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DIGITAL TRANSFORMATION OF ENTERPRISES IN THE OPINION OF MANAGERS

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Purpose: The purpose of the study is to examine whether the implementation success of IT systems in enterprises is associated with (1) changes in the company's overall strategy undertaken during IT implementation, (2) management involvement in the implementation process, and (3) the existence of a formal written IT or process management strategy. The research specifically seeks to determine which of these strategic and organizational factors differentiates managers' satisfaction with IT implementation outcomes.
Design/methodology/approach: The study adopts an exploratory research design combining a systematic literature review with an empirical CAWI survey. Primary data were collected at the end of 2024 from 11 enterprises associated with the Kielce Technology Park. The questionnaire measured managers' perceptions of IT implementation outcomes and organizational conditions. Statistical analysis included the Mann–Whitney U test to assess the impact of management involvement and Student's t-tests to examine differences in satisfaction levels related to written IT strategies and strategic changes undertaken during IT implementation.
Findings: The results show a statistically significant relationship between management involvement and satisfaction with IT implementation outcomes (Mann-Whitney $U = 12.5$; $p < 0.01$). Furthermore, a statistically significant difference was identified between enterprises that modified their overall strategy during IT implementation and those that did not, with higher satisfaction regarding achieved objectives observed in the former group ($t >$ critical value at $\alpha = 0.05$). In contrast, the presence of a written IT or process management strategy did not produce statistically significant differences in satisfaction levels. These findings indicate that strategic adaptability and active managerial engagement, rather than formal strategic documentation alone, are key determinants of perceived IT implementation success.
Research limitations/implications: If research is reported on in the paper, this section must be completed and should include suggestions for future research and any identified limitations in the research process.
Practical implications: The study demonstrates that enterprises implementing IT systems should prioritize active top-management involvement and treat IT implementation as a catalyst for strategic adjustment rather than as a purely technical project executed within fixed strategic assumptions. For practitioners, the results suggest that formal IT strategies should be complemented by mechanisms enabling ongoing strategic review and adaptation during implementation. Such an approach may reduce implementation failures and increase

satisfaction with achieved outcomes, particularly in organizations undergoing digital transformation under conditions of uncertainty.
Originality/value: The originality of the paper lies in demonstrating—based on empirical data from Polish enterprises—that strategic change during IT implementation is more strongly associated with satisfaction with achieved implementation objectives than the mere existence of a written IT strategy. The study contributes to the digital transformation literature by shifting the emphasis from static strategic formalization toward strategic adaptability as a managerial capability relevant in technology-driven change. The paper is addressed to scholars investigating digital transformation determinants and IT project success factors, and to managers responsible for IT implementation who require evidence-based guidance on how to reduce failure risk and increase perceived project success.
Keywords: IT system, strategy, success factors, ERP.
Category of the paper: Research paper.

1. Introduction

An effective evaluation framework and methodology for assessing enterprise informatization are essential to guide the implementation and development of corporate information systems. With the rapid advancement of Information Technology (IT), businesses are gaining significant benefits across multiple operational areas, as technology has become a vital component for integrating processes and data within organizations. Enterprises employ information systems to gather, process, and transform data into valuable information that supports decision-making and overall business performance. Digital transformation currently represents one of the key processes determining the competitiveness and efficiency of economic entities, fundamentally reshaping the paradigms of how organizations operate in the modern economy. Digitalization processes are transforming not only the technological aspects of enterprises but also their organizational structures, business models, and relationships with stakeholders. As Pieriegud (Pieriegud, 2016, pp. 11-15) points out, digital transformation signifies a shift in the existing operational model of an enterprise or an entire sector using cutting-edge digital technologies, particularly those based on data analytics, artificial intelligence and cloud computing.

The most common mistakes observed during IT implementations:

- Lack of governance and accountability. No designated process owners, unclear rules for model usage, and insufficient content quality control.
- Overly rapid scaling. Implementation carried out without validating data, costs, or workflow impact.
- Lack of a coherent communication strategy.
- Absence of success metrics. Focus on outcomes rather than KPIs (time, quality, cost, conversions).

- Mismatch between tools and team competencies. Advanced solutions introduced without the necessary operational skills.
- Lack of education and onboarding. Employees were not adequately prepared to work with the new system.

