrated understanding of the complementary roles of digital competence and employee agility in shaping employee performance. Furthermore, it highlights the need for conceptual model development and methodological diversification in future research. The synthesis offers evidence-based guidance for organizations navigating human resource management challenges in the digital era by emphasizing the balanced development of digital capabilities and adaptive capacities to achieve sustainable performance improvement.

Keywords: *digital competence, employee agility, employee performance, digital transformation, systematic literature review*

Introduction

Contemporary organizations operate within environments characterized by rapid change, complexity, and intense competitive pressures. Information technology advancement, automation proliferation, and work process digitalization fundamentally redefine workforce capabilities required for sustained productivity, adaptability, and maximum organizational contribution. Amid digital transformation phenomena, two constructs emerge as critical employee performance determinants: digital competence and employee agility. Digital competence encompasses individuals' capacities to utilize digital tools, process digital information, and apply technological solutions in routine work tasks, while employee agility represents individuals' abilities to adapt rapidly to changing job demands and novel work environments (Becker, 1964; Teece, Pisano, & Shuen, 1997). Accelerating technological change during recent decades reinforces both variables' positions as significant employee performance predictors.

Empirical evidence supports these phenomena through studies documenting significant relationships between digital capabilities and work performance across public service digitalization and manufacturing sectors, including positive associations among digital competence, agile work culture, and employee performance enhancement in modern industry contexts. Digital transformation across sectors compels organizations to build digital capabilities and adaptive responsiveness within human resources. Digital competence elevation transcends basic technical skill, constituting strategic factor for productivity enhancement and market change responsiveness. Contemporary literature indicates digital competence improvement correlates with organizational and individual goal achievement capacity enhancement (Vial, 2019).

Employee agility positioning emphasizes workers' capabilities responding to sudden changes, modifying work behaviors and strategies, and executing solutions effectively amid uncertainty. This capability gains importance amid technological disruptions including remote work, artificial intelligence, and digitalization process integration affecting all work aspects. Research demonstrates agility's mediating role strengthening digital literacy-employee performance relationships. Despite substantial

empirical investigation examining variable relationships digital competence performance effects and agility performance contributions findings remain inconsistent. Some studies demonstrate significant digital competence-performance effects while other contexts reveal non-significant relationships or mediation through factors including job satisfaction or organizational commitment.

These divergent findings reflect conceptual ambiguity and empirical evidence synthesis deficiencies. Most research remains ad hoc, employing limited samples within specific sectors or regions, exhibiting measurement and construct definition variations for both digital competence and agility. Some investigations exclusively examine variable relationships within particular contextual settings (e.g., public sector or manufacturing) limiting generalization. These deficiencies create methodological and theoretical gaps requiring systematic investigation. This systematic literature review addresses these gaps through rigorous synthesis of scientific findings regarding digital competence and employee agility influences on employee performance within digital transformation contexts. Following PRISMA guidelines ensures transparent, replicable, comprehensive evidence synthesis identifying patterns, trends, and existing research gaps while providing evidence-based foundation advancing both theoretical understanding and organizational practice.

Theoretical Foundations

Human Capital Theory (Becker, 1964) posits that individuals' knowledge, skills, and abilities constitute valuable assets generating productivity returns for both individuals and organizations. Within digital work contexts, digital competence represents critical human capital form enabling employees to navigate technology-mediated work environments effectively. Digital competence encompasses not merely technical proficiency but strategic technology application, digital problem-solving, and continuous learning capacity adapting to evolving digital landscapes. Investments in digital competence development theoretically enhance employee productive capacity,

translating into superior performance outcomes measured through task quality, efficiency, and innovation.

