OPEN ACCESS
Jurnal Ilmiah Ilmu Terapan Universitas Jambi
Vol. 10 No. 3. June 2026, pp. 1696-1728 DOI. 10.22437/jiituj.v10i3.55882
Research Article

WHEN HEALTHY METRICS MISS THE POINT: FUNCTIONAL DISPLACEMENT OF ITSM TICKETING SYSTEMS FROM SERVICE ROUTING TO ACCOUNTABILITY ROUTING

Marcel[1,*], Tubagus Ahmad Marzuqi[1]

[1] Information System Department, Krida Wacana Christian University, Jakarta, Indonesia
Corresponding author email: marcel@ukrida.ac.id

Article Info
Received: May 20, 2026
Revised: Jun 11, 2026
Accepted: Jun 27, 2026
OnlineVersion: Jul 02, 2026

Abstract
ITSM ticketing systems are usually judged by metrics such as ticket volume, resolution rate, handling time, and SLA compliance. But these numbers can mislead when a system stays busy yet no longer does what it was built for. This study examines the situation we call functional displacement: formal infrastructure drifting from routing IT services to routing accountability. We compared two medium-sized B2B distribution firms in Jakarta, alike in size and sector but run differently. Twelve informants were purposively chosen and interviewed in semi-structured sessions. Their accounts were read against six months of ticket logs, internal documents, and a four-week sample of operational WhatsApp chats. We coded the interviews thematically, cross-checked patterns across four sources, and compared formal tickets with informal coordination using two diagnostic indicators: the timing gap from 40 matched case pairs and a category representation index, checked against ticket content. On paper, both firms looked healthy, with resolution above 80 percent and strong SLA compliance, yet the meaning had shifted. In the founder-led firm, tickets were usually opened after a problem was already settled informally, mainly to prove it had been reported upward, a vertical displacement. In the professionally managed firm, tickets came early but thin on detail, marking which division reported first, a horizontal one. We propose the concept of functional displacement together with an early diagnostic framework whose signals, drawn from two cases, should be read as warnings rather than fixed standards.

Keywords: Accountability, Diagnostic Framework, Functional Displacement, ITSM Ticketing Systems, Service Metrics

© 2026 by the author(s)
This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

INTRODUCTION

Many medium and large companies have used ITSM systems for years to help manage daily IT work. Bringing in this kind of system is usually expensive. A company has to pay for the software, hire consultants, train its staff, and adjust some of its work procedures. The basic idea is simple. When an IT problem happens, it should not only be handled through chats, calls, or personal follow up. The problem

needs to be recorded, assigned to someone, followed up properly, and checked again later if needed. This is why companies use ITSM, so IT work becomes easier to track, easier to manage, and easier to review during an audit. Recent studies indicate that these benefits do indeed materialize when ITSM is consistently implemented, particularly in strengthening internal coordination within IT teams and clarifying accountability for incident handling (MacLean & Titah, 2023). Similar findings also emerge in studies on the transition from IT services heavily reliant on direct assistance toward technology-assisted services. In that context, the quality of formal processes has been shown to influence how users evaluate overall problem resolution (Kim et al., 2025; Jäntti & Lindström, 2026). Current developments in ITSM are also increasingly aligned with new supporting technologies, including AI-based chatbots, which promise faster responses without eliminating the need for formal documentation (Pillai et al., 2024).

However, despite these expectations, another pattern often emerges in the field: a decline in system usage once the initial implementation phase is complete. Several studies indicate that once consultant support diminishes and initial training is no longer intensive, system usage often declines and does not always return to its initial level (MacLean & Titah, 2023; Pillai et al., 2024). In small and medium-sized enterprises (SMEs), this issue becomes more pronounced due to significant underlying constraints. ITIL was not really built for small firms. It came from a setting where the company already had a strong IT department, clear roles, and enough people to follow formal procedures. In SMEs, the situation is usually different. IT staff are limited, work is more flexible, and many problems have to be solved quickly. Because of this, ITIL often needs to be simplified before it can fit daily work in these firms. Some parts may even feel too slow or too complicated for what the business actually needs (Anatan & Nur, 2023; Wirdiyanti et al., 2023). Many studies explain this problem through familiar factors, such as weak support from management, limited training, an organization that is not ready, and employees who are reluctant to use a new system (Bartelheimer et al., 2023; Chatterjee et al., 2023; De Vargas Pinto et al., 2023).

That explanation is not incorrect, but it still rests on one major assumption: that the main problem with ITSM arises when the system is not used. On the surface, this assumption seems reasonable. However, initial observations at two private B2B distribution companies in Jakarta, Indonesia, referred to in this study as Company A and Company B, reveal a more complex issue. At Company A, an industrial components distributor still managed by the founding family's generation, the IT head explained that issues already addressed via WhatsApp are often still requested to be ticketed later. "Usually, they contact me directly or reach out to a technician they already know. Once it's resolved, they'll ask for a ticket to be opened as well, they say it's for reporting purposes." At Company B, a distributor of office equipment and supplies along with after-sales services under more professional management, the process differs but the underlying issue is similar. A sales division head explained that he often asks staff to open a ticket for network outages affecting operations, because "if there's a delay, it must be clear who's responsible for addressing it later." In both companies, the ITSM system was not abandoned. Tickets were still created, data continued to be entered, and adoption rates appeared healthy. The problem was that the system's primary function began to shift. The system was no longer used primarily to request and manage IT services, but also to establish a chain of responsibility. It should be emphasized from the outset that this pattern was observed only in these two specific cases. This study does not claim that the same pattern applies to all B2B distribution companies in Jakarta or Indonesia.

To the best of the authors' knowledge, this phenomenon has not been adequately addressed in the ITSM and information systems governance literature. Two separate streams come closest. The first, on shadow IT and workarounds, establishes that users turn to informal channels such as WhatsApp or spreadsheets when the formal system feels too slow or rigid, so that part of its role quietly migrates outside it (Klotz et al., 2022; Haag & Eckhardt, 2024; Nguyen, 2024). Recent work even shows that such workarounds can be traced directly from system logs (Van Der Waal et al., 2025). The second stream, on workplace informal communication, finds that informal channels often coordinate daily work more effectively than formal procedures (Koch & Denner, 2022; Tarofder et al., 2023). Both streams, however, rest on the same assumption: that formal and informal channels compete to perform the same function, so the informal one substitutes for the formal one. What neither examines is the case observed here, where both channels stay active but divide the work between them, the informal one resolving the issue and the formal one recording who is accountable. This is why the pattern is neither conventional shadow IT, in which the formal system is bypassed, nor ceremonial compliance, in which the formal system is an empty shell; here the system is fully used, but for a function it was not designed to serve (Kellogg et al., 2020; Leonardi, 2021).

This issue is not merely about employee behavior or the habit of using informal channels at work. Its impact touches on something more fundamental: the validity of measuring information system adoption. In many ITSM reviews, companies usually look at things like ticket volume, response time, resolution time, and SLA compliance. At first glance, these numbers make the system look easy to judge. If tickets are recorded, handled quickly, and closed on time, the system may seem to be working. But this view depends on one basic condition. The ticket must reflect a real IT request. If tickets are only entered after the work is done, or created mainly to complete reports, the numbers no longer tell the real story of how IT support actually works in daily practice (MacLean & Titah, 2023; Yuan et al., 2025). If that assumption does not hold, as is beginning to emerge in the two case studies in this research, then these indicators are no longer sufficiently reliable to be interpreted as measures of implementation success (Malik et al., 2023; Hurbean et al., 2025). Management might conclude that the system is functioning well because the ticket data appears complete and organized. However, what is actually operating may merely be an accountability-tracking mechanism that, from the outside, resembles an ITSM process. The risk is significant. Decisions regarding further investment, compliance audits, and IT governance strategies may be based on data that is technically correct but does not accurately reflect the actual state of the service (Morkonda et al., 2024; Yovian & Pratama, 2025).

From a practical standpoint, this issue can also have direct consequences for the two companies studied, and may be relevant to other organizations with similar accountability structures. If IT managers assess workload solely based on ticket data that does not actually reflect real service issues, resource allocation may be misdirected. If ITSM consultants make improvement recommendations based on the existing ticket distribution, those recommendations might be directed toward areas that are merely busy as recording points, not the actual centers of operational issues. If client auditors assess a vendor's IT maturity based on formal compliance with the ticketing system, such an assessment risks legitimizing a system that appears active but does not fully function as intended. In a B2B distribution setting, trust between companies matters a lot. Each order, delivery, record, and follow up can affect how one company sees the other. So, when service records are changed, delayed, or made to look cleaner than they really are, the problem is not just administrative. It can affect trust, accountability, and even later business decisions (Ali et al., 2023; Das et al., 2026).

The Indonesian context provides an important layer of understanding when examining this issue, although this study is not intended to make general claims about all medium-sized companies in Indonesia. The literature on workplace dynamics in Indonesian private medium-sized firms, particularly within the B2B distribution sector, indicates workplaces often characterized by a fairly strong hierarchy, high power distance, and work relationships heavily influenced by personal closeness (Sumarsono et al., 2026). In such environments, accountability pressures can feel acutely direct when work is disrupted or operational targets are not met. Consequently, documenting that one has reported an issue through official channels can be a rational step to protect one's job position, rather than merely a routine administrative practice (Dutta & Mishra, 2024; Pengfei et al., 2026). At the same time, many medium-sized companies in Indonesia are entering a phase of more robust digitalization, including through investments in formal systems such as ITSM (Anatan & Nur, 2023; Wirdiyanti et al., 2023; John et al., 2025). Without a deeper understanding of how this system is actually used, digital investments risk resulting in infrastructure that is visually active but functionally weak. Similar patterns may emerge in organizations with comparable structural conditions, but this still requires broader testing before it can be generalized.

This study examines this phenomenon through a comparative case study of two medium-sized private B2B distribution companies in Jakarta. The two cases were chosen on purpose, not randomly. This was because the study needed companies that could show how different forms of accountability affect ITSM implementation in real work settings. Company A fits this purpose because its decision making is strongly centered on the founder. As a result, accountability in this company mostly moves from the top down, with employees looking upward for direction, approval, and responsibility. Company B has a more professional management structure, with accountability more structured across divisions, so accountability pressures are more horizontal in nature. Comparing these two companies allows the author to identify two initial patterns of functional shift within a similar underlying mechanism. This study is exploratory and is not intended to produce statistical generalizations. Its aim is to build an analytical understanding that can serve as a foundation for further research in broader organizational contexts (Handke et al., 2024; Lauring & Jonasson, 2025; Zamani et al., 2025). Therefore, any theoretical and practical implications in this study should be interpreted with caution, as the empirical basis consists of two cases, not a large population.

The contributions of this study can be viewed on two levels. At the conceptual level, this study proposes the term "functional displacement of IS infrastructure" to describe a situation in which formal information system infrastructure shifts from a service-routing function to an accountability-routing function, without being easily detected by standard adoption indicators. This concept differs from "ceremonial compliance" in institutional theory, as the formal system in this case is not merely an empty structure. The system remains in use, but is filled with logic that differs from its original design intent. This concept also differs from conventional "shadow IT," as the functional shift occurs not only in informal channels but in the formal system itself. At the methodological and practical levels, this study identifies two initial diagnostic indicators observed in both cases that can be traced using existing information system data within the organization. The first indicator is the time gap between activities in informal channels and the opening of formal tickets for the same issue. The second indicator is an unbalanced distribution of ticket categories when compared to the actual volume of issues recorded in informal channels. Based on these two indicators, this study also developed a preliminary DPF-ITSM framework as a practical diagnostic guide to help IT managers and consultants identify potential shifts in ITSM functions before making decisions regarding system improvements. However, neither the indicators nor the DPF-ITSM framework are presented as final measurement tools. Both should be viewed more as diagnostic starting points that still need to be tested in a wider range of organizational contexts and types before they can be used as more general instruments. The significance is twofold: conceptually, it names a failure mode that current adoption metrics cannot see; practically, it gives IT managers, consultants, and auditors a way to question healthy-looking ITSM reports before acting on them.

Accordingly, this study aims to identify how functional displacement appears in the information system data of two contrasting firms, and to explain why standard ITSM adoption indicators fail to reveal it. Based on this understanding, this study addresses two research questions. First, how does functional displacement occur in the ITSM infrastructure of the two firms, and what data patterns does it leave behind? Second, how do their differing internal accountability structures shape the form this displacement takes, and why do common adoption indicators fail to detect it?

RESEARCH METHOD

This study employs an exploratory qualitative comparative case study design focusing on two private B2B distribution companies in Jakarta. Because its aim is to build an initial understanding of a pattern that has not been described before, the study is exploratory and does not test predefined hypotheses; it develops an analytical explanation grounded in the data instead. This design was chosen because the issues under investigation cannot be adequately explained by ITSM ticket numbers alone. While the system may appear active based on monthly reports, the way it is actually used in daily operations may not align with its originally intended functions. Therefore, this study analyzes system data alongside interviews, internal documents, and informal coordination records. Such a case study approach is appropriate when researchers aim to understand organizational processes in real-world contexts, particularly when a single phenomenon requires analysis from multiple data sources simultaneously (Farquhar et al., 2020; Rose & Johnson, 2020).