In the Polish context, digital transformation gains particular importance considering the challenges posed by rising labour costs, competitive pressure from foreign entities, and evolving consumer expectations. As indicated by a Deloitte report, Polish enterprises that have successfully implemented digitalization strategies recorded an average 23% increase in productivity and an 18% reduction in operational costs (Deloitte, 2021, pp. 12-18).

Digital transformation constitutes a fundamental process redefining contemporary enterprise management. Its significance extends far beyond technological aspects, encompassing a comprehensive shift in business models, organizational structures, and ways of interacting with customers. Companies that effectively implement digitalization strategies gain a significant competitive advantage by increasing operational efficiency, better understanding customer needs, and adapting more quickly to changing market conditions.

Managers and IT experts employed in Polish enterprises perceive their organizations as innovative and consistently implementing advanced information technologies in response to business needs, competitive pressures, and market trends. The analysis of the study results clearly indicates a high level of advancement among Polish companies in terms of IT solutions that foster innovation and enhance competitive advantage.

Security and business continuity issues are placed unequivocally at the forefront. As many as 91% of companies adopt innovations in cybersecurity and infrastructure monitoring (SOC) to ensure organizational resilience to contemporary threats, while simultaneously continuing to digitalize further business processes.

Up to 92% of entities representing the financial sector currently use cloud computing resources. Across the economy, the saturation with cloud technologies—regardless of the model (IaaS, PaaS, SaaS)—averages 65% in industry and 54% in healthcare. At the same time, companies are not inclined to abandon their own IT infrastructure. As many as 89% of surveyed firms still maintain their internal IT resources, with this percentage reaching 100% in the financial sector (Barometr Cyfrowej Transformacji Polskiego Biznesu, 2025-2026, p. 5).

The article addresses the following research hypotheses:

H1: Enterprises that introduce strategic changes in response to digital transformation report higher levels of satisfaction with IT implementation outcomes than enterprises without such changes.

H2: The identification and formalization of business processes positively influence the effectiveness of IT system implementation.

H3: Organizational and situational determinants significantly differentiate the perceived success of IT implementation projects.

By testing these hypotheses, the study aims to extend existing knowledge on the strategic and organizational factors that condition digital transformation success. Given the limited empirical evidence focused on Polish enterprises, the findings are intended to enrich the literature with context-specific insights while remaining relevant to broader international discussions.

Digital transformation has emerged as a central research theme in management and information systems literature, reflecting the growing role of digital technologies in reshaping enterprise strategies, structures, and competitive dynamics. Contemporary research increasingly emphasizes that digital transformation extends beyond the implementation of advanced IT solutions and constitutes a strategic and organizational process that fundamentally alters how firms create value (Bharadwaj et al., 2013; Vial, 2019). In this perspective, digital technologies are not merely operational tools but strategic resources whose effectiveness depends on alignment with business objectives, managerial capabilities, and organizational readiness.

A substantial body of literature highlights the importance of strategy–IT alignment as a determinant of successful digital initiatives. Early contributions in the field of information systems management demonstrated that misalignment between IT investments and corporate strategy often leads to suboptimal outcomes and implementation failures (Kisielnicki, Sroka, 2001; Markus, Tanis, 2000). More recent studies extend this view by arguing that in environments characterized by rapid technological change, alignment should be understood as a dynamic capability rather than a static state (Matt et al., 2015; Hess et al., 2016). From this standpoint, digital transformation strategies require continuous adaptation as organizations learn from implementation experiences and respond to emerging challenges.

The strategic dimension of digital transformation is closely linked to leadership and managerial involvement. Empirical and conceptual studies consistently indicate that top management commitment plays a decisive role in shaping digital transformation outcomes by providing direction, legitimizing change, and resolving organizational conflicts arising during implementation (Kane et al., 2015; Teece, 2018). Inadequate governance, lack of accountability, and insufficient managerial engagement have been identified as recurrent causes of failure in ERP and enterprise system projects (Lech, 2007; Somers, Nelson, 2004). These findings support the view that digital transformation success depends not only on technological choices but also on leadership-driven coordination of strategic, structural, and cultural change.

