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Research Article

FROM ACTIVITY-BASED WORKPLACES TO PUBLIC EMPLOYEE PERFORMANCE: DIGITALIZATION AS THE MEDIATING MECHANISM

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Abstract
Activity-based workplaces (ABW) are increasingly used to support flexible work, yet their contribution to employee performance remains inconsistent, particularly in public organizations where work must remain standardized, traceable, and accountable. This study examines whether workplace digitalization explains the translation of ABW into public employee performance. Method: A quantitative explanatory-causal design was used with cross-sectional survey data from 63 functional public procurement officers selected through purposive sampling from a target population of 66 officers. Responses were measured on a six-point Likert scale and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4. Results: ABW has a strong positive effect on digitalization ($\beta = 0.763$; $p < 0.001$), and digitalization positively affects employee performance ($\beta = 0.411$; $p = 0.014$). The direct ABW → employee performance effect is negative and not significant ($\beta = -0.408$; $p = 0.130$), whereas the indirect ABW → digitalization → performance effect is positive and significant ($\beta = 0.313$; $p = 0.012$), indicating indirect-only mediation. Discussion/Novelty and Implication: The study shows that ABW does not generate performance value solely through spatial flexibility; its contribution emerges when flexible space is converted into digitally enabled access, coordination, and execution of work. Public organizations should therefore treat ABW and digitalization as an integrated work-system intervention by strengthening reliable digital infrastructure, standardized digital workflows, leadership support, and employee digital capability.

Keywords: Activity-Based Workplace, Indirect-Only Mediation, Public Employee Performance, Public Sector, Workplace Digitalization.

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INTRODUCTION

Public organizations are expected to improve service quality and employee performance while preserving accountability, documentation, and auditability. This challenge is especially salient in public procurement, where employees work under deadlines while decisions and work outputs must remain

standardized and traceable. Employee performance therefore depends not only on individual capability but also on work conditions that enable effective task execution (Campbell, 1990; Robbins & Judge, 2017). As work becomes more mobile and digitally dependent, workplace design and digital work systems increasingly need to be managed as an integrated work environment rather than as separate interventions.

Activity-Based Workplace (ABW) addresses spatial flexibility by providing different settings for different work activities instead of assigning one fixed workstation to each employee (Veldhoen, 2005). Prior studies associate ABW with interaction, autonomy, workplace satisfaction, and perceived productivity when organizational support is adequate (Appel-Meulenbroek et al., 2011; Wohlers & Hertel, 2017). However, the evidence is mixed: ABW may also increase distraction, coordination effort, mobility costs, and adjustment demands when work settings do not fit task requirements (De Been & Beijer, 2014; Wohlers & Hertel, 2017). These competing effects suggest that spatial flexibility alone is unlikely to explain when ABW improves performance.

The empirical context of this study reinforces that urgency. In a preliminary survey of 18 functional public procurement officers, 15 respondents agreed that duplicate procurement applications and reliability problems disrupted work efficiency; 16 reported focus disruption in shared ABW spaces because of noise or limited privacy; and 17 stated that collaborative rooms were not always suitable for the work they performed. These findings reveal a practical tension: ABW may expand spatial flexibility while simultaneously creating concentration and coordination demands, whereas fragmented or unreliable digital systems can prevent that flexibility from becoming productive work. A mechanism-based explanation is therefore more useful than assuming a simple direct ABW-performance effect.

Workplace digitalization offers a plausible mechanism for resolving this tension because it concerns not only the adoption of digital tools but also the integration of processes, data, access, and coordination through digital technologies (Bharadwaj et al., 2013; Vial, 2019). In public organizations, digital systems can support standardization, interoperability, coordination, and traceability (Dunleavy et al., 2006; Mergel et al., 2019). The Job Demands-Resources (JD-R) perspective provides the primary theoretical lens: reliable digital infrastructure, digital capability, leadership support, and digitally enabled processes can function as job resources that help employees achieve work goals and reduce information-access and coordination demands (Bakker & Demerouti, 2024). Sociotechnical systems theory complements this view by emphasizing alignment between social work arrangements and technical systems (Trist & Bamforth, 1951).