Two companies were purposively selected because they share several basic similarities but also have significant organizational differences worth comparing. Both operate in the B2B distribution sector, have a relatively comparable number of employees, maintain small IT teams, and have been using an ITSM system for more than two years. Given this period of use, the system's usage patterns are considered sufficiently established for observation. The difference lies in how the organizations are managed. Company A is still heavily influenced by family ownership leadership, while Company B is managed by a professional General Manager. This difference matters because the study tries to see whether accountability inside each company shapes how people use the ITSM system in real daily work.

To clarify the relationship between the research objectives, the chosen design, and the rationale for its use, Table 1 provides a brief summary of the research design. This table shows that the methods used are not isolated but are specifically aimed at identifying shifts in the functions of ITSM based on formal data and daily work practices.

Table 1. Research Design and Rationale for Its Selection.

Component	Application in the Study	Reason for Selection
Research design	Comparative case study in two B2B distribution companies	Suitable for comparing ITSM usage patterns in two organizations that are similar in sector but different in management structure
Focus of analysis	How the ITSM system is used in daily work	The study does not only look at whether the system is used, but also what the system is used for
Research cases	Company A and Company B	Both companies have used ITSM for more than two years and have organizational contexts that can be compared
Sources of evidence	ITSM logs, interviews, internal documents, and samples of operational WhatsApp conversations	Several data sources are needed so the patterns found do not depend on only one type of data
Expected output	Patterns of *functional displacement* and the basis for developing DPF-ITSM	The study aims to explain the shift in system function and develop an initial diagnostic framework

The research data was drawn from four sources. The first source was six months of ITSM system logs. This data included the number of tickets, ticket categories, ticket opening times, ticket closing times, resolution status, and service level agreement (SLA) compliance. This data was used to examine the state of the ITSM system as reflected in the company's formal reports. The second source consists of semi-structured interviews with 12 informants, six from each firm, selected through purposive sampling based on their direct involvement in using or managing the ITSM system. In each firm these were the head of IT, two IT staff members completing the three-person IT team, and the heads of the sales, warehouse, and finance divisions, so that both the providers and the main organizational users of IT services were represented. The interviews followed a guide built around open-ended questions covering five areas: why a ticket is opened, how WhatsApp and direct contact are used, how issues are escalated, how responsibility is assigned across divisions, and whether proof of reporting time matters. The guide was applied flexibly so informants could raise matters the researchers had not anticipated. These interviews were used to understand the rationale behind the system data, particularly when formal figures do not sufficiently explain actual work practices.

The third source consists of internal company documents. The documents used include organizational charts, IT service reporting workflows, SLA configurations, and records related to system implementation. These documents help clarify the formal rules that should apply within each company. The fourth source consists of a sample of four weeks' worth of operational WhatsApp conversations, which were used to examine IT activities occurring outside the ticketing system. WhatsApp data was used only for conversations related to work coordination and was obtained with management permission.

Table 2 outlines the data sources used and their respective functions in the analysis. This table is important because the research findings are not based solely on system logs, but also on a comparison between what is formally documented and what occurs in daily coordination.

Table 2. Data Sources and Analytical Functions.

Data Source	Data Coverage	Function in the Study
ITSM system logs	Ticket data for six months, including category, opening time, closing time, resolution status, and SLA	Shows the formal condition of ITSM based on the numbers recorded in the system
Interviews	Head of IT, IT staff, and the heads of the sales, warehouse, and finance divisions	Explains why tickets are created, how WhatsApp is used, escalation patterns, and accountability pressure
Internal documents	Division structure, IT service rules, SLA configuration, and implementation notes	Provides formal context on how the system is supposed to be used

Data Source	Data Coverage	Function in the Study
Operational WhatsApp samples	Work conversations over four weeks	Helps estimate IT issues handled outside the formal system

Data collection was conducted in stages. First, ITSM log data was collected and anonymized to ensure that the identities of the company, employees, and clients could not be identified. Second, the log data was reviewed to obtain an initial overview of ticket volume, resolution rates, handling times, and SLA compliance. Third, interviews were conducted to understand how users and the IT team perceive the ticketing system in their daily work practices. Fourth, a sample of WhatsApp conversations was examined to identify the types of issues that arise outside the formal system. Fifth, internal documents were used as a reference to ensure the analysis did not rely solely on informants' accounts or system metrics.

The analysis was conducted through several interconnected steps. The first step involved reviewing formal ITSM metrics. At this stage, the study calculated the number of tickets, resolution rates, average handling time, the proportion of tickets resolved on the same day, and SLA compliance rates. The objective was to assess the state of ITSM based solely on the standard indicators typically used by the company. The second step is to compare formal data with estimates of informal activities. These estimates are derived from three sources: interviews with IT staff, interviews with division heads, and a sample of operational WhatsApp conversations. Since informal activities are not always fully documented, the results are not presented as a single definitive figure but as a range of estimates. This approach is methodologically sounder, as informal data inherently lacks the same level of precision as system logs. In case studies, analyzing data from multiple sources can help researchers gain a more comprehensive view of field patterns, provided the limits of uncertainty are clearly articulated (Farquhar et al., 2020). The third step is to calculate the timing gap. In this study, the timing gap refers to the time difference between the emergence of a problem in a WhatsApp conversation and the opening of a formal ticket for the same issue. If a ticket is opened shortly after the problem first arises, it is more likely to serve as the initial service channel. Conversely, if a new ticket is opened after the issue has been discussed for a considerable time or after the issue has been resolved outside the system, the ticket is more likely to serve as an accountability record.

Matching between WhatsApp conversations and formal tickets is performed under three conditions. First, the usernames or parties involved must be the same. Second, the issue category must be the same. Third, the event times must be close within a seven-calendar-day range. Once a case pair is identified, the IT heads of each company are asked to confirm whether the conversation and the ticket do indeed refer to the same incident. This confirmation helps reduce mis-matches, but does not eliminate all risk of bias since some of the assessment still depends on the informants' memory and judgment.

The fourth step is to calculate the category representation index. This index is calculated by comparing the proportion of formal tickets in a given category with the estimated proportion of actual incidents in that same category. A value above 1.0 indicates that the category appears more frequently in the system than its actual incidence rate. A value below 1.0 means that the category actually appears less frequently in the system than its real-world incidence. In this study, a value above 1.30 is interpreted as an early signal that a category appears too frequently in the formal system, especially if the category relates to the question of who is responsible when a problem occurs. The figure 1.30 is not used as a fixed standard, but rather as an exploratory threshold for interpreting the two cases studied.

The fifth step is to review the ticket content. This analysis involves examining the length of the ticket description, the presence of attachments or screenshots, and how often IT staff had to request additional clarification. This review is necessary because tickets opened quickly are not necessarily created for technical resolution. A ticket may be opened quickly, but its content may be minimal and serve primarily as proof that a report has been filed. Therefore, the time data needs to be reviewed alongside the ticket content and interview results. To briefly illustrate the analysis flow, Table 3 summarizes the steps taken from raw data to research output. This table helps readers see the direct relationship between the methods and the results section, ensuring that each key finding has a clear analytical trail.

Table 3. Data Analysis Steps.

Step	Process Conducted	Analysis Output
1	Cleaning and anonymizing the ITSM log data	Ticket data ready for analysis without revealing company and informant identities
2	Calculating formal ITSM metrics	Initial picture of ticket volume, resolution, handling time, and SLA
3	Comparing ticket logs with interviews and WhatsApp samples	Estimated IT activities handled outside the formal system
4	Grouping issues by category	Comparison between formal and informal records for each issue category
5	Matching WhatsApp conversations with formal tickets	Paired case data for calculating the *timing gap*
6	Calculating the category representation index	Identification of categories that appear too often or too rarely in the system
7	Reviewing ticket content, attachments, and additional clarification	Distinction between service tickets and accountability documentation tickets
8	Comparing the patterns in Company A and Company B	Typology of vertical and horizontal *displacement*
9	Summarizing the finding patterns into DPF-ITSM	Initial framework for detecting, understanding the context of, and responding to ITSM functional displacement

Cross-validation was conducted by comparing four types of data: ITSM logs, interviews, internal documents, and operational WhatsApp conversations. If a pattern emerged from only one source, it was not immediately considered a key finding. A new pattern is considered robust when it appears consistently across multiple data sources. For example, the suspicion that tickets are used as evidence of accountability is assessed not only based on the time a ticket was opened but also on the ticket's content, informant statements, and the issue's position within the workflow coordination process.

Interview data were analyzed using thematic analysis, coding recurring themes such as reasons for opening tickets, WhatsApp usage, escalation to superiors, inter-departmental conflicts, and the need for proof of reporting time (Naeem et al., 2023; Braun & Clarke, 2024). Once initial themes were identified, they were cross-referenced with log data and operational conversations to ensure that interpretations did not stray too far from the field data. Because this study uses no standardized questionnaire or psychometric scale, internal-consistency reliability such as Cronbach's alpha does not apply. The quality of the study was instead established through four qualitative criteria: credibility, through triangulation across the four data sources and member checking with each firm's IT head; dependability and confirmability, through a documented trail of how themes were derived from the raw data; and transferability, through detailed description of each firm's context so readers can judge how far the findings travel (O'Connor & Joffe, 2020; Rose & Johnson, 2020; Wilson, 2025).

All company names, individual names, client names, and details of operational conversations have been anonymized. The WhatsApp data used consists solely of conversations relevant to work coordination and was obtained with management's permission. The analysis only used information that was directly related to the study. Personal details and unrelated conversations were left out. Because of this scope, the findings should be read as a detailed view of two company cases, not as a general rule for every organization that uses ITSM. This perspective is crucial to ensure the research claims remain reasonable: this study explains how functional displacement can be identified from data patterns and organizational contexts, and then uses these findings to develop the DPF-ITSM as an initial diagnostic framework that still needs to be tested in broader contexts.

RESULTS AND DISCUSSION

Because this study is exploratory, it does not test statistical hypotheses; instead, the analysis is organized to answer the two research questions. The results first establish the formal ITSM picture in both firms, then apply two diagnostic indicators, the timing gap and the category representation index, and cross-check the result against ticket content, to examine whether the data are consistent with

functional displacement rather than ordinary low adoption. Each indicator is read against the interviews and internal documents through triangulation, so that no finding rests on a single source.

Company Profiles and the Context of ITSM Adoption

This study involves two private B2B distribution companies operating in Jakarta. Both were selected purposively, not randomly, because they share several fundamental similarities that make them suitable for comparison. Their employee sizes are relatively similar; both operate in B2B distribution; both have small IT teams; and both have been using ITSM systems for a considerable period, meaning their usage patterns can no longer be interpreted as experimental. However, despite these similarities, the two companies have significant differences in ownership, management models, and how responsibilities are divided within the organization. These differences form the primary basis for understanding why the ITSM systems in these two companies have evolved with distinct usage patterns.

Company A is a distributor of engineering components and industrial spare parts. Its main customers are factories and small- to medium-sized manufacturing companies in the Greater Jakarta area and several surrounding industrial cities. The company was founded in the early 2000s by a family. At the time of the study, management was still in the hands of the founding generation. The CEO not only makes strategic decisions but also frequently gets involved in day-to-day operational matters. As a result, problems that should be settled by the division head often move back to the CEO. In daily practice, many key decisions and problems still have to go back to the person at the top of the company.

Company B serves offices, schools, universities, and government units around Greater Jakarta, supplying common office needs from printers and photocopiers to furniture and stationery. It also stays involved after the sale, providing servicing, repairs, and maintenance contracts for the equipment its customers use. Consequently, the warehouse division not only handles the storage and shipment of goods but also works directly with field technicians. The company was founded approximately twelve years ago by three non-family business partners who previously had experience in distribution and finance. For the past four years or so, day-to-day management has been entrusted to a professional General Manager who previously worked at a larger distribution company. The founders subsequently shifted to advisory board positions and are no longer directly involved in day-to-day operations. Table 4 presents the general profiles and estimated employee structures of both companies, while also showing that they are quite comparable in terms of scale but differ in terms of ownership and management structures.

Table 4. General Profiles and Estimated Employee Structures of Both Companies

Aspect	Company A	Company B
Sector	Distributor of technical components and industrial spare parts	Distributor of office equipment and supplies, with equipment after-sales services
Main clients	Small to medium-sized factories and manufacturing companies	Companies, government agencies, and educational institutions
Year established	Early 2000s	Around twelve years before the study
Ownership	Founding family	Three non-family business partners
Management model during the study	Founder-CEO directly involved in daily operations	Professional General Manager; founders serve as advisory board members
Estimated number of permanent employees	83 to 100	82 to 97
Warehouse and Logistics	30 to 35	29 to 33*
Sales and Marketing	22 to 26	23 to 27
Finance and Administration	13 to 16	12 to 15
Purchasing	7 to 9	6 to 8
HR and General Affairs	6 to 8	5 to 7
IT	3	3
Management	2 to 3	3 to 4

*At Company B, the Warehouse and Logistics division also includes a team of field technicians who handle the delivery, installation, and maintenance of equipment at client sites

The division structures of the two companies are relatively similar. The number of employees remains in the range of eighty to one hundred, and each company has a small IT team consisting of three people. In both companies, the warehouse and logistics department is the largest division because the distribution business relies heavily on the speed, accuracy, and efficiency of deliveries. Differences in the number of employees across certain divisions are largely influenced by the types of products and service models handled. Company A requires slightly larger warehouse capacity because industrial components vary more in size, weight, and product characteristics. Company B is different. It needs more sales staff and technicians because selling office equipment does not end when the product is delivered. Many customers still need follow up support, servicing, and regular checks after the purchase.

