AI at Work: Intelligent Personal Assistants in Work Practices for Process Innovation

Research Paper

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Abstract. This paper explores the role of AI on fostering process innovation and improving workflows. Utilizing the Task-Technology Fit (TTF) theory as a foundation, the research analyzes the integration and adaptation of Intelligent Personal Assistants (IPAs) within organizational workflows. Through an interview study with twelve participants and the creation of a framework, deep insight into workflow integration of IPAs , their adaptability as well as limitations are discovered and their interactions are shown in a framework. The framework consist of six dimensions as well as an adoption drivers. Further research opportunities are identified in the areas of intelligent workflow integration as well as ethical AI.

Keywords: *Intelligent Personal Assistants, Process Innovation, Workflow, Task-Technology Fit Theory*

1. Introduction

Technological innovation in organizations has recently attracted growing academic interest as businesses increasingly rely on various technologies to enhance their ability to innovate and improve the outcomes of their efforts (El-Kassar and Singh, 2019; Akter et al., 2021). The development of increasingly complex systems highlights the need for computers that can better "understand" their users and provide more personalized services (Azvine et al., 2000). Among these technologies, artificial intelligence (AI) is a key driver of business growth and transformation in the digital age, shaping how companies innovate (Verganti et al., 2020) and meet evolving customer demands (Mustak et al., 2021). Artificial Intelligence is defined as the leading edge of computational innovation designed to replicate human intelligence in solving complex decision-making problems (Berente et al., 2021). In this context, IPAs are defined as intelligent tools designed to automate and handle routine tasks, collaborate with employees, and provide actionable insights and recommendations to support data-driven decision-making (Ekandjo et al., 2021).

IPAs can enhance workers' well-being, productivity, and self-reflection in the workplace, making them ideal teammates who support both soft and technical skills (Kimani

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et al., 2019; Grover et al., 2020). These IPAs incorporate human-like characteristics, such as voice and text-based interaction, enabling innovative modes of human-machine communication while simultaneously introducing unique challenges for employees and their tasks (Ekandjo et al., 2021). However, although AI has recently gained importance in the Information System (IS) management literature, the research on intelligent assistants remains underdeveloped, with only a few publications available (Maedche et al., 2019; Ekandjo et al., 2021; Hafeez et al., 2025). As Winkler et al. (2019) argued, "it is important to understand how we can leverage the potential of Smart Personal Assistants beyond already existing, traditional use cases" particularly as these technologies become increasingly integrated into both personal and professional settings. Moreover, AI contributes to four critical categories of innovation: product and service innovation, process innovation, business model innovation, and social innovation, and the current literature has not yet fully addressed the relationship between AI implementation and organizational innovation outcomes (Mariani et al., 2023). Process innovation is an improved way of doing business that aims to increase cost-effectiveness, quality, and service (Jin and Cedrola, 2019), by focusing on how IPAs contribute to process innovation, this paper aims to examine both their potential and the limitations that may hinder their widespread adoption and integration. Therefore, this study is going to answer: *How do AI-based IPAs support workflow integration and adaptability to drive process innovation?*

2. Research Background

2.1 Intelligent Personal Assistants

In academic literature, IPAs are often referred to by other names, including Conversational Agents, Virtual Personal Assistants, Digital Assistants, or Voice-Activated Assistants. These systems utilize voice recognition, natural language processing (NLP), dialogue management, and speech synthesis technologies to interpret and fulfill user requests. Popular examples of voice-driven IPAs include Siri, Google Assistant, Amazon Alexa, and Microsoft Cortana (Cowan et al., 2017). Early interactions with IPAs typically consist of single-turn requests, such as asking for the weather, with only limited follow-up allowed and primarily focusing on simple tasks (Kraus et al., 2021). However, as technology progresses and the market for digital assistants expands, conversational assistants are moved into more complex domains, including decision-making, learning, and planning (Kraus et al., 2021).

Findings suggest that while IPAs have the potential for enhancing workflow processes, significant improvements in adaptability, context awareness, and security features are necessary for successful workplace integration (Dwivedi et al., 2023). To fully understand IPAs' potential, it is crucial to explore and overcome the challenges and experiences that hinder user adoption. If these obstacles cannot be resolved, developers may benefit more from embracing the idea that IPAs will remain a specialized tool and instead prioritize enhancing the experience for power users (Cowan et al., 2017).