The evaluation of IT implementation outcomes has been extensively addressed in the information systems literature through models of IS success. Among these, the DeLone and McLean Information Systems Success Model remains one of the most influential frameworks for assessing the effectiveness of IT systems (DeLone, McLean, 2003). The model conceptualizes success as a multidimensional construct encompassing system quality, information quality, service quality, system use, user satisfaction, and net benefits. Subsequent studies have refined and empirically validated the model, emphasizing the central role of user

satisfaction and perceived benefits as meaningful indicators of implementation success, particularly in organizational contexts where objective performance metrics may be difficult to isolate (Petter et al., 2008; William, Tjhin, 2021). This approach is particularly relevant for research focusing on managerial perceptions of IT outcomes, as satisfaction reflects the extent to which systems meet organizational expectations and strategic objectives.

2. Research Methodology

The first element of the adopted methodology is a systematic literature review aimed at identifying the theoretical foundations of digital transformation and the current state of knowledge in this field. The review covers publications from 2010-2023, with particular emphasis on works published in the last five years, which makes it possible to capture the latest trends and concepts. The process of selecting literature was conducted in accordance with the PRISMA methodology (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which ensures transparency and methodological rigor of the research procedure.

Although the review was not intended as a meta-analysis, PRISMA guidelines were applied as a structured framework for managing the review process and documenting inclusion and exclusion decisions.

The review procedure consisted of four main stages: identification, screening, eligibility assessment, and inclusion.

In the identification stage, a comprehensive search was conducted in the following scientific databases: *Web of Science, Scopus, EBSCO Business Source Complete,* and *BazEkon*. The search covered publications from 2010 to 2023, with particular emphasis on works published in the last five years to capture the most recent developments in digital transformation research. The key search terms included: *digital transformation, enterprise digitalization, digital management, Industry 4.0, digital innovation, digital competencies,* and *digital leadership*. Both Polish and English-language publications were considered.

During the screening stage, duplicated records were removed, and titles and abstracts were examined to assess their relevance to the research objective. Publications that did not address enterprise-level digital transformation, IT systems implementation, or strategic and organizational determinants were excluded at this stage.

In the eligibility assessment stage, full-text versions of the remaining publications were reviewed in detail. Inclusion criteria comprised: (1) relevance to digital transformation or IT systems implementation in enterprises, (2) a clear conceptual or empirical contribution, and (3) alignment with management, information systems, or organizational studies. Exclusion criteria included purely technical studies without managerial implications, publications lacking methodological transparency, and sources not directly related to enterprise contexts.

The final inclusion stage resulted in a corpus of 10 publications, consisting of 3 peer-reviewed scientific articles, 5 academic monographs, and 2 industry reports. The selected sources represented both Polish and international research perspectives, enabling comparative interpretation and contextualization of digital transformation determinants specific to Polish enterprises.

The PRISMA-based procedure ensured that the literature review was conducted in a systematic and replicable manner, minimized selection bias, and provided a transparent foundation for the development of research hypotheses and the interpretation of empirical findings. The outcomes of the review supported the operationalization of key constructs, including strategic alignment, management involvement, and process formalization, which were subsequently examined in the empirical part of the study.

The key search terms used in the process included: digital transformation, enterprise digitalization, digital management, Industry 4.0, digital innovation, digital competencies, and digital leadership. The literature review was oriented toward achieving the following partial objectives: operationalizing the concept of digital transformation, identifying the main models and frameworks of transformation, analysing success factors and barriers in the digitalization process, and determining the impact of digital solutions on enterprise competitiveness.

The study was conducted using the CAWI method (Computer-Assisted Web Interview) on a sample of 11 respondents representing various organizational levels. A stratified sampling procedure was applied, considering the employment structure within the enterprise.

The survey questionnaire consisted of 16 questions grouped into the following thematic areas:

1. Perception of digital transformation processes in the enterprise.
2. Assessment of the impact of digitalization on work efficiency and job satisfaction.
3. Identification of barriers and challenges associated with the implementation of digital solutions.
4. Evaluation of employees' digital competencies and training needs.

In constructing the questionnaire, both closed-ended questions (Likert scales, ordinal scales) and open-ended questions were used, which made it possible to obtain in-depth qualitative information.