The real difference is not simply how many people each company has. It is more about how the divisions work with each other in everyday situations. In Company A, coordination still depends a lot on personal contact. Many issues move through familiar people first, and quite often they return to the CEO before a decision is made. With this approach, problem-solving tends to move upward, especially when decisions are considered sensitive or risky. At Company B, the coordination pattern is more formal. There are weekly division meetings, monthly cross-division performance indicator evaluations, and structured reporting to the General Manager. In this company, the sales, warehouse, and after-sales divisions are often involved in the same order cycle. Therefore, when a client complaint arises, each division needs to clearly indicate which parts fall under its responsibility, and which have already shifted to another division's responsibility. This difference in coordination patterns is important because it forms the basis for understanding the nature of accountability pressures in the following sections.

The adoption of ITSM at both companies occurred within a relatively similar timeframe, but the reasons behind it were not the same. At Company A, a web-based helpdesk system was first implemented about three years before the study was conducted. The primary impetus came from outside the company. The system was first considered following a recommendation from an IT consultant who had previously assisted with network improvements, and this was reinforced by requests from two major clients who wanted more organized service records as part of a supply chain audit. The chosen application was a web-based helpdesk with relatively affordable licensing costs, which was then configured and supported by the same local consultant.

At Company B, the ticketing system was first adopted about two and a half years before the study was conducted, but the impetus came largely from internal needs. A few months before the study, the company had put a new ERP system into use. The system covered inventory, orders, and service contracts. After it went live, IT suddenly received far more support requests. Many staff were still learning how to use the new system and needed help with problems that came up during daily work. The problem was that many of these requests still came in via WhatsApp and personal contacts, without a clear workflow. As a result, the IT team was overwhelmed, while documentation of issue resolution was difficult to account for when management inquired about the status of resolution. The General Manager, who was already accustomed to using a ticketing system at his previous company, subsequently pushed for the adoption of ITSM. The goal was not only to streamline the IT support request workflow but also to enable the ticketing system to access asset and user data from the pre-existing ERP system. Table 5 outlines the context of ITSM adoption at both companies, including duration of use, primary drivers, sources of adoption pressure, and estimated direct costs incurred.

Table 5. Context of ITSM Adoption at Both Companies.

Aspect	Company A	Company B
ITSM implementation period during the study	Around 3 years	Around 2.5 years
System used	Web-based helpdesk, configured by a local IT consultant	Web-based helpdesk connected to the existing ERP system
Main driver of adoption	Recommendation from an external IT consultant and supply chain audit requests from two major clients	Initiative from the General Manager after the ERP go-live caused a sharp increase in unmanaged IT support requests
Source of adoption pressure	External	Internal

Aspect	Company A	Company B
Direct cost components	System setup and configuration: IDR 10–15 million IT staff and key user training: IDR 6–8 million Two-year consultant support: IDR 15–22 million Supporting devices: IDR 8–12 million	System setup and configuration: IDR 15–20 million ERP integration for asset and user data: IDR 18–25 million IT staff and key user training: IDR 7–10 million Two-year vendor support: IDR 18–24 million Supporting devices: IDR 7–10 million
Total direct cost	IDR 39–57 million	IDR 65–89 million
Estimated total including work time	IDR 80–95 million	IDR 110–135 million

The difference in investment between the two companies stems primarily from the integration costs between the ticketing system and the ERP system at Company B. If this component is excluded from the comparison, the costs of the two companies are actually still within a relatively comparable range. Therefore, what is more important to note from Table 5 is not merely the size of the investment figures, but rather the reasons that drove each company to adopt ITSM. Company A uses ITSM primarily because it needs to demonstrate to external parties that its IT service processes are documented and organized. Company B uses ITSM because it faces real internal coordination issues, thus requiring a system that can help streamline workflows and clarify responsibilities within the organization. These differing reasons for adoption create distinct accountability pressures for each company, and these differences serve as a crucial foundation for understanding why the patterns of ITSM usage in both companies subsequently developed in different ways.

When ITSM Metrics Look Healthy but the System Function Starts to Shift

This section addresses the first part of RQ1. At first glance, the ITSM system reports for Company A and Company B show no immediate cause for concern. Tickets are being submitted regularly, most tickets are being closed, and the resolution rates at both companies are above eighty percent. In ITSM evaluation practice, metrics such as ticket volume, handling time, and compliance with service level agreements (SLAs) are often used as primary measures to assess whether an IT service system is functioning well (Jäntti & Lindström, 2026; MacLean & Titah, 2023). By these measures, both companies appear healthy.

Table 6 summarizes the formal indicators of the ITSM systems at both companies based on a six-month average during the observation period. The data was extracted from system logs and then verified with the IT heads of each company. It should be noted that the SLA parameters in Table 6 are not external industry standards. These SLAs are service time limits set by each company when the system was configured.

Table 6. Formal ITSM Adoption Indicators for Both Companies (Monthly Average).

Indicator	Company A	Company B
Average incoming tickets per month	9 to 15	19 to 26
Resolution rate in the system	93%	88%
Average handling time	0.8 days	1.6 days
Proportion of tickets closed on the same day	68% to 72%	38% to 44%
SLA compliance*	91%	85%
Tickets reopened within 14 days for the same issue	6%	13%

* Company A has established an internal SLA requiring an initial response within 1 business day and resolution within 3 business days for all request categories. Company B has established an internal SLA requiring an initial response within 8 business hours and resolution within 3 business days for general requests, and resolution within 1 business day for incidents affecting more than one division.

Table 6 looks positive at first, especially for Company A. Its tickets were resolved in only 0.8 days on average, and 68 to 72 percent were closed on the same day. Those figures may sound very good, but they should not be accepted too quickly. They need a closer look, because fast closure does not always mean that the ITSM process was followed properly. However, if the majority of tickets actually involve technical work that must be addressed from the start, such a fast resolution time is too good to be true for an IT team consisting of only three people who also have to handle field work. These figures may indicate efficiency, but they could also indicate that some tickets were only created after the issue was resolved through other channels. Therefore, the formal data in Table 6 needs to be compared with IT activities occurring outside the ticketing system.

Estimates of IT activity in informal channels were gathered through three cross-checked sources. First, interviews with IT staff regarding the number of issues they typically handle outside the ticketing system during a normal workweek. Second, interviews with the division head regarding how often IT issue reports come in via WhatsApp or direct contact. Third, a review of a sample of conversations over four weeks in the operational WhatsApp group, with management's permission. To avoid relying too much on one source, the study compared information from several sources. Even so, the figures should not be treated as exact counts. They are better read as reasonable estimates based on the data that was available. Such an approach can help estimate work activities not captured by formal systems, but its level of uncertainty remains higher than that of system logs (Bartelheimer et al., 2023; De Vargas Pinto et al., 2023). The numbers in Table 6 and Table 7 should be read with some care because they come from different time periods. Table 6 shows the average formal ticket data over six months, while Table 7 is based on a four-week sample of informal conversations. For that reason, the two tables should not be treated as if they have the same level of accuracy. Table 7 is more useful as an early sign of how much informal work may be happening outside the ITSM system, not as an exact count that can be directly compared with the formal ticket records.

Table 7. Distribution of Formal Ticket Categories vs. Estimated Actual IT Incidents in Informal Channels (Monthly Average)

Category	A: Formal Tickets	A: Estimated Actual Cases*	A: Ratio	B: Formal Tickets	B: Estimated Actual Cases*	B: Ratio
Hardware issues (printer, laptop, devices)	1 to 2	6 to 9	around 1:6	2 to 3	10 to 13	around 1:5
Password reset and locked account	0 to 1	3 to 5	around 1:7	1 to 2	4 to 6	around 1:4
Network and connectivity issues	2 to 3	5 to 7	around 1:3	2 to 3	4 to 6	around 1:2
Application and software issues	1 to 2	5 to 7	around 1:4	6 to 8	9 to 12	around 1:1.5**
Access requests and system permission changes	3 to 4	4 to 6	around 1:1.5	Included in the category below		
Escalation and cross-division coordination	2 to 3	3 to 5	around 1:1.7	8 to 10	11 to 14	around 1:1.4
Total	9 to 15	26 to 39	around 1:2.8	19 to 26	38 to 51	around 1:2

*Indicative estimates based on a triangulation of interviews and a sample of WhatsApp conversations. The margin of uncertainty is relatively high, so these figures should be interpreted as a broad comparison rather than precise counts.
**For Company B, the application category is dominated by requests for ERP support, which indeed require formal documentation due to their connection to operational data and contracts. Therefore, the 1:1.5 ratio in this category should not be immediately interpreted as an anomaly, but rather as system usage that is relatively consistent with its technical functions.

The key point of Table 7 is not just the overall size of the ratios, but the distribution patterns within each category. At Company A, tickets are almost never created for hardware issues and password resets, even though these two types of issues are among the most frequently reported complaints via WhatsApp. For these two categories, the gap between formal tickets and informal handling is quite large, at around 1:6 and 1:7. Access requests and cross department escalations show a smaller gap, only around 1:1.5 to 1:1.7. This suggests that access-related cases and escalation cases are more likely to be entered into the ITSM system. Their ticket numbers are therefore closer to what actually happens in daily work, compared with minor technical problems that are often handled informally. At Company B, a similar pattern is observed in the cross-departmental escalation and coordination categories. These categories have the lowest formal-to-informal ratio among non-ERP categories, at approximately 1:1.4. Meanwhile, hardware and password issues are rarely ticketed despite their relatively high volume in daily operations.

The gap between formal and informal channels is actually not an unusual finding. The literature on shadow IT and workarounds has long explained that informal channels often grow alongside formal systems because they are perceived as faster, more direct, and more practical for handling routine technical issues (Haag & Eckhardt, 2024; Klotz et al., 2022; Koch & Denner, 2022). However, what is worth noting here is that the pattern of this gap is not uniform across all categories. Minor technical issues are frequently resolved outside the system, whereas categories involving access, escalation, or cross-departmental coordination are more often routed through the ticket system. This pattern provides an initial basis for interpreting that the ITSM systems in both companies may not only be used as IT service tools but are also beginning to serve as tools for documenting accountability among parties. These initial findings are not yet sufficient to definitively conclude the existence of functional displacement, but they are strong enough to warrant a more targeted examination in the following section.

How Timing Gaps and Ticket Categories Reveal Functional Displacement

The previous section highlighted a discrepancy between data recorded in the formal system and estimates of IT activities occurring on the ground. But this gap is not enough to say that the role of the system has already changed. There are other possible reasons. Users may still be getting used to the system, they may not be disciplined in recording tickets, or they may feel that informal channels are still quicker for everyday work. Therefore, this section uses two preliminary diagnostic indicators to analyze the issue more specifically. The focus is not merely on calculating the magnitude of the discrepancy between the formal system and informal activities, but on determining whether the pattern of this discrepancy aligns with conditions where tickets begin to be used for other purposes, rather than primarily to resolve IT service issues (Jäntti & Lindström, 2026; MacLean & Titah, 2023).

Before delving further into the data, this study established two criteria for assessing whether a ticket category shows early indications of a shift in function. The first criterion is a representation index above 1.30. This means that the category appears in the ticket system more than thirty percent above the estimated proportion of actual occurrences based on field activities. This criterion is not intended as a general standard, but rather as an exploratory threshold used to analyze the two cases in this study. The second criterion is the nature of the issue. The category must involve more than one party, more than one division, or be directly related to the question of who is responsible when a problem occurs. If a category meets the first criterion but requires formal documentation from the outset for technical or audit reasons, it is not immediately treated as evidence of a shift in function. Such categories are classified as ambiguous cases and analyzed more carefully.

Indicator #1: the time gap between activity on informal channels and the opening of a formal ticket

If a ticket is opened because the user genuinely needs IT assistance, it should be created when the problem first arises or when assistance is first needed. Conversely, if a new ticket is created only after a WhatsApp conversation about the same issue has gone on for quite some time, or even after a solution has been found, then the ticket no longer serves as the initial point of contact for the service. In such cases, the ticket is more likely to be used as proof that a report has been filed or that a party has fulfilled its obligations (Koch & Denner, 2022; Bartelheimer et al., 2023). Therefore, the time gap between the emergence of the issue in the informal channel and the opening of a formal ticket can serve as an early indicator that can be measured using available data.

To calculate this difference, this study identified matched case pairs, that is, IT incidents that appeared in WhatsApp conversations and were also recorded as formal tickets within a seven-calendar-day period. Matching was performed using three criteria simultaneously: the same username, the same

issue category, and a close time of occurrence. Once case pairs were identified, the IT heads at each company were asked to confirm whether the pairs indeed referred to the same incident. This method still carries a risk of confirmation bias, as part of the assessment relies on the informants' memory and judgment. This limitation must be acknowledged from the outset to prevent the results from being overinterpreted. From the four-week observation period, this study identified 16 confirmed case pairs at Company A and 24 case pairs at Company B. Not all tickets had identifiable WhatsApp traces, and not all WhatsApp conversations resulted in formal tickets (Kim et al., 2025).

Table 8. Distribution of Time Lags Between Informal Discussions and the Opening of Formal Tickets (Confirmed case pairs, 4-week observation period).