Resource-Based View (Barney, 1991) emphasizes organizations' internal resources and capabilities as competitive advantage sources. Employee agility represents dynamic capability—organizational capacity to sense environmental changes, seize opportunities, and reconfigure resources accordingly (Teece et al., 1997). At individual level, employee agility manifests as adaptive capacity enabling rapid response to changing demands, learning new approaches, and flexible strategy adjustment. This capability becomes increasingly critical as digital transformation accelerates workplace volatility, uncertainty, complexity, and ambiguity. Agile employees constitute valuable, rare, inimitable resources contributing to sustained organizational performance through enhanced responsiveness and continuous adaptation (Wright, McMahan, & McWilliams, 1994).

Employee performance represents multidimensional construct encompassing task performance (proficiency executing prescribed job responsibilities), contextual performance (discretionary behaviors supporting organizational effectiveness), and adaptive performance (adjusting effectively to changing work demands) (Campbell, McCloy, Oppler, & Sager, 1993). Digital transformation contexts increasingly emphasize adaptive performance given rapid technological and procedural changes. Performance conceptualization integrates both outcome dimensions (productivity, quality, efficiency) and behavioral dimensions (initiative, collaboration, continuous learning). Digital competence theoretically enhances task and adaptive performance through improved technical execution and change management capabilities, while employee agility primarily influences adaptive and contextual performance through behavioral flexibility and proactive adjustment (Griffin, Neal, & Parker, 2007).

Research Methodology

Research Design: PRISMA-Based Systematic Review

This research employs systematic literature review methodology following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Page et al., 2021) to comprehensively identify, evaluate, and synthesize research examining digital competence and employee agility influences on employee performance. Systematic review methodology enables rigorous, transparent, replicable literature synthesis minimizing bias while maximizing comprehensiveness particularly valuable for emerging domains requiring conceptual clarification and evidence integration (Tranfield, Denyer, & Smart, 2003). This approach facilitates pattern identification, knowledge gap revelation, and theoretical-practical implication formulation advancing digital-age human resource management understanding.

Search Strategy and Data Sources

Systematic literature search was conducted across academic databases including Scopus and Sinta-indexed journals ensuring both international and Indonesian scholarly coverage. Search strategy employed Boolean operators combining key concepts: ('digital competence' OR 'digital competency' OR 'digital skills') AND ('employee agility' OR 'workforce agility' OR 'adaptive performance') AND ('employee performance' OR 'work performance' OR 'job performance'). Search was restricted to peer-reviewed journal articles and conference proceedings published 2021-2025 ensuring contemporary relevance reflecting post-pandemic digital transformation acceleration and workforce adaptation. Language inclusion encompassed English and Indonesian publications given research contextual focus and accessibility considerations.

Inclusion and Exclusion Criteria

Inclusion criteria specified:

(1) peer-reviewed empirical or conceptual research;

(2) explicit examination of digital competence and/or employee agility constructs;
(3) organizational work context focus;
(4) employee performance outcome measurement or discussion; and
(5) publication 2021-2025.

Exclusion criteria eliminated:

(1) non-peer-reviewed materials including working papers, dissertations, popular media;
(2) studies lacking digital competence or agility focus;
(3) organizational-level analyses without individual employee examination;
(4) publications outside specified timeframe; and
(5) inaccessible full-text articles. These criteria ensured selected literature maintained methodological rigor while remaining topically relevant.

Selection Process

Selection proceeded through multi-stage screening process following PRISMA protocols. Initial database searches yielded 156 potentially relevant articles. Title and abstract screening eliminated 98 articles clearly failing inclusion criteria (irrelevant focus, wrong context, non-empirical). Remaining 58 articles underwent full-text review assessing detailed alignment with research objectives. This stage excluded 48 articles due to: insufficient digital competence or agility examination (n=22), inadequate performance measurement (n=15), methodological limitations (n=7), or accessibility issues (n=4). Final corpus comprised 10 high-quality articles meeting all inclusion criteria representing diverse contexts, methodologies, and theoretical approaches.

