EXPLORING ANTECEDENTS OF PERCEIVED DIGITAL CHANGE AND DEVELOPMENT IN SWEDISH CONSTRUCTION ORGANISATIONS

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Digital technologies are expected to transform architectural, engineering, and construction (AEC) industry. Yet adoption, use and net benefits can be poor proxies for whether work practices, collaboration and roles change. This study tests Perceived Digital Change and Development (PDCD), organizational members' judgments of how digitalization over time has changed work practices, roles, and internal and external collaboration. Data were collected across AEC actor groups (N = 414). Exploratory factor analysis indicated strong adequacy (KMO = 0.897; Bartlett's test significant) and a six-factor structure, with high reliability (α = .816–.949; PDCD α = .883). All items loaded strongly on intended factors, supporting empirical separation of PDCD from its proposed antecedents. Stepwise regression explained 36.2% of PDCD variance (adjusted R^2 = .362). PDCD was most strongly associated with ease of access to digital information (β = .381), and additionally with innovation-supportive climate (β = .225) and willingness to explore digital tools (β = .223). Experienced change centred on practices and collaboration more than roles, underscoring information accessibility, innovation climate and exploration orientation as mechanisms of digital transformation.

Keywords: digital transformation; exploratory factor analysis; perceived digital change; regression analysis; survey

INTRODUCTION

Digital technologies have been expected to transform the architectural, engineering, and construction (AEC) industry. Yet sectoral accounts still describe uneven uptake and a tendency to overestimate what technologies will change in day-to-day project practice (Bosch Sijtsema *et al.*, 2021; Whyte, 2019). In response, several government-sponsored research, development, and innovation (RDI) initiatives have been launched to accelerate digitalisation in the sector (see e.g. Grillitsch *et al.*, 2019). In Sweden, the national strategic innovation programme Smart Built Environment was launched in 2016 with the aim of enabling sector-wide digital development, transformation, and improved efficiency, that would start among the participating organisations. The present paper draws on a Smart Built Environment project aimed at evaluating perceived digitally enabled change among respondents in organisations participating in the programme.

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While expectations for transformation and the need for acceleration are clear, the broader digital transformation (DT) literature remains conceptually diverse and fragmented. A large-scale systematic review synthesising 279 articles argues that DT research lacks a shared understanding of what is being transformed and emphasises the need to clarify boundary conditions and connect DT explicitly to organisational change processes (Hanelt *et al.*, 2021). This ambiguity matters for empirical work. Commonly used measures such as use, intention to use, or net benefits may be poor proxies for organisational change, because digital tools can be present and even used without materially altering how work is coordinated, how information flows, or how roles and responsibilities are enacted (Davis, 1989; DeLone and McLean, 2003; Whyte, 2019).

Accordingly, in this paper attention is shifted from technology adoption per se, to how organisational members experience digital change. We conceptualise Perceived Digital Change and Development (PDCD) as organisational members' judgements about the extent to which digital technologies are changing work practices, internal and external collaboration, and roles and responsibilities. PDCD thus centres the experienced impact of digitalisation in everyday work, what members perceive has changed, rather than the mere presence of tools or stated intentions to use them (see also Leonardi, 2011).

Theoretically, focusing on perceptions is not a soft substitute for *hard outcomes*, rather, it aligns closely with socio-cognitive research in information systems showing that adoption, use, and outcomes are shaped by how people interpret technologies and their organisational contexts (see e.g. Orlikowski and Gash, 1994; Davidson and Pai, 2004). Prior AEC studies that foreground such micro-foundations, attitudes, values, cognitive processes, and relational dynamics, help explain why identical digital rollouts may be experienced as meaningful change in some teams but as *more of the same* in others (see e.g. Papadonikolaki *et al.*, 2020).

Against this backdrop, the aim of the paper is to develop and empirically test a measure of Perceived Digital Change and Development (PDCD) and to identify which proximal antecedents are associated with higher PDCD in everyday AEC work. This is done by applying exploratory factor analysis (EFA) and multiple regression. Specifically, the paper delivers (i) a survey operationalization of PDCD, (ii) evidence of construct structure and reliability, and (iii) an empirical test of antecedents that identifies which conditions are most strongly associated with perceived digitally enabled change. The remainder of the paper presents the theoretical motivation for the antecedents, the survey design and measures, the EFA and regression results, and a discussion of implications for digitally enabled change in AEC practice.