The systematic review by De Barcelos Silva et al. (2020) further reinforces these challenges, revealing that only a tiny fraction of IPAs (10.81%) demonstrate proactive capabilities, a crucial feature for effective workflow integration. This limitation significantly impacts their ability to adapt and enhance existing work practices (De Barcelos Silva et al., 2020). Moreover, Beneteau et al. (2019) found that when communication breakdowns occur, users must develop collaborative strategies to achieve their goals, indicating a fundamental gap in the technology's ability to integrate into existing workflows naturally. The research shows that successful implementation often depends more on users modifying their behaviour than on the IPA's ability to adapt to established work patterns. The synthesized voice had a substantial influence on users' perceptions of personality. The voice, especially its accent, significantly shaped their interactions with the system (Cowan et al., 2017). In past studies, participants highlighted the absence of integration and the lack of customization to their regular app usage habits as significant barriers to adoption. Additionally, cross-device integration was identified as a potential enhancement to improve the overall user experience (Cowan et al., 2017).

The integration challenges extend beyond mere technical limitations. De Barcelos Silva et al. (2020) identified that while IPAs show promise in task automation, they struggle with context awareness and understanding complex workplace dynamics. This is particularly evident in scenarios requiring nuanced communication or multiple-step processes, where the current technology often fails to maintain context across interactions (De Barcelos Silva et al., 2020). Furthermore, privacy and security concerns in workplace settings create additional barriers to adoption, especially when handling sensitive information or integrating with existing enterprise systems (De Barcelos Silva et al., 2020).

2.2. Task-Technology Fit and Process Innovation

A central concern in IS research has been understanding how information technology (IT) affects individual performance. This thoughtful approach to resource allocation plays a vital role in today's tech-driven market, where choosing the right tools can dramatically affect an organization's performance and success (Przegalinska et al. 2025). The theory of Task-Technology Fit (TTF) was developed to address this (Goodhue and Thompson, 1995). It emphasizes that technology can enhance performance only if its features are closely aligned with the demands of the tasks it supports (Goodhue and Thompson, 1995). When there is a mismatch between a user’s needs and a system’s capabilities, performance may suffer even if the user has a positive attitude toward the technology (Dwivedi et al., 2023). Building on this foundation, the Technology-to-Performance Chain (TPC) model further develops the understanding of this relationship by integrating two complementary research streams: user attitudes, which affect technology use, and TTF, which directly affects performance (Goodhue and Thompson, 1995). The core claim of the TPC model is that for any IT to affect individual performance positively, two conditions must be met (Goodhue and Thompson, 1995). Technology must be utilized because even if a tool is ideally suited to a task, it will have no impact if users do not actively interact with it and the technology must meet the task requirements; utilization alone is insufficient. The technology's features must align with

the task's specific needs to drive efficiency and effectiveness (Goodhue and Thompson, 1995). The TPC model fills this gap by making TTF a central construct, explaining how technology leads to meaningful performance improvements (Goodhue and Thompson, 1995).

For example, AI integration within software development environments presents a complex mix of opportunities and challenges, as demonstrated by (Sergeyuk et al., 2025). Their study reveals that while 84.2% of developers occasionally or regularly use AI assistants, they face hurdles such as contextual misunderstandings (14.4%), accuracy issues (17.7%), and trust concerns (15.7%). Furthermore, developers report challenges with workflow integration, including disruptions in development environments, and highlight the need for onboarding and education to maximize AI potential.

A broader perspective on AI's impact on organizational performance and innovation is offered by Przegalinska et al. (2025), who examine how human capabilities, task types, and AI tools collectively influence productivity and creativity. While their research highlights AI's potential to foster innovation, it focuses on a controlled experimental setup. In contrast, this study captures real-world usage scenarios, examining how employees integrate IPAs into their workflows and how these tools contribute to process adaptability and innovation in everyday work settings.

Luger and Sellen (2016) investigated conversational agents by examining user interactions in everyday contexts. Conducting interviews with 14 conversational agent users, their study revealed notable mismatches between user expectations and the actual capabilities of these systems, particularly in terms of perceived machine intelligence, system functionality, and usability.