The research gap is therefore not simply whether ABW improves employee performance, but how a flexible physical workplace becomes performance-relevant in a high-compliance setting. ABW studies have largely emphasized office experience, satisfaction, and perceived productivity, while digital transformation research has emphasized technology-enabled process and organizational change (Nambisan et al., 2017; Vial, 2019). This leaves limited empirical explanation of digitalization as the transmission mechanism connecting ABW to performance. The problem-solving logic tested here is that ABW increases the need for mobile access and cross-setting coordination, while integrated digital work processes convert that spatial flexibility into accessible, coordinated, standardized, and traceable task execution. Accordingly, this article aims to test (1) ABW → digitalization, (2) digitalization → employee performance, (3) the direct ABW → employee performance relationship, and (4) the indirect ABW → digitalization → employee performance relationship. Its novelty lies in testing whether performance value arises through digital enablement rather than from workplace redesign alone.

Based on this framework, the hypotheses are formulated as follows: H1: Activity-Based Workplace (ABW) positively affects workplace digitalization; H2: workplace digitalization positively affects employee performance; H3: Activity-Based Workplace (ABW) positively affects employee performance; and H4: workplace digitalization mediates the relationship between ABW and employee performance.

RESEARCH METHOD

This study used a quantitative explanatory-causal design with cross-sectional survey data to test the structural relationships among Activity-Based Workplace (ABW), workplace digitalization (DT), and employee performance (EP). The present article reports this prespecified focal pathway from the final structural model used in the original study. To preserve statistical consistency, the focal coefficients were not re-estimated as a separate three-construct model; the reported ABW → DT, DT → EP, ABW → EP, and ABW → DT → EP estimates are the corresponding effects from the final PLS-SEM estimation. The

study was conducted in the Unit Kerja Pengadaan Barang dan Jasa (UKPBJ) of the Ministry of Finance of the Republic of Indonesia. The overall research process, including instrument development, data collection, data screening, and statistical analysis, was carried out from February 2025 to March 2026.

The unit of analysis was the individual functional public procurement officer at the Unit Kerja Pengadaan Barang dan Jasa (UKPBJ) of the Ministry of Finance of the Republic of Indonesia. The target population comprised 66 officers: 3 Senior-level (Madya), 23 Junior-level (Muda), and 40 First-level (Pertama) officers. Purposive sampling was used because the analysis required respondents who had direct exposure to the work arrangement being studied. Eligible respondents were Junior-level and First-level officers who received Work From Home facilities and actively used the Activity-Based Workplace environment. Based on these criteria, the accessible population and research sample consisted of 63 officers. The questionnaire was distributed to all 63 eligible respondents, all questionnaires were completed in full, and all 63 responses were retained for analysis. This procedure is consistent with the purposive-sampling design specified in the original study.

The research procedure consisted of six stages. First, the conceptual relationships and hypotheses were developed from the JD-R framework and supporting ABW and digitalization literature. Second, the constructs were operationalized into reflective indicators. Third, a structured questionnaire and administration procedure were prepared. Fourth, the questionnaire was distributed to respondents who met the purposive-sampling criteria. Fifth, completed responses were screened for completeness and consistency. Sixth, the measurement and structural models were evaluated using PLS-SEM. For this article, reporting is restricted to the measurement properties and structural paths directly relevant to ABW, digitalization, and employee performance.

