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CREATIVE THINKING ATTITUDES AS DETERMINANTS OF INNOVATION – ORIENTED INFORMATION SYSTEM DESIGNES IN THE CREATIVE SECTOR

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Purpose: The study examines how creative thinking attitudes among employees and managers in the creative sector influence the development and use of innovation-oriented information systems (IS). It addresses a gap in the literature by exploring how attitudinal factors shape IS features that support creativity and innovation.
Design/methodology/approach: A quantitative approach was used, employing the Attitudes and Preferences Questionnaire (KPP) by Nęcka, adapted from Basadur and Hausdorf's scale. Data were collected via an online CAWI survey of 126 respondents from 89 Polish creative enterprises. Exploratory factor analysis identified underlying dimensions, and independent t-tests assessed differences across gender and organizational roles.
Findings: Two factors emerged: (1) "Creative thinking is important and pleasant" and (2) "No time for creative thinking at work." Both groups expressed positive attitudes toward creativity, with no significant differences between them. However, time pressure was widely perceived as a barrier. Creativity appears to be a shared organizational value, though constrained by structural limitations.
Research limitations/implications: The study is limited to one national context and relies on self-reported data. Future research should apply cross-cultural and longitudinal designs, as well as qualitative methods.
Practical implications: Findings offer guidance for designing user-centered IS that support creativity, optimize workflows, and incorporate adaptive and feedback features to foster innovation.
Social implications: Such systems may enhance employee satisfaction, support creative industry growth, and contribute to regional development.
Originality/value: This is among the first studies to empirically link creative thinking attitudes with IS design in the creative sector.
Keywords: Creative thinking attitudes; Innovation-oriented information systems; Creative sector; Digital innovation; User-centered design.
Category of the paper: Research paper.

1. Introduction

In an era of accelerating digital transformation, creativity has become a critical asset for organizations aiming to maintain competitiveness and foster innovation. This is particularly true in the creative sector, where ideation, experimentation, and collaboration are deeply embedded in everyday practices. Despite the increasing reliance on information systems (IS) to support such activities, the attitudinal and cognitive dimensions of system users remain underexplored in IS design research. This article investigates how employees' and managers' attitudes toward creative thinking influence the development and functionality of innovation-oriented IS. By combining empirical findings with a socio-technical perspective, the study offers both theoretical insights and practical guidelines for aligning IS design with creative organizational cultures. The article begins with a theoretical background, followed by a description of the methodology, presentation of results, discussion, and final conclusions.

2. Literature review

Creativity is widely recognized as a fundamental competence in contemporary organizations, particularly those operating under conditions of rapid technological and market change (Adebowale, 1991). In the creative sector, where innovation constitutes the primary driver of competitiveness and growth, the ability to understand and nurture employees' creative thinking attitudes is essential for sustaining long-term success (Dyduch, 2020). Creative attitudes determine not only how individuals generate ideas but also how they engage in collaborative innovation processes, making them a crucial element of organizational culture (Amabile, 1983).

With the increasing reliance on digital technologies, creativity has become both a source of novel ideas (Gregory et al., 2023) and a key capability shaping innovation strategies, digital transformation, and organizational adaptability (Strojek-Filus, 2014). In this context, recent studies emphasize that the development of digital solutions, including information systems, increasingly relies on approaches that integrate both technological and human-centered perspectives. Design Science Research (DSR) provides a valuable framework for linking theory and practice in the design of digital innovation, ensuring that systems are not only efficient but also aligned with user creativity and organizational needs (Hevner et al., 2020).

Information systems (IS), which serve as the backbone of digital operations, must therefore evolve beyond traditional efficiency-oriented solutions. Modern IS are expected to actively support cognitive flexibility, ideation, and experimentation—qualities fundamental to creative work.

The creative sector provides a particularly compelling context for studying these dynamics. Employees and managers in creative enterprises—spanning industries such as design, advertising, IT, media, and cultural production—work in environments where technology, knowledge, and creativity intersect. They rely on IS not only for operational tasks but also for project coordination, content creation, and the generation of innovative solutions. Their creative thinking attitudes directly influence how IS are perceived, adopted, and used in everyday practice, affecting the overall capacity of organizations to innovate.