AI's contribution to process innovation extends beyond automating repetitive tasks; when designed to complement human work through AI-human collaboration, it can significantly enhance process performance compared to older automation forms that rely only on basic digital systems (Makowski and Kajikawa, 2021). Despite the increasing integration of AI-based IPAs in professional environments, research has not thoroughly examined their role in process innovation. Prior studies have focused on adoption challenges, usability, and automation benefits, but there remains a gap in understanding how AI-based IPAs influence workflow integration and adaptability within work processes.

3. Methodology

This study follows a structured research process to explore the workflow integration and adaptability of AI-based IPAs in professional workflows. Qualitative research methods are particularly well-suited for this study because they are designed to help researchers understand people, their behaviours, and actions within specific social and organizational contexts (Myers, 2019). This aligns with the study objective to investigate how AI-based IPAs are integrated into workflows and adapted to evolving professional needs. For this purpose, semi-structured interviews are used.

Participants are selected using a purposeful sampling strategy, a commonly employed strategy in qualitative research that focuses on identifying and deciding cases

that offer rich and valuable information, ensuring the efficient use of limited resources (Patton, 2002). Within this framework, as a purposeful sampling strategy, maximum variation sampling captures a wide range of experiences and perspectives, documenting the diversity of responses to varying conditions (Palinkas et al., 2015). This strategy helps identify common patterns that transcend participants' differences while uncovering unique adaptations to specific contexts (Palinkas et al., 2015). In this study, maximum variation sampling allows for the inclusion of both regular users of AI-based IPAs and those with limited or no experience with these tools. This diversity ensures that the research addresses not only the strengths and benefits of IPAs but also the barriers to their adoption and challenges in adaptability, which may vary significantly across roles and usage levels. Twelve participants were chosen for this study, allowing for a manageable yet diverse sample size, seen in Table 1, they are from two large enterprises, one of them a technology consultancy within the Technology, Information, and Internet sector, and the other one is a gaming company within the Technology, Information, and Media sector. These companies were selected because they integrate IPAs into their daily workflows. Use of IPAs made them particularly suitable for exploring how such tools contribute to process innovation and what limitations emerge in real-world work practices. Participants were categorized as regular users if they engaged with IPAs daily for a variety of tasks, while occasional users used them infrequently, typically for specific, isolated tasks.

Table 1. *Overview Interview Participants*

Participant	**Position**	**User Type**
P-01	Digital Analytics Team Lead	Regular User
P-02	Digital Analytics Team Lead	Occasional User
P-03	Project Management Lead (Cloud)	Regular User
P-04	Tech and Data Strategy Consultant	Regular User
P-05	Data Scientist	Occasional User
P-06	Go-to-Market & Strategy EMEA Manager	Occasional User
P-07	Data Scientist	Regular User
P-08	Head of Digital Analytics	Regular User
P-09	Junior Recruiting Manager	Occasional User
P-10	Topic Lead Advanced Analytics & Artificial Intelligence	Occasional User
P-11	Digital Analytics Consultatnt & Solution Architect	Occasional User
P-12	Data & Research Working Student	Regular User

Data collection for this study involved semi-structured interviews conducted exclusively online using Google Meet. A virtual environment can provide safety and accessibility, reducing perceived barriers and encouraging open, which is why this approach was chosen. Additionally, this approach reduces the potential for technical challenges and allows participants to focus on the discussion topics, contributing to the richness of the collected data (Lobe and Morgan, 2021). Participants explicitly consented to their interviews being recorded, and their data is used exclusively for the research.

This study employed thematic analysis, as outlined by Braun and Clarke (2006). Braun and Clarke (2006) highlight thematic analysis as a method for "identifying, analyzing, and reporting patterns (themes) within data." This approach allows for organizing and describing the dataset in detail while interpreting various aspects (Braun and Clarke, 2006). The six-step approach began with (1) familiarizing oneself with the data through repeated readings of the transcripts to understand participants' experiences and perceptions of IPAs; (2) generating initial codes and identifying relevant segments of data that directly related to the research question. (3) categroizing codes into preliminary themes (4) reviewing themes and refine towards accuracy to the research question (5) defining the themes and identifying the core meaning which also created the core dimensions (6) producing the report, which synthesizes the dimensions and themes into a coherent narrative, connecting the findings to the study's theoretical framework and existing literature.