Primary data were collected using a structured, closed-ended questionnaire administered online to the 63 eligible officers. All measurement items used a six-point Likert scale ranging from strongly disagree (1) to strongly agree (6), without a neutral midpoint. The six-point format was retained from the original instrument to encourage a directional response and to ensure consistency across the measured indicators. All 63 eligible respondents completed the questionnaire, so no completed cases were excluded from the analysis. For the three constructs reported in this article, ABW was measured through indicators covering cross-unit collaboration, organizational support for the transition to ABW, adaptation and mobility support, technology-enabled access, and alignment among physical facilities, digital systems, and the social work environment, drawing primarily on Appel-Meulenbroek et al. (2011). Workplace digitalization covered digital capability and skills, digital culture and organizational readiness, digital infrastructure and technology adoption, digital leadership, and strategic alignment/business-process digitization, drawing on Sulistianingtiyas and Djastuti (2022), Schallmo et al. (2022), Vial (2019), and Westerman et al. (2014). Employee performance covered efficiency, initiative, cooperation, timeliness, quality, and quantity as operationalized from Robbins and Judge (2017).

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. In the final original measurement model, 47 indicators remained after ABW02, DT02, and DT01 were removed during measurement-model purification because their outer loadings fell below 0.50. For the focal constructs reported here, measurement quality was evaluated through outer loadings, Average Variance Extracted (AVE), Cronbach's alpha, composite reliability, and discriminant validity using construct-comparison criteria including Fornell-Larcker and the Heterotrait-Monotrait ratio (HTMT). Structural relationships were evaluated using path coefficients, effect sizes (f^2), and specific indirect effects. Statistical significance was assessed through bootstrapping with 5,000 subsamples, a two-tailed test, a 5% significance level, percentile bias-corrected confidence intervals, and a fixed seed. All coefficients and measurement statistics reported in this article correspond to the final PLS-SEM estimation used in the original study.

RESULTS AND DISCUSSION

The analysis first examined whether the three focal constructs had adequate measurement quality before interpreting the structural relationships. Reliability and convergent validity are important because the mediation conclusion depends on ABW, digitalization, and employee performance being measured consistently. Table 1 therefore summarizes Cronbach’s alpha, composite reliability, and Average Variance Extracted (AVE) for the three focal constructs from the final SmartPLS model..

Table 1. Measurement Model Assessment of Focal Constructs

Construct	Cronbach's Alpha	Composite Reliability	AVE	Interpretation
Activity-Based Workplace (ABW)	0.924	0.941	0.640	Meets criteria
Digitalization (DT)	0.963	0.971	0.808	Meets criteria
Employee Performance (EP)	0.949	0.959	0.700	Meets criteria

As shown in Table 1, ABW, digitalization, and employee performance all exceed the 0.70 reliability threshold and the 0.50 AVE threshold, supporting internal consistency and convergent validity. Discriminant validity, however, requires a qualified interpretation. The HTMT value for ABW-DT was 0.847, which remained below but very close to the 0.85 threshold, while the Fornell-Larcker comparison was marginally unmet because the square root of AVE for ABW (0.800) was slightly lower than the ABW-DT correlation (0.807). Thus, the constructs were retained as theoretically distinct, but the ABW-DT relationship should be interpreted cautiously. With this measurement caveat noted, the structural paths were examined. ABW has a strong positive effect on digitalization ($\beta = 0.763$; $t = 3.833$; $p < 0.001$), supporting H1; digitalization positively affects employee performance ($\beta = 0.411$; $t = 2.461$; $p = 0.014$), supporting H2; and the direct ABW → EP effect is negative and not significant ($\beta = -0.408$; $t = 1.515$; $p = 0.130$), so H3 is not supported. Table 2 presents the focal direct-path estimates.

Table 2. Direct Path Coefficients (ABW → DT; DT → EP; ABW → EP)

	Original Sample (O)	Sample Mean	Standard deviation	T statistics	P Values
ABW → DT	0.763	0.680	0.199	3.833	0.000
ABW → EP	-0.408	-0.313	0.269	1.515	0.130
DT → EP	0.411	0.457	0.167	2.461	0.014

As shown in Table 2, the significant ABW → DT and DT → EP paths coexist with a non-significant direct ABW → EP path. The effect-size pattern reinforces this distinction: ABW → DT has a large f^2 of 1.073, whereas DT → EP ($f^2 = 0.129$) and ABW → EP ($f^2 = 0.106$) have small effects in the final model. Because the two component paths through digitalization are significant while the direct ABW → EP path is not, the specific indirect effect must be tested to determine whether digitalization functions as the transmission mechanism. Table 3 reports that mediation estimate.