Furthermore, the socio-technical perspective on IS development emphasizes that technological tools should be aligned with human cognitive capabilities, organizational values, and cultural norms (Patmore, 2025). Creativity in IS design is no longer confined to isolated phases of system development but is embedded in iterative, collaborative, and cross-functional innovation efforts (Strohman et al., 2023). This integration is becoming even more pronounced with the advent of AI-driven solutions, which require systems to adapt dynamically to users' needs while fostering creativity rather than constraining it.

Despite the growing recognition of these interdependencies, the role of employees' creative attitudes—especially within the creative sector—remains underexplored in relation to the design of IS that support innovation. Existing research has primarily focused on technological or managerial aspects of innovation, often overlooking the cognitive and attitudinal dimensions that underpin user interactions with technology (Ciriello et al., 2024).

The present study addresses this gap by examining how creative thinking attitudes among employees and managers influence the development and utilization of innovation oriented IS in creative enterprises. By identifying the dominant dimensions of these attitudes and their implications for IS design, this research contributes to both the theoretical understanding of creativity in digital environments and the practical development of user-centered systems that enhance innovation capabilities.

Recent research in human-computer interaction (HCI) and user experience (UX) design highlights the importance of integrating users' emotional, cognitive, and social needs into system design, especially in creative environments (Qi et al., 2025). Positive user experience depends not only on system usability but also on the fulfillment of psychological needs such as autonomy, competence, and relatedness—factors that are also crucial for supporting creative engagement (Hassenzahl, 2010). The need for systems that enable meaningful interaction, co-creation, and serendipity is increasingly emphasized in innovation-oriented settings (Gustomo et al., 2022).

Digital tools in creative contexts should be evaluated not only for efficiency but also for their ability to stimulate insight, reflection, and emotional resonance (Sas et al., 2009). These considerations are increasingly relevant in the creative sector, where IS are expected to inspire ideation and adapt to diverse work styles. Incorporating these insights into system design aligns with the socio-technical approach and extends the theoretical foundation for understanding how IS can support creativity in practice (Samper et al., 2025).

Accordingly, the aim of this study is threefold. First, it seeks to identify the dominant dimensions of creative thinking attitudes among employees and managers working in the creative sector. Second, it aims to examine whether these attitudes differ depending on respondents' gender or organizational role, thus providing insight into potential segmentation of user needs in the design of innovation-oriented information systems. Third, the study explores how these attitudinal patterns can inform the development of user centered IS solutions that foster creativity and support digital innovation within creative enterprises.

3. Methodology

The study employed a quantitative research approach using the Attitudes and Preferences Questionnaire (KPP) developed by Edward Nęcka, adapted from the scale by Basadur and Hausdorf (Nęcka, 1999). This tool is widely applied in research on organizational creativity, enabling the diagnosis of factors shaping employees' attitudes toward creative processes at work. The questionnaire consists of statements assessed on a Likert scale (from 1 – "strongly disagree" to 5 – "strongly agree") and measures the perceived value of creativity, motivation for creative actions, and perceived organizational barriers. For the purpose of this research, special emphasis was placed on identifying dimensions of creative thinking attitudes that may serve as a basis for designing innovation-oriented information systems.

The research sample included 126 respondents employed in 89 creative sector enterprises located in the West Pomeranian region of Poland. Companies were selected based on the PKD 2007 classification relevant to creative industries, including trade in creative goods (Section G), media and IT (Section J), architecture and advertising (Section M), and cultural institutions (Section R). The participants comprised both employees and managers, allowing for a comparison of attitudes across organizational levels. The sample consisted of 53 women (42%) and 73 men (58%), with 62 employees (49%) and 64 managers (51%). The detailed sample structure is presented in Table 1.

This study adopted the assumption that geographical location does not significantly differentiate attitudes toward creative thinking within the creative sector. The author relied on the premise that the mechanisms fostering creativity, as well as the challenges associated with its implementation, are largely universal across this sector, regardless of administrative region. Due to its specific characteristics, the creative sector tends to exhibit a high degree of homogeneity in terms of values, processes, and organizational culture—particularly within digital and project-based contexts. Therefore, it was assumed that enterprises from the West Pomeranian Voivodeship could constitute a representative sample, allowing for the formulation of broader conclusions applicable to the functioning of the creative sector in other regions as well.

The survey was conducted using the CAWI (Computer-Assisted Web Interview) method, which enabled reaching respondents from various locations while minimizing data collection costs and time. The questionnaire was distributed electronically via industry networks and direct contact with companies. Participants were informed about the purpose of the study and assured of full anonymity. The collected data were statistically analyzed using SPSS software.

