International Journal of Information Systems and Project Management (IJISPM)
2026, 14(1), e140104, DOI: 10.12821/ijispm140104

RESEARCH ARTICLE

Outsourced ERP system implementation success: The effects of client and vendor competences and their moderating roles

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Abstract
Previous research has overlooked how individual competence interacts with circumstances that could potentially affect the success of outsourced system implementation. This research leverages person-environment fit and expectation-disconfirmation theories to investigate how client and vendor competences, as external factors and moderators, along with partnership quality and task-technology fit, affect the performance and satisfaction in outsourced ERP system implementations. Data were collected via a survey of 414 ERP users from 12 companies and analyzed using PLS-SEM and slope analysis. The findings reveal that client and vendor competences shape task-technology fit and partnership quality, affecting performance and client satisfaction. Notably, task-technology fit does not always improve performance for highly competent clients, and satisfaction may decline when vendors are perceived as highly competent, raising client expectations. A slight misalignment between tasks and technologies may even benefit highly skilled users. Furthermore, client satisfaction with ERP outsourcing is influenced by both performance outcomes and perceptions of vendor competence. This study provides practical guidance to enhance the success of outsourced system implementations.

Keywords
system implementation; outsourcing; ERP; competence; partnership; task-technology fit; performance impacts; satisfaction.

Received: 7 October 2024 | Accepted: 23 June 2025

1. Introduction

In the realm of effective outsourcing for system implementation, ensuring alignment between the competences of clients and vendors is crucial, even though clients and vendors have different roles in the outsourced system implementation process (Karimi-Alaghehband & Rivard, 2020; Navarro-Paule et al., 2023). The capabilities and behaviors of individuals, which arise from their competences, significantly influence outcomes over time. Rather than simply reacting to their surroundings, individuals actively choose the environments they engage with (Kandler et al., 2024). The person-environment fit theory posits that people are inclined to choose situations that resonate with their preferences, leading to better performance in suitable settings (Lee et al., 2021; Kristof, 1996). Individuals may prefer certain work environments that match their competence for effective task execution. Competence encompasses the knowledge, skills, and attitudes or dispositions that enable individuals to navigate various situations (Rosamilha et al., 2023; Frezza et al., 2018). Those with higher levels of competence can actively shape their circumstances, resulting in different outcomes. Research suggests that more competent individuals often take on more complex tasks (Frezza et al., 2018; Kohn & Schooler, 1978). High achievers, leveraging their competencies, often seek and excel in challenging environments that demand substantial accomplishments (Parbat, 2024; Chatman, 1989). This highlights that the competence levels of clients and vendors in a given situation may affect the success of outsourced system implementation.

Achieving success in outsourced system implementation also relies on the quality of partnerships that bring together the efforts of involved parties to pool resources and achieve mutual goals that would not be easily achieved individually (Ee et. al., 2013; Lee & Kim, 1999). Prior studies have also employed the task-technology fit perspective as a critical determinant of success in system implementation (Valaei et al., 2019; D'Ambra et al., 2013). The alignment between tasks and technology influences users' utilization and performance outcomes (Howard & Hair, 2023). However, the relationship between partnership quality and task-technology fit remains ambiguous. Moreover, prior research has attempted to incorporate the direct effects of individual characteristics in explaining users' evaluation of the fit between task and technology characteristics (Valaei et al., 2019; Wells et al., 2003) but has overlooked the moderating role of individual characteristics, particularly individual competences, in the relationship between task-technology fit and performance outcomes.

Furthermore, the expectation-disconfirmation theory suggests that individuals establish initial expectations, and any deviation from this reference point impacts their satisfaction levels (Zhang et al., 2021; Oliver, 1980). In the outsourced system implementation, clients tend to set higher performance expectations when they perceive vendors as highly competent and vice versa, affecting their satisfaction levels (Harmon-Jones & Mills, 2019). Hence, varying levels of vendor competence may impact clients' satisfaction levels differently. Ultimately, the diverse levels of individual competences, either client or vendor competence, have the potential to interact with circumstances shaping performance outcomes and satisfaction, thereby playing a crucial role in the success of outsourced system implementation. Nonetheless, prior research has often overlooked the role of individual competence as a moderator in the success of outsourced system implementation.

To address these research gaps, this study aims to explore the relationships between client competence, vendor competence, partnership quality, and task-technology fit as well as their implications for the success of outsourced system implementation. Specifically, this study delves into the moderating roles of client and vendor competences in explaining the outsourced system implementation success associated with performance impacts and client satisfaction. The primary focus of this study is on the implementation success of enterprise resourcing planning (ERP) systems, given the prevalent outsourcing of ERP components by organizations and the challenges encountered in their implementation with service providers (Ahmed et al., 2024). This study presents a new research framework that enhances the understanding of outsourced system implementation success by highlighting the impacts of individual competences, as exogenous and moderating factors, on outsourced system implementation success grounded in the person-environment fit and

expectation-disconfirmation theories. In addition, practical guidelines for enhancing user performance and satisfaction are outlined to increase the potential success of outsourced system implementation.

The subsequent section presents theoretical perspectives underpinning the research model, followed by the development of hypotheses, research methodology, and analysis findings. Theoretical and practical implications are then explored before concluding with a discussion of study limitations and suggestions for future research.

2. Theoretical perspectives underpinning the study

To provide a structured understanding of the diverse theoretical foundations relevant to outsourced ERP implementation success, this study organizes the theories into three distinct sections. These sections align with the conceptual stages of the outsourcing process. The first section focuses on the competence perspective, which explains the fundamental rationale behind outsourcing decisions. The second section addresses ERP outsourcing and success measures, presenting commonly used indicators for evaluating the success of ERP outsourcing initiatives. The last section encompasses theories that examine the relational, technical, and psychological factors influencing success during the implementation phase, including the partnership perspective, task-technology fit, person-environment fit, and expectation-disconfirmation theory.

2.1. Competence perspective

The term competence is ambiguous and defined differently in various contexts (Rosamilha et al., 2023; Winterton & Turnbow, 2020). Scholars often portray competence as a blend of interconnected knowledge, skills, attitudes, and behavior that impact individual performance and can be enhanced through training and development (Hefley & Bottion, 2021; Parbat, 2024). Numerous scholars cite dispositions to encompass attitudinal and behavioral components of competency. Disposition can be defined as attitudes, values, commitments, and professional ethics that influence behaviors and enable the transformation of knowledge and skills into action, allowing individuals to act decisively in specific situations whenever opportunity is present (Rosamilha et al., 2023; Frezza et al., 2018; Weinert, 2001). Unlike knowledge and skills, dispositions are usually considered as habits of mind or natural inclinations to respond to certain situations in certain ways (Frezza et al., 2018). From the competence perspective in the context of outsourcing, competences can be described as the knowledge, skills, and dispositions that client and vendor firms must acquire to effectively implement a system. Achieving success in the outsourced system implementation needs alignment between client and vendor competences, even though clients and vendors have different roles in the system implementation (Karimi-Alaghehband & Rivard, 2020). In addition, levels of client and vendor competences have various effects on the success of outsourced system implementation (Navarro-Paule et al., 2023). Being competent isn't just about knowing things (Knowledge) or being able to do them (skills), it also involves the right disposition (attitudes/behavior) (Weinert, 2001). All these aspects work together to make someone truly competent (Frezza et al., 2018; Rosamilha et al., 2023). Therefore, the competence variable is defined as a formative higher-order construct consisting of two lower-order constructs including knowledge & skills, and disposition.

Client knowledge & skills relate to the clients' understanding and ability to utilize outsourced services and meet their task requirements (Bassellier et al., 2003). During the outsourced system implementation phase, client knowledge & skills regarding ERP applications, organizational operations, and system management are essential for vendors to effectively develop the outsourced ERP system and provide services aligned with the client's needs (Bardhan et al., 2009). Client disposition reflects clients' willingness to engage an outsourcing provider by providing and supporting necessary resources during the system implementation process (Karim et al., 2007; McIvor et al., 2011). This disposition assists vendors in identifying the client's ERP system requirements and capabilities, as well as providing the essential information and resources for a successful system implementation.

Vendor knowledge & skills relate to a vendor's specialized knowledge and expertise in handling and supporting a client's services, technical standards, and best practices (Lacity et al., 2016). Research indicates that vendor knowledge & skills significantly benefit client firms, particularly for those with higher IT intensity in their operations (Chang & Gurbaxani, 2012). Vendors with extensive knowledge and expertise in implementing similar outsourced systems and familiarity with a client's business operations can streamline the system implementation process and enhance their ability to meet the client's requirements effectively. Vendor disposition indicates the vendor's readiness to deliver services as promised and assist clients as needed (Kaipia & Tanskanen, 2003). This disposition compels vendors to deliver services as agreed upon and promptly respond to clients' requirements, enhancing client satisfaction with the outsourced system.