Table 3. Indirect Effect (ABW → DT → EP)

	Original Sample (O)	Sample Mean	Standard deviation	T statistics	P Values
ABW → DT → EP	0.313	0.297	0.125	2.516	0.012

As shown in Table 3, the indirect effect of ABW on employee performance through digitalization is positive and significant ($\beta = 0.313$; $t = 2.516$; $p = 0.012$), supporting H4. Because the indirect effect is significant while the direct ABW → EP effect is not significant, the empirical pattern is consistent with indirect-only mediation. In substantive terms, the performance relevance of ABW is transmitted through digitalization rather than through a statistically significant direct spatial effect. This result is the central empirical finding of the article.

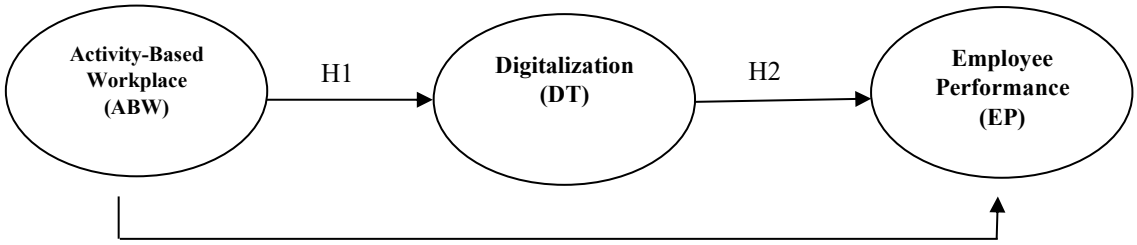
The positive ABW → DT relationship indicates that an activity-driven workplace is closely associated with stronger digital enablement. As employees move among work settings, reliable digital access, mobility support, shared information, and coordinated workflows become increasingly important for work continuity. This interpretation is consistent with the preliminary survey, which showed that application duplication and reliability problems were perceived as efficiency barriers. From the JD-R perspective, ABW becomes a useful job resource when digital systems reduce rather than add to coordination and information-access demands (Bakker & Demerouti, 2024). The large ABW → DT effect size also suggests that digitalization is not peripheral to ABW implementation but is structurally intertwined with how the workplace is used.

The positive DT → EP relationship shows that workplace digitalization contributes to performance by strengthening access to work information, process integration, coordination, and

consistency of work execution. These capabilities are particularly relevant in public procurement because completing tasks efficiently must be accompanied by documented decisions, standardized procedures, and traceable work evidence. Digital capabilities therefore function as job resources that help employees achieve work goals while reducing avoidable search and coordination demands (Bakker & Demerouti, 2024). The result is also consistent with prior evidence linking workplace digitalization with employee performance (Sulistianingtiyas & Djastuti, 2022).

The non-significant direct ABW → EP relationship should not be interpreted as evidence that workplace design is irrelevant. Instead, it indicates that ABW is not automatically a productivity intervention. ABW can support collaboration, mobility, and access to different work settings, but it can also create new demands through movement, adjustment, distraction, privacy limitations, and coordination requirements. The preliminary survey findings on noise, privacy, and mismatch between collaborative rooms and task requirements illustrate these demands in the research setting. This interpretation is consistent with prior ABW research showing context-dependent benefits and risks (De Been & Beijer, 2014; Wohlers & Hertel, 2017) and with sociotechnical systems theory, which emphasizes alignment between work arrangements and the technical system supporting the work (Trist & Bamforth, 1951).