Data analysis involved two main stages. First, exploratory factor analysis (EFA) was performed to identify the underlying dimensions of creative thinking attitudes. Both two-factor and three-factor models were evaluated based on eigenvalues greater than 1 and the scree plot criterion. Model fit was supplemented by reliability assessment using Cronbach's alpha. In the second stage, independent samples t-tests were applied to explore potential differences in creative attitudes depending on gender and organizational role (employee vs. managerial staff). These analyses allowed for a deeper understanding of how demographic and organizational factors may influence attitudes toward creativity.

Table 1.
Sample characteristics based on PKD classification and demographics

Category	Number of respondents	Percentage (%)
Gender: Women	53	42%
Gender: Men	73	58%
Position: Employees	62	49%
Position: Management staff	64	51%
Type of business: Section G (Trade)	7	8%
Type of business: Section J (Media, IT)	39	44%
Type of business: Section M (Architecture, Advertising)	34	38%
Type of business: Section R (Culture, Arts)	9	10%

Source: Own elaboration.

4. Results

The results of the statistical analysis revealed clear patterns regarding employees' and managers' attitudes toward creative thinking in the creative sector. Exploratory factor analysis (EFA) confirmed the presence of two distinct dimensions. The first factor, labeled "Creative thinking is important and pleasant", captured positive perceptions of creativity, including enjoyment of idea generation, belief in the importance of innovation, and intrinsic motivation to engage in creative problem-solving. The second factor, "No time for creative thinking at work", reflected perceived organizational constraints, time pressure, and negative attitudes that may inhibit creative engagement. Both factors demonstrated satisfactory reliability, with Cronbach's alpha coefficients exceeding the 0.7 threshold.

Factor loadings for each item are presented in Table 2. Items loading strongly on the first factor included statements such as "Ideas are fundamental in decision-making" (loading 0.763) and "I feel genuine excitement when I come up with a new idea" (0.731), emphasizing the value

and positive emotions associated with creativity. In contrast, items strongly loading on the second factor, such as "Talking about new ideas increases workload and confusion" (0.754) and "I am too busy to think of extraordinary ideas" (0.728), revealed that time constraints and organizational norms may create barriers to creative thinking.

Table 2.
Factor loadings for extracted factors (two-factor solution)

Item	Factor 1: Creative thinking is important and pleasant	Factor 2: No time for creative thinking at work
3. Ideas are fundamental in decision-making.	0.763	–
15. I feel genuine excitement when I come up with a new idea.	0.731	–
7. Management should encourage the generation of ideas.	0.719	–
21. Constructive changes are important in the workplace.	0.703	–
19. Crazy ideas can sometimes lead to innovations.	0.691	–
9. I enjoy the challenge of finding alternative solutions.	0.676	–
13. Most innovations arise from needs or problems.	0.634	–
14. Talking about new ideas increases workload and confusion.	–	0.754
12. I am too busy to think of extraordinary ideas.	–	0.728
10. Truly creative people are disorganized.	–	0.697
16. Only ideas related to important projects matter.	–	0.675
8. I often feel ashamed to propose unusual ideas.	–	0.639
22. If everyone generates ideas, no one works.	–	0.609
4. New ideas rarely work out. (R)	–	0.604
20. Listening to others' ideas is a waste of time. (R)	–	0.576
18. The boss's idea is usually the best one. (R)	–	0.553

Source: Own elaboration based on Nęcka, 1999.

Independent t-tests were conducted to examine potential differences in creative thinking attitudes across gender and organizational roles. The results indicated no statistically significant differences between women and men or between employees and managers in both factors. For example, the comparison of the factor "Creative thinking is important and pleasant" between women (M = ...) and men (M = ...) yielded a $t(124) = -1.89$, $p = 0.061$, suggesting only a marginal, non-significant trend toward differences. Similarly, the factor "No time for creative thinking at work" did not show significant variation across groups. Effect sizes (Cohen's d) for all comparisons were small, confirming the homogeneity of attitudes across demographics and roles.

Table 3 summarizes the outcomes of t-tests, demonstrating that the positive perception of creativity is consistently shared across groups, while perceived time-related barriers remain similar regardless of gender or managerial position. These results suggest that creativity is a culturally embedded value in creative enterprises, not limited to specific roles or demographics.