4. Results

In the study we found various dimensions that influence IPA adoption, workflow enhancement, and adaptability. Figure 1 illustrates how the dimensions found through the interviews with the experts interconnect, shaping both IPA adoption and its impact on professional workflows.

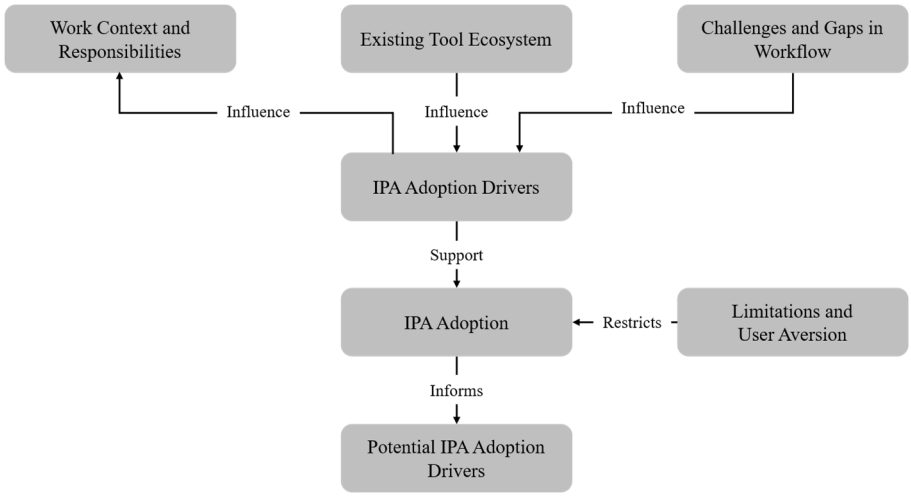

Figure 1. *IPA Adoption Framework*

The IPA Adoption Framework in Figure 1 highlights how work context and responsibilities, existing tool ecosystems, and workflow challenges and gaps influence how professionals adopt and integrate IPAs into their processes. These parameters shape the work environment and influence users' decisions on adopting IPAs and how they incorporate them into their daily tasks, impacting the strategic benefits professionals derive

from these tools. Once adopted, IPAs support users by guiding problem-solving, supporting brainstorming and decision-making, enabling workflow automation, and facilitating language and communication tasks. However, this integration is not without challenges, as limitations and user aversion restrict the full potential of IPAs. Through the understanding of the current status in workflow enhancement through IPAs in process innovation, the recommended IPA adoption drivers areas for IPA adoption and potential workflow enhancement areas are informed. In the following sections, the different dimensions will be further investigated.

4.1. Work Context and Responsibilities

This theme explores participants' professional roles, tasks, and responsibilities, providing a crucial foundation for understanding how IPAs could contribute to or face challenges in workflow integration and adaptability. By examining participants' daily tasks, responsibilities, and challenges, this section provides context for how IPAs function in professional settings. The most important topics for the participants include decision-making and leadership, project management and its delivery, and client-facing communication.

Many participants have main responsibilities in decision-making and leadership, which encompass tasks such as structuring product portfolios, optimizing customer journeys, and improving product creation. These roles extend beyond traditional management, often requiring individuals to influence team behaviours, drive operational efficiency, and foster professional development. Leadership in these roles involves balancing strategic decision-making with people management, ensuring transparency in metrics, and guiding teams toward achieving their objectives. Further participants state that in addition to delivering projects, they contribute to process optimization, cross-department collaboration, and digital transformation initiatives.

Administrative and repetitive tasks form a significant part of participants' daily responsibilities. They support both internal team functions and client-related operations. These tasks ensure consistency, efficiency, and smooth workflow execution across various areas, including recruitment, documentation, and process management.

4.2. Existing Tool System

In this section, we explored the various tools and technologies participants rely on in their workflows. Participants utilize tools across various categories, including development and coding (e.g. Python, SQL), communication and documentation tools (e.g. Slack, Google Workspace), data analysis and reporting tools (e.g. Google Analytics or Looker Studio), as well as project and task management tools (e.g. Asana). Many of the tools they use already incorporate AI-driven features, highlighting the presence of automation and machine learning capabilities in their digital ecosystem. However, while these tools offer AI-powered functionalities, this does not necessarily indicate active adoption or reliance on these features in daily tasks.