Ticket Opening Time Gap	Company A (n=16)	%	Company B (n=24)	%
Within 1 hour after, or at the same time as, the informal discussion	2	12.5%	7	29.2%
1 to 4 hours after the informal discussion	3	18.8%	8	33.3%
4 to 24 hours after the informal discussion	4	25.0%	6	25.0%
More than 1 working day after the informal discussion	7	43.8%	3	12.5%
Median time gap	around 8 hours		around 2 hours	

Table 8 shows when formal tickets are opened in comparison to the start of informal discussions on the same issue. This table is important because it provides an initial indication of whether tickets serve as the entry point for service requests, or whether they more often appear after the resolution process has already begun outside the system. If many new tickets are created after informal discussions have been ongoing for some time, then the formal system is not entirely the starting point for requesting assistance. Conversely, if tickets are opened almost simultaneously with informal discussions, it is likely that the formal system is indeed used from the start, although the reasons for its use must still be interpreted within the context of the ticket's category and content.

Because the number of cases in each category was too small to analyze individually, the cases were grouped based on the nature of the issue. The first group consists of technical issues not directly related to the question of who is responsible, such as hardware, passwords, and networking. The second group consists of requests more closely tied to accountability issues, such as access requests, permission changes, escalations, and cross-departmental coordination. This grouping makes the data interpretation more reliable, as the analysis is not forced onto categories with too few cases.

Table 9. Median Time Difference by Category Group (Two major groups; figures are more methodologically defensible).

Category Group	A: n	A: Median Time Gap	B: n	B: Median Time Gap
Technical issues (hardware, password, network)	6	more than 14 hours	9	around 10 hours
Requests with accountability implications (access, escalation, cross-division coordination)	8	around 2.5 hours	8	around 1 hour
Application and ERP support*	2	around 8 hours	7	around 2 hours

*ERP has been separated due to its ambiguous position. This category involves inherent technical documentation needs, but may also relate to accountability at Company B.

Table 9 shows a fairly clear contrast between the two groups of issues. For technical issues, tickets are typically opened only a few hours after informal discussions have taken place. This pattern aligns with the possibility that tickets are created later as a record, rather than as an initial means of requesting assistance. Conversely, for requests related to accountability, tickets are opened much more quickly. Sometimes, a ticket is created almost at the same time as the informal discussion starts. This matters because it shows that users do not handle every issue in the same way. For some problems, they quickly move to the formal system. For others, they prefer to talk first through informal channels. Minor technical

issues are more often resolved first through informal channels, while issues that could potentially raise questions of responsibility are more quickly entered into the formal system.

At Company B, there is an alternative explanation that needs to be examined carefully. A short time difference does not necessarily mean that the tickets were used to record accountability. It could simply indicate that users at Company B are more disciplined in following formal procedures. To distinguish between these two possibilities, this study examines the content of the tickets in greater detail. Content analysis is focused on Company B because it is in this company that the ambiguity between procedural discipline and accountability documentation most needs to be distinguished. At Company A, the pattern of functional shifts is already more easily discernible from the long-time intervals and from the informants' direct statements, so additional content analysis is not required to reach the same initial interpretation.

Of the 22 to 26 tickets during the observation period, tickets in the cross-departmental coordination category at Company B had, on average, shorter problem descriptions, ranging from about 17 to 22 words. This is lower than ERP support tickets, which usually contained about 43 to 51 words. The difference also shows up in the supporting evidence attached to the ticket. Most cross departmental coordination tickets, around 71 percent, came without attachments or screenshots. ERP support tickets were different. About 65 percent included at least one attachment, usually an error message or a screenshot from the system. Because the information in cross departmental tickets was often thinner, IT staff had to ask more follow up questions, averaging 1.7 clarifications for each ticket. For ERP tickets, this figure is only about 0.6 times per ticket. This pattern indicates that cross-departmental coordination tickets are indeed opened quickly, but often with limited information. In contrast, ERP tickets tend to be opened with more complete information because they are intended from the outset for technical resolution (De Vargas Pinto et al., 2023; Haag & Eckhardt, 2024).

Indicator #2: ticket category representativeness index

If the system is functioning as intended, the distribution of tickets by category should roughly mirror the distribution of actual issues occurring in the field. To assess this, the study uses a ticket category representativeness index. To build the index, each issue category was treated in the same way. The share found in the formal ticket records was compared with the estimated share of the same issue in daily incidents. A score above 1.0 means the issue appears in the ticketing system more often than expected from the estimated pattern of actual work. A score below 1.0 means the opposite. The issue is less visible in the ticketing system than it seems to be in practice (Yuan et al., 2025). Table 10 uses the figures from Table 7, with the midpoint taken when the data was given as a range. This keeps the comparison simple and consistent across categories. Still, the index should not be taken as an exact count. The informal data only gives an estimate. What it helps to show is where the gap is likely to be: which issues are recorded in the ticketing system, and which ones are more likely to happen outside it.

Table 10. Ticket Representation Index by Category (Proportion of formal tickets divided by the proportion of estimated actual incidents; derived from Table 7; values >1.30 with accountability implications = indicating displacement)

Category	Company A	Company B	Classification
Hardware issues	0.54	0.43	Under-represented
Password reset and account issues	0.34	0.60	Under-represented
Network issues	1.13	0.99	Balanced
Application and ERP issues	0.68	1.32	Ambiguous*
Access requests and permission changes	1.90	Included below**	Indicates possible displacement
Cross-division coordination and escalation	1.69	1.42	Indicates possible displacement

*The ERP system at Company B meets the index criteria because its value is 1.32; however, changes to ERP access and configuration have inherent technical requirements for formal documentation for system audit purposes. Therefore, this category is considered an ambiguous case and is not directly included as evidence of displacement.

**At Company B, access requests and system permission changes are not recorded as separate categories in the ticket log but are combined into the cross-divisional coordination and escalation category. This consolidation reflects how the system is used in practice. Within Company B's more horizontal structure, access requests almost always arise in the context of cross-departmental coordination and rarely stand alone as separate tickets. Consequently, the index is reflected in the cross-departmental coordination figure on the relevant row.

Table 10 shows that the hardware and password categories are consistently underrepresented in the ticketing systems of both companies. Network issues are relatively balanced. The categories that meet the two previously established criteria, an index above 1.30 and issue types related to accountability, are access requests and cross-departmental coordination and escalation. Meanwhile, the ERP category at Company B should be interpreted as an ambiguous case. Although its index reached 1.32, this category has inherently required technical documentation from the outset. Therefore, the ERP category is not immediately treated as evidence of functional displacement but is classified as a category that requires more careful analysis.

When these two indicators are interpreted together, the pattern is fairly consistent. The categories that appear more frequently in the formal system are those that also have shorter time intervals, fewer ticket entries at Company B, and a clear connection to accountability issues. Conversely, technical categories such as hardware and passwords have longer time intervals and are far less likely to enter the formal system. This pattern reveals a pattern worth noting: minor technical issues tend to be resolved through informal channels, while issues that could potentially raise questions of accountability enter the formal system more quickly or more frequently.

Based on these findings, a combination of a representation index above 1.30 and a median timing gap under three hours for categories related to accountability can be interpreted as an early signal of functional displacement in these two cases. However, these figures are not intended as fixed thresholds. The values of 1.30 and three hours are used only as reference points in this study, as both are derived from data patterns observed in the two companies. Thus, the results in Table 10 should be interpreted as indicative of patterns, not as universal measures that automatically apply to all organizations.

How Accountability Pressure Creates Vertical Displacement in Company A and Horizontal Displacement in Company B

This section addresses the first part of the second research question. The key finding is that internal accountability structures help shape how functional displacement occurs within ITSM systems. In other words, the displacement of ticketing system functions does not manifest in the same way across all organizations. When the two diagnostic indicators discussed earlier, namely, the timing gap and the category representation index, are applied to Company A and Company B, two distinct data patterns emerge. These differences do not stand alone but align with how accountability is managed in each company. Therefore, the results in this section are better interpreted as an initial typology rather than merely a comparison of two companies. A standard comparison would merely indicate that the two cases are different. A typology attempts to explain why these differences arise and under what conditions similar patterns might be found again. In this study, the primary explanatory factor is the direction of the most dominant accountability pressure within the organization.

Before describing each company's profile, it should be noted that some of the data in this section comes from a manual review of tickets received during a four-week observation period. The review did not stop at counting tickets. It also looked at what was inside the tickets. For each ticket, the study checked whether the problem was explained clearly, whether there was any supporting evidence such as a screenshot or document, and whether IT staff still had to ask follow up questions before they could solve the issue. This was done separately for Company A and Company B, then compared across different request types. By doing this, the study could see not only how often tickets were submitted, but also whether the tickets gave enough information for IT staff to work with.

Company A: Vertical Displacement

Company A has a structure that is highly dependent on its founder. At the time of the study, the founder was still directly involved in many day-to-day operational matters. Work patterns observed in the field and later confirmed through an interview with the IT head, indicate that many IT issues are first resolved through direct contact before a ticket is created. The IT head explained, "Usually they contact me directly or a technician they already know. Once it's resolved, they'll usually ask for a ticket to be opened as well, they say it's for reporting purposes. This statement indicates that at Company A, personal channels are more frequently used as the initial point of contact for resolving issues, while the formal channel via tickets comes later.

The data on timing gaps reinforces this pattern. For categories related to accountability, the median time gap is around 2.5 hours. This means that tickets are typically only opened several hours after informal conversations about the same issue have already taken place. For simple technical issues, such

as hardware and passwords, the time gap is even more than 14 hours, and some cases do not result in a ticket at all. This pattern is retrospective. Issues are first addressed through the channels considered the fastest and most reliable, and a ticket is created later if deemed necessary for record-keeping.

The category representation index points in the same direction. The categories for access requests and system permission changes have an index of 1.90, while the escalation category has an index of 1.69. Both are well above 1.00, which should indicate a balance between the proportion of formal tickets and the proportion of actual incidents. In contrast, the hardware category has an index of only 0.54, and passwords 0.34. This means that these two technical categories rarely enter the ticketing system even though they occur quite frequently in daily work. The categories that are more frequently recorded formally are actually those related to accountability questions: who has reported the issue, to whom the report was submitted, and who can be held accountable if the issue is raised again.

Since many issues are resolved through personal channels before a ticket is created, IT staff typically no longer need to take major technical actions when a ticket is submitted. Tickets can be closed immediately, resulting in a high proportion of tickets closed on the same day, approximately 68 to 72 percent. The formal resolution rate also reaches 93 percent. Formal recurrence within 14 days is only 6 percent. This low recurrence rate indicates that informal resolutions at Company A generally remain technically effective, as issues are handled by IT personnel who genuinely understand the problem. Thus, the main issue lies not in the IT team's technical capabilities, but in the fact that these resolutions do not proceed through the formal system, which should be the primary service channel.

A division head stated in an interview, "If someone asks or there's an audit later, at least it's recorded in the system that it was reported." This statement shows that the purpose of tickets at Company A is quite clear to users. Tickets are not primarily used to request assistance, but to keep evidence that an official report was ever made. In other words, tickets serve as a tool for protecting one's position with superiors, especially when there is a possibility of questions from managers, auditors, or other parties requesting proof that the issue has been reported.

Company B: Horizontal Displacement

Company B operates differently. Performance evaluations across divisions are more structured, and there is no single point of authority serving as the central hub for all escalations. When issues arise, questions about who is responsible do not just move upward but also move laterally across divisions, such as sales, warehousing, finance, and IT. In situations like this, what matters to users is not just proving that a report has been filed but also proving that their division reported the issue before other divisions did.

The pattern observed at Company B differs from that at Company A. The median time difference for the cross-departmental coordination category is around 1 hour. In some cases, tickets are even opened almost simultaneously with the first WhatsApp message regarding the same issue. This pattern is preemptive. Tickets are created not after the issue is resolved, but when the issue is first identified. The goal is to establish proof that a specific division reported the issue from the start, before discussions about responsibility escalate into finger-pointing. For simple technical issues, the time difference remains over 10 hours. This means that if the issue is not directly related to inter-departmental accountability, the ticket usage pattern remains similar to Company A's.

The representation index also supports this interpretation. The categories of coordination and cross-departmental requests have an index of 1.42, while hardware has only 0.43 and passwords 0.60. The ERP category has an index of 1.32, but this category requires a more careful interpretation. ERP support does indeed often require formal documentation because it involves data changes, system configurations, or internal audit requirements. Therefore, the 1.32 index for ERP cannot be directly interpreted as evidence of displacement. This figure likely reflects a mix of formal usage, which is technically reasonable, and some usage that is purely for documentation purposes. This differs from the cross-departmental coordination category, which shows a clearer over-representation and is supported by evidence from the ticket content.

Company B shows a clearer gap in how tickets are written. Tickets for cross departmental coordination are usually very short, with only around 17 to 22 words in the description. ERP tickets are different. They tend to give more detail, with about 43 to 51 words on average. Seventy-one percent of cross-departmental tickets have no attachments, while 65 percent of ERP tickets include at least one attachment. The most significant difference is seen in requests for clarification. For cross-departmental tickets, IT staff request additional clarifications for an average of 1.7 times per ticket. For ERP tickets, the average is only 0.6 times per ticket. This suggests that ERP tickets are usually easier for IT staff to

act on right away. Cross departmental tickets are less clear. IT often needs to ask for more explanation first before the real issue can be understood.