Table 3.
T-test results for gender and role comparisons

Comparison	Group 1 (n)	Group 2 (n)	t-value	df	p-value	Cohen's d
Creative thinking is important and pleasant – Women vs. Men	Women (n = 53)	Men (n = 73)	–1.89	124	0.061	0.34
No time for creative thinking at work – Women vs. Men	Women (n = 53)	Men (n = 73)	0.38	124	0.706	0.07
Creative thinking is important and pleasant – Employees vs. Managers	Employees (n = 62)	Managers (n = 64)	–0.93	124	0.352	0.17
No time for creative thinking at work – Employees vs. Managers	Employees (n = 62)	Managers (n = 64)	–1.64	124	0.104	0.29

Source: Own elaboration based on Nęcka, 1999.

Figures 1 and 2 visualize mean standardized scores for both factors by gender and organizational role. The visual representation confirms that while mean differences exist, they are not large enough to reach statistical significance. This homogeneity implies that both employees and managers value creativity equally and face similar challenges related to time pressure.

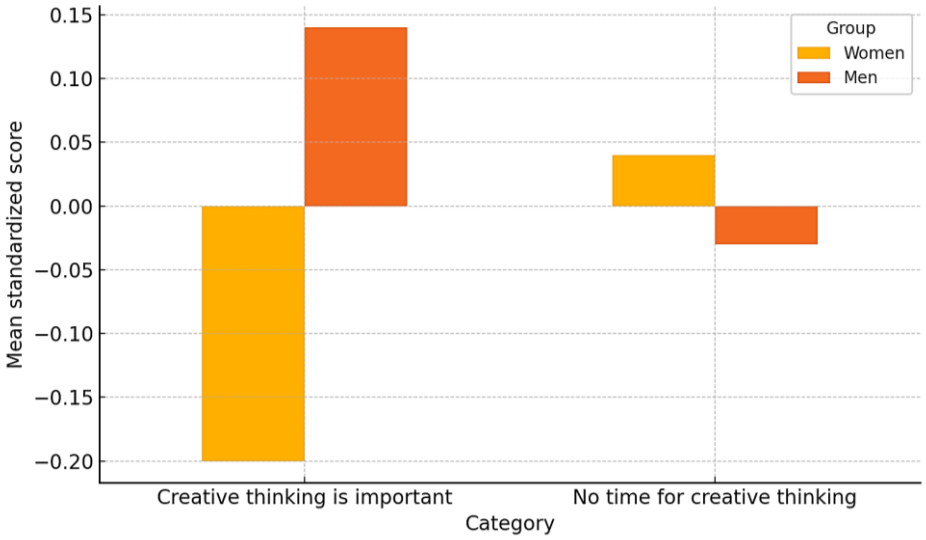

Figure 1. Mean standardized attitudes toward creativity by gender.
Source: own elaboration.

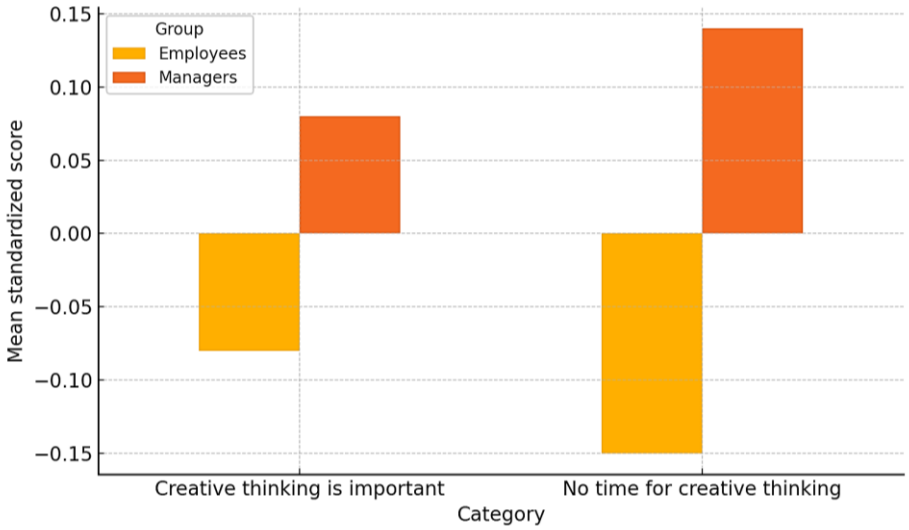

Figure 2. Mean standardized attitudes toward creativity by organizational role.
Source: own elaboration.