The mediation result provides the main novelty and the clearest problem-solving insight from this article. Rather than treating ABW as a stand-alone spatial redesign, the findings show that its performance value emerges when flexible workspace is converted into digitally enabled access, coordination, standardization, and traceability. The practical implication is that organizations should implement ABW and digitalization as one integrated change program: workplace redesign should be accompanied by reliable and interoperable digital infrastructure, standardized digital workflows, clear data-entry and evidence-trail practices, leadership support, and employee digital capability. This integrated approach directly addresses the two empirical problems identified before the study - spatial distraction/mismatch and fragmented digital work support. The focal mechanism and hypothesis results are synthesized in Figure 1.



H3 : Direct ABW -> EP (Not Significant)
H4 : ABW -> Digitalization -> EP (Significant Indirect Efect)

Figure 1. Focused ABW-Digitalization-Employee Performance Mediation Pathway

As illustrated in Figure 1, ABW has a significant positive path to digitalization and digitalization has a significant positive path to employee performance, while the direct ABW → EP path is not supported. The significant ABW → digitalization → EP indirect effect therefore identifies digitalization as the mechanism through which ABW becomes performance-relevant. The figure presents only the focal relationship examined in this article; the displayed coefficients remain those from the final original PLS-SEM estimation rather than from a separately re-estimated three-construct model.

CONCLUSION

This study examined whether workplace digitalization explains how Activity-Based Workplace (ABW) is related to public employee performance. The findings show that ABW significantly strengthens digitalization ($\beta = 0.763$; $p < 0.001$), digitalization significantly improves employee performance ($\beta = 0.411$; $p = 0.014$), and the direct ABW → EP relationship is negative and not significant ($\beta = -0.408$; $p = 0.130$). In contrast, the indirect ABW → DT → EP effect is positive and significant ($\beta = 0.313$; $p = 0.012$), establishing an indirect-only mediation pattern. The study therefore concludes that the performance value of ABW is realized through digital enablement rather than through a direct spatial effect. The theoretical contribution is to position digitalization as a job resource and sociotechnical conversion mechanism that enables flexible space to support accessible, coordinated, standardized, and traceable work. Practically, public organizations should integrate ABW implementation with reliable digital infrastructure,

standardized digital procedures, leadership support, user capability, and objective performance monitoring. The findings should nevertheless be interpreted with appropriate caution because the study is cross-sectional, involves 63 purposively selected officers in one public procurement unit, and the ABW-DT constructs show very high empirical proximity (HTMT = 0.847 and a marginal Fornell-Larcker issue). Future research should use broader and longitudinal samples and examine whether workload, leadership support, digital culture, infrastructure readiness, and employee engagement strengthen or weaken the ABW-digitalization-performance mechanism.

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AUTHOR CONTRIBUTIONS

Conceptualization, Verdy Prahutri Hermansyah, Rita Yuni Mulyanti, and Suhana; Methodology, Verdy Prahutri Hermansyah; Software, Verdy Prahutri Hermansyah; Validation, Verdy Prahutri Hermansyah, Rita Yuni Mulyanti, and Suhana; Formal Analysis, Verdy Prahutri Hermansyah; Investigation, Verdy Prahutri Hermansyah; Resources, Verdy Prahutri Hermansyah; Data Curation, Verdy Prahutri Hermansyah; Writing – Original Draft Preparation, Verdy Prahutri Hermansyah; Writing – Review & Editing, Verdy Prahutri Hermansyah, Rita Yuni Mulyanti, and Suhana; Visualization, Verdy Prahutri Hermansyah; Supervision, Rita Yuni Mulyanti and Suhana; Project Administration, Verdy Prahutri Hermansyah; Funding Acquisition, Not applicable.

CONFLICTS OF INTEREST

The author(s) declare no conflict of interest.

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors declare that no artificial intelligence (AI) tools were used in the generation, analysis, or writing of this manuscript. All aspects of the research, including data collection, interpretation, and manuscript preparation, were carried out entirely by the authors without the assistance of AI-based technologies.

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