For research purposes, a set of quantifiable variables was developed to characterize the situational and organizational conditions determining the effectiveness of IT system implementation. The study focused particularly on the identification of business processes that form the basis for IT integration and automation. During the research procedure, the actual determinants affecting successful IT implementation were distinguished from potential factors by examining how process identification shaped system adoption outcomes.

The determinants of effective IT systems adoption were identified based on questionnaire responses from companies associated with the Kielce Technology Park (as of the end of 2024). Respondents were allowed to select one or more predefined options or to provide descriptive

answers, which enabled a nuanced interpretation of organizational conditions shaping digital transformation outcomes.

Qualitative data obtained from open-ended questions in the CAWI survey were analysed using a thematic content analysis approach. The analysis followed an iterative procedure aimed at identifying recurring patterns, meanings, and explanatory categories related to IT system implementation and digital transformation outcomes.

In the first step, all open-ended responses were reviewed to achieve data familiarization. Subsequently, initial codes were assigned to text segments reflecting key issues raised by respondents, such as management involvement, strategic adaptation, process-related challenges, user readiness, and perceived benefits or barriers of IT implementation. Coding was conducted manually due to the limited volume of qualitative material, which enabled close interpretative engagement with the data.

In the next stage, the codes were grouped into higher-order thematic categories corresponding to the study's analytical framework and research hypotheses. Attention was paid to themes that complemented or explained quantitative findings, especially those related to strategic change during implementation and managerial support. Finally, the identified themes were interpreted in conjunction with quantitative results to provide contextual explanations for observed statistical relationships.

This qualitative analysis served a supporting and explanatory role, enhancing the interpretation of survey results rather than generating independent theory. The integration of qualitative insights with quantitative findings strengthened the internal validity of the study by enabling triangulation of data sources and perspectives.

3. Conditions for IT systems Implementation

Introducing IT system helps address several critical challenges facing modern enterprises:

- Lack of standardized methods for assessing process maturity and identifying risks affecting IT implementation and business performance.
- Limited tools for evaluating the consistency between real task execution and model-based workflow representations.
- Need for standardized, adaptable processes to simplify enterprise application requirements and reduce system complexity.
- The necessity for managerial guidance on implementing business process foundations that foster agility and reduce operating costs (Lech, 2007).

Implementing IT system is an investment requiring thorough planning from the outset. Key Performance Indicators (KPIs) should be selected based on a detailed analysis of business requirements before choosing a consultant. The appropriate KPIs depend on factors such as:

- company size,
- industry sector,
- short-term business strategy,
- current operational challenges (Kisielnicki, Sroka, 2001).

The evaluation theory used is the Information Systems (IS) Success Model developed by William H. DeLone and Ephraim R. McLean. The IS Success Model consists of several variables: Systems Quality, Information Quality, Service Quality, User Satisfaction, System use and Intention to use, and Net Benefits. These variables are interrelated and have a dependence on measuring the success of information systems. The working model IS Success framework has been considered the most influential model for assessing information. There are other models such as the Technology Acceptance Model (TAM), Diffusion of Innovation Theory (DOI), Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Model of PC Utilization (MPCU), Unified Theory of Acceptance and Use of Technology (UTAUT).

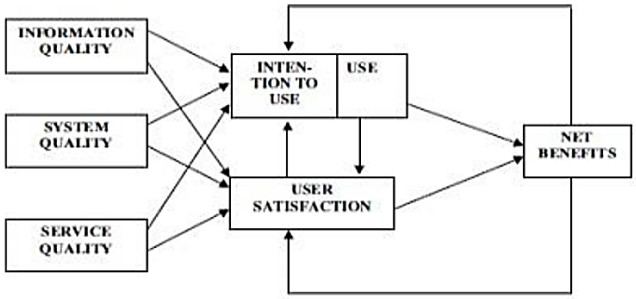

Figure 1. Information Systems (IS) Success Model.

Source: William, Tjhin, 2021, p. 2.