Overall, the findings highlight two important conclusions. First, creative thinking is widely appreciated among personnel in the creative sector, reinforcing the idea that creativity constitutes a shared organizational value. Second, perceived barriers such as lack of time are a common challenge that may hinder the translation of creative potential into innovative outcomes. These insights provide a foundation for developing information systems that not only recognize creativity as an intrinsic value but also address structural obstacles to its practice.

5. Discussion

The findings of this study provide a valuable foundation for translating the identified creative thinking attitudes into practical guidelines for designing innovation-oriented information systems (IS) within the creative sector. Since employees and managers consistently value creativity while simultaneously perceiving time as a barrier, IS solutions must be designed not only as tools for efficiency but also as enablers of ideation and innovation. The socio-technical approach suggests that effective IS should simultaneously address technological, cognitive, and organizational dimensions to achieve optimal alignment with user needs.

Firstly, information systems must reflect and support users' intrinsic valuation of creativity. This requires the integration of features that encourage exploration, experimentation, and idea-sharing rather than imposing rigid workflows that constrain creative potential. Systems designed for creative enterprises should promote autonomy, allowing users to shape their own digital environments according to the needs of their projects. For instance, customizable dashboards, flexible data visualization tools, and open collaboration spaces can stimulate creative problem-solving.

Secondly, the results highlight the need to facilitate time and space for creative ideation within digital workflows. Many respondents perceived a lack of time as a barrier to creative thinking. IS can mitigate this issue by embedding functions that optimize time management, automate routine tasks, and create digital "creative buffers"—dedicated spaces or modules where brainstorming, prototyping, and experimentation can occur without disrupting operational processes.

Thirdly, adaptive user experience (UX) features are essential to accommodate varied cognitive attitudes and working styles. Modern IS equipped with AI-driven personalization can dynamically adjust interfaces, suggest relevant resources, and adapt workflows to user preferences. Such adaptive systems can enhance engagement by aligning with the cognitive flexibility required in creative work.

Finally, integrating feedback mechanisms within IS is crucial for recognizing and promoting creative contributions. The study shows that employees value creativity but often face organizational barriers. By embedding collaborative evaluation tools, peer recognition systems, and AI-supported feedback loops, IS can strengthen motivation, enhance knowledge sharing, and support a culture of continuous innovation.

These principles emphasize that innovation-oriented IS should be user-centered, flexible, and creativity-enabling rather than solely task-oriented. Systems developed according to these guidelines can help creative enterprises sustain digital innovation by leveraging employees' positive attitudes toward creativity while addressing structural barriers.

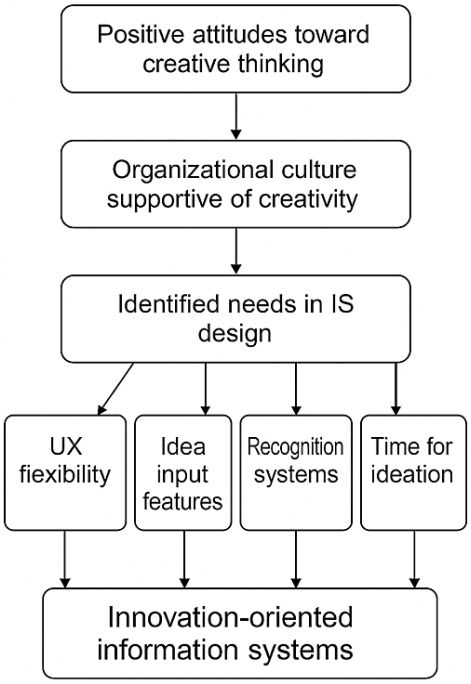

Figure 3. Flow diagram: From attitudes to IS features supporting creativity.

Source: own elaboration.

The conceptual framework developed in this study, presented in Figure 3, illustrates the flow from creative thinking attitudes to IS design features. The model demonstrates how attitudes such as the appreciation of creativity and perceived time constraints inform specific IS functionalities, leading to enhanced organizational innovation. This framework can serve as a practical reference for system designers, developers, and decision-makers involved in the digital transformation of creative enterprises.