THEORY

The point of departure is a practice-based view of digitalisation that treats change as something that becomes real through recurrent use of digital tools in everyday work, not merely through formal adoption decisions (see Orlikowski, 2000). As a result, employees' perceptions of enabling conditions (e.g. information access), orientations (e.g. willingness to explore tools), and organisational context (e.g. learning and innovation climate) are theoretically appropriate antecedents of perceived digital change (Orlikowski, 2000; Barley, 1986). In parallel, Information Systems (IS) acceptance research shows that beliefs and perceptions about systems and their use are central for explaining technology-related outcomes (Davis, 1989; Venkatesh *et al.*, 2003), and the Unified Theory of Acceptance and Use of Technology (UTAUT)

explicitly positions facilitating conditions and related beliefs as drivers of use and usage outcomes (Venkatesh *et al.*, 2003).

Five proximal antecedents are examined as predictors of PDCD: ease of access to digital information, willingness to explore digital tools, learning organisation, demand to provide digital information, and innovation-supportive climate. This set is intentionally parsimonious and focuses on perception-based mechanisms through which digitalisation becomes enacted and experienced as work-level change in everyday AEC practice (see Hanelt *et al.*, 2021; Nadkarni and Prügl, 2021).

Ease of Access to Digital Information

Perceived ease of access to digital information can predict higher PDCD because it signals that digital resources are readily available for task execution and coordination, conditions under which digitalization is more likely to be experienced as changes in work practices and collaboration (Leonardi, 2014; Orlikowski, 2000). In IS success research, system and information characteristics are central in shaping use and downstream outcomes. DeLone and McLean's (2003) model positions system quality and information quality as core dimensions linked to use and net benefits. Accordingly, increased ease of access to digital information is expected to be positively associated with PDCD.

Demand to Provide Digital Information

Perceived internal and external demand to provide digital information could elevate PDCD by increasing the necessity of producing digital outputs, making change more salient in everyday work (Orlikowski, 2000). Institutional theory explains how coercive, mimetic, and normative pressures drive organizations toward shared practices as they pursue legitimacy (DiMaggio and Powell, 1983). IS research shows such pressures can shape organizational adoption and assimilation outcomes (Liang et al., 2007). Accordingly, it is expected that increasing internal and external demand to provide digital information is positively associated with PDCD.

Willingness to Explore Digital Tools

Some employees do more than comply with digital tools, they try, adapt, and embed them into routines and interaction patterns, thereby enacting change through use (Orlikowski, 2000; Leonardi, 2011). Nambisan *et al.* (1999) theorise and test intention to explore technology as a key antecedent of users' propensity to innovate with IT, making exploration a grounded pathway to change outcomes. Accordingly, willingness to explore digital tools is expected to be positively associated with PDCD.

Learning Organisation

Organisational learning helps convert digital opportunities into changed practices by enabling knowledge acquisition, information distribution, shared interpretation, and organisational memory (Huber, 1991). These processes support embedding digital technologies in routines rather than leaving them as isolated tools. In digital transformation research, organisational learning capability is highlighted as an integration mechanism that helps align digital initiatives with existing processes and capabilities (Hanelt *et al.*, 2021). Consistent with this view, empirical IS work on digital transformation success emphasises that firms often go through organisational learning processes that translate digital opportunities into digitalised practices and operations (Weritz *et al.*, 2025). Accordingly, it is expected that perceiving a learning organisation is positively associated with PDCD.

Innovation-Supportive Climate

An innovation-supportive climate can predict higher PDCD because it encourages experimentation and committed use of new tools, conditions likely to translate digitalisation into experienced changes in work practices, collaboration, and roles (Orlikowski, 2000). Innovation implementation theory argues that implementation effectiveness depends on a supportive climate and alignment with users' values (Klein and Sorra, 1996). Empirical work on climate for innovation similarly links perceived innovation climate to innovative behaviour in work groups (Anderson and West, 1998). Accordingly, innovation-supportive climate is expected to be positively associated with PDCD.

Taken together, these five antecedents represent a multi-level set of mechanisms: information conditions, individual exploration, and organisational learning and climate, through which digitalisation is expected to become enacted and experienced as work-level change in AEC practice.