These differences still need to be interpreted with caution. Alternative explanations are still possible; for instance, cross-departmental issues may indeed be more complex and thus difficult to explain briefly. However, the clarification data weakens that explanation. If tickets were written concisely because the issues were complex, users who genuinely needed technical assistance should have provided more detailed additional information when asked for clarification. That was not the case. Many cross-departmental tickets are opened with initial information too sparse to be addressed immediately. This pattern makes more sense if interpreted as tickets created to mark the position and timing of the report, rather than solely to request a technical resolution (Bartelheimer et al., 2023; De Vargas Pinto et al., 2023).

The formal recurrence rate at Company B reached 13 percent within 14 days, more than double that of Company A. This pattern aligns with horizontal mechanisms. Tickets opened preemptively can help a division demonstrate that they reported the issue first, but do not automatically ensure the technical problem is resolved satisfactorily. Cross-departmental coordination that follows after a ticket is opened is also not always thorough. Consequently, the same issue may resurface. The proportion of tickets closed on the same day is also lower, at around 38 to 44 percent, because some tickets are created while the issue is still ongoing and informal resolution has not yet been completed.

A sales division head stated, “I ask the team to open a ticket immediately whenever there’s an issue involving another division, so there’s a time record. If anyone later claims we reported it too late, there’s a record of it.” In one incident confirmed through internal documentation, this division head used the ticket’s timestamp when the warehouse division questioned the timing of the notification. He pointed out that the ticket had been logged a few minutes after the issue was first identified, as proof that the sales division had reported it first. This finding serves as direct evidence that the ticket timestamp at Company B functions not only as an IT service record but also as a tool for inter-departmental accountability.

Table 11. Comparative Data Profile: Two Forms of Functional Displacement Based on Accountability Structures.

Dimension	Company A	Company B
Context and structure		
Main direction of accountability pressure	Vertical, toward a central authority figure	Horizontal, between divisions under KPI evaluation
Ticket creation pattern	Retrospective: tickets are created after the issue has been solved through informal channels	Preemptive: tickets are created almost at the same time as the issue appears, or shortly after
Timing gap data		
Median timing gap for accountability-related categories	Around 2.5 hours	Around 1 hour
Median timing gap for simple technical categories	More than 14 hours	More than 10 hours
Category representation index data		
Main accountability-related categories	Access or permission requests (1.90); escalation (1.69)	Cross-division coordination (1.42)
Simple technical categories	Hardware (0.54); password (0.34)	Hardware (0.43); password (0.60)
Ticket content data in accountability-related categories		
Completeness and quality of ticket description	Short, but usually clear enough because the issue had already been handled through informal channels	Very short and lacking technical context; IT staff often need to ask for more details before taking action

Dimension	Company A	Company B
Share of tickets without attachments	High	Very high: 71%
Frequency of clarification requests from IT	Rare, because the issue is usually already clear or already resolved	Frequent: an average of 1.7 times per ticket
Formal metric results		
Resolution rate	93%	88%
Share of tickets closed on the same day	68% to 72%	38% to 44%
Formal recurrence within 14 days	6%, low because informal resolution is usually technically effective	13%, higher because informal cross-division coordination is not always fully resolved
Evidence of ticket-use purpose		
Informant statement about the purpose of tickets	"If someone asks, at least it is recorded in the system that it has been reported."	"So there is proof of the time. If later someone says we reported it late, there is a record."
Evidence of timestamp use in a dispute	Not found in the collected data; the interview questions were not specifically designed to explore this issue	Found; the ticket timestamp was explicitly referred to in a cross-division dispute
Typology classification		
Proposed typology name	Vertical displacement	Horizontal displacement
Dominant mechanism	Retrospective documentation to protect one's position upward	Preemptive documentation to establish one's position between divisions

Table 11 shows that the differences between Company A and Company B are not limited to the number of tickets or formal resolution rates. These differences are consistently evident in the direction of accountability pressure, the timing of ticket creation, the categories most frequently entered the system, the content of the tickets, and the way informants describe the purpose of using the tickets. Company A exhibits a retrospective pattern: issues are resolved first, and then a ticket is created as evidence that the report was recorded. Company B exhibits a preemptive pattern: tickets are opened from the outset to mark the time of reporting and the division's position in cross-functional coordination. Thus, Table 11 not only summarizes the data but also demonstrates the basis for why these two patterns should be interpreted as two distinct forms of functional displacement.

The differences in patterns between Company A and Company B could indeed be interpreted as normal variations between companies. Both have different management styles and business characteristics. A sector-based explanation also makes sense. Company B sells office supplies and also handles after sales service. Because of this, its daily work often needs people from sales, warehouse, technicians, and IT to coordinate with each other. Company A is different. It mainly distributes industrial components, so its work process is usually more straightforward and does not always involve the same level of coordination across departments. Thus, sectoral differences can indeed result in Company B having more cross-departmental tickets, without this necessarily being directly linked to accountability pressures.

However, sector-based explanations are not as robust as accountability-based explanations. There are two main reasons for this. First, the content of tickets at Company B shows a pattern that aligns more closely with the purpose of documentation, rather than simply because cross-departmental issues are difficult to explain. If cross-departmental tickets are written concisely because the issues are inherently complex, users who genuinely need technical assistance should provide more detailed additional explanations when IT staff request clarification. What actually happens is quite different. Many tickets are opened with minimal initial information, so IT staff need to request clarification more frequently. This pattern suggests that tickets are more focused on documenting the reporter's position and the time of reporting rather than aiding technical resolution from the start. Second, informants' statements directly

indicate that tickets are opened to demonstrate the reporter's position and provide evidence of the reporting time, not because they struggle to explain complex issues (Klotz et al., 2022; Koch & Denner, 2022).

What distinguishes Company A from Company B, and makes this distinction worth examining as a typology, is the consistency of the pattern. The available indicators, ranging from ticket opening time, ticket content, ticket category, recurrence of issues, to informant statements, all point toward the same explanation. This pattern also aligns with each company's accountability structure. This is not merely a coincidental difference between the two cases. Mechanically, this pattern can be explained by one main factor: the direction of accountability pressure. When accountability pressure moves vertically, users tend to feel the need to prove that a report to superiors has been made. The easiest route is often to create the ticket after the problem has already been solved. But when responsibility is shared across divisions, people behave differently. They are more likely to record the issue earlier, because they want it to be clear who reported the problem first and who should take responsibility, instead of letting the issue turn into blame between departments. The most practical approach is to open a ticket immediately upon discovering the issue. These two directions of pressure yield two distinct data profiles, even though the underlying mechanism is the same: the shift in the function of the ticketing system from a service tool to a tool for recording accountability (Bartelheimer et al., 2023; Haag & Eckhardt, 2024; Nguyen, 2024).

Why Ticket Volume, Resolution Rate, and SLA Compliance Can Hide Functional Displacement

This section explains why commonly used ITSM adoption indicators fail to capture functional displacement in both companies. The issue is not that the numbers in the system are technically incorrect, but rather that they begin to lose the meaning they were originally intended to measure. In measurement science, this condition is called construct validity failure, a state where a metric no longer accurately measures what it claims to measure. In ITSM evaluations, the three most frequently used indicators are ticket volume, resolution rate, and compliance with the service level agreement (SLA). All three are based on one key assumption: each ticket is considered to represent a genuine IT service request (MacLean & Titah, 2023; Jäntti & Lindström, 2026). When that assumption no longer fully holds, the numbers in the system can still look good. Tickets keep coming in, resolution rates remain high, and SLAs are still met. However, those numbers no longer fully reflect the quality of IT service. Some figures actually reflect the need for accountability documentation, and such shifts in meaning do not automatically appear as warning signs on the system dashboard.

Table 12 shows how construct validity failures occur for each indicator. This table does not imply that ticket volume, resolution, and SLA are always inaccurate. These three indicators remain useful when tickets are genuinely opened as service requests. Problems arise when some tickets are created for other purposes, particularly to document that a party has reported an issue, has taken action, or has a record of the time of reporting. Under such conditions, indicators that appear healthy can give the impression that the service system is functioning well, even though the system's function has shifted.

Table 12. Mechanisms of Construct Validity Failure in Three Standard ITSM Evaluation Indicators

Indicator	What It Claims to Measure	What Is Actually Measured When *Displacement* Happens	Why the Result Still Looks Positive
Ticket volume	Level of service requests and use of the formal system	Frequency of ticket creation for accountability documentation in certain categories	Accountability pressure makes users keep creating tickets, especially in categories that may raise questions about responsibility
Resolution rate	IT effectiveness in solving technical problems	Share of tickets entered when the issue has already been solved or almost solved outside the system	Retrospective tickets are easy to close because the problem has already been handled through WhatsApp or direct contact
SLA compliance	Timeliness of IT service within the agreed time limit	Time between ticket opening and ticket closing, not the full duration from when the problem first appeared	Tickets opened after informal handling make the time recorded in the system look short and easy to meet the SLA

To clarify how these three mechanisms operate in a real-world workflow, Table 13 presents two typical scenarios reconstructed from interview patterns and system data at each company. Scenario A illustrates a retrospective pattern at Company A, while Scenario B illustrates a preemptive pattern at Company B. The forms differ, but the end result is similar: the system continues to generate positive metric signals, even though the meaning behind those signals no longer fully reflects the quality of IT services.

Table 13. Reconstruction of Typical Ticket Flows at Both Companies and the Generated Metrics Signals

Step	Scenario A: Company A	Scenario B: Company B
Issue appears	09:00: a sales staff member reports a system access problem through the IT WhatsApp group	13:30: a sales division staff member finds a connectivity issue between systems that affects a report involving the warehouse division
Informal handling	09:10 to 09:45: IT responds through WhatsApp, identifies the problem, and solves it through direct communication	13:30: the sales staff sends a message to the IT WhatsApp group. 13:32: the same staff member opens a ticket. WhatsApp is used for technical coordination, while the ticket is used as a formal note. From 13:35 to 14:50, the WhatsApp discussion involves IT, sales, and warehouse until a solution is found
Informant statement about normal ticket-opening practice	"If someone asks, or if there is an audit later, at least it is recorded in the system that the problem was reported."	"I ask the team to open a ticket immediately when there is a problem involving another division, so there is proof of time. If someone later says we reported it late, there is a record."
Ticket opening	11:30: the staff opens a ticket with a short description of a problem that had already been solved earlier	The ticket is recorded at 13:32, almost at the same time as the first WhatsApp message
Ticket closing	11:35: IT closes the ticket with a note that the problem has been confirmed as solved by the user and no further action is needed	15:00: IT closes the ticket with a note that cross-division coordination has been completed and the problem has been solved
What is recorded in the system	Ticket opened at 11:30 and closed at 11:35; handling time: 5 minutes	Ticket opened at 13:32 and closed at 15:00; handling time: 1 hour 28 minutes
Metric signal produced	Ticket volume increases by one, resolution is recorded as completed, handling time is very short, and SLA is met	Ticket volume increases by one, resolution is recorded as completed, handling time is still short, and SLA is met

Table 13 shows that system metrics can appear favorable through two different channels. At Company A, metrics appear positive because tickets are often created after issues have already been resolved through informal channels. As a result, the handling time in the system appears very short. At Company B, the metrics appear positive because tickets are opened very quickly to mark the reporting time, while technical resolutions still largely take place via WhatsApp and cross-departmental coordination. In both scenarios, the system is not entirely abandoned. Precisely because the system is still in use, the shift in function becomes harder to recognize. The formal numbers remain, but their meaning is not as straightforward as it seems.

The next question requires a careful answer: what proportion of the ticket volume likely serves more as accountability documentation rather than as a pure request for IT services? To estimate this, this study combines two previously used metrics. The first measure is the proportion of tickets opened after the issue was first addressed through informal channels. The second measure is the proportion of tickets

in categories that consistently appear higher in the formal system than their actual occurrence rates. Based on these two measures, Company A is estimated to have approximately forty to fifty percent of its monthly tickets that primarily serve as accountability records. At Company B, the range is lower, around thirty to forty percent, as some formal tickets are indeed related to ERP support that reasonably requires technical documentation. The numbers are only estimates, not exact counts. Still, the size of the range makes the point hard to ignore. A meaningful share of tickets may not fully reflect fresh service requests. Because of that, ticket volume should not be treated as a clean measure of real IT service demand (Haag & Eckhardt, 2024; Yuan et al., 2025).

So, why don't these seemingly positive figures immediately raise suspicions? If managers only read the monthly ITSM reports, what they see is a stable ticket volume, a high-resolution rate, and SLAs that are almost always met. On the surface, figures like these still seem reasonable for a mid-sized distribution company. A more careful observer might begin to wonder why Company A's average resolution time is only 0.8 days and SLA compliance reaches 91 percent, even though the IT team consists of only three people and still handles field work. However, standard ITSM metrics are not designed to automatically issue such warnings. In the general logic of service evaluation, shorter handling times are usually considered better. There are almost no warnings indicating that excessively short resolution times actually need to be examined, especially when some tickets are created after the issue has been resolved outside the system (Bartelheimer et al., 2023; MacLean & Titah, 2023).

This is where the failure of construct validity is most evident. Ticket volume no longer merely measures the number of service requests but also reflects the organization's strong need to document accountability. The resolution rate no longer merely indicates how many issues were resolved through formal channels but also captures the number of tickets created when issues were resolved outside the system. SLA compliance no longer truly reflects the duration from when an issue arises until it is resolved but merely counts the time from when a ticket is opened until it is closed. These three indicators are not inherently flawed under all conditions. The problem arises when functional displacement has occurred, as what these indicators measure begins to differ from what they claim to measure (Klotz et al., 2022; De Vargas Pinto et al., 2023). If this condition goes unrecognized, decisions to increase system investment, change IT service priorities, or evaluate IT team performance may be based on data that is technically correct but substantively misinterpreted (Kim et al., 2025).