These design implications underline the critical role of aligning technological solutions with human creativity, setting the stage for the concluding section that summarizes the study's contributions and outlines directions for future research.

To further strengthen the practical relevance of this framework, several information system functionalities can be proposed that directly correspond to the attitudinal dimensions identified in this study. For example, companies such as Miro (www.miro.com, August 20, 2025) or Notion (www.notion.com, August 20, 2025) offer customizable digital workspaces where employees can engage in collaborative ideation and brainstorming—illustrating how "creative buffers" can be embedded within routine workflows. Similarly, Asana's (www.asana.com, August 20, 2025) ideation modules and Trello's (www.trello.com, August 20, 2025) custom templates allow users to map out innovative ideas alongside task management functions, reflecting the dual need for efficiency and creativity.

An example of AI-powered personalization is seen in platforms like Monday.com (www.monday.com, August 20, 2025), where the interface dynamically adjusts based on project type or user input patterns. This aligns with the need for adaptive UX highlighted by respondents. Likewise, tools such as Slack (www.slack.com, August 20, 2025) integrations for peer recognition e.g., HeyTaco (www.heytaco.com, August 20, 2025) demonstrate how feedback mechanisms can be effectively integrated into daily IS use, promoting a culture of acknowledgment and ongoing innovation.

Figure 3 encapsulates this approach by showing how attitudes such as valuing creativity and time constraints translate into key IS functionalities—including adaptive UX, time-blocking tools, and feedback loops. These examples support the claim that aligning system design with cognitive and organizational realities in the creative sector is both necessary and achievable.

6. Summary

The study confirms that employees and managers in the creative sector share a consistently positive attitude toward creative thinking, which aligns with findings in previous research on organizational creativity. This shared value indicates that creativity is deeply embedded in the culture of creative enterprises, regardless of hierarchical position or gender. Although no

statistically significant differences were observed between the analyzed groups, both employees and managers contribute unique perspectives and expectations that must be considered when designing and implementing information systems.

The results highlight that positive attitudes toward creativity coexist with perceived organizational barriers, particularly time constraints, which may hinder the full expression of creative potential. This duality suggests that organizations need to address not only the encouragement of creative thinking but also structural factors that inhibit ideation. Information systems play a crucial role in this process, as they can be designed to both leverage existing creative values and mitigate obstacles that limit innovation.

The implications of this study suggest that user centered IS solutions should not only enhance operational efficiency but also actively promote collaboration, experimentation, and knowledge sharing. Systems that integrate adaptive features, facilitate time for ideation, and recognize creative contributions have the potential to transform the way creative enterprises approach digital innovation. The conceptual framework proposed here links employees' creative thinking attitudes with specific IS design features, offering a practical roadmap for developers and managers aiming to strengthen innovation capabilities through technology.

It is important to note that the study has certain limitations. The sample was limited to one geographic region and industry, which may affect the generalizability of the results. In addition, the reliance on self-reported data introduces the risk of response bias. Future studies should consider using broader samples and complementary data collection methods to improve the robustness of findings.

Future research should build upon these findings by exploring how creative attitudes influence actual patterns of IS adoption and use in creative organizations. Longitudinal studies, qualitative analyses, and cross-cultural comparisons could provide deeper insights into how adaptive IS features dynamically respond to varying levels of creative engagement across different user profiles and project phases. Moreover, integrating perspectives on artificial intelligence and emerging digital tools may further enhance our understanding of how technology can foster, rather than constrain, creativity.

In conclusion, the study contributes to both theory and practice by demonstrating the importance of aligning information systems with human creativity. By incorporating users' intrinsic motivations and addressing organizational barriers, future IS can become powerful enablers of sustainable digital innovation in the creative sector.

To build upon the current findings, future research should examine how these attitudes translate into real-world usage patterns of IS in creative organizations. Longitudinal studies could track changes in IS engagement over time, particularly as teams evolve or adopt new technologies. Diary methods would allow users to record everyday interactions with IS during creative tasks, offering detailed insights into barriers and enablers. Ethnographic observation of IS use in workplace settings could further illuminate how creative processes are supported or hindered in practice.

Moreover, incorporating perspectives on artificial intelligence, intelligent automation, and emerging UX design tools would help to refine IS functionality and improve its alignment with users' creative needs. These future directions may also contribute to developing more adaptive and intuitive systems that foster sustained innovation in the creative sector.

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