METHOD

A pragmatic research paradigm is adopted, viewing knowledge as provisional and evaluated in terms of its practical consequences for addressing the research problem (Creswell and Plano Clark, 2018). In line with the exploratory aim, quantitative analysis is used to identify patterns and tendencies rather than to produce generalizable claims, guided by the principle of "what works" in generating actionable insights (Dube et al., 2024).

To operationalize this pragmatic and exploratory stance, a cross-sectional survey design was employed to examine Perceived Digital Change and Development (PDCD) and its antecedents. The empirical setting was member organizations in Smart Built Environment. All focal constructs were operationalized as respondents' perceptions of changes "over the past three years," consistent with the study's emphasis on experienced digitally enabled development and change in everyday work.

Data Collection and Respondents

The sampling frame comprised 15 partner organizations in Smart Built Environment, representing major actor groups in the Swedish built-environment sector. The study targeted organizations engaged in operational activities, or with direct influence on such activities; municipalities were therefore included because of their role in land-use and development decisions. The survey link was distributed both directly to individuals and through organizational channels. In total, 1,049 invitees accessed the survey link, and 414 respondents submitted the survey (submission did not require answering all questions). The 414 submissions constitute the base sample for descriptive statistics. Respondents represent a broad range of actor groups: architects (23.9%), consultants (23.7%), contractors (17.9%), the Swedish Transport Administration (STA) (23.4%), municipalities (10.4%), and the Swedish mapping, cadastral and land registration authority (0.7%).

As the distribution was not based on a single consolidated roster of all eligible respondents, the exact size of the full eligible population could not be established precisely. Accordingly, we report the organizational sampling frame, the response pool, and the respondent composition by actor group to aid interpretation.

Basic demographic distributions indicate variation in background and experience. Among those reporting gender 57.2% identified as men and 42.0% as women. Among

those reporting age 13.1% were 30 or younger, 42.2% were 31–45, and 44.7% were 46 or older. Educational attainment was high, 74.1% reported university education and 5.6% doctoral education.

Measures

All items were rated on a six-point Likert scale ranging from 1 (totally disagree) to 6 (totally agree). The survey was administered in Swedish, established English language instruments were reworded to fit the AEC digitalization context and the three-year change framing used throughout the questionnaire.

Willingness to explore digital tools. Individual orientation toward exploring digital tools was measured using an adapted version of the "intention to explore IT scale originally developed by Nambisan et al. (1999). Items were reworded to refer explicitly to digital tools while retaining the original emphasis on voluntary exploration and investment of time/effort. The resulting three items capture respondents' willingness to explore possible applications of new digital tools, examine how such tools can improve work efficiency, and explore their use in their own work.

Learning organization (learning capability) was measured using items adapted from Pavlou and El Sawy (2011). The items were reworded to reflect learning related specifically to digitalization and to capture perceived development over the preceding three years (e.g., streamlining routines for identifying/acquiring and integrating knowledge about digitalization, and becoming more effective in developing and using such knowledge to improve processes, services and/or products).

Innovation supportive climate was measured using a composite perceptual instrument developed by drawing on prior research on organizational innovativeness/innovation culture/innovation capability (Wang and Ahmed, 2004; Çalık et al., 2017) and refining items for the digitalized AEC context. The final item set captures perceived support from top management and immediate supervisors for trying new ways of working, encouragement of collaboration and idea exchange across departments and projects, experimentation with new ideas to address customer problems, and transformation of internal/external information into valuable organizational knowledge. The items were refined through pilot testing in smaller populations prior to the main survey.

Ease of access to digital information. Perceived ease of access to digital information was measured using a newly developed perceptual scale capturing experienced accessibility and exchangeability of digital information in everyday work over the preceding three years. Items reflect both internal and external information access as well as the ability to provide and retrieve digital information (e.g., accessing the information needed to perform one's job; accessing information from external partners; providing requested digital information internally and externally).

Demand to provide digital information. Perceived demand to provide digital information was measured using a newly developed two item scale capturing experienced increases in requests for digital information over the preceding three years, distinguishing between external partners and internal colleagues.

Perceived Digital Change and Development (PDCD). PDCD was measured using a newly developed four item perceptual scale capturing the extent to which digitalization over the past three years has contributed to development and change in (i) the way respondents work, (ii) their role, (iii) internal collaboration, and (iv) external collaboration.