4.3. Challenges and Gaps in Workflow

The participants described various issues, including difficulties with creativity and engagement, process inefficiencies, coordination, and communication gaps.
The participants mentioned that they face great challenges to maintaining **creativity** and engagement while managing their other tasks: *"For me, the biggest challenge is to stay creative. […] when creating slide decks, I sometimes do not have a clear idea of how to showcase a problem best."*

Additionally, participants mentioned that inaccurate or incomplete information has led to **process inefficiencies** during workshop preparation, mentioning: *"There have been times when we prepared a workshop based on the information we were given, only to find out during the session that some of it was incorrect."*

Further participants talked about **communication**, mentioning that *"My main struggles are with the client, when there is no clear understanding of what they want to do".* The lack of clarity in client requirements often leads to substantial complications, repetitive cycles, and inefficient processes. As effective coordination and communication are critical to a smooth workflow, this aspect is especially important.

4.4. IPA Adoption Drivers and Initial Usage

Participants reported utilizing various IPAs in their workflows, with ChatGPT emerging as the most widely used and relied-upon tool. Users distinguished between primary, secondary, and occasional tools based on frequency and task requirements, demonstrating a clear hierarchy in IPA preferences.

The **adoption drivers** mentioned by the participants can be categorized into four areas: word-of-mouth and social influence, academic and professional utility, problem-solving and efficiency, and curiosity and early adoption.

Participants frequently mentioned that **social influence**, especially **word-of-mouth,** as a primary factor in adopting IPAs for their process innovation process. The users reported being introduced to these tools through colleagues and social discussion, which sparks their initial interest "*"You get to know about them from friends or colleagues, especially if you have a problem".* Additionally to direct recommendations, participants were also heavily influenced by seeing others' positive experiences with the IPAs " *"I kept seeing posts about how amazing it was, so I gave it a try. It was incredible".* This point also connects to the early adoption factor of **curiosity** by the participants to test out new emerging technological tools. The participants mentioned that *"ChatGPT was probably the first widely known tool, and I started using it out of curiosity. At first, it was about experimenting with simple things"* and mentioned in the following interview that they then adopted it to their professional background.

A few participants also explained that they already adopted the technologies in their **academic background** and transferred them to their new task environment to their professional background. *"When it comes to ChatGPT, I started using it back during my studies. […] So, I already knew how to work with it, which is why I sometimes use it now as well."*

Participants highlighted **problem-solving and efficiency** as central factors influencing their continued use of IPAs. Many users initially used these tools to address specific technical or work-related challenges "*I realized there were articles related to my work about how I could use it for different purposes and tasks. That motivated me to always try to get some answers from such assistants to make my work a bit easier or quicker."*

4.5. Workflow Enhancement and Strategic Adaptability

A distinct pattern in workflow enhancement appeared in usage between regular and occasional users. Regular users demonstrated deeper integration of IPAs into their workflows, leveraging these tools for strategic and creative tasks, such as decision support, brainstorming, and cross-functional tasks. In contrast, occasional users utilize IPAs primarily for straightforward or repetitive tasks, such as documentation or error-checking, reflecting a more situational and task-specific reliance.

A recurring theme among participants regarding workflow enhancement was the role of IPAs like ChatGPT in providing timely **guidance** and **solving complex challenges,** and adapting strategically to the context. Participants frequently emphasized how IPAs assist in structuring projects, clarifying doubts, and even tackling leadership-related queries, making them invaluable for resolving routine and high-level problems. Especially for process innovation, the IPAs are mentioned to improve project scoping and structuring. An interviewee mentioned, *"A new project is coming up, and I need to scope it. I can ask it what the phases of the project should be. […] Based on that, I can organize the project and provide better estimates*". This capability underscores how IPAs enhance strategic decision-making and planning accuracy. Participants also valued how IPAs clarify doubts and streamline processes *"I can ask the IPA, and it will give me insights (...), saving me time researching separately".*

One of the primary ways IPAs contribute to **decision support** is by helping users quickly familiarize themselves with new environments, products, or projects as a participant mentioned, "*Instead of going through lengthy documentation, I can ask specific questions to get up to speed. This helps me decide how to create a structure or strategy for the project."*

Participants frequently noted how these AI-powered IPAs significantly reduced the time and effort required for various work activities, enabling them to focus on more strategic priorities and boosting productivity and **efficiency** through **workflow automation**. One of the most highlighted benefits was the ability to automate documentation creation. As one participant shared: *"With ChatGPT, it [creating extensive documents] has been done in minutes".* This creates space for more space to think about more meaningful tasks and therefore innovates the process of the current workflow of the participant.