2.2. ERP outsourcing and success measures

In the past decade, rapid industrial transformation and the global impact of COVID-19 have significantly disrupted the economy and business operations, prompting organizations to reassess the balance between internal and external resources (Oshri et al., 2025). In this context, Enterprise Resource Planning (ERP) systems have garnered substantial interest for their capacity to streamline operations, enhance decision-making, and foster innovation across business functions. ERP implementation typically follows a structured and resource-intensive approach—encompassing system planning, customization, integration, testing, and user training—often requiring a high level of technical and managerial expertise (Yarfi et al., 2025). To address these demands, many organizations have adopted selective outsourcing of specific IT components within ERP implementations—such as accounting, logistics, and sales/marketing—as a strategic means to improve cost-efficiency, mitigate implementation risks, access specialized knowledge, and enhance operational flexibility (Hossain et al., 2025). This targeted outsourcing approach allows organizations to retain control over core functions while leveraging external expertise where it adds the most value (Pires & Varajão, 2025). This dual evolution—transforming both business operations through ERP systems and IT service delivery through selective outsourcing—has significantly reshaped organizational practices. Nevertheless, despite the maturity of ERP technologies, implementations remain complex and susceptible to delays, budget overruns, and failure (Rajapakse et al., 2023). Accordingly, this study focuses on the selective outsourcing of IT services in ERP system implementation, with the aim of exploring its role in achieving successful ERP outcomes.

Since outsourcing clients frequently lack or do not share criteria for evaluating the success or failure of their outsourcing agreements (Gonzalez et al., 2008), it can be difficult to define and measure success in outsourcing. Nonetheless, a number of academics suggest evaluating the success of outsourcing by looking at overall satisfaction with the outsourced implementation and perceived benefits (Han et al., 2008; Paudel & Kumar, 2021; Karimi-Alaghehband & Rivard, 2020). Satisfaction is a reliable measure of outsourcing success because it incorporates a holistic evaluation of the costs and benefits involved and serves as a valid metric, unlike other specific measures such as cost control and access to emerging technologies that may not be applicable in all situations (Paudel & Kumar, 2021; Gonzalez et al., 2008). Perceived benefits refer to the client's assessment of the advantages that outsourcing provides. These benefits not only underpin the reasons for engaging in an outsourcing contract but also represent the client's expectations of performance impacts. Perceived benefits, thus, measure the extent to which clients' expectations have been met (Kim & Chung, 2003).

In addition, vendors' and clients' perspectives about the success of outsourcing may differ. Vendors usually evaluate the success of implementation based on system outputs, such as the number of products or services delivered according to the service contract (Hoseini & Nikabadi, 2021). In contrast, clients who outsource their services take into account not only these outputs but also outcomes like user satisfaction, service quality, and the overall impact on the business (Iriarte & Bayona, 2020). Accordingly, this research evaluates the success of outsourced system implementation based on two key outcomes: client satisfaction and performance impacts. Client satisfaction reflects a client's perceptions of information systems meeting expectations (Klepper, 1995), while performance impact signifies the impact of computer systems and services on a client's work quality and job performance (Olson & Dover, 1979).

2.3. Theories influencing success during outsourcing implementation

Partnership perspective: Partnerships that combine the efforts of concerned parties to pool resources and accomplish mutual goals are essential to the success of outsourcing system implementation (Ee et. al., 2013; Lee & Kim, 1999). Several key assumptions underpin the concept of partnerships (Winterton & Turnbow, 2020). Partnership is the potential for synergy, where the combined effort of concerned parties yields results exceeding the capabilities of individual party. Partnerships also encompass both the collaborative development and execution of a strategy, project, or operation, although partner involvement may vary across different stages. In the context of IT outsourcing, partnership refers to the collaborative efforts of all parties involved in pooling IT resources to reach shared goals that would be difficult to achieve alone. This collaboration is vital for the success of outsourced system implementation (Hancox & Hackney, 2000; Lee & Kim, 1999). Various partnership models have been proposed in previous literature. Klepper (1995) reviewed marketing literature to develop an IS partnership model. Lee and Kim (1999) integrated social exchange theory and political power perspective into their partnership model. Partnership quality refers to the extent of the relationship between two parties in finding the probability of continuous interchange between those parties in the future. It also encompasses the level of collaboration between vendor and client teams during system implementation. Research indicates that factors such as information exchange, communication, and collaborative participation positively affect the intensity of the relationship with the outsourcing vendor, thereby enhancing partnership quality (Bardhan et al., 2009; Lee & Kim, 1999). The partnership quality is a key determinant of outsourcing success and requires active participation, clear communication, open information sharing, and top management support (Lee & Kim, 1999; Ee et. al., 2013). While partnership quality is essential for successful outsourcing, it alone may not dictate the success of outsourced system implementation.

Task-technology fit perspective: Prior studies have employed the task-technology fit perspective to identify the success of outsourced system implementation (Valaei et al., 2019; D'Ambra et al., 2013). Task-technology fit (TTF) theory argues that the effectiveness of technology in enhancing individual performance is higher when the capabilities of the technology align with the tasks required by users (Howard & Hair, 2023; Goodhue & Thompson, 1995). The degree of alignment between individual characteristics and technology characteristics plays a crucial role in determining the levels of task-technology fit (Valaei et al., 2019; Wells et al., 2003). Moreover, the compatibility between a task's characteristics and various technologies can result in varying levels of task-technology fit (Wells et al., 2003). The common task-technology fit factor captures individuals' perceptions of task-technology fit (Goodhue & Thompson, 1995). An expanded TTF model, referred to as the technology-to-performance chain model, not only highlights the effects of utilization and user attitude on individual performance but also clarifies how technology enhances performance and its overall impact (Howard & Hair, 2023). Unlike earlier studies that focused on user assessments of task-technology fit by treating individual characteristics as either independent variables or moderators, this study explores how individual characteristics, specifically client competence, moderate the relationship between task-technology fit and performance impacts.

Person-environment fit theory: Person-environment fit theory investigates the interaction between an individual's characteristics and their environment, and the appropriateness of this fit can impact the person's motivation and behavior (Kristof, 1996). Many scholars have utilized person-environment fit to elucidate the relationships between individual competencies and task requirements (Kandler et al., 2024; Holland, 1997). Persons tend to select situations that match their preferences and perform better in environments that suit them. Individuals seek to achieve fit because they tend to prefer consistency, have a need for belonging, and aim to reduce uncertainty. The concept of person-environment fit has been expanded to encompass various perspectives, including person–job fit, person–team fit, and person-organization fit. In the work context, optimal job performance and satisfaction are achieved when persons select tasks or environments that align with their competences (Holland, 1997). Persons will introduce new situational requirements when employing technologies to fulfill their tasks (Lee et al., 2021). Moreover, persons with intellectual flexibility typically excel in demanding environments that require significant achievement levels (Chatman, 1989). Therefore, it is important to ensure that users with distinguished capabilities can use technology to perform evolving demand tasks, leading to high job performance. However, the relationship between a person's capability and the environment in which technology fits well with the users'

tasks has not been empirically investigated in the context of outsourced system implementation.

Expectation-disconfirmation theory: Expectation-disconfirmation theory is a cognitive model seeking to explain consumer satisfaction from the difference between pre-usage expectations and the post-usage perceptions of a product or service (Zhang et al., 2021; Oliver, 1980). Individuals establish reference points for their anticipated experience. Any divergence from these established expectations can negatively impact their satisfaction levels. The disconfirmation concept is aligned with cognitive dissonance theory, which suggests that individuals face a psychological dilemma when their actions do not align with their beliefs and cognitions (Harmon-Jones & Mills, 2019). Disconfirmation can be categorized into three types. Negative disconfirmation occurs when actual performance falls short of an individual's expectations, leading to dissatisfaction. Positive disconfirmation occurs when actual performance surpasses expectations, resulting in satisfaction. Finally, simple confirmation takes place when actual performance equals expectations (Carraher-Wolverton & Hirschheim, 2023). In an IT outsourcing context, a client's perceptions of a vendor's capabilities are typically rooted in indirect sources, such as industry analyses, conferences, publications, and vendor assertions disseminated through impersonal or mass communication platforms. This information has the potential to lead clients to develop possibly inflated expectations regarding IT outsourcing partnerships. Clients who possess prior exposure to outsourced services tend to formulate more pragmatic expectations (Carraher-Wolverton & Hirschheim, 2023); nevertheless, in the absence of direct involvement with the service, expectations may be shaped by other sources like previous users, media reports, or promotional campaigns (Carraher-Wolverton, 2024). The realistic vendor's performance expectation plays a crucial role in determining client satisfaction upon the successful execution of outsourcing agreements.

3. Hypothesis development and research model

The extent to which technology can execute a user's tasks depends on how well individual capabilities, task requirements, and technological functionalities align (Goodhue & Thompson, 1995). Individuals will apply their competencies from prior knowledge and experience to effectively utilize technology for completing demanding tasks (Zhang et al., 2024). Clients possessing high competencies in specific ERP system applications and organizational operations can utilize these competencies to enhance task performance on the system. Therefore, client competence plays a crucial role in shaping the relationship between tasks and technology.

H1: Client competence has a positive impact on task-technology fit.