Data Analysis

Because the study combined adapted and newly developed measures in a novel empirical setting, exploratory factor analysis was used to examine the empirical structure of measures prior to testing expectations. Composite indices were computed by aggregating items within empirically supported factors. Internal consistency reliability was assessed using Cronbach's alpha. To examine antecedents of PDCD, multiple regression analysis was conducted with PDCD as the dependent variable and the proposed antecedents as predictors. Missing data were handled using analysis-wise complete-case deletion, meaning that each analysis (e.g. EFA and regression) was estimated using respondents with non-missing values on the variables included; therefore, the effective sample size varies across analyses.

RESULTS

In Table 1 are descriptives and reliability summarized. Mean levels were moderate to high across variables (e.g., PDCD M = 4.44, SD = 1.11; demand to provide digital information M = 4.86, SD = 1.25). Looking closer PDCD item-level descriptives, respondents reported that digitalization over the past three years had contributed most to changing the way they work (M = 4.85, SD = 1.20) and how they collaborate internally (M = 4.82, SD = 1.25), followed by external collaboration (M = 4.75, SD = 1.26). The lowest-rated PDCD component concerned changes to respondents' roles (M = 4.15, SD = 1.46). Internal consistency was acceptable to high across all constructs (α = .816–.949), including PDCD (α = .883).

An exploratory factor analysis (EFA) was conducted to examine the empirical structure of PDCD and the proposed antecedent measures. Sampling adequacy was high (KMO = 0.897) and Bartlett's test of sphericity was significant ($\chi^2 = 5343.177$, df = 231, $p < .001$), indicating that the correlation matrix was suitable for factor analysis. Using principal component extraction with Varimax rotation, the analysis produced a six-component solution (eigenvalues > 1) explaining 82.536% of the total variance. The rotated solution showed a clear simple structure, where each item loaded strongly (≥ .708) on a single component (Table 1). The components aligned closely with the theorized constructs and item groupings.

Table 1: Summary of mean values and Cronbach's α for PDCD and index variables

	Mean	Standard dev	No. of items	Factor loading	Cronbach α
PDCD	4.44	1.11	4	≈.743–.843	.883
Willingness to explore digital tools	4.25	1.34	3	≈ .925–.940	.949
Learning organization	4.15	1.32	3	≈ .724–.825	.935
Innovation supportive climate	4.45	1.13	6	≈ .709–.849	.930
Ease of access to digital information	4.44	1.29	4	≈ .774–.883	.933
Demand to provide digital information	4.86	1.25	2	≈ .854–.870	.816

Overall, the EFA provides empirical support that PDCD and the antecedent constructs are empirically distinguishable and that the item sets behave coherently in line with the theorized measurement structure. Given the empirically distinct factor structure, composite indices were computed and used in subsequent regression analyses predicting PDCD.

To identify antecedents of PDCD, a stepwise multiple regression was estimated with PDCD as the dependent variable and the proposed antecedents entered as candidate

predictors. The final model was significant ($F(3,257) = 50.120$, $p < .001$) and explained 36.2% of the variance in PDCD (adjusted $R^2 = .362$).

In the final model, ease of access to digital information was the strongest predictor of PDCD, followed by innovation-supportive climate and willingness to explore digital tools (Table 2). The remaining theorised antecedents, learning organisation and demand to provide digital information, were not retained in the stepwise solution.

Table 2: Antecedents for PDCD

Antecedent	Standardized coefficients Beta	p-value
Ease of access to digital information	.381	< .001
Innovation supportive climate	.225	< .001
Willingness to explore digital tools	.223	< .001

In the stepwise procedure, learning organisation and demand to provide digital information did not enter the final model. However, both constructs showed high internal consistency ($\alpha = .935$ and $\alpha = .816$, respectively) and loaded cleanly as separate factors in the EFA.

DISCUSSION

In the paper attention is shifted from technology adoption and use per se to how organisational members experience digitally enabled development and change in everyday AEC work. It contributes by operationalising Perceived Digital Change and Development (PDCD) and empirically identifying which proximal antecedents are most strongly associated with higher PDCD. The results support the viability of PDCD as a distinct, experience-based construct and suggest that perceived digital change becomes visible primarily through conditions that make digitalisation actionable in daily coordination and work execution.