Data Extraction and Synthesis

Structured data extraction captured: author(s), publication year, research objectives, theoretical framework, methodology, sample characteristics, key findings regarding digital competence-performance relationships, agility-performance

relationships, mediating/moderating factors, and contextual considerations. Thematic analysis following Braun and Clarke's (2006) framework organized findings into coherent themes. Analysis proceeded iteratively: initial coding identified discrete findings; focused coding grouped related codes into preliminary themes (e.g., 'direct effects,' 'mediation mechanisms,' 'contextual moderators'); thematic refinement consolidated themes into major categories addressing research questions. Synthesis employed narrative approach describing patterns, convergences, divergences, and relationships across studies, generating comprehensive understanding of digital competence and employee agility roles in employee performance while identifying research gaps warranting future investigation.

Findings and Discussion

Literature Profile and Characteristics

Reviewed literature demonstrates increasing research interest in digital competence and employee agility, particularly 2023-2025 period coinciding with digital transformation acceleration. Publication distribution reveals: 2021 (n=1), 2022 (n=1), 2023 (n=2), 2024 (n=2), 2025 (n=4), indicating growing scholarly attention to these constructs. Geographically, studies predominantly examine developing Asian contexts particularly Indonesia and Malaysia, reflecting digital transformation relevance in emerging economies. Methodologically, quantitative approaches dominate (n=7) employing structural equation modeling and regression analysis, with limited qualitative (n=2) and mixed-methods (n=1) investigations. This methodological concentration provides robust statistical evidence but restricts deeper mechanistic and contextual understanding.

Digital Competence and Employee Performance Relationships

Synthesis reveals digital competence generally demonstrates positive employee performance associations, though relationships manifest through varying mechanisms. Direct positive effects emerge in several studies where digital competence enhancement

correlates with performance improvement measured through productivity, quality, and efficiency indicators. These findings align with Human Capital Theory predictions: competency investments generate productivity returns. However, inconsistencies appear across contexts. Some investigations report non-significant direct effects, revealing performance impacts materialize only through mediating mechanisms. For instance, digital competence influences performance indirectly via job satisfaction, suggesting digital skills alone prove insufficient without accompanying motivational and affective states. Other studies document organizational culture or leadership as necessary conditions activating digital competence performance effects.

These variations indicate digital competence constitutes necessary but insufficient performance determinant. Contextual factors including organizational support, leadership quality, and work design significantly condition digital competence translation into actual performance outcomes. Measurement inconsistencies also contribute to divergent findings—studies operationalize digital competence variably ranging from narrow technical skills to broader digital literacy encompassing critical evaluation and creative application. This conceptual heterogeneity complicates cross-study comparison and pattern identification.

Employee Agility as Performance Determinant

Employee agility emerges as more consistent, robust performance predictor across reviewed studies. Unlike digital competence exhibiting conditional effects, agility demonstrates relatively uniform positive performance associations regardless of context. This consistency reflects agility's nature as behavioral capability directly manifesting in work execution through rapid response, flexible adjustment, and continuous learning. Studies document agility's direct performance contributions and its critical mediating role. Several investigations reveal agility mediates digital competence-performance relationships, suggesting digital skills enhance performance primarily through enabling adaptive behaviors rather than technical proficiency alone.

This mediation pattern aligns with Resource-Based View emphasizing capabilities' strategic value over static resources. Digital competence functions as resource requiring dynamic capability (agility) for effective deployment. Agility enables employees to leverage digital tools appropriately given situational demands, experiment with novel approaches, and recover from technology-related setbacks—processes directly enhancing adaptive and contextual performance. Findings also indicate employee empowerment and transformational leadership strengthen agility development and performance linkages, suggesting agility flourishes within supportive organizational environments providing autonomy, encouragement, and resources for experimentation and learning.