The ERP system comprises diverse functions and applications that necessitate clients' resources and active participation during the implementation phase (Ee et al., 2013). Client competence, regarding their understanding and skills related to organizational processes, required system functions, and their willingness to engage in resource sharing with vendors, is vital for successful implementation (Jain & Khurana, 2016). Consequently, client competence fosters effective collaboration and communication with vendors, thereby enhancing partnership quality (Al-Azad et al., 2022).

H2: Client competence has a positive impact on partnership quality.

Task-technology fit is dependent on how well individual capabilities, task requirements, and technology functionalities align (Goodhue & Thompson, 1995). Competent vendors can utilize their competencies, which include knowledge of ERP system functions and applications, to configure the system according to clients' needs. They can also promptly solve client system usage issues by aligning the system with client tasks. Vendor competence shapes the alignment between technology and tasks.

H3: Vendor competence has a positive impact on task-technology fit.

Vendors with high competence can offer valuable guidance and efficiently resolve client issues based on their experience in implementing various outsourcing systems. Clients place trust in highly competent vendors with specialized knowledge and experience in system implementation. Highly competent vendors can leverage their expertise to execute tasks effectively and collaborate efficiently with clients, enhancing partnership quality (Lee & Kim, 1999; Levina & Ross, 2003).

Moreover, vendors' readiness to deliver services, through their competence, can demonstrate a high level of commitment by providing timely support and delivering services within agreed timelines, thereby fostering strong collaboration and trust between both parties (Levina & Ross, 2003).

H4: Vendor competence has a positive impact on partnership quality.

Throughout the outsourced system implementation, the client's and vendor's project teams must collaborate to establish a system that aligns with the client's requirements. Achieving synergy between both parties' efforts, rather than individual efforts, is crucial for the technology-task fit. This synergy signifies partnership quality resulting from effective collaboration and communication between the two parties (Lee & Kim, 1999; Teo & Bhattacherjee, 2014). Therefore, partnership quality plays a significant role in facilitating the alignment between technology and tasks during the outsourced system implementation process.

H5: Partnership quality has a positive impact on task-technology fit.

Technology that has the potential to assist users in their tasks can significantly influence the performance of users (Goodhue & Thompson, 1995). The efficiency and effectiveness of users can be enhanced, leading to improved productivity and quality of work, if the system is appropriately configured for the users' tasks. The fit between the system and the tasks being performed allows for a more substantial impact on user performance (Howard & Hair, 2023). Conversely, the misfit between tasks and the system causes operational difficulties and lowers user performance.

H6: Task-technology fit has a positive impact on performance impacts.

Partnership quality plays a crucial role in fostering collaboration between vendor and client teams to ensure the system's performance meets user requirements and fulfills the vendor's service agreement (Lee & Kim, 1999). Moreover, partnership quality significantly relates to a lower risk of system malfunctions and improves project performance (Klepper, 1995). In essence, partnership quality is essential to guarantee the influence of the system on user performance.

H7: Partnership quality has a positive impact on performance impacts.

The level of performance meeting an individual's expectations contributes to their satisfaction (Wang & Zhou, 2022). Job performance involves achieving crucial job values (e.g., task activities and accomplishments) and influences job satisfaction (Locke, 1970). Clients will be satisfied with the outsourced system if they can use the system to improve their work quality and productivity. Clients will find satisfaction in the outsourced system if they can utilize it to enhance the quality and productivity of their work (Olson & Dover, 1979). Accordingly, the more benefits clients perceive from the outsourced system, the higher their satisfaction with the system will be.

H8: Performance impact has a positive impact on client satisfaction.

The person-environment fit theory suggests that people tend to select situations that align with their preferences and perform better in environments that suit them (Kristof, 1996). People are inclined towards work settings based on their competencies to carry out their tasks effectively. For instance, people with high levels of intellectual flexibility tend to favor the complexity of their work tasks (Kohn & Schooler, 1978). High achievers, leveraging their competencies, typically thrive in challenging environments that demand high levels of accomplishment (Chatman, 1989). Additionally, when people utilize technology to complete tasks, they may introduce new demands into their work situations (Lee et al., 2021). Accordingly, an excessive fit between tasks and technology could lead to ineffective behavior by limiting users' adaptability in changing technology usage to meet the evolving demands of their tasks, particularly for those with high competence. This exacerbates the misfit between persons and their work environment, thereby diminishing client performance arising from the fit between task and technology.

H9: Client competence moderates the impact of task-technology fit on user performance, where high client competence dampens the relationship between task-technology fit and performance impacts.

Drawing from the expectation-disconfirmation theory, disconfirmation arises when there is a gap between what users expect and what actually happens (Oliver, 1980). This disconfirmation influences levels of user satisfaction (Carraher-Wolverton, 2024). When users perceive that actual performance exceeds their expectations (positive disconfirmation), their satisfaction increases. Conversely, if users' expectations surpass actual performance (negative disconfirmation), satisfaction decreases. Clients assess vendor competence based on prior experience with the outsourced service or information provided by vendors and advertisers, which helps shape their expectations of vendor competence. When clients perceive vendors as highly competent, they tend to set higher performance expectations, increasing the likelihood of encountering negative disconfirmation and decreasing satisfaction.

H10: Vendor competence moderates the effect of performance impact on user satisfaction, where high vendor competence dampens the relationship between performance impacts and client satisfaction.

Diverse theories and perspectives contribute to the development of these hypotheses, which in turn shape the research model in Figure 1.

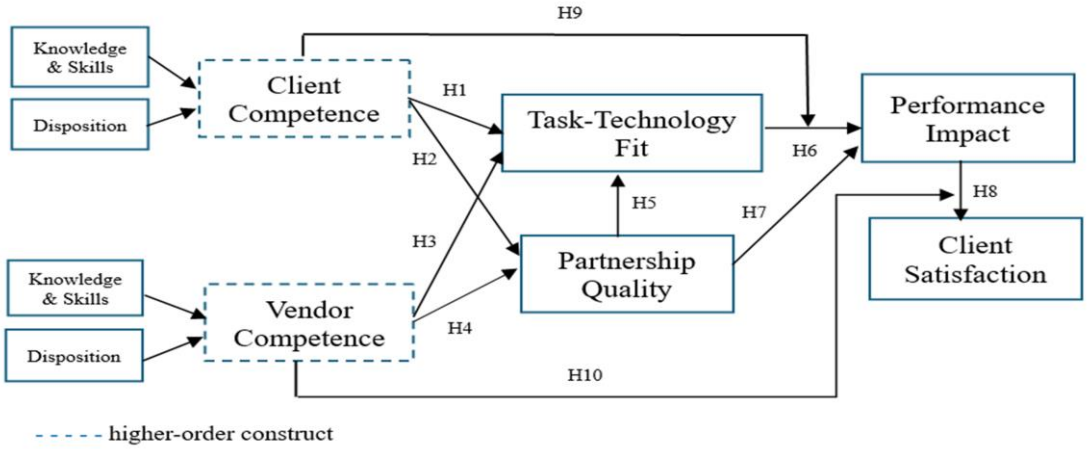

Fig. 1. Research model

4. Methodology

4.1. Sampling and data collection

This study employed a survey methodology to collect data through a structured questionnaire. The instrument comprised measurement items adapted from established and validated constructs in prior scholarly works, as detailed in Appendix A. Respondents were requested to indicate their level of agreement with a series of statements using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Data collection was conducted using purposive sampling, targeting 12 companies across four major industries—food and beverage, services, glass, and plastics. These companies all engage in some form of outsourced ERP services—such as accounting, marketing, procurement, or production—with service providers based in Thailand. To ensure both linguistic accuracy and conceptual consistency in the translated questionnaire, a double translation technique was employed, involving an initial translation from English to Thai followed by a reverse translation from Thai back to English. The questionnaire was distributed to individuals designated by their respective companies to participate in the study. These companies, all clients of a firm affiliated with one of the authors, were contacted through authorized company representatives, primarily senior executives, who were invited to facilitate participation. These representatives subsequently disseminated the questionnaires to appropriate ERP users within their companies, including senior managers, department managers, and end users. A total of 445 completed questionnaires were returned within one month. Following a screening process to remove incomplete responses and statistical outliers,

414 usable questionnaires, representing a response efficiency rate of 93%, were retained for further analysis. This sample size exceeds the commonly recommended minimum of 200 cases and meets the guideline of being at least 20 times the number of parameters in the research model, thereby supporting the application of structural equation modeling (SEM) as the primary analytical technique. The demographic characteristics of the respondents, presented in Table 1, indicate that 52.2% were female, with 42.3% aged between 25 and 30 years. The majority of respondents were employed in logistics and production functions, and 40.6% reported having between one and three years of experience with ERP systems.

Table 1. Respondents' profile

Demographic Data		Frequency	Percent
Gender	Male	198	47.8
	Female	216	52.2
Age	20-24 years	15	3.6
	25-30 years	175	42.3
	31-35 years	122	29.5
	36-40 years	46	11.1
	>40 years	56	13.5
Position	Senior manager	12	2.9
	Department manager	51	12.3
	Department staff	351	84.8
Department	Accounting	82	19.8
	Logistic	156	37.7
	Sales/Marketing	68	16.4
	Production/Purchasing	108	26.1
Industry	Glass	101	24.4
	Plastic	105	25.4
	Food/Beverage	106	25.6
	Service	102	24.6
Work Experience	1-3 years	145	35.0
	>3-5 years	109	26.3
	>5-10 years	84	20.3
	>10-20 years	40	9.7
	>20 years	36	8.7
ERP Experience	1-3 years	168	40.6
	>3-5 years	123	29.7
	>5-10 years	75	18.1
	>10 years	48	11.6

4.2. Data analysis

This study utilized a variance-based structural equation modeling technique, specifically the partial least squares method (PLS-SEM), to investigate the research model. This method is helpful because it can assess the quality of formative and reflective constructs, examine the moderating effects, and simultaneously test the various cause-and-effect paths (Hair et al., 2014). The PLS-SEM approach consists of two assessment models: the measurement model and the structural model. The measurement model assesses the relationships between the latent constructs and their respective indicators, while the structural model examines the relationships among the latent constructs. The PLS-SEM analysis was conducted using SmartPLS software version 4.0 (Ringle et al., 2024).

To address potential threats to the validity of research findings related to using the same method for collecting data across multiple variables, this study employed Harman's single-factor test to assess common method bias (CMB). This test checks if a single factor accounts for a large portion of the covariance, which would indicate the presence of common method variance. The results showed that a single factor only explained 29.523% of the variance, which is below the 50% threshold. This suggests that common method bias is not a significant issue in this study (Howard et al., 2024). In other words, the common method variance does not appear to distort the results or predictions of the study.

4.3. Measurement model assessment

The measurement model was assessed to confirm both construct reliability and validity. As shown in Table 2, the indicator loadings for all constructs exceeded the threshold value of 0.708, indicating that the construct explains over 50 percent of the indicator's variance (Hair et al., 2014). Reliability was assessed through two measures: Cronbach's Alpha and Composite Reliability (CR). Both measures surpassed the commonly accepted threshold of 0.70, suggesting that the indicators within each construct consistently measure the underlying concept (Hair et al., 2014). Convergent validity, which signifies the extent to which the indicators portray their intended latent construct, was assessed using Average Variance Extracted (AVE). Table 2 indicates that an AVE value exceeding 0.50 for each construct demonstrates that a greater proportion of the variance in the indicators is explained by the underlying construct, rather than by measurement error (Fornell & Larcker, 1981).

Table 2: Loadings, reliability, and convergent validity

Constructs	Items	Loadings	Cronbach's Alpha	Composite reliability (CR)	Average variance extracted (AVE)
Client knowledge & skill (CKS)	CKS1	0.931			
	CKS2	0.879	0.846	0.907	0.766
	CKS3	0.811			
Client disposition (CDP)	CDP1	0.910			
	CDP2	0.922	0.913	0.945	0.851
	CDP3	0.934			
Vendor knowledge & skill (VKS)	VKS1	0.760			
	VKS2	0.822	0.704	0.833	0.624
	VKS3	0.786			
Vendor disposition (VDP)	VDP1	0.913			
	VDP2	0.926	0.904	0.940	0.839
	VDP3	0.909			
Task-technology fit (TTF)	TTF1	0.725			
	TTF2	0.887	0.747	0.855	0.665
	TTF3	0.827			
Partnership quality (PNQ)	PNQ1	0.851			
	PNQ2	0.792			
	PNQ3	0.737	0.891	0.919	0.694
	PNQ4	0.903			
	PNQ5	0.873			
Performance impacts (PMI)	PMI1	0.767			
	PMI2	0.880			
	PMI3	0.726	0.884	0.913	0.678
	PMI4	0.893			
	PMI5	0.838			
Client satisfaction (CSF)	CSF1	0.855			
	CSF2	0.809	0.850	0.899	0.690
	CSF3	0.879			
	CSF4	0.779			

Discriminant validity ensures that the constructs being measured are distinct from each other. Two validation assessments were carried out: Fornell-Larcker criterion and heterotrait-monotrait ratio (HTMT). The Fornell-Larcker assessment, presented in Table 3, compares the square root of AVE for each construct with its correlations with other constructs. The diagonal elements, representing the square root of the AVE, consistently held higher values than the corresponding values in their respective rows and columns. This pattern indicates that each construct shares more variance with its own indicators than with those of other constructs (Fornell & Larcker, 1981). Additionally, HTMT values for all constructs were below the recommended threshold of 0.85, providing further evidence of discriminant validity. By satisfying these criteria for both reliability and validity, the measurement model establishes a solid foundation for the subsequent analysis of hypothesized relationships among the constructs in the structural model (Hair et al., 2014; Sarstedt et al., 2019).

Table 3: Discriminant validity

Const.	Fornell-Larcker								Heterotrait-monotrait ratio (HTMT)							
	CKS	CDP	VKS	VDP	TTF	PNQ	PMI	CSF	CKS	CDP	VKS	VDP	TTF	PNQ	PMI	CSF
CKS	0.87															
CDP	0.45	0.92							0.50							
VKS	0.23	0.26	0.79						0.28	0.30						
VDP	0.40	0.32	0.61	0.92					0.46	0.34	0.73					
TTF	0.22	0.35	0.46	0.37	0.82				0.27	0.41	0.62	0.43				
PNQ	0.32	0.30	0.40	0.47	0.50	0.83			0.35	0.31	0.47	0.51	0.57			
PMI	0.29	0.24	0.22	0.28	0.29	0.31	0.82		0.34	0.26	0.28	0.31	0.37	0.35		
CSF	0.14	0.22	0.23	0.20	0.20	0.25	0.48	0.83	0.20	0.25	0.30	0.22	0.25	0.30	0.51	

4.3.1 Validating higher-order construct

Improperly classifying constructs as formative or reflective can lead to inaccurate assessments of construct quality (Sarstedt et al., 2019). Competence is a multifaceted concept encompassing an individual's knowledge, skills, and disposition (Weinert, 2001). Without the disposition component, knowledge and skills alone are insufficient for effective competence (Frezza et al., 2018). Because these various components contribute independently to the overall concept of competence, it is most appropriately modeled as a formative higher-order construct. Consequently, client competence (CCPT) is further divided into two lower-order constructs including client knowledge-skills (CKS) and client disposition (CDP). Similarly, vendor competence (VCPT) comprises two lower-order constructs including vendor knowledge-skills (VKS) and vendor disposition (VDP).

To ensure the validity of the higher-order construct representing competence, multicollinearity using the variance inflation factor (VIF) was initially assessed. VIF values below 5 generally indicate no multicollinearity issues (Hair et al., 2014). As illustrated in Table 4, the VIF values ranged from 1.249 to 1.609, confirming no multicollinearity concerns. Subsequently, the statistical significance and relevance of the weights assigned to each lower-order construct were examined. All outer weights were found significant ($p<0.001$), and outer loadings were significant for each indicator (lower-order construct) forming the higher-order constructs ($p< 0.001$). These findings together support the validity of the higher-order competence construct (Sarstedt et al., 2019).

Table 4: Higher-order construct validation

HOCs	LOCs	VIF	Outer Weights	T Statistics	P Values	Outer Loadings	P Values
CCPT	CKS	1.249	0.533	5.113	<0.001	0.820	<0.001
	CDP	1.249	0.641	6.706	<0.001	0.879	<0.001
VCPT	VKS	1.609	0.595	5.966	<0.001	0.913	<0.001
	VDP	1.609	0.518	5.006	<0.001	0.883	<0.001

Note: HOCs: Higher Order Constructs, LOCs: Lower Order Constructs, CCPT: Client Competence, VCPT: Vendor Competence

4.4. Structural model assessment

To assess the structural model, the proposed hypotheses are subjected to examination, with the outcomes demonstrating support for all hypotheses at varying levels of significance (Table 5). Following this, the explanatory power of the model is appraised, revealing R^2 values ranging from 0.191 to 0.331 for the endogenous variables. Notably, R^2 values of 0.75, 0.50, and 0.25 are deemed substantial, moderate, and weak, respectively (Sarstedt et al., 2019). Consequently, the R^2 values pertaining to the endogenous constructs can be described as weak explanatory power. The assessment of predictive relevance is conducted through the utilization of the Q^2 value. The Q^2 values range from 0.074 to 0.257 for the endogenous constructs, surpassing 0 and thereby indicating that the model outperforms the most native benchmark (Hair et al., 2014).

Table 5: Structural model assessment results

Relationships	Beta Coefficient+	Beta Coefficient	T statistics	f^2	P values	Results
CCPT -> TTF	0.132	0.119	2.390	0.017	0.008**	H1: supported
CCPT -> PNQ	0.201	0.206	4.540	0.049 (s)	<0.001***	H2: supported
VCPT -> TTF	0.246	0.252	4.524	0.068 (s)	<0.001***	H3: supported
VCPT -> PNQ	0.409	0.404	6.905	0.190 (m)	<0.001***	H4: supported
PNQ -> TTF	0.340	0.342	6.825	0.127 (s)	<0.001***	H5: supported
TTF -> PMI	0.172	0.109	1.801	0.010	0.036*	H6: supported
PNQ -> PMI	0.225	0.161	2.885	0.022 (s)	0.002**	H7: supported
PMI -> CSF	0.487	0.430	11.434	0.220 (m)	<0.001***	H8: supported
CCPT x TTF -> PMI		-0.166	4.057	0.046 (s)	<0.001***	H9: supported
VCPT x PMI -> CSF		-0.104	2.651	0.014	0.004**	H10: supported
Endogenous Constructs	**R^2+**	**R^2**	**ΔR^2**	**Q^2**		
TTF	0.331	0.331	0.000	0.231		
PNQ	0.271	0.271	0.000	0.257		
PMI	0.119	0.191	0.072	0.142		
CSF	0.237	0.257	0.020	0.074		

Note. + The noninteraction model ; f^2 effect size: (s)=small, (m)=medium ; Relationship significance at * $p < 0.05$, ** $p < .01$, *** $p<.001$

4.5. Moderation analysis

The study assessed the moderating role of client competence (CCPT) on the relationship between task-technology fit (TTF) and performance impacts (PMI), as well as the moderating role of vendor competence (VCPT) on the relationship between performance impact (PMI) and client satisfaction (CSF). The significance of the moderating effect was analyzed. Figure 2 indicates the negative and significant moderating effect of CCPT on the relationship between TTF and PMI (β=-0.166, $p<0.001$), supporting H9. The results also highlighted the negative and significant moderating effect of VCPT on the relationship between PMI and CSF (β=-0.104, $p<0.01$), supporting H10.

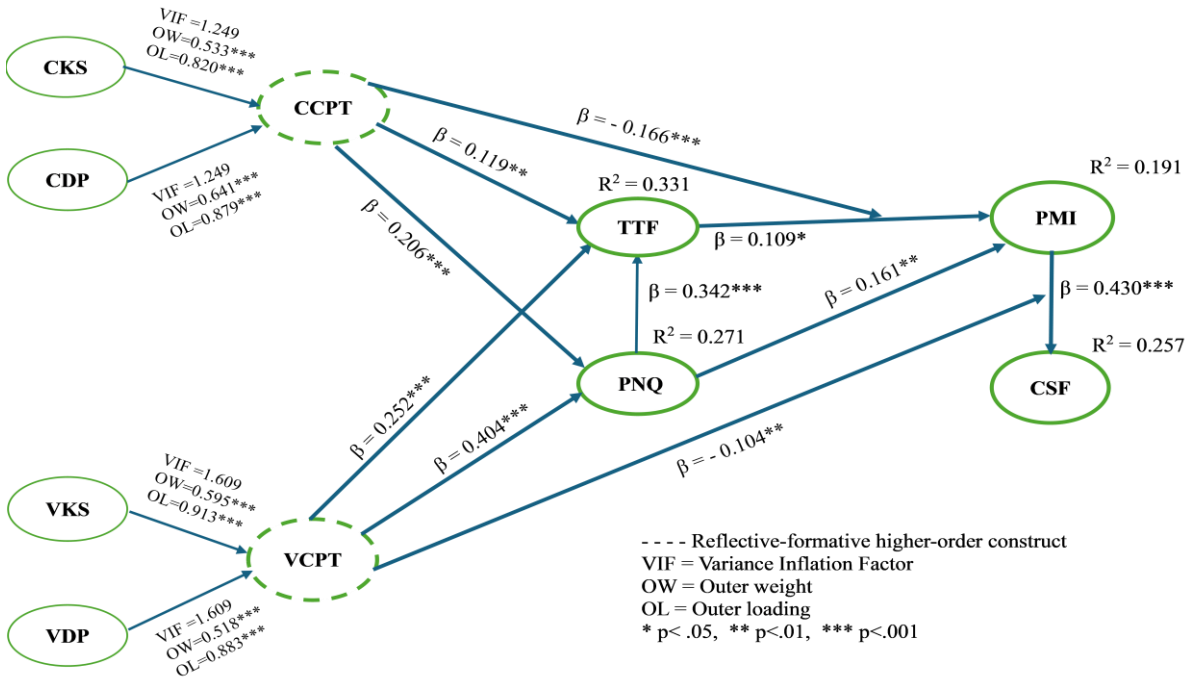

Fig. 2. Research model results

To ascertain the extent of the interaction effects (CCPT*TTF and VCPT*PMI), this study conducted a comparative analysis of the outcomes derived from two distinct models (i.e., non-interaction and interaction models) with respect to their discrepancy in R^2. The noninteraction model accounts for 11.9% of the variance in performance impacts (PMI) and 23.7% of the variance in client satisfaction (CSF), whereas the interaction model explained 19.1 % of the variance in PMI and 25.7 % of the variance in CSF. The overall interaction effect size (f^2) for the CCPT*TTF and VCPT*PMI were 0.046 and 0.014, respectively (Table 5). According to Cohen's proposition, values of 0.02, 0.15, and 0.35 are indicative of small, medium, and large effect sizes, respectively (Cohen, 1988). This indicates that the interaction effect size of CCPT*TTF makes a small contribution to explaining PMI, while the interaction effect size of VCPT*PMI in explaining CSF is minimal. Cohen (1988) contended that a low effect size (f^2) does not inevitably signify an insignificant effect. Hence, the interaction model demonstrates significantly greater explanatory capabilities (R^2) compared to the primary non-interaction model. These outcomes validate the interaction effects of CCPT*TTF and VCPT*PMI, thereby providing strong support for H9 and H10.

Furthermore, the slope analysis is utilized to gain a deeper understanding of the moderating effects (Figure 3). As shown in Figure 3a, the trend line reversed for CCPT reveals that at high CCPT (+1 SD), TTF negatively influences PMI. In accordance with the person-environment fit viewpoint, excessively high levels of task-technology fit may restrict the adaptability of competent individuals, typically excel in demanding environments that require significant achievement levels, to improve their performance in a new environment (using technology to perform evolving demands). As shown in Figure 3b, the trend line for high VCPT demonstrates a markedly reduced steepness, indicating that at high VCPT, the influence of PMI on CSF has a significantly less impact compared to low VCPT. Drawing on the expectation-disconfirmation theory, clients tend to establish heightened performance expectations when perceiving vendors as highly competent, elevating the chances of encountering negative disconfirmation (expectation exceeds actual performance) and consequently diminishing their satisfaction with the system performance provided by the vendors.

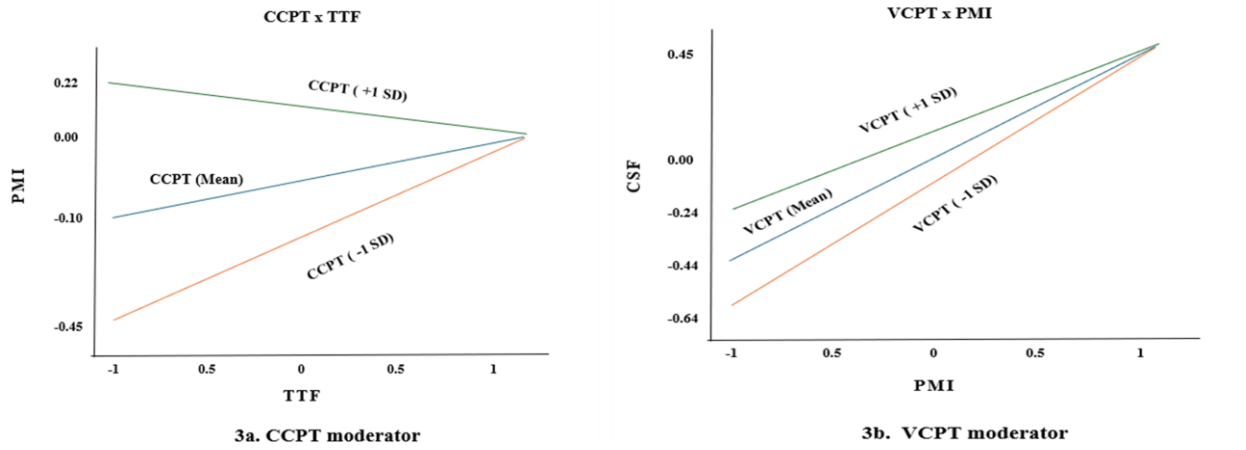

Fig. 3. Slope analysis results of the moderators' impacts

5. Discussion and implications

The findings highlight the importance of both client and vendor competences in the successful implementation of outsourced ERP systems, primarily through their influence on task-technology fit and partnership quality. As shown in Table 5, client competence has a significant positive effect on task-technology fit (β=0.119, p<0.01), supporting H1. This suggests that competent clients leverage their prior knowledge and experience to effectively utilize ERP technologies in executing complex tasks. This finding aligns with the Task-Technology Fit theory, which posits that individual characteristics—in this case, competences—shape the degree to which technology supports task performance (Goodhue & Thompson, 1995). Additionally, client competence significantly influences partnership quality (β=0.206, p<0.001), thus supporting H2. This result indicates that higher levels of client competence facilitate more effective collaboration with vendors, ultimately enhancing the quality of the partnership (Al-Azad et al., 2022). Similarly, vendor competence demonstrates a significant effect on task-technology fit (β=0.252, p<0.001), supporting H3. This finding highlights that competent vendors apply their expertise, particularly their knowledge of ERP systems and applications, to tailor solutions that meet client-specific requirements. Furthermore, vendor competence significantly contributes to partnership quality (β=0.404, p<0.001), providing support for H4. This outcome confirms that vendor competence enhances collaboration and builds trust, both of which are critical elements of high-quality partnerships (Levina & Ross, 2003).

The findings presented in Table 5 demonstrate that partnership quality significantly enhances task-technology fit (β=0.342, p<0.001), providing support for H5. This suggests that alongside individual characteristics influencing task-technology fit (Goodhue & Thompson, 1995), characteristics of the partnership also influence this fit. A strong task-technology fit, in turn, leads to better performance impacts. This is evidenced by the positive effect of task-technology fit on performance impacts (β=0.109, p<0.05), supporting H6. Moreover, partnership quality significantly improves user performance (β=0.161, p<0.01), providing support for H7 and reinforcing the notion that effective partnerships contribute to smoother system operations and better project outcomes (Klepper, 1995). The findings also reveal that performance impacts positively influence client satisfaction (β=0.430, p<0.001), supporting H8, and highlighting that clients are more satisfied when the outsourced ERP system effectively enhances work performance (Olson & Dover, 1979).

Importantly, the findings presented in Figure 3a provide an insight into the relationship between task-technology fit and performance impact. Contrary to the core premise of task-technology fit theory, which posits that a higher degree of alignment between task requirements and technological capabilities leads to improved user performance (Goodhue & Thompson, 1995), the results indicate that this relationship does not hold uniformly across all contexts. Specifically, the

data reveal that when client competence is high, the positive influence of task-technology fit on performance outcomes is significantly reduced. This suggests that highly competent clients may have more advanced, dynamic, or evolving performance expectations that are not fully met by systems perceived as adequately fitting for their tasks. In such cases, even a well-aligned system may fail to deliver perceived performance gains, possibly due to the misalignment between the system's capabilities and the sophisticated demands of expert users. This interaction effect provides empirical support for H9, indicating that the effectiveness of task-technology fit in driving performance impact is contingent on the level of client competence. In addition, Figure 3b reveals a similar moderating effect in the relationship between performance impact and client satisfaction. Although performance improvements generally lead to higher satisfaction, this effect is weakened when clients hold elevated expectations from highly competent vendors. That is, when vendor competence is perceived to be high, clients may expect exceptional performance outcomes. As a result, even positive performance impacts may be viewed as insufficient, thereby diminishing their influence on overall satisfaction levels. This moderating effect supports H10 and highlights the importance of managing client expectations in high-competence vendor relationships. Together, these results underscore the conditional nature of ERP outsourcing success factors, particularly where user and vendor competences are high.

5.1. Theoretical implications

This study sheds light on three important implications for theories. Firstly, it addresses the gap in existing literature on the success of outsourced system implementation by incorporating the person-environment fit and expectation-disconfirmation theories to explore the moderating roles of individual competences on outsourced system implementation success. Particularly, it delves into the moderating impacts of individual competences by exploring the interaction effects between client competence and task-technology fit on performance impacts as well as the interaction effects between vendor competence and performance impacts on client satisfaction.

Secondly, this study contributes to a deeper understanding of task-technology fit theory by challenging the idea that a perfect fit between tasks and technology leads to better performance. The results reveal that a fit between tasks and technology might have unintended consequences for highly competent users (Figure 3a). This study suggests that a certain degree of misfit between tasks and technologies might be advantageous for users with highly competent in enhancing task performance and meeting evolved performance requirements. According to the person-environment fit perspective, people tend to select situations that match their preferences, and those with greater capabilities typically excel in challenging settings that demand high levels of achievement (Chatman, 1989). Excessive levels of task-technology fit could lead to ineffective behaviors by limiting adaptability to changing the technological approach for executing non-routine tasks and fulfilling escalating task demands of highly competent users. This phenomenon can exacerbate the person-environment misfit, ultimately diminishing the initially anticipated performance gains associated with a strong task-technology fit.

Thirdly, this study enhances understanding of factors contributing to information systems success by revealing that the improvement in user performance does not consistently heighten user satisfaction in the context of outsourcing system implementation. Specifically, the increase in user satisfaction resulting from performance impacts is lessened when clients hold high performance-expectations from highly competent vendors (Figure 3b). In line with the expectation-disconfirmation theory, individuals establish an initial set of expectations, and any deviation from this initial benchmark influences their satisfaction levels. Due to the fact that individuals' expectations are shaped by their perceptions and experiences, they tend to raise performance expectations from vendors with high competence. This could potentially lead to negative disconfirmation, where actual performance falls short of users' expectations, thereby lowering their satisfaction levels.

5.2. Practical implications

This study highlights two important implications for practices. Firstly, clients need to ensure that the outsourced ERP system they utilize possesses the essential scalability and flexibility required to effectively adapt to changing environments and the diverse needs of users with highly competent. This study demonstrates that a misalignment between persons and their environment arises when clients with highly competent engage with outsourced systems that closely fit the tasks they need to execute, potentially leading to a reduction in client performance (Figure 3a). Hence, it is recommended that clients consider the scalability features of their outsourced systems to handle increasing workloads, transactions, and data volumes while maintaining functionality and performance. Clients are encouraged to select an ERP system that aligns with their existing infrastructure and has the capacity to seamlessly integrate with other systems and applications. Moreover, the integration of cloud-based or hybrid ERP solutions can result in benefits related to the cost-effective utilization of client demand elasticity (Johansson & Muhic, 2017). In addition, there is a significance in anticipating and preparing for future needs and requirements by choosing an ERP system that can adapt to new features, modules, or functionalities as client competence and demands evolve.

Secondly, clients should be cautious when it comes to expecting vendor competence, as there might be an overestimation influenced by exaggerated information provided by vendors or advertisers with the intention of finalizing a deal, or by depiction of exceptional or unrealistic scenarios. This inflated expectation is prone to a negative disconfirmation and ultimately has an adverse effect on client satisfaction (Figure 3b). According to the expectation-disconfirmation theory, consumers seek to avert discord between their expectations and product performance by adjusting their expectations to align with perceived product performance (Oliver, 1980). Clients, particularly those lacking firsthand exposure to the outsourced services, should strive to gather information more direct insights or encounters with their IT outsourcing partners. Through this process, a client's expectations of vendor competence will become more realistic, enabling vendors to leverage their actual competence to meet a client's expectations. This, in turn, not only improves customer satisfaction but also enhances vendor satisfaction.

6. Conclusion and future research

This research explored the impacts of client and vendor competences and their moderating effects on the success of outsourced system implementation, taking into account task-technology fit and partnership quality. From a competence perspective, client and vendor competences were construed as higher-order constructs. The study hypothesized the impacts of client and vendor competences on partnership quality and task-technology fit, which subsequently influence outsourced system implementation success in terms of clients' performance impacts and satisfaction. Drawing from the person-environment fit and expectation-disconfirmation theories, the research postulated the moderating roles of client and vendor competences in explaining the success of outsourced system implementation. The findings suggest that both client and vendor competences play significant roles in the success of outsourced system implementation through the effects of partnership quality and task-technology fit. Their interactions with task-technology fit and performance impact significantly influence the success of outsourced system implementation. Importantly, the finding highlights that task-technology fit does not consistently enhance performance impact if it does not align with the evolving demands of highly competent clients. Moreover, the increase in client satisfaction due to performance impacts is mitigated when clients expect high performance from highly competent vendors. This research makes substantial theoretical contributions by advancing comprehension of the task-technology fit perspective. It leverages the person-environment fit theory to elucidate the moderating impact of individual characteristics (client competence) on the relationship between task-technology fit and user performance. Additionally, it employs the expectation-disconfirmation theory to clarify the moderating effect of vendor competence in explaining the success of outsourced system implementation. The study recommends that clients ensure their outsourced systems possess the requisite scalability and adaptability to effectively respond to changing environments and the diverse user requirements, particularly those of highly competent clients, while also exercising caution in relation

to overestimating expectations for vendor competence affecting their satisfaction with the outsourced system.

Every study comes with its own set of limitations. These limitations must be acknowledged and overcome in future research. Firstly, this research solely focused on the implementation of ERP systems. It is worth exploring the application of various technologies since different technologies and systems will result in varying levels of task-technology fit (Wells et al., 2003). For instance, practical tasks coupled with interactive technologies like mobile phones tend to enhance user productivity and satisfaction; however, these technologies may not be well-suited for complex tasks (Hancox & Hackney, 2000). As a result, the role of client competence in the relationship between task-technology fit and performance impacts identified in this study may be modified. Secondly, this study delves into the moderating effects of client and vendor competences separately. Research indicates that disparities in internal and external IT capabilities can lead to conflicts that undermine the success of IT outsourcing (Navarro-Paule et al., 2023). Consequently, it is crucial to analyze how the complementary of client and vendor competences (either client competence exceeds or lags behind vendor competence) moderates the success of outsourced system implementation for future research. Finally, the validity of some model constructs may be questionable. For instance, competence can be subjective and multifaceted, making it difficult to capture its full essence with just a few indicators. While it is possible to utilize a limited number of indicators statistically to ascertain a latent variable for structural equation modeling (SEM) analysis (Hair et al., 2018), expanding the set of indicators used in SEM can indeed enhance the validity of variables and improve the overall model. Future research should incorporate additional indicators, making it more accurately represent complex constructs and ensure that the model aligns better with the realities of the phenomenon being studied.

References

Ahmed, W., Najmi, A., & Majeed, S. (2024). Understanding the impact of technological flexibility at different decision levels to reap enterprise resource planning benefits. *Journal of Systems and Information Technology, 26*(1), 115–139. https://doi.org/10.1108/JSIT-03-2020-0036

Al-Azad, M. S., Mohiuddin, M., & Su, Z. (2022). The client and service provider relationship in IT outsourcing project success: The moderating effects of organizational attitudes on knowledge sharing and partnership quality. *Journal of Global Information Management, 30*(1), 1–27. https://doi.org/DOI: 10.4018/jgim.299325

Bardhan, I. R., Mithas, S., & Lin, S. (2009). Performance impacts of strategy, information technology applications, and business process outsourcing in U.S. manufacturing plants. *Production and Operations Management, 16*(6), 747–762. https://doi.org/10.1111/j.1937-5956.2007.tb00293.x

Bassellier, G., Benbasat, I., & Reich, B. H. (2003). The influence of business managers' IT competence on championing IT. *Information Systems Research, 14*(4), 317–336. https://doi.org/10.1287/isre.14.4.317.24899

Carraher-Wolverton, C. (2024). Examining the role of expectations in outsourcing success utilizing the hierarchy of effects model. *Journal of Systems and Information Technology, 26*(3), 395–417. https://doi.org/10.1108/jsit-12-2023-0344

Carraher-Wolverton, C., & Hirschheim, R. (2023). Utilizing expectation disconfirmation theory to develop a higher-order model of outsourcing success factors. *Journal of Systems and Information Technology, 25*(1), 1–29. https://doi.org/10.1108/JSIT-05-2022-0133

Chang, Y.B., & Gurbaxani, V., (2012). Information technology outsourcing, knowledge transfer, and firm productivity: an empirical analysis. *MIS Quarterly, 36* (4), 1043–1063. https://doi.org/10.2307/41703497.

Chatman, J. A. (1989). Improving interactional organizational research: A model of person-organization fit. *Academy of Management Review, 14*(3), 333–349. https://doi.org/10.5465/amr.1989.4279063

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences (2nd ed.). Routledge.

Ee, O., Abdul Halim, H., & Ramayah, T. (2013). The effects of partnership quality on business process outsourcing success in Malaysia: Key users' perspective. *Service Business, 7*(2), 227–253. https://doi.org/10.1007/s11628-012-0152-z

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Frezza, S., Daniels, M., Pears, A., Cajander, Å., Kann, V., Kapoor, A., McDermott, R., Peters, A. K., Sabin, M., & Wallace, C. (2018). Modelling competencies for computing education beyond 2020: A research-based approach to defining competencies in the computing disciplines. *Annual Conference on Innovation and Technology in Computer Science Education*, ITiCSE, 148–174. https://doi.org/10.1145/3293881.3295782

Gonzalez, R. & Gasco, J., & Llopis, J. (2008). Information systems outsourcing: an empirical study of success factors. *Human Systems Management, 29*(3), 1-17. https://doi.org/10.3233/HSM-2010-0723.

Goodhue, D. L., & Thompson, R. (1995). Task-Technology fit and individual performance. *Management Information Systems Quarterly, 19*(2), 213–236. https://doi.org/10.2307/249689

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage Publications.

Han, H. S., Lee, J. N., & Seo, Y. W. (2008). Analyzing the impact of a firm's capability on outsourcing success: A process perspective, *Information & Management, 45* (1), 31-42. https://doi.org/10.1016/j.im.2007.09.004

Hancox, M., & Hackney, R. (2000). IT outsourcing: frameworks for conceptualizing practice and perception. *Information Systems Journal, 10*(3), 217–237. https://doi.org/10.1046/j.1365-2575.2000.00082.x

Harmon-Jones, E., & Mills, J. (2019). An introduction to cognitive dissonance theory and an overview of current perspectives on the theory. In *Cognitive dissonance: Reexamining a pivotal theory in psychology (2nd ed.)*. (pp. 3–24). https://doi.org/10.1037/0000135-001

Hefley, W. E., & Bottion, M. (2021). Skills of junior project management professionals and project success achieved by them, *International Journal of Information Systems and Project Management, 9*(1), 56-75. https://doi.org/10.12821/ijispm090103

Holland, J. L. (1997). Making vocational choices: A theory of vocational personalities and work environments, 3rd ed. In *Making vocational choices: A theory of vocational personalities and work environments, 3rd ed.* Psychological Assessment Resources.

Hoseini, D., & Nikabadi, M. (2021). A model for key success factors for outsourcing in project-based companies: integrating soft and dynamic approaches. *Journal of Facilities Management, 19*(5), 587-611. https://doi.org/10.1108/JFM-08-2020-0054.

Hossain, M. I., Sultana, T., Islam, M. N. U., Akther, A., Sarpong, A. F., & Akter, F. (2025). Enhancing project management through outsourcing: transforming growth in information technology (IT). *Journal of Knowledge Management Practice, 25*(1), 37-48. https://doi.org/10.62477/jkmp.v25i1.489

Howard, M. C., Boudreaux, M., & Oglesby, M. (2024). Can Harman's single-factor test reliably distinguish between research designs? Not in published management studies. *European Journal of Work and Organizational Psychology, 33*(6), 790–804. https://doi.org/10.1080/1359432x.2024.2393462

Howard, M. C., & Hair, J. F. (2023). Integrating the expanded task-technology fit theory and the technology acceptance model: A multi-wave empirical analysis. *AIS Transactions on Human-Computer Interaction, 15*(1), 83-110. https://doi.org/10.17705/1thci.00184

Iriarte, C., & Bayona, S. (2020). IT projects success factors: a literature review, *International Journal of Information Systems and Project Management, 8*(2), 49-78. https://doi.org/10.12821/ijispm080203.

Jain, D. M., & Khurana, R. (2016). A framework to study vendors' contribution in a client-vendor relationship in information technology service outsourcing in India. *Benchmarking, 23*(2), 338–358. https://doi.org/10.1108/BIJ-04-2014-0029

Johansson, B., & Muhic, M. (2017). Relativism in the cloud: cloud sourcing in virtue of IS development outsourcing - a literature review. *International Journal of Information Systems and Project Management, 5*(4), 55-65. https://doi.org/10.12821/ijispm050404.

Kaipia, R., & Tanskanen, K. (2003). Vendor-managed category management—an outsourcing solution in retailing. *Journal of Purchasing and Supply Management, 9*(4), 165–175. https://doi.org/10.1016/s1478-4092(03)00009-8

Kandler, C., Kühn, S., Mönkediek, B., Forstner, A. J., & Bleidorn, W. (2024). A multidisciplinary perspective on person-environment fit: relevance, measurement, and future directions*. Current Directions in Psychological Science, 33*(3), 198-205. https://doi.org/10.1177/09637214241242451

Karim, J., Somers, T. M., & Bhattacherjee, A. (2007). The impact of ERP implementation on business process outcomes: A Factor-Based Study. *Journal of Management Information Systems, 24*(1), 101–134. https://doi.org/10.2753/mis0742-1222240103

Karimi-Alaghehband, F. & Rivard, S. (2020). IT outsourcing success: A dynamic capability-based model. *Journal of Strategic Information Systems, 29*(1), 1-20. https://doi.org/10.1016/j.jsis.2020.101599.

Klepper, R. (1995). The management of partnering development in I/S outsourcing. *Journal of Information Technology, 10*(4), 249–258. https://doi.org/10.1057/jit.1995.28

Kohn, M. L., & Schooler, C. (1978). The reciprocal effects of the substantive complexity of work and intellectual flexibility: A longitudinal assessment. *American Journal of Sociology, 84*(1), 24–52. https://doi.org/10.1086/226739

Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology, 49*(1), 1-49. https://doi.org/10.1111/j.1744-6570.1996.tb01790.x

Lacity, M. C., Khan, S. A., & Yan, A. (2016). Review of the empirical business services sourcing literature: An update and future directions. *Journal of Information Technology, 31*(3), 269–328. https://doi.org/10.1057/jit.2016.2

Lee J., Jin M.H., & Ryu G. (2021). Motivated to share? Using the person–environment fit theory to explain the link between public service motivation and knowledge sharing, *Sustainability, 13*(11), 6286. https://doi.org/10.3390/su13116286.

Lee, J. N., & Kim, T. G. (1999). Effect of partnership quality on IS outsourcing success: Conceptual framework and empirical validation. *Journal of Management Information Systems, 15*(4), 29–61. https://doi.org/10.1080/07421222.1999.11518221

Levina, N., & Ross, J. W. (2003). From the vendor's perspective: exploring the value proposition in information technology outsourcing. *Management Information Systems Quarterly, 27*(3), 331–363. https://doi.org/10.2307/30036537

Locke, E. A. (1970). Job satisfaction and job performance: A theoretical analysis. *Organizational Behavior and Human Performance, 5*(5), 484–500. https://doi.org/10.1016/0030-5073(70)90036-X

McIvor, R., McCracken, M., & McHugh, M. (2011). Creating outsourced shared services arrangements: Lessons from the public sector. *European Management Journal, 29*(6), 448–461. https://doi.org/10.1016/j.emj.2011.06.001

Navarro-Paule, A. J., Romerosa-Martínez, M. M., & Lloréns-Montes, F. J. (2023). IT vendor integration as catalyst of IT outsourcing success. *Journal of Business and Industrial Marketing, 38*(10), 2240–2258. https://doi.org/10.1108/jbim-10-2021-0491

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research, 17*(4), 460–469. https://doi.org/10.1177/002224378001700405

Olson, J. C., & Dover, P. A. (1979). Disconfirmation of consumer expectations through product trial. *Journal of Applied Psychology, 64*(2), 179–189. https://doi.org/10.1037/0021-9010.64.2.179

Oshri, I., Angeli, F., Kotlarsky, J., & Sidhu, J. S. (2025). Sustaining IT outsourcing performance during a systemic crisis: A configurational approach. *Journal of Strategic Information Systems*, *34*(1), 101872. https://doi.org/10.1016/j.jsis.2024.101872

Parbat, D. (2024). Education is a competency to produce: A competency theory of education. *Educational Practice and Theory, 46*(2), 57–67. https://doi.org/10.7459/ept/460205

Pires, C., & Varajão, J. (2025). IT outsourcing success management. *Procedia Computer Science, 256*, 472–487. https://doi.org/10.1016/j.procs.2025.02.143

Rajapakse, D. & Thushara, S. (2023). Critical failure factors in ERP implementation: A systematic literature review. *Journal of Business and Technology, 7*(1), 65-90. 10.4038/jbt.v7i1.109

Ravichandran, T., Lertwongsatien, C., & Lertwongsatien, C. (2005). Effect of information systems resources and capabilities on firm performance: A Resource-Based Perspective. *Journal of Management Information Systems, 21*(4), 237–276. https://doi.org/10.1080/07421222.2005.11045820

Ringle, C. M., Wende, S., & Becker, J. M. (2024). *SmartPLS 4*. Bönningstedt: SmartPLS. https://www.smartpls.com

Rosamilha, N., Silva, L., & Penha, R. (2023). Competence of project management professionals according to type of project: a systematic literature review, *International Journal of Information Systems and Project Management, 11*(4), 54-100. https://doi.org/10.12821/ijispm110403

Sarstedt, M., Hair, J. F., Cheah, J.-H., Becker, J.-M., & Ringle, C. M. (2019). How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian Marketing Journal, 27*(3), 197–211. https://doi.org/10.1016/j.ausmj.2019.05.003

Simon, S., Grover, V., Teng, J. T. C., & Whitcomb, K. M. (1996). The relationship of information system training methods and cognitive ability to end-user satisfaction, comprehension, and skill transfer: a longitudinal field study. *Information Systems Research, 7*(4), 466–490. https://doi.org/10.1287/isre.7.4.466

Teo, T. S. H., & Bhattacherjee, A. (2014). Knowledge transfer and utilization in IT outsourcing partnerships: A preliminary model of antecedents and outcomes. *Information & Management, 51*(2), 177–186. https://doi.org/10.1016/j.im.2013.12.001

Valaei, N., Nikhashemi, S. R., Bressolles, G., & Jin, H. H. (2019). A(n) (a)symmetric perspective towards task-technology-performance fit in the mobile app industry. *Journal of Enterprise Information Management, 32*(5), 887–912. https://doi.org/10.1108/JEIM-07-2018-0157

Wang, M., & Wang, J.-J. (2019). How vendor capabilities impact IT outsourcing performance: An investigation of the moderated mediation model. *Journal of Enterprise Information Management, 32*(2), 325–344. https://doi.org/10.1108/JEIM-07-2018-0167

Wang, X., & Zhou, R. (2022). Impacts of user expectation and disconfirmation on satisfaction and behavior intention: the moderating effect of expectation levels. *International Journal of Human-Computer Interaction, 39*(15), 3127–3140. https://doi.org/10.1080/10447318.2022.2095479

Weinert, F. E. (2001). Concept of competence: A conceptual clarification. In Rychen D.S. & Salganik L.H. (Eds.), *Defining*

and selecting key competencies (April, pp. 45–65). Hogrefe & Huber Publishers.

Wells, J. D., Sarker, S., Urbaczewski, A., & Sarker, S. (2003). Studying customer evaluations of electronic commerce applications: A review and adaptation of the task-technology fit perspective. *Proceedings of the 36th Annual Hawaii International Conference on System Sciences*. https://doi.org/10.1109/HICSS.2003.1174441

Winterton, J., & Turnbow, T. (2020). *What is competence? Theory, policy and practice*. In Edward Elgar Publishing eBooks. https://doi.org/10.4337/9781788975599.00028

Yarfi, H. L., Motaki, N., Derrhi, M., & Lahlou, I. (2025). Towards a decision-making framework for successful ERP project implementation: A qualitative study. *Production Engineering Archives, 31*(1), 91–105. https://doi.org/10.30657/pea.2025.31.9

Zhang, J., Chen, W., Petrovsky, N., & Walker, R. (2021). The expectancy-disconfirmation model and citizen satisfaction with public services: A meta-analysis and an agenda for best practice, *Public Administration Review, 82*(1). 1-13, https://doi.org/10.1111/puar.13368.

Zhang, X., Qi, Z., Ma, L., & Zhang, G. (2024). Assessing the curvilinear relationship in employee digital performance: A task-technology fit perspective. *International Journal of Human–Computer Interaction, 41*(4), 2615–2633. https://doi.org/10.1080/10447318.2024.2327181

Appendix A. Measurement items of the study constructs

Constructs	Measurement items	Sources
Client Knowledge & Skill		
CKS1	I have knowledge of the specific applications of the ERP system.	Adapted from: Ravichandran & Lertwongsatien, 2005
CKS2	I have overall knowledge of organizational operations.	
CKS3	I have sufficient skills and knowledge to manage the system effectively.	
Client Disposition		
CDP1	I participate in determining the system requirements and capabilities for the company's ERP implementation.	Adapted from: Karim et al., 2007
CDP2	I participate in identifying the input/output of the system needed for the company's ERP implementation.	
CDP3	I am actively involved throughout the ERP system implementation.	
Vendor Knowledge & Skill		
VKS1	They have an overall knowledge of the implementation of the ERP system.	Adapted from: Wang & Wang, 2019
VKS2	They have in-depth knowledge about the functioning of your department.	
VKS3	They have expertise in the specific application area of the ERP system.	
Vendor Disposition		
VDP1	They provide their services at the times they promise to do so.	Adapted from: Wang & Wang, 2019
VDP2	They give prompt service to you or your team.	
VDP3	They are always willing to help you or your team.	
Task-Technology Fit		
TTF1	The ERP system fits well with the way I work*	Adapted from: Goodhue & Thompson, 1995
TTF2	The ERP system helps to complete my task.	
TTF3	The ERP system is compatible with my work style. *	
TTF4	Using the ERP system enhances my task effectiveness.	
TTF5	The ERP system provides the functionalities necessary to complete my tasks.	

Partnership Quality		
PNQ1	I seldom have conflicts with the ERP service providers.	Adapted from: Ravichandran & Lertwongsatien, 2005
PNQ2	I get timely information from the ERP service providers about unexpected problems.	
PNQ3	I can rely on the ERP service providers to respond to my technology needs in a timely and effective manner.	
PNQ4	I have a very trusting relationship with the ERP service providers.	
PNQ5	I have a long-term partnership with the ERP service providers.	
Performance Impact		
PMI1	The ERP system increases my overall performance.	Adapted from: Goodhue & Thompson, 1995
PMI2	The ERP system increases the quality of my work.	
PMI3	The ERP system helps me to work more effectively.	
PMI4	The ERP system decreases the error rate of my work.	
PMI5	The ERP system increases the overall company's productivity.	
Client Satisfaction		
CSF1	I perceive that the ERP system meets intended functional requirements.	Adapted from: Simon et al., 1996
CSF2	The information provided by the ERP system meets my expectations.	
CSF3	I am satisfied with the overall quality of the ERP systems.	
CSF4	I am satisfied with the overall quality of the ERP service providers' work.	
CSF5	I am satisfied with the completeness of the ERP system output. *	

* Item loadings lower than 0.7 were excluded from analysis.

Biographical notes

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