This study begins with a simple yet important question: Can an ITSM system appear healthy on paper, even though in practice it no longer fulfills its primary function as a tool for managing IT services? Findings from two B2B distribution companies in Jakarta indicate that such a scenario is indeed possible. The system remains in use, tickets are still logged, and formal metrics continue to look good. However, not all tickets are created because users actually need IT assistance. In many cases, tickets are created because users need proof that a report has been submitted. This condition is referred to in this study as "functional displacement", the shift of a formal information system's function from a service tool to an accountability-tracking tool. This shift is difficult to detect if an organization relies solely on standard adoption metrics such as ticket volume, resolution rates, and SLA compliance.

The findings at both companies cannot be accurately described simply as ordinary adoption failures. In the information systems literature, several conditions have indeed been discussed more frequently. First, systems are not used because users reject them, are not yet accustomed to them, or the organization is not yet ready to change its work processes (MacLean & Titah, 2023). Second, the system is used formally, but its use is primarily to meet administrative requirements. Third, there is shadow IT. This happens when users choose informal channels instead of the official system. They usually do this because the formal system feels too slow, too rigid, or not suitable for the way daily work is actually done (Klotz et al., 2022; Haag & Eckhardt, 2024).

Functional displacement differs from these three conditions. In this scenario, the system is not abandoned. Informal channels also do not completely replace the formal system. The metrics within the system remain active and appear positive. The problem is that the system's function has shifted. This interpretation is consistent with recent work on algorithmic management, which shows that digital infrastructures can reshape visibility, control, information exchange, and accountability rather than merely support work coordination (Jarrahi et al., 2021). Users do not always open tickets to obtain IT services, but rather leave a paper trail of accountability. This difference may look small, but it matters for IT governance. Ticket data can still be technically correct, yet the meaning behind the data may have changed. In this sense, the ticketing system becomes part of a digital control infrastructure, where the recorded trace matters not only for service delivery but also for proving position, timing, and

responsibility within organizational relationships (Möhlmann et al., 2021). If the company reads the data without noticing this change, it may make the wrong call on IT staffing, system improvement priorities, or service performance. The numbers are there, but they may no longer show what the company thinks they show (Yuan et al., 2025; Jäntti & Lindström, 2026).

The findings of this study expand the discussion on IS governance failures in two directions. First, this study reveals a form of problem that is more difficult to identify than typical adoption failures. Many previous studies have highlighted why systems are not used, why users reject systems, or why system usage declines after some time (Bartelheimer et al., 2023; MacLean & Titah, 2023). This study reveals a different scenario: the system continues to be used, but for purposes that no longer align with its original design. In such cases, adoption metrics cannot automatically be interpreted as indicators of success, as some of the data generated no longer reflect actual demand for IT services (Yuan et al., 2025). This point also aligns with digital transformation research, which warns that the value of digital systems cannot be assessed only from their technical presence or formal use, but must be read through the organizational routines and meanings that develop around them (Wessel et al., 2021). This connects to, but extends, the idea of surrogation in performance measurement, where people come to treat a measure as if it were the goal it only represents (Wang et al., 2023). Functional displacement locates the same slippage one level deeper. The problem is not only how managers read the metric, but how the recording system itself is used, so that the data feeding the metric already means something other than demand for IT services. To the authors' knowledge, this infrastructural form of the problem has not been described before, which is the study's main contribution to knowledge.

Second, this study shows that functional displacement does not always manifest in a single form. A comparison between Company A and Company B reveals two distinct patterns. Company A exhibits vertical displacement, which occurs when tickets are opened retrospectively to protect upward positions within a centralized structure. Company B exhibits horizontal displacement, which occurs when tickets are opened preemptively to establish inter-departmental positions within interdependent workflows. These differences can be observed in the existing data within the ITSM system, particularly in the timing of ticket openings, ticket category distribution, ticket content, and informant statements. Thus, the direction of accountability pressures within the organization helps shape how formal systems are utilized as system functions begin to shift. This finding aligns with the argument that informal practices within organizations are largely shaped by work structures and surrounding pressures (Bartelheimer et al., 2023). This study expands upon that argument by demonstrating that the same pressures can also alter how formal systems are utilized by users.

The concept of functional displacement and its accompanying typology are not derived solely from theory but are constructed from patterns in the research data. Ticket data show that both companies have formal metrics that appear positive, but there is a significant gap between the number of tickets in the system and the estimated number of issues actually occurring through informal channels, as shown in Table 6 and Table 7. This gap is also not evenly distributed across all categories. Simple technical issues, such as device malfunctions and locked passwords, often arise informally but are rarely ticketed. Conversely, categories related to coordination between parties, such as access requests and cross-departmental coordination, are entered into the ticketing system more frequently than their actual proportion of occurrences, as shown in Table 10. The time analysis in Table 9 indicates the same trend. For technical issues, tickets are typically created several hours after the problem has first been addressed through informal channels. For categories related to accountability, tickets are created much more quickly, and in some cases almost simultaneously with the emergence of the problem. Table 11 then shows that this pattern differs between Company A and Company B, while Tables 12 and 13 illustrate why standard ITSM metrics remain positive even though system functions have shifted. It is this combination of data patterns and interview confirmation that forms the basis for the development of the concept of functional displacement.

Why the DPF-ITSM Framework Was Proposed and Where Each of Its Dimensions Comes From

After functional displacement was identified in two cases, the next question was how other organizations could recognize potentially similar conditions. It is from this need that the DPF-ITSM framework, from the Indonesian ‘Diagnostik Pergeseran Fungsi’, meaning Functional Displacement Diagnostics for ITSM, was proposed. This framework does not take concepts from outside and force them into the findings. It is constructed from patterns that emerged in the research, so the origin of each dimension can be traced.

The first dimension is detection. This dimension stems directly from empirical findings, particularly the two indicators discussed in the previous section: the time difference in ticket opening and the category representation index. These two indicators help determine whether certain ticket categories are being used disproportionately and whether tickets are created before, during, or after the issue is addressed through informal channels. The underlying rationale is construct validity. When old indicators no longer measure what they claim to, organizations need additional indicators so that the actual conditions are not masked by seemingly good numbers (MacLean & Titah, 2023; Yuan et al., 2025; Jäntti & Lindström, 2026).

The second dimension is typology. In practical application, this dimension serves as a contextualization step, that is, identifying the source of accountability pressures. This dimension emerges from the integration of two types of data: organizational profiles and ticket-opening time patterns. At Company A, a more centralized structure aligns with retrospective ticket patterns. At Company B, cross-divisional evaluations align with preemptive ticket patterns. This leads to the argument that the direction of accountability pressure helps determine the form of displacement. The theoretical basis can be linked to studies explaining that organizational structures shape informal practices, and that digital technologies are often used differently from their original design due to the influence of work contexts and users' social pressures (Bartelheimer et al., 2023).

The third dimension is response. This dimension must be distinguished from the previous two. Detection and typology are derived from empirical data. Response refers to governance implications derived from the findings. The logic is simple: if displacement arises due to internal accountability pressures, then the solution is not simply a matter of replacing the system, adding features, or tightening ticket-filing requirements. This is consistent with broader digital transformation studies showing that technology initiatives often fail to create meaningful value when organizational processes, governance arrangements, and human practices are not addressed together with the technology itself (Kraus et al., 2022). Organizations must also address the source of the pressure. Otherwise, even a new system risks being used in the same way. Table 14 summarizes the origins, empirical basis, literature support, and functions of the three DPF-ITSM dimensions (MacLean & Titah, 2023; Haag & Eckhardt, 2024).

Table 14. Justification of the Three Dimensions of the DPF-ITSM Framework: Origins, Empirical Basis, and Literature Support

Dimension	Source	Empirical Basis in This Study	Literature Support	Function in the Framework
Detection	Inductive finding from data in the two companies	Two measurable patterns were found: different ticket opening time gaps across categories (Table 9), and category representation index differences compared with the estimated actual distribution of incidents (Table 10)	When existing metrics do not measure what they claim to measure, additional checks are needed (Jäntti & Lindström, 2026; MacLean & Titah, 2023; Yuan et al., 2025)	Answers the question: is there an early signal that *functional displacement* may be happening?
Typology	Synthesis of organizational profile data and timing-pattern data across the two companies	Differences in accountability structure matched the timing patterns: vertical hierarchy produced a retrospective pattern, while horizontal evaluation produced a preemptive pattern, as shown in Table 11	Organizational structure shapes informal work practices (Bartelheimer et al., 2023); technology is used differently depending on context (Leonardi, 2021)	Answers the question: if a signal is detected, what form does it take and where does the pressure come from?

Dimension	Source	Empirical Basis in This Study	Literature Support	Function in the Framework
Response	Normative derivation from the typology, not direct field data	Not taken directly from empirical findings; derived from the principle that intervention should address the source of pressure, not only the visible symptoms in the system	ITSM implementation only continues to work when the surrounding organizational conditions also improve (Haag & Eckhardt, 2024; MacLean & Titah, 2023)	Answers the question: once the typology is known, what governance response makes the most sense?

The DPF-ITSM Framework: Who It's For, What It's For, and How to Use It

The DPF-ITSM framework is mainly useful for two groups: IT managers or CIOs who want to check whether the ITSM system is really helping manage IT services, and ITSM consultants who need to understand the organization's condition before suggesting whether the system should be expanded, adjusted, or replaced. This is important because monthly ITSM reports can look good on the surface. Tickets may keep coming in, many tickets may be closed, and SLA numbers may look fine. But those numbers do not always show the real situation. The basic question is still there: are users creating tickets because they truly need IT support, or because they need proof that they have already reported a problem? DPF-ITSM helps practitioners look beyond the neat report numbers before making decisions about investment, process improvement, or system evaluation. Table 15 gives a simple roadmap for using the framework. It starts with detection, where ticket patterns are checked. Then it moves to contextualization, where the organization looks at possible accountability pressure behind the ticket behavior. After that, the response stage helps design improvements that address the real cause, not only the visible symptoms. In this way.

Table 15. Guide to Using the DPF-ITSM Framework: Diagnostic Questions, Required Data, and How to Interpret the Results

Stage	Question Answered	Data Needed	How to Collect the Data	How to Read the Result	Points to Note
1A. Detection: time gap	Are tickets in certain categories often open long after, or almost at the same time as, the problem is discussed in informal channels?	Ticket logs, especially ticket opening timestamps, and informal chat logs, especially the first message about the same problem, for matched cases over at least four weeks	Match cases that refer to the same problem on both channels. Confirm the match with the IT head. Calculate the time gap for each matched case	If the median time gap for categories involving more than one party is very different from simple technical categories, this is the first warning signal	Case matching depends on confirmation from insiders, so bias is possible. This should be acknowledged in the interpretation

Stage	Question Answered	Data Needed	How to Collect the Data	How to Read the Result	Points to Note
1B. Detection: category distribution	Are some ticket categories much more common in the formal system than in the actual informal problem flow?	Number of formal tickets by category and estimated real incidents by category in informal channels	Calculate the share of each category. Divide the ticket share by the estimated incident share to get the representation index	An index above 1.30 in categories involving more than one party is a second warning signal. A very low index for technical categories strengthens the signal	Informal incident estimates are uncertain. Present them as ranges, not as exact numbers
2.Contextualization: direction of pressure	Where does the accountability pressure come from: from above, or sideways across divisions?	Organizational structure and interview data about what happens when problems occur and who is held responsible	Use semi-structured interviews. Trace real escalation cases. Check whether division heads mention documentation or proof as a reason for opening tickets	If escalation leads to one senior figure and tickets are mostly opened after the problem is solved, the pressure is likely vertical. If tickets are opened almost as soon as the problem appears and the reason involves another division, the pressure is likely horizontal	The vertical and horizontal categories are proposed from two cases. Other contexts may show mixed patterns

Stage	Question Answered	Data Needed	How to Collect the Data	How to Read the Result	Points to Note
3. Response: governance	What should be fixed first: the system itself, or the accountability conditions that shape how people use it?	No extra data is needed. Use the findings from stages 1 and 2	Use the previous findings as the basis for planning the intervention	For vertical pressure, distribute formal authority and clarify escalation rules. For horizontal pressure, clarify service boundaries between divisions. For both, include informal activity estimates in regular adoption reviews	These recommendations are logical implications from the findings, not tested intervention guidelines

Table 15 helps readers see what data should be checked, what questions should be asked, and how early findings should be understood before the organization decides what to improve. The scope of this framework's application must be clearly defined. DPF-ITSM should still be read as an early framework. It was built from two case studies, so it has not yet been proven across many different organizations. For that reason, the numbers used in the framework, such as an index above 1.30 or a timing gap of less than three hours, should not be treated as fixed standards. They are better understood as reference points from the two companies studied. Other organizations may show different patterns, depending on how their IT work, reporting habits, and accountability structures operate in daily practice. The results of its application are best understood as initial signals that require further examination, not as a final diagnosis.

Once the diagnostic flow in Table 15 is understood, Table 16 serves as a template for interpreting the diagnostic results profile. While Table 15 helps answer, "what to examine and how to examine it," Table 16 helps answer "what the pattern of results looks like as data begins to be mapped." Table 16 displays references from Company A and Company B as reading examples, then provides space for other organizations to fill in their own data. In this way, Table 16 is not treated as a standard benchmark, but as an initial comparison tool so that organizations can see whether their patterns are closer to vertical displacement, horizontal displacement, or do not yet show a strong enough pattern to draw conclusions.