The measurement results reinforce the conceptual positioning of PDCD as something different from adoption proxies such as use, intention to use, or general net benefits. The EFA indicates strong sampling adequacy (KMO = 0.897; Bartlett's test significant) and a clear factor structure aligned with the theorised constructs. Internal consistency is high across scales ($\alpha = .816–.949$; PDCD $\alpha = .883$), supporting the coherence of both adapted and newly developed measures. This strengthens the methodological foundation for examining perceived digital change and development as an empirical phenomenon, rather than inferring transformation from tool use.

A further nuance comes from the PDCD item-level pattern. Respondents rated digitally enabled change in work practices and collaboration higher than change in roles (role change is the lowest-rated PDCD item). This pattern is consistent with the idea that digitalization may first be experienced through shifts in routines, coordination, and information flows, while formal role redefinition lags behind.

The regression results suggest that PDCD is most strongly associated with proximal conditions that make digitalisation actionable. The final model explains 36.2% of the variance in PDCD (adjusted $R^2 = .362$), with ease of access to digital information as the strongest predictor ($\beta = .382$), followed by innovation-supportive climate ($\beta = .225$) and willingness to explore digital tools ($\beta = .223$). Substantively, the results point to a complementary set of mechanisms. First, improved access to digital information appears to be the most immediate enabler of experienced change, as it directly supports task execution, coordination, and boundary-spanning collaboration. Second, innovation-supportive climate functions as a social and managerial amplifier:

even when information is accessible, change is more likely to be experienced as meaningful when experimentation and cross-boundary idea exchange are encouraged. Third, willingness to explore captures an individual-level micro-foundation: perceived change increases where users are more inclined to try, adapt, and embed tools into routines rather than merely comply with prescribed systems.

Two theorised antecedents, learning organisation and demand to provide digital information, were not retained in the final stepwise model. This should not be interpreted as measurement weakness: both constructs show strong internal consistency (learning $\alpha = .935$; demand $\alpha = .816$) and load cleanly as distinct factors in the EFA. A plausible interpretation is that these antecedents operate indirectly or conditionally, or that their explanatory contribution overlaps with more proximal predictors. Learning capability may shape PDCD through mechanisms such as improved information access and an innovation-supportive climate, enabling better routines and experimentation experienced as change. Similarly, increased demand for digital information may not translate into experienced change unless paired with enabling access and a supportive climate; otherwise, demand may remain a compliance requirement.

For initiatives aiming to make digitalization visible as experienced change in AEC practice, the findings point to three actionable levers: (1) improving the accessibility and exchangeability of digital information across boundaries, (2) fostering an innovation-supportive climate that legitimizes experimentation and knowledge sharing, and (3) enabling user exploration of new tools through time, incentives, and safe-to-try conditions.

Although the sample covered 15 organizations across major actor groups, it was based on a non-probability design. The findings should be interpreted as context-specific patterns rather than statistically generalizable estimates. Future research should test these relationships longitudinally, replicate them in other contexts, and examine mediated or conditional pathways linking learning, information access, climate, and demand.

CONCLUSIONS

This paper advances a perception-based approach to digital transformation in AEC by developing and empirically testing a measure of Perceived Digital Change and Development (PDCD) and by identifying which proximal antecedents are associated with higher PDCD in everyday work. The findings support PDCD as a distinct outcome construct, with strong internal consistency and a factor structure aligned with the proposed theoretical model. The regression analysis highlights three salient antecedents, ease of access to digital information, innovation-supportive climate, and willingness to explore digital tools, which together explain a substantial share of variation in experienced digital change. While learning organisation and demand to provide digital information were not retained as unique predictors in the final model, they remain coherent constructs and may influence PDCD indirectly or under specific conditions. At the same time, the findings should be interpreted with care beyond the present empirical setting. The study provides contextually grounded insight from participating Swedish built-environment organisations within the Smart Built Environment network, but the non-probability sample means that the results should not be treated as directly generalisable to the wider industry. Overall, the study suggests that digitalisation becomes visible as experienced change primarily through

improved information accessibility, supportive climates for experimentation, and exploratory engagement that embeds digital tools into everyday routines.