Complementary Effects and Integrated Understanding

Critical synthesis insight reveals digital competence and employee agility as complementary rather than substitutable performance determinants. Digital competence provides foundational capabilities technical knowledge and skills enabling technology utilization. Employee agility supplies dynamic capabilities behavioral flexibility and learning orientation enabling competency application amid changing circumstances. Optimal performance emerges when both elements combine: employees possess robust digital competencies while demonstrating agile behaviors adapting these competencies to evolving demands. Neither element alone suffices. High digital competence without agility risks rigidity—technical proficiency applied inappropriately given situational changes. Conversely, high agility without digital competence limits adaptation scope—behavioral flexibility cannot compensate for fundamental skill deficits in digital environments. This complementarity reflects socio-technical systems principles: effective digital work systems require technical elements (competencies, technologies) and social elements (behaviors, relationships) functioning synergistically. Organizational implications emphasize integrated development approaches simultaneously enhancing digital competencies and agile capabilities rather than isolated interventions addressing single dimensions. For sustainable performance enhancement, organizations must

cultivate both technical proficiency and behavioral adaptability, supported by enabling contexts including supportive leadership, collaborative culture, and continuous learning opportunities.

Conclusions and Implications

This systematic literature review establishes several key conclusions. First, digital competence demonstrates generally positive but contextually variable employee performance effects, operating through both direct mechanisms and indirect pathways mediated by factors including job satisfaction, organizational culture, and leadership quality. Second, employee agility emerges as more consistent, robust performance predictor functioning as critical adaptive capability bridging digital competencies with actual work outcomes. Third, digital competence and employee agility exhibit complementary rather than independent effects, with optimal performance requiring simultaneous presence of technical proficiency and behavioral flexibility. Fourth, existing literature reveals significant limitations including inconsistent findings, fragmented theoretical frameworks, methodological homogeneity favoring cross-sectional quantitative approaches, and narrow contextual scope concentrating on specific sectors and regions.

Research advances theoretical understanding by: (1) integrating Human Capital Theory and Resource-Based View perspectives demonstrating digital competence as valuable human capital requiring dynamic capabilities (agility) for effective deployment; (2) revealing competence-agility complementarity challenging linear competency-performance assumptions prevalent in earlier literature; (3) identifying contextual contingencies moderating digital competence effects while documenting agility's more universal performance contributions; and (4) proposing integrated conceptual framework positioning digital competence as foundational capability, employee agility as adaptive capability, and contextual factors as enabling conditions jointly determining performance outcomes. These contributions extend human resource management theory into digital

transformation era while providing nuanced understanding of capability development and deployment processes.

Findings generate actionable guidance for organizations. First, digital competence development initiatives should emphasize not merely technical skill acquisition but strategic application, problem-solving, and continuous learning capabilities. Second, employee agility cultivation requires deliberate interventions including experiential learning opportunities, job rotation, cross-functional projects, and psychological safety fostering experimentation. Third, integrated approaches simultaneously developing digital competencies and agile behaviors prove more effective than isolated interventions. Fourth, supportive organizational contexts including transformational leadership, collaborative culture, and employee empowerment significantly enhance both competency development and agility expression. Fifth, performance management systems should assess both technical proficiency and adaptive behaviors, providing balanced feedback encouraging continuous development. Organizations navigating digital transformation benefit from holistic human resource strategies recognizing competence-agility complementarity while creating enabling environments supporting both dimensions.

Review limitations suggest research directions. Limited article corpus (n=10) reflects stringent inclusion criteria and emerging research domain, potentially excluding relevant investigations published in non-indexed venues. Five-year temporal restriction ensures currency but limits historical perspective. Language restriction to English and Indonesian may exclude valuable non-English scholarship. Future research should: (1) employ longitudinal designs tracking digital competence and agility development over time revealing change dynamics and long-term performance effects; (2) utilize experimental and quasi-experimental methods establishing stronger causal evidence; (3) adopt mixed-methods approaches combining statistical rigor with contextual depth; (4) expand geographic and sectoral scope examining cross-cultural variations and industry-specific patterns; (5) develop and validate standardized measurement instruments enhancing cross-study comparability; (6) investigate moderating factors (e.g., task

complexity, autonomy, technological infrastructure) conditioning competence-agility-performance relationships; and (7) explore potential dark sides including technostress, adaptation fatigue, and competence obsolescence anxiety. Such research would advance both theoretical understanding and practical application supporting effective digital-age workforce management.

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