4.6. Limitations and User Aversion

While IPAs offer significant potential, various limitations and avoidance behaviours often hinder their adoption. Users have expressed concerns ranging from technical shortcomings to personal preferences that shape their willingness to use these tools.

The most important topics mentioned include **privacy** and **security concerns** about data, **hallucinations**, the perceived **creativity gap** that IPAs only provide standardized answers without depth, **integration challenges,** and general **user experience**. Although this topic was discussed with all the participants, their focus lay more on workflow enhancement and IPA adoption.

What the participants mentioned altogether is that their concerns surrounding the mentioned themes above often lead to restricted workflow enhancements and decrease the adaptability to their work. Additionally, the limitations and the avoidance of these topics also refer back to the IPA adoption.

4.7. Potential IPA Adoption Drivers

Participants identified several key areas where they expect IPAs to evolve to better support workplace productivity. While IPAs are already valued for their ability to automate tasks, streamline workflows, and assist with problem-solving, users see significant room for improvement in their functionality, integration, and adaptability.

Additionally, to structure these expectations, five key categories for future development emerged from the findings: **Intelligent workflow integration**, where users strongly desire better integration with their widely used applications and internal knowledge management platforms. The lack of local connections limits the efficiency gains IPAs can make in streamlining workflows. One participant highlighted how AI-driven live feedback during meetings could enhance collaboration: *"Another idea is integrating AI into meetings, where you could share your screen and get live feedback or suggestions".*

Users highlighted the need for AI assistants to provide more **personalized responses** by leveraging reinforcement learning and past interactions. Currently, many AI models produce generic outputs, limiting their ability to generate responses that align with

individual user preferences. One participant explained this issue: *"It would be great if reinforcement learning became more accessible so users could customize AI outputs for specific needs without requiring extensive data or resources.*

Memory and **reasoning limitations** hinder AI assistants' full potential in professional environments where accuracy, context retention, and logical decision-making are crucial. As AI technology advances, users expect enhanced memory capabilities that allow assistants to recall previous interactions, interpret user intent more accurately, and provide responses that align with real-world problem-solving needs.

Users expect stronger **security** measures and greater **transparency** to ensure they can be safely and effectively adopted in the workplace. Additionally, beyond security, users also emphasized the importance of fairness and **ethical AI** development. In particular, some participants expect AI to play a role in reducing biases in decision-making, especially in recruitment processes. One participant illustrated this, stating*: "I think AI tools can help reduce biases during the recruitment process. For example, if an AI summarizes a CV for me, it could leave out unnecessary details like gender or ethnicity, which might otherwise lead to unconscious bias."* This expectation reflects a broader demand for AI-based IPAs designed to minimize biases and promote fair decision-making, particularly in fields where neutrality is essential.

5. Discussion

This paper tries to answer the research question: How do AI-based IPAs contribute to workflow integration and adaptability in process innovation, and what are their limitations on work practices? The findings align with previous research highlighting the role of generative AI in enhancing worker productivity (Dwivedi et al., 2023). Unlike traditional machine learning models focusing on pattern recognition, ChatGPT's ability to generate new content makes it a valuable tool for professional environments, as Dwivedi et al. (2023) noted, one of its most significant contributions is its capability to produce first drafts, helping users overcome the initial barriers to structuring complex tasks. Participants in this study reflected this perspective, emphasizing how IPAs assist in project scoping, structuring, and problem-solving. By breaking down large, ambiguous tasks into clear steps, IPAs support strategic planning and workflow organization.