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REFERENCES

Anderson, N R and West, M A (1998) Measuring climate for work group innovation: Development and validation of the Team Climate Inventory, *Journal of Organizational Behaviour*, **19**(3), 235-258

Barley, S R (1986) Technology as an occasion for structuring: Evidence from observations of CT scanners and the social order of radiology departments, *Administrative Science Quarterly*, **31**(1), 78-108

Bosch-Sijtsema, P M, Claeson-Jonsson, C, Johansson, M and Roupé, M (2021) The hype factor of digital technologies in AEC, *Construction Innovation*, **21**(4), 899-916

Çalık, E, Çalışır, F and Çetingüç, B (2017) A scale development for innovation capability measurement, *Journal of Advanced Management Science*, **5**(2), 69-76

Creswell, J W and Plano Clark, V L (2018) *Designing and Conducting Mixed Methods Research*, 3rd edition, Thousand Oaks, CA: Sage

Davidson, E and Pai, D (2004) Making sense of technological frames: Promise, progress, and potential, *In:* B Kaplan, D P Truex, D Wastell, A T Wood-Harper and J I DeGross (Eds) *Information Systems Research: Relevant Theory and Informed Practice*, Boston: Kluwer Academic Publishers, 473-491

Davis, F D (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology, *MIS Quarterly*, **13**(3), 319-340

DeLone, W H and McLean, E R (2003) The DeLone and McLean model of information systems success: A ten-year update, *Journal of Management Information Systems*, **19**(4), 9-30

DiMaggio, P J and Powell, W W (1983) The iron cage revisited: Institutional isomorphism and collective rationality in organisational fields, *American Sociological Review*, **48**(2), 147-160

Dube, B, Nkomo, D and Apadile-Thokweng, M (2024) Pragmatism: An essential philosophy for mixed methods research in education, *International Journal of Research and Innovation in Social Science*, **8**(3), 1001-1010

Grillitsch, M, Hansen, T, Coenen, L, Miörner, J and Moodysson, J (2019) Innovation policy for system-wide transformation: The case of strategic innovation programmes (SIPs) in Sweden, *Research Policy*, **48**(4), 1048-1061

Hanelt, A, Bohnsack, R, Marz, D and Antunes Marante, C (2021) A systematic review of the literature on digital transformation: Insights and implications for strategy and organisational change, *Journal of Management Studies*, **58**(5), 1159-1197

Huber, G P (1991) Organisational learning: The contributing processes and the literatures, *Organization Science*, **2**(1), 88-115

Klein, K J and Sorra, J S (1996) The challenge of innovation implementation, *Academy of Management Review*, **21**(4), 1055-1080

Leonardi, P M (2011) When flexible routines meet flexible technologies: Affordance, constraint, and the imbrication of human and material agencies, *MIS Quarterly*, **35**(1), 147-167

Leonardi, P M (2014) Social media, knowledge sharing, and innovation, *MIS Quarterly*, **38**(1), 1-28

Liang, H, Saraf, N, Hu, Q and Xue, Y (2007) Assimilation of enterprise systems: The effect of institutional pressures and the mediating role of top management, *MIS Quarterly*, **31**(1), 59-87

Nadkarni, S and Prügl, R (2021) Digital transformation: A review, synthesis and opportunities for future research, *Management Review Quarterly*, **71**, 233-341

Nambisan, S, Agarwal, R and Tanniru, M (1999) Organisational mechanisms for enhancing user innovation in information technology, *MIS Quarterly*, **23**(3), 365-395

Orlikowski, W J (2000) Using technology and constituting structures, *Organization Science*, **11**(4), 404-428

Orlikowski, W J and Gash, D C (1994) Technological frames: Making sense of information technology in organisations, *ACM Transactions on Information Systems*, **12**(2), 174-207

Papadonikolaki, E, Verbraeck, A and Wamelink, H (2020) Formal and informal relations within BIM-enabled supply chain partnerships, *Construction Management and Economics*, **38**(3), 226-242

Pavlou, P A and El Sawy, O A (2011) Understanding the elusive black box of dynamic capabilities, *Decision Sciences*, **42**(1), 239-273

Venkatesh, V, Morris, M G, Davis, G B and Davis, F D (2003) User acceptance of information technology: Toward a unified view, *MIS Quarterly*, **27**(3), 425-478

Wang, C L and Ahmed, P K (2004) The development and validation of the organisational innovativeness construct using confirmatory factor analysis, *European Journal of Innovation Management*, **7**(4), 303-313

Weritz, P, Braojos, J, Matute, J and Benitez, J (2025) Impact of strategic capabilities on digital transformation success and firm performance: Theory and empirical evidence, *European Journal of Information Systems*, **34**(3), 415-435

Whyte, J (2019) How digital information transforms project delivery models, *Project Management Journal*, **50**(2), 177-194