Table 16. DPF-ITSM Diagnostic Results Profile Template: References from Two Cases and Space for Data from Other Organizations (The values for Companies A and B are empirical references from this study, not standard benchmarks)

Indicator	Company A	Company B	Your Organization
Detection: time gap			
Median time gap, accountability-related categories	Around 2.5 hours	Around 1 hour	

Median time gap, technical categories	More than 14 hours	More than 10 hours
Dominant timing pattern	Retrospective: tickets are opened long after the issue has been resolved	Preemptive: tickets are opened almost at the same time as the issue appears
Detection: category distribution		
Representation index, accountability-related categories	1.69 to 1.90	1.42
Representation index, simple technical categories	0.34 to 0.54	0.43 to 0.60
Ticket content in accountability-related categories	Short but informative; the issue had already been resolved before the ticket was opened	Very short, around 17–22 words; limited technical context; often needs further clarification
Contextualization		
Direction of accountability pressure	Vertical, centered on a main authority figure	Horizontal, across divisions under KPI evaluation
Informant statements about ticket motivation	Present and clearly stated in interviews	Present and clearly stated; ticket timestamps are referred to in disputes between divisions
Assessment and response		
Initial assessment	The pattern is consistent with *displacement*	The pattern is consistent with *displacement*
Intervention priority	Distribute formal authority and clarify escalation protocols	Clarify service boundaries between divisions and reduce ambiguity in responsibility
Revision of adoption measurement	Add estimates of informal activity to regular adoption evaluation	Add estimates of informal activity to regular adoption evaluation

The most direct implication of these findings lies in how organizations interpret the success of ITSM adoption. Ticket volume, resolution rates, and SLA compliance are still useful. But they should not be used as the only proof that the ITSM system is working well. A company still needs to look deeper. The key question is whether the most frequent ticket categories really show the most common IT problems, or whether they only show the problems that people feel must be formally recorded. The next question is also critical: are tickets created because users genuinely need IT assistance, or because they need to leave a record that a report was filed?

For IT consultants and managers working in private mid-sized companies, internal accountability should not be viewed as an issue separate from the system. Before a system is strengthened, expanded, or replaced, the organization must first assess whether internal pressures are driving people to use tickets strategically. If these pressures are left unaddressed, any ITSM system implemented risks repeating the same patterns. At the start, a new system can look active simply because it is new. People are curious, managers are watching it closely, and users may try to follow the new process for a while. The problem usually appears later. When the attention fades, old habits can come back if the real reasons behind those habits were never fixed. In this situation, early activity should be read carefully. It may show that people were still paying attention to the new system, not that they had truly changed the way they work (Sharma, 2024; Khalequzzaman et al., 2025).

Functional displacement does not merely compromise the quality of data accessed by management. Its impact is also felt directly by the people working within the system. Employees end up

doing the work twice. They use informal channels to get the real problem solved, then use the formal system to leave a record of who did what. From a work design perspective, this means that the system does not merely record work after it happens; it reshapes the work itself by adding documentation, justification, and accountability tasks to employees' daily routines (Parent-Rocheleau & Parker, 2022). This extra work does not always appear in ITSM reports. In daily work, this extra step still takes time and attention. It may not show up in ITSM reports, but employees still feel it as added work pressure (Bunjak et al., 2021; Schmitt et al., 2021; Singh et al., 2022).

For IT teams, the pressure is even greater. They receive tickets that sometimes no longer require technical action, while truly urgent issues have already been resolved via WhatsApp or direct contact. Because of this, the real workload is not fully captured in capacity reports or performance reviews. Management may think the workload is still manageable because the official data looks normal. Some of the work, however, may never enter the official records. When that happens, managers only see part of the workload. They may add too few staff, divide tasks in the wrong way, or improve the wrong part of the service process, because the data does not show how much work people are actually doing (Jyoti et al., 2025; Pothuganti et al., 2025). From the perspective of organizational knowledge, while formal systems are increasingly used to track accountability, technical knowledge remains trapped in WhatsApp conversations and individual memories. If team members change, some of that knowledge is lost, and the organization's IT capacity struggles to develop in an organized manner (Tkalac Verčič & Men, 2023; Liu et al., 2025; Mansuroğlu & Smith, 2026).

The risk sharpens under hybrid work, where remote employees miss the on-site informal exchanges yet still cannot rely on a formal channel that has shifted toward documentation, leaving them caught between two channels that each serve them poorly (Jaiswal et al., 2024; Khedhaouria et al., 2024; Ibrahim et al., 2025; Toscano et al., 2025). The same caution applies to new AI-based tools: if the underlying workflow problem is left unresolved, automation may simply add complexity rather than reduce workload, and may even extend the displacement into shadow AI use (Högemann et al., 2025; Silic et al., 2025). This caution is important because managing AI in organizations is not only a technical matter, but also a governance challenge involving organizational routines, decision rights, accountability, and the interpretation of AI-generated outputs (Berente et al., 2021).

The two companies in this study operate in an environment that is still common among medium-sized private companies in Indonesia. Hierarchy remain pronounced, personal relationships still influence workflows, and performance evaluations often depend on interdepartmental relationships. This combination can create strong internal accountability pressures, so that tickets are used not only to request services but also to maintain one's position within work relationships (Hongdiyanto et al., 2025; Ramadhina et al., 2026). In such situations, the record that someone has reported through official channels is no longer merely an administrative matter. This record can influence a person's position in operational conflicts, how responsibility is interpreted, and how working relationships between parties develop after an issue arises. This study does not claim that all private medium-sized companies in Indonesia necessarily experience functional displacement. The conditions observed in these two companies may be relevant to similar organizations, particularly those facing strong accountability pressures, with active informal channels, and an ITSM system that is already in place but has not yet fully evolved into a service center.

The findings of this study should be interpreted with several limitations in mind. The research was conducted only at two B2B distribution companies in a single city; therefore, the results cannot yet be considered generally applicable to all organizations using ITSM. Furthermore, the data on informal activities did not come from comprehensive system records, but rather from a combination of interviews, samples of WhatsApp conversations, and confirmation from company representatives. The timing gap analysis also has limitations because case matching relied on confirmation from the IT head, and the number of cases in each category was relatively small. The median values, the vertical and horizontal typology, and the DPF ITSM framework should be treated as early findings from this study. They are useful for explaining the two cases in this study, but they should not yet be treated as conclusions for other organizations. Future research can take four concrete directions. First, applying the two indicators across a larger set of firms would allow the provisional thresholds, the 1.30 representation index and the three-hour timing gap, to be calibrated rather than assumed. Second, a longitudinal design could track when displacement begins to appear after an ITSM system goes live, and whether it stabilizes or deepens. Third, testing the pattern in sectors with different accountability structures, such as healthcare or the public sector, would show how far the vertical and horizontal typology travels. Fourth, the DPF-ITSM

framework should be trialed as an actual intervention, not only as a diagnostic lens, to see whether addressing the source of accountability pressure changes how the system is used.

CONCLUSION

This study shows that ITSM systems may appear to be functioning well in official reports, but they are not necessarily being used as originally intended. At the two B2B distribution companies studied, the number of tickets remained high, resolution rates were high, and SLAs appeared to be met. However, when system data was compared with interviews and informal activities on WhatsApp, it became apparent that some tickets were no longer primarily used to request IT assistance. Tickets are also used as proof that a report has been filed, an issue has been escalated, or a division has staked its position when there is potential for finger-pointing. This is referred to in this study as "functional displacement." The pattern is evident from two main indicators: the time lag between informal conversations and the opening of formal tickets, and the prevalence of certain ticket categories that appear more frequently than the actual incidence of the underlying issues. At Company A, this pattern is more vertical in nature because tickets are frequently used as evidence of reporting to superiors. At Company B, the pattern is more horizontal in nature because tickets are more often used to maintain positions between divisions in interrelated work.

The novelty of this study lies in its approach to analyzing ITSM issues from a different perspective. The issue is not that people have stopped using the system. It is also not a simple case of user rejection or low adoption. In both companies, the system is still being used. The problem is that people are using it for a different purpose from what it was originally meant to do. Therefore, metrics that appear favorable do not necessarily mean that IT services are truly performing well. This study offers two early warning signs and the DPF-ITSM framework to help organizations identify potential shifts in system usage before making improvement decisions. From these two cases, the study proposes functional displacement as a concept, with a vertical form driven by upward accountability and a horizontal form driven by cross-divisional positioning. This typology is offered not as a finished theory but as a grounded explanation that future work can test, refine, or contest. These findings should be interpreted with caution. The study was conducted only on two B2B distribution companies in Jakarta; data on informal activities are still estimates derived from interviews, WhatsApp samples, and company confirmations; and the DPF-ITSM framework has not yet been tested as a direct intervention. Given these limitations, the results of this study are best understood as an early warning: neat ITSM numbers do not necessarily always indicate that the system is functioning as intended.

The implications follow directly. For practice, an ITSM report is better read as a question to investigate than as a verdict on performance; before acting on healthy-looking metrics, a manager can check the timing gap and the balance of ticket categories to judge whether the system is still measuring real demand for IT services. For theory, the study suggests that adoption and success metrics in information systems research deserve a validity check of their own, because a system can be fully adopted and still, without anyone deciding so, come to measure something other than what it was built to measure.

ACKNOWLEDGMENTS

We would like to express our deepest gratitude to those who have helped and respondents so that this research can be completed well.

AUTHOR CONTRIBUTIONS

Conceptualization by M.M; Methodology by M.M; Software by M.M; Validation by M.M; Formal Analysis by M.M and T.A.M; Investigation by M.M and T.A.M; Writing - Original Draft Preparation by M.M and T.A.M; Writing - Review & Editing by M.M and T.A.M.

CONFLICTS OF INTEREST

The author(s) declare no conflict of interest.

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors declare that no artificial intelligence (AI) tools were used in the generation, analysis, or writing of this manuscript. All aspects of the research, including data collection, interpretation, and

manuscript preparation, were carried out entirely by the authors without the assistance of AI-based technologies.

REFERENCES

Ali, F., El-Manstrly, D., & Abbasi, G. A. (2023). Would you forgive me? From perceived justice and complaint handling to customer forgiveness and brand credibility-symmetrical and asymmetrical perspectives. *Journal of Business Research*, *166*, 114138. https://doi.org/10.1016/j.jbusres.2023.114138.

Anatan, L. & Nur. (2023). Micro, small, and medium enterprises' readiness for digital transformation in Indonesia. *Economies*, *11*(6), 156. https://doi.org/10.3390/economies11060156.

Bartelheimer, C., Wolf, V., & Beverungen, D. (2023). Workarounds as generative mechanisms for bottom-up process innovation—Insights from a multiple case study. *Information Systems Journal*, *33*(5), 1085–1150. https://doi.org/10.1111/isj.12435.

Berente, N., Gu, B., Recker, J., & Santhanam, R. (2021). Managing artificial intelligence. *MIS Quarterly*, *45*(3), 1433–1450. https://doi.org/10.25300/MISQ/2021/16274.

Braun, V., & Clarke, V. (2024). Supporting best practice in reflexive thematic analysis reporting in *Palliative Medicine*: A review of published research and introduction to the *Reflexive Thematic Analysis Reporting Guidelines* (RTARG). *Palliative Medicine*, *38*(6), 608–616. https://doi.org/10.1177/02692163241234800.

Bunjak, A., Černe, M., & Popovič, A. (2021). Absorbed in technology but digitally overloaded: Interplay effects on gig workers' burnout and creativity. *Information & Management*, *58*(8), 103533. https://doi.org/10.1016/j.im.2021.103533.

Chatterjee, S., Chaudhuri, R., Vrontis, D., & Giovando, G. (2023). Digital workplace and organization performance: Moderating role of digital leadership capability. *Journal of Innovation & Knowledge*, *8*(1), 100334. https://doi.org/10.1016/j.jik.2023.100334.

Das, M., Jebarajarkirthy, C., Maseeh, H. I., Lim, W. M., & Shah, J. S. (2026). Online service failure and recovery: An integrated meta-analytic perspective of attribution and justice theories. *Journal of Business Research*, *202*, 115752. https://doi.org/10.1016/j.jbusres.2025.115752.

De Vargas Pinto, A., Beerepoot, I., & Maçada, A. C. G. (2023). Encourage autonomy to increase individual work performance: The impact of job characteristics on workaround behavior and shadow IT usage. *Information Technology and Management*, *24*(3), 233–246. https://doi.org/10.1007/s10799-022-00368-6.

Dutta, D., & Mishra, S. K. (2024). "Technology is killing me!": The moderating effect of organization home-work interface on the linkage between technostress and stress at work. *Information Technology & People*, *37*(6), 2203–2222. https://doi.org/10.1108/ITP-03-2022-0169.

Farquhar, J., Michels, N., & Robson, J. (2020). Triangulation in industrial qualitative case study research: Widening the scope. *Industrial Marketing Management*, *87*, 160–170. https://doi.org/10.1016/j.indmarman.2020.02.001.

Haag, S., & Eckhardt, A. (2024). Dealing effectively with shadow it by managing both cybersecurity and user needs. *MIS Quarterly Executive*, 399–412. https://doi.org/10.17705/2msqe.00104.