This paper also talks about IPA adoption for process innovation. In academia it is known that individuals are more likely to use technology if they believe it will help them complete tasks more quickly or easily (Goodhue and Thompson, 1995). TTF has a significant influence on these beliefs; when a technology aligns well with the needs of a task, users perceive it as more helpful, valuable, and essential (Goodhue and Thompson, 1995). This alignment increases the likelihood of regular use, conversely, when technology does not fit the task correctly, users may find it challenging to use, unhelpful, or simply not worth their time, leading to reduced usage or even complete avoidance (Goodhue and Thompson, 1995). In simple terms, when users feel that technology offers a clear advantage by saving time, improving results, or simplifying work, they are more inclined to adopt it and integrate it into their daily routines (Goodhue and Thompson, 1995).

This theoretical perspective aligns closely with the findings of this study, where problem-solving and efficiency emerged as primary adaptation drivers for the use of IPAs. Participants frequently focused on how IPAs addressed specific challenges and improved work processes, reinforcing the core principles of TTF. Many users' initial motivation to use an IPA was to solve technical or work-related problems.

Today, AI-powered IPAs are increasingly valued for their ability to support more complex and cognitively demanding tasks, such as brainstorming, problem-solving, and strategic planning, which better align with the dynamic needs of users. One participant captured this distinction, noting that AI tools are most effective when applied to complex or timeconsuming tasks rather than simple, routine ones: *"I do not see the potential for small tasks. […] I think it only makes sense for large datasets or tasks that would take too long manually".* This insight highlights a critical TTF dimension, users actively evaluate the cost-benefit trade-off when deciding whether to use IPAs. For simple tasks that require minimal effort, the overhead of interacting with an IPA may outweigh its advantages, leading users to bypass the tool altogether. In contrast, when dealing with complex data analysis, content generation, or multi-step problem-solving, the efficiency gains offered by AI tools become far more significant, increasing the likelihood of adoption.

The evolution of IPAs through AI integration has significantly enhanced their TTF by enabling them to align more effectively with the specific demands of workplace

tasks. According to the TTF framework, when a technology closely fits the needs of a task, it not only increases the likelihood of user adoption and maximizes its impact on performance. This study highlights how the introduction of AI-powered IPAs, such as ChatGPT and Gemini, has expanded the functional capabilities of these tools, allowing them to go beyond basic administrative tasks and directly support users in areas like problem-solving, brainstorming, decision-making, and so on. Tasks that previously fell outside the scope of traditional IPAs can now be executed more efficiently and effectively using enhanced capabilities introduced by AI.

In response to the research question, the study found that AI-based IPAs contribute to workflow integration and adaptability in process innovation by supporting users in four key areas: guidance and problem-solving, decision support and brainstorming, workflow automation and efficiency, and language and communication support. Through these contributions, IPAs enable partial automation of professional tasks and increase productivity. However, their wider adoption is currently limited by challenges such as integration gaps, memory constraints, data privacy concerns, etc., indicating both their transformative potential and areas in need of further development.

6. Conclusion

This study investigated how AI-based Intelligent Personal Assistants (IPAs) contribute to workflow integration and adaptability in process innovation and explored their associated limitations in professional contexts. The findings highlight a framework showing which factors influence IPA adoption and workflow enhancement. The paper demonstrate that IPAs significantly enhance workflow integration and adaptability by supporting users through: guidance and problem-solving, decision support and brainstorming, workflow automation and efficiency, and language and communication tasks.

While the study offers valuable insights, certain limitations must be acknowledged. The sample consisted of participants from two companies based in Europe, primarily holding technical roles such as data scientists and heads of digital analytics. As a result, the participants had a relatively high level of AI literacy. This could have positively skewed their experiences with IPAs, limiting the generalizability of the findings to broader user groups, particularly those in non-technical or less AI-savvy roles. Moreover, the study included only one non-user, limiting the depth of insights into the reasons for IPA avoidance or disinterest. Further research could explore the previously IPA aversion areas as well as psychological and organizational barriers to IPA adoption and workflow enhancement.

This paper contributes to the expanding scholarly discourse by empirically demonstrating how AI-based IPAs enhance workflow integration and adaptability in process innovation, specifically by identifying four distinct areas of contribution, guidance and problem-solving, decision support and brainstorming, workflow automation and efficiency, and language and communication support, while also uncovering adoption barriers such as integration, memory, and data privacy limitations.

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