The success variable measured using the IS Success Model:

- System Quality. The system quality variable is a desired characteristic of an IS. System quality variables focus on aspects of usability, ease of use, system flexibility, system reliability, and ease of learning, as well as intuitiveness, sophistication, flexibility, and system response time.
- Information Quality. The information quality variable is the desired output characteristic in IS. Information that the system can generate is relevant, easy to understand, accurate, concise, complete, fast, and usable.
- Service Quality. The service quality success variable represents the quality of support users receive from the IS department and IT support personnel. For example, training, helpdesk, and so on.
- System use and intention to use. The success variable of intention to use IS represents its users' use the degree and way IS. Measuring IS use is a broad concept that can be considered from several perspectives. In that case, using IS voluntarily and the actual use of an IS an appropriate measure of success.

- User satisfaction. The success variable of user satisfaction is the level of user satisfaction when using IS. The user satisfaction variable is considered as one of the most important variables for IS success.
- Net benefits. The success variable of net benefits is the extent to which IS contributes to the success of individuals, groups, organizations, or various stakeholders. This variable summarizes the separate dimensions of individual impact, and organizational impact and additional IS impact measures from other researchers such as workgroup impact and social impact into a single success dimension. The choice of what impact to measure depends on the system being evaluated, the study's objectives, and the level of analysis.

4. Research Results

Primary data were collected at the end of 2024 from enterprises within the Kielce Technology Park. The target group comprised individuals responsible for IT system implementation—project managers, IT heads, or other designated staff. Using random sampling, responses were obtained from 11 companies.

The applied random selection method resulted in responses from 11 entities. This result raises concerns about the representativeness of the research. This error resulted both from the limited size of the surveyed population and from the reluctant cooperation of a large group of surveyed companies.

Due to the limitations resulting from the adopted sampling method, it was not possible to apply the subjective estimation and extrapolation method. Among the available secondary sources, there were no data useful to analyze the issues constituting the essence of the described research, those related to the corporate strategy.

The small sample size and limited cooperation among firms raised concerns about representativeness. Consequently, subjective estimation and extrapolation methods could not be applied, and relevant secondary data were unavailable. Given these limitations, the study was classified as exploratory research, aiming primarily to identify issues. The initial hypotheses proposed that:

- IT system implementation depends on the company’s strategy.
- The level of IT systems utilization perceived by management is generally unsatisfactory.

Table 1.
Relationship between Management Commitment and Satisfaction with Process Management

Satisfaction level	Management Commitment: Yes	Management Commitment: No
1	0	3
2	0	1
3	0	2
4	1	0
5	4	0
Average	4.1	2.5
Standard deviation	0.6	1.4

Source: Own study based on research.

The relationship between management involvement and the level of satisfaction with the IT system implementation was verified using the Mann–Whitney U test. The analysis revealed that organizations where management actively participated in the IT project reported significantly higher satisfaction levels ($p < 0.01$). The calculated U statistic amounted to 12.5, confirming a strong relationship between managerial engagement and perceived project success.

Table 2 illustrates the relationship between the existence of a formal process management strategy and satisfaction with IT system implementation outcomes. The analysis was based on qualitative indicators rather than quantitative performance measures (e.g., ROI). Results indicate no statistically significant difference in satisfaction between companies that had a written IT strategy and those that did not.

However, organizations that adapted or modified their overall business strategy during IT implementation demonstrated a noticeable increase in satisfaction with achieved results. This finding highlights the importance of strategic flexibility—especially since structural or procedural changes often disturb existing power relations and may trigger competency conflicts within the organization.

Table 2.
Strategic factors and satisfaction level with IT system project implementation

Factor	Written IT Strategy		Changes in Company Strategy Resulting from IT Implementation	
	Yes	No	Yes	No
Satisfaction with implementation	2.9	2.7	3.5	2.4
Satisfaction with achieved objectives	3.4	2.4	4.2	2.5

Source: Own study based on research.

To assess the statistical significance of the obtained results, a Student's t-test for the difference between two means was conducted. The analysis assumed 7 degrees of freedom and a significance level of $\alpha = 0.05$. The results are summarized in Table 3.

Table 3.
Significance of mean differences

Satisfaction Dimension	Assumption	Factor	Group	Mean Score	t Statistic	Critical Value
Satisfaction with implementation	Equal variance	Written strategy	Yes	2.9	0.364	2.3646
			No	2.7		
		Changes to strategy	Yes	3.5	1.350	2.3646
			No	2.4		
	Unequal variance	Written strategy	Yes	2.9	0.345	2.3646
			No	2.7		
		Changes to strategy	Yes	3.5	1.354	2.3646
			No	2.4		
Satisfaction with achieved objectives	Equal variance	Written strategy	Yes	3.4	2.001	2.3646
			No	2.4		
		Changes to strategy	Yes	4.2	2.930	2.3646
			No	2.5		
	Unequal variance	Written strategy	Yes	3.4	1.922	2.3646
			No	2.4		
		Changes to strategy	Yes	4.2	4.129	2.3646
			No	2.5		

Source: Own study based on research.

The empirical results of the study allow for the formulation of specific managerial recommendations that go beyond general statements and are directly grounded in observed patterns. In particular, the confirmed relationships between management involvement, strategic adaptability, and satisfaction with IT implementation outcomes, combined with the identified perception–behaviour gap, indicate that digital transformation requires targeted, behaviour-sensitive managerial interventions.

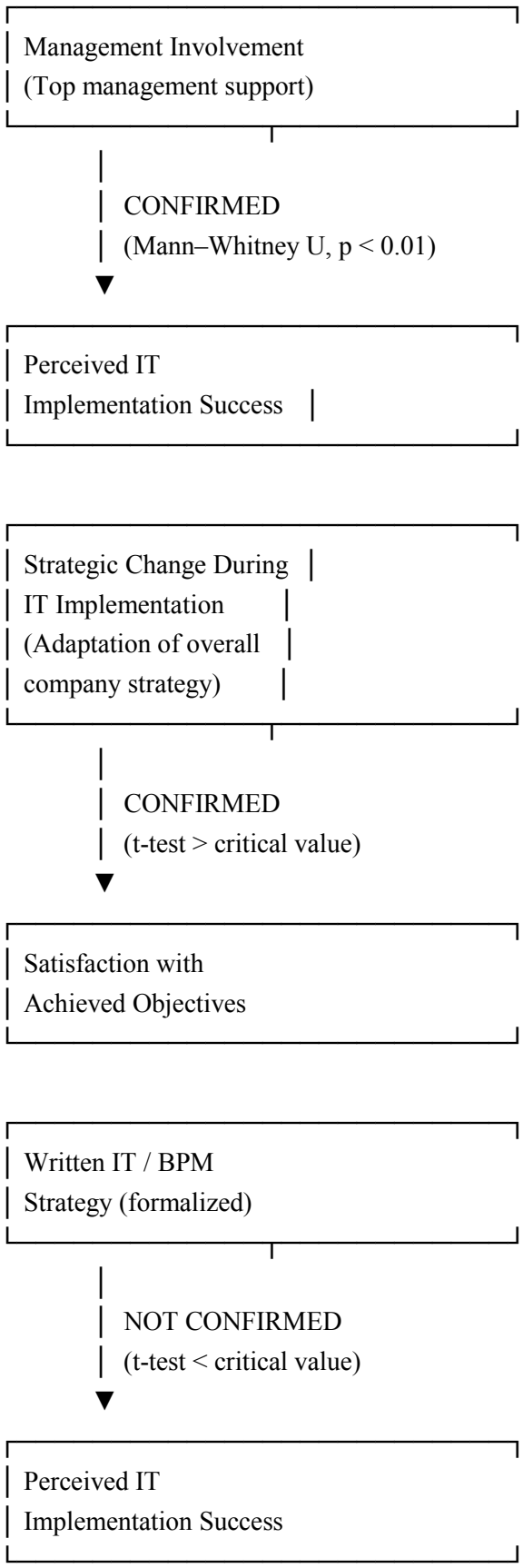

Figure 1. Conceptual model.

Source: own preparation.

First, the strong relationship between management involvement and satisfaction with IT implementation outcomes suggests that organizations should institutionalize visible leadership engagement throughout the implementation lifecycle. This may include assigning executive sponsors with clearly defined accountability for IT projects, introducing regular management reviews focused not only on technical milestones but also on user behaviour and process compliance, and communicating explicitly how IT systems support strategic objectives. Such practices can reduce the discrepancy between declared satisfaction and actual system use by reinforcing the importance of disciplined behaviour.

Second, the finding that strategic change during implementation, rather than the mere existence of a written IT strategy, significantly improves satisfaction with achieved objectives implies that organizations should implement formal mechanisms for strategic recalibration. In practice, this can take the form of scheduled strategy checkpoints during IT implementation, where assumptions about processes, roles, and expected benefits are reassessed. These checkpoints should explicitly address behavioural indicators, such as the extent to which employees use advanced system functionalities or revert to informal workarounds.

Third, the observed perception–behaviour gap highlights the need for differentiated behavioural interventions rather than uniform training or communication programs. Empirical patterns suggest that satisfaction with IT systems may coexist with risky or inefficient practices, particularly in areas related to security monitoring, process compliance, and system exploitation. For example, targeted reminders and dashboards encouraging more frequent transaction monitoring and anomaly checking may be particularly effective among user groups that express high confidence but demonstrate lower behavioural vigilance. Conversely, reinforcing and formalizing the use of advanced security methods, such as multi-factor authentication or role-based access controls, among users already inclined toward cautious behaviour can help institutionalize good practices and prevent regression over time.

Fourth, process identification and formalization—although not statistically significant as a standalone factor—emerged as a necessary enabling condition for effective IT use. Managers should therefore link BPM initiatives more explicitly to everyday behaviour by embedding process controls directly into IT systems, reducing the scope for bypassing formal workflows. This may involve limiting manual overrides, integrating automated alerts for non-compliant actions, and aligning performance metrics with actual system use rather than declared adoption.

Finally, the study suggests that evaluating IT implementation success solely through satisfaction surveys is insufficient. Organizations should complement perceptual measures with behavioural and usage indicators, such as system log analysis, frequency of use of advanced functionalities, or compliance with security and process standards. This combined evaluation approach can help managers detect early warning signals of a perception–behaviour gap and intervene before it undermines the long-term benefits of digital transformation.

Overall, these recommendations emphasize that the applied value of digital transformation lies not only in technology deployment, but in actively shaping user behaviour through leadership, strategic adaptability, and targeted interventions. By aligning managerial actions with empirically observed patterns, organizations can increase the likelihood that IT implementation translates into sustained operational and strategic benefits.

Recommendation 1: Institutionalize visible top-management involvement throughout IT implementation. Table 1 shows a statistically significant difference in satisfaction levels between enterprises with active management involvement and those without (Mann-Whitney $U = 12.5$; $p < 0.01$). Organizations with managerial engagement reported markedly higher average satisfaction (4.1 vs. 2.5). Enterprises should appoint executive sponsors for IT projects, ensure regular leadership reviews of implementation progress, and communicate management accountability for system adoption. This recommendation directly follows from the confirmed relationship between management involvement and perceived IT success.

Recommendation 2: Treat IT implementation as a trigger for strategic adjustment rather than execution of a fixed plan. Tables 2 and 3 demonstrate that enterprises which introduced changes to their overall strategy during IT implementation achieved significantly higher satisfaction with accomplished objectives (mean 4.2 vs. 2.5; t-statistic exceeding the critical value at $\alpha = 0.05$). No such effect was observed for the mere existence of a written IT strategy. Organizations should introduce formal strategy review checkpoints during IT implementation, allowing goals, priorities, and processes to be revised in response to implementation experience. This recommendation is grounded in the empirically confirmed superiority of strategic adaptability over static strategic formalization.

Recommendation 3: Do not rely solely on written IT/BPM strategies as indicators of implementation success. Statistical tests showed no significant differences in satisfaction between enterprises with and without a written IT or BPM strategy. In both equal and unequal variance assumptions, t-values remained below the critical threshold. While written strategies remain useful as coordination tools, managers should avoid treating them as guarantees of success. Instead, strategic documents should be complemented by active governance, leadership involvement, and adaptive decision-making mechanisms.

Recommendation 4: Address the perception–behaviour gap through targeted behavioural interventions. Despite high declared satisfaction with IT systems, qualitative data revealed inconsistent behaviours, indicating a perception–behaviour gap. The strongest empirical drivers of satisfaction—management involvement and strategic change—suggest that behavioural alignment requires leadership-driven reinforcement. Targeting users who express high confidence but show limited vigilance (e.g., reminders for frequent transaction monitoring). Reinforcing advanced security practices among users already inclined toward cautious behaviour (e.g., consistent use of multi-factor authentication). Digital transformation programs should include differentiated behavioural nudges, monitoring tools, and reinforcement mechanisms rather than uniform training programs.

Recommendation 5: Integrate behavioural and usage indicators into IT success evaluation frameworks. The differentiation of satisfaction outcomes by organizational and situational determinants confirms that perceived success varies systematically across enterprises. Satisfaction alone does not fully capture implementation effectiveness. Managers should complement satisfaction surveys with behavioural metrics such as system usage logs, frequency of advanced feature use, and compliance with defined workflows. This approach aligns evaluation practices with empirically observed determinants of success.

Table 4.
Summary Mapping

Recommendation	Hypothesis	Table(s)	Status
Management involvement	H1	Table 1	✔ Confirmed
Strategic change during implementation	H1	Tables 2–3	✔ Confirmed
Written IT/BPM strategy alone	H2	Tables 2–3	✖ Not confirmed
Address perception–behaviour gap	H1, H3	Tables 1–3	✔ Supported
Behavioural metrics in evaluation	H3	Tables 1–3	✔ Supported

Source: Own study based on research.

5. Discussion

The primary contribution of this study lies in empirically demonstrating the significance of strategic change as a determinant of satisfaction with IT system implementation outcomes in enterprises undergoing digital transformation. While prior research has widely acknowledged the importance of IT alignment with business strategy, the present findings add nuance by showing that it is not the mere existence of a written IT or process management strategy that matters, but rather the organization's willingness to adapt and modify its overall strategic orientation during the implementation process. This distinction represents a novel contribution, particularly in the context of Polish enterprises, where empirical evidence on strategic flexibility in digital transformation remains limited. Previous studies have emphasized that digital transformation should be treated as a holistic organizational change rather than a purely technological upgrade (Pieriegud, 2016; Deloitte, 2021). The literature consistently points to strategy–IT alignment as a success factor in ERP and other integrated system implementations (Kisielnicki, Sroka, 2001; Lech, 2007). What was already known is that inadequate governance, weak managerial involvement, and insufficient process formalization often lead to implementation failures. However, existing studies frequently focus on formal strategic documents or predefined frameworks as indicators of maturity. In contrast, the present research suggests that adaptive strategic behaviour during implementation plays a more decisive role in shaping perceived success than static strategic formalization.

The results obtained in this study are partially consistent with earlier findings reported in the literature. Like prior research based on the Information Systems Success Model (DeLone, McLean), user satisfaction and perceived benefits were confirmed as central indicators of IT implementation success (William, Tjhin, 2021). Moreover, the strong relationship identified between management involvement and satisfaction with IT outcomes aligns with earlier observations that leadership commitment is a critical success factor in digital projects (Lech, 2007; PARP, 2022). At the same time, the lack of statistically significant differences between companies with and without a written IT strategy contrasts with some normative models that treat formal strategic documentation as a prerequisite for success. This discrepancy suggests that in dynamic digital environments, flexibility and responsiveness may outweigh formal planning.

A particularly important conclusion emerging from the analysis is that strategic change acts as a mediating mechanism between IT implementation and satisfaction with achieved objectives. Organizations that adjusted their overall strategy during implementation reported significantly higher satisfaction levels, even when other structural factors remained unchanged. This finding supports the view that digital transformation disrupts existing power relations, competencies, and workflows, requiring iterative strategic recalibration rather than rigid adherence to predefined plans. Such observations are consistent with broader studies on Industry 4.0 and digital innovation, which emphasize learning, experimentation, and organizational agility as key transformation capabilities (Deloitte, 2021; Polcom, 2025).

Regarding the formulated hypotheses, the empirical results provide partial but meaningful confirmation. Hypothesis H1 was supported, as enterprises introducing strategic changes in response to digital transformation reported significantly higher satisfaction with IT implementation outcomes. Hypothesis H2 received indirect support: although the existence of a written process or IT strategy alone did not differentiate satisfaction levels, process identification and managerial engagement were shown