Handke, L., Aldana, A., Costa, P. L., & O'Neill, T. A. (2024). Hybrid teamwork: what we know and where we can go from here. *Small Group Research*, *55*(5), 805–835. https://doi.org/10.1177/10464964241279078.

Högemann, M., Hein, L., Britsche, J.-O., & Thomas, O. (2025). Technostress and generative AI in the workplace: A qualitative analysis of young professionals. *Frontiers in Artificial Intelligence*, *8*, 1728881. https://doi.org/10.3389/frai.2025.1728881.

Hongdiyanto, C., Halcon, F. A., Yusup, A. K., & Ongkowijoyo, G. (2025). The mediating effect of organizational culture and work fatigue on work-life balance in the context of work from home among indonesian workers. *Journal The Winners*, *26*(2), 107–120. https://doi.org/10.21512/tw.v26i2.13013.

Hurbean, L., Wong, L. H. M., Ou, C. X., Davison, R. M., & Dospinescu, O. (2025). Instant messaging, interruptions, stress and work performance. *Information Technology & People*, *38*(1), 249–278. https://doi.org/10.1108/ITP-09-2022-0656.

Ibrahim, A. R., Ibrahim, R., & Ibrahim, P. S. (2025). The influence of work from home on technostress in Generation Z: A systematic review. *Cognicia*, *13*(2), 135–141. https://doi.org/10.22219/cognicia.v13i2.42150.

Jaiswal, A., Sengupta, S., Panda, M., Hati, L., Prikshat, V., Patel, P., & Mohyuddin, S. (2024). Teleworking: Role of psychological well-being and technostress in the relationship between trust in management and employee performance. *International Journal of Manpower*, *45*(1), 49–71. https://doi.org/10.1108/IJM-04-2022-0149.

Jäntti, M., & Lindström, H. (2026). Exploring quality aspects of customer self-service in IT service provision: A case study. *Journal of Systems and Software*, *234*, 112725. https://doi.org/10.1016/j.jss.2025.112725.

Jarrahi, M. H., Newlands, G., Lee, M. K., Wolf, C. T., Kinder, E., & Sutherland, W. (2021). Algorithmic management in a work context. *Big Data & Society*, *8*(2), 20539517211020332. https://doi.org/10.1177/20539517211020332.

John, B., Alsamarra'i, Z., & Panteli, N. (2025). Reconfiguring digital embeddedness in hybrid work: The case of employee experience management platforms. *Information Systems Journal*, *35*(2), 450–479. https://doi.org/10.1111/isj.12545.

Jyoti, J., Ahmad, M., & Mahajan, M. (2025). From techno-stressors to techno-exhaustion: the mediating role of techno-anxiety in it workplace. *International Journal of Applied Management and Technology*, *25*(1). https://doi.org/10.5590/IJAMT.2025.24.1613.

Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: the new contested terrain of control. *Academy of Management Annals*, *14*(1), 366–410. https://doi.org/10.5465/annals.2018.0174.

Khalequzzaman, M., Wang, S., Zhang, N., & Wang, L. (2025). Digital transformation stressors in banking: Technostress as a mediator and organizational support as a moderator of job performance. *Acta Psychologica*, *260*, 105612. https://doi.org/10.1016/j.actpsy.2025.105612.

Khedhaouria, A., Montani, F., Jamal, A., & Hussain Shah, M. (2024). Consequences of technostress for users in remote (home) work contexts during a time of crisis: The buffering role of emotional social support. *Technological Forecasting and Social Change*, *199*, 123065. https://doi.org/10.1016/j.techfore.2023.123065.

Kim, A., Sachdeva, A., & Dennis, A. R. (2025). From self-service to AI-assisted service: A mixed-method study of IT support service provision using search tools and chatbots. *International Journal of Information Management*, *84*, 102938. https://doi.org/10.1016/j.ijinfomgt.2025.102938.

Klotz, S., Kopper, A., Westner, M., & Strahringer, S. (2022). Causing factors, outcomes, and governance of Shadow IT and business-managed IT: A systematic literature review. *International Journal of Information Systems and Project Management*, *7*(1), 15–43. https://doi.org/10.12821/ijispm070102.

Koch, T., & Denner, N. (2022). Informal communication in organizations: Work time wasted at the water-cooler or crucial exchange among co-workers? *Corporate Communications: An International Journal*, *27*(3), 494–508. https://doi.org/10.1108/CCIJ-08-2021-0087.

Kraus, S., Durst, S., Ferreira, J. J., Veiga, P., Kailer, N., & Weinmann, A. (2022). Digital transformation in business and management research: An overview of the current status quo. *International Journal of Information Management*, *63*, 102466. https://doi.org/10.1016/j.ijinfomgt.2021.102466.

Lauring, J., & Jonasson, C. (2025). What is hybrid work? Towards greater conceptual clarity of a common term and understanding its consequences. *Human Resource Management Review*, *35*(1), 101044. https://doi.org/10.1016/j.hrmr.2024.101044.

Leonardi, P. M. (2021). COVID-19 and the New Technologies of Organizing: Digital Exhaust, Digital Footprints, and Artificial Intelligence in the Wake of Remote Work. *Journal of Management Studies*, *58*(1), 249–253. https://doi.org/10.1111/joms.12648.

Liu, J., Yang, G., Lyu, Y., & Wei, Q. (2025). The impact of interactional justice on service evaluations in the banking context. *Acta Psychologica*, *261*, 105805. https://doi.org/10.1016/j.actpsy.2025.105805.

MacLean, D., & Titah, R. (2023). Implementation and impacts of IT Service Management in the IT function. *International Journal of Information Management*, *70*, 102628. https://doi.org/10.1016/j.ijinfomgt.2023.102628.

Malik, A., Budhwar, P., Mohan, H., & N. R., S. (2023). Employee experience –the missing link for engaging employees: Insights from an MNE 's AI -based HR ecosystem. *Human Resource Management*, *62*(1), 97–115. https://doi.org/10.1002/hrm.22133.

Mansuroğlu, E., & Smith, A. P. (2026). Technostress and employee well-being: A systematic review of

empirical evidence. *Computers in Human Behavior Reports*, *21*, 100941. https://doi.org/10.1016/j.chbr.2026.100941.

Möhlmann, M., Zalmanson, L., Henfridsson, O., & Gregory, R. W. (2021). Algorithmic management of work on online labor platforms: when matching meets control. *MIS Quarterly*, *45*(4), 1999–2022. https://doi.org/10.25300/MISQ/2021/15333.

Morkonda, S. G., Chiasson, S., & Van Oorschot, P. C. (2024). Influences of displaying permission-related information on web single sign-on login decisions. *Computers & Security*, *139*, 103666. https://doi.org/10.1016/j.cose.2023.103666.

Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2023). A step-by-step process of thematic analysis to develop a conceptual model in qualitative research. *International Journal of Qualitative Methods*, *22*, 16094069231205789. https://doi.org/10.1177/16094069231205789.

Nguyen, T. (2024). Understanding Shadow IT usage intention: A view of the dual-factor model. *Online Information Review*, *48*(3), 500–522. https://doi.org/10.1108/OIR-04-2022-0243.

O'Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: debates and practical guidelines. *International Journal of Qualitative Methods*, *19*, 1609406919899220. https://doi.org/10.1177/1609406919899220.

Parent-Rocheleau, X., & Parker, S. K. (2022). Algorithms as work designers: How algorithmic management influences the design of jobs. *Human Resource Management Review*, *32*(3), 100838. https://doi.org/10.1016/j.hrmr.2021.100838.

Pengfei, D., Imran, M., & Hye, A. K. M. (2026). Digital literacy and technostress as dual pathways linking work-from-home practices to employee performance: Evidence from the post-digital workplace. *Acta Psychologica*, *264*, 106458. https://doi.org/10.1016/j.actpsy.2026.106458.

Pillai, R., Ghanghorkar, Y., Sivathanu, B., Algharabat, R., & Rana, N. P. (2024). Adoption of artificial intelligence (AI) based employee experience (EEX) chatbots. *Information Technology & People*, *37*(1), 449–478. https://doi.org/10.1108/ITP-04-2022-0287.

Pothuganti, S. K., P Ramachandra, G., & V, R. D. (2025). The impact of technostress on employee engagement and well-being. *Human Systems Management*, *44*(5), 819–835. https://doi.org/10.1177/01672533251331503.

Ramadhina, N. R., Fauzia, R., & Tanau, M. U. (2026). Technostress and psychological well-being among work-from-anywhere (WFA) Workers in Kalimantan, Indonesia. *Nusantara Journal of Behavioral and Social Science*, *5*(1), 29–36. https://doi.org/10.47679/njbss.202614751.

Rose, J., & Johnson, C. W. (2020). Contextualizing reliability and validity in qualitative research: Toward more rigorous and trustworthy qualitative social science in leisure research. *Journal of Leisure Research*, *51*(4), 432–451. https://doi.org/10.1080/00222216.2020.1722042.

Schmitt, J. B., Breuer, J., & Wulf, T. (2021). From cognitive overload to digital detox: Psychological implications of telework during the COVID-19 pandemic. *Computers in Human Behavior*, *124*, 106899. https://doi.org/10.1016/j.chb.2021.106899.

Sharma, R. (2024). Technostress in the digital world and impact on employee work performance and mental health. *Journal of Business Management and Information Systems*, *11*(2), 64–73. https://doi.org/10.48001/jbmis.1102005.

Silic, M., Silic, D., & Kind-Trüller, K. (2025). From Shadow It to Shadow AI–Threats, Risks and Opportunities for Organizations. *Strategic Change*, jsc.2682. https://doi.org/10.1002/jsc.2682.

Singh, P., Bala, H., Dey, B. L., & Filieri, R. (2022). Enforced remote working: The impact of digital platform-induced stress and remote working experience on technology exhaustion and subjective wellbeing. *Journal of Business Research*, *151*, 269–286. https://doi.org/10.1016/j.jbusres.2022.07.002.

Sumarsono, H., Nashir, R., & Sugiarto, T. (2026). Digital work resources and innovative work behaviour in small and medium-sized enterprises: the mediating role of digital engagement. *Journal of Management and Business Innovation*, 01–11. https://doi.org/10.65792/jombinov.v2i01.35.

Tarofder, A. K., Haque, A., Nawaz, N., Raisal, I., Musah, A. A., & M. D. Kassim, A. A. (2023). Determinants of instant messenger (IM) adoption and its effect on team performance: Mediating role of knowledge creation and quality communication. *PLOS ONE*, *18*(11), e0289168. https://doi.org/10.1371/journal.pone.0289168.

Tkalac Verčič, A., & Men, L. R. (2023). Redefining the link between internal communication and employee engagement. *Public Relations Review*, *49*(1), 102279. https://doi.org/10.1016/j.pubrev.2022.102279.

Toscano, F., Zappalà, S., & Donati, S. (2025). The dark side of remote work: a critical review and a call to action to address remote work inequalities. *Informing Science: The International Journal of an Emerging Transdiscipline*, *28*, 030. https://doi.org/10.28945/5624.

Van Der Waal, W., Van De Weerd, I., Beerepoot, I., Lu, X., Kappen, T., Haitjema, S., & Reijers, H. A. (2025). Putting the SWORD to the test: finding workarounds with process mining. *Business & Information Systems Engineering*, *67*(2), 171–190. https://doi.org/10.1007/s12599-023-00846-3.

Wang, K. K., Cheng, M. M., & Chang, L. J. (2023). Reducing strategy surrogation: the effects of performance measurement system flexibility and environmental dynamism. *The Accounting Review*, *98*(4), 435–456. https://doi.org/10.2308/TAR-2019-0523.

Wessel, L. K., Baiyere, A., Ologeanu-Taddei, R., Cha, J., & Jensen, T. B. (2021). Unpacking the difference between digital transformation and IT-enabled organizational transformation. *Journal of the Association for information systems*, *22*(1), 102-129. https://doi.org/10.17705/1jais.00655.

Wilson, J. (2025). Interpretive description and reflexive thematic analysis: exploring conceptual coherence and methodological integrity. *Qualitative Health Research*, 10497323251378303. https://doi.org/10.1177/10497323251378303.

Wirdiyanti, R., Yusgiantoro, I., Sugiarto, A., Harjanti, A. D., Mambea, I. Y., Soekarno, S., & Damayanti, S. M. (2023). How does e-commerce adoption impact micro, small, and medium enterprises' performance and financial inclusion? Evidence from Indonesia. *Electronic Commerce Research*, *23*(4), 2485–2515. https://doi.org/10.1007/s10660-022-09547-7.

Yovian, Y., & Pratama, N. R. (2025). Examining the impact of e-service quality and e-recovery service quality in digital public services in Indonesia. *Journal of World Science*, *4*(6), 754–768. https://doi.org/10.58344/jws.v4i6.1426.

Yuan, Q., Kong, J., Liu, C., & Jiang, Y. (2025). Understanding the effects of specific techno-stressors on strain and job performance: A meta-analysis of the empirical evidence. *Information Technology & People*, *38*(2), 787–826. https://doi.org/10.1108/ITP-08-2022-0639.

Zamani, E. D., Watson-Manheim, M. B., Abbott, P., & Lin, A. (2025). The new wave of "hybrid" work: An opportunity to revise assumptions and build theory. *Information Systems Journal*, *35*(2), 710–719. https://doi.org/10.1111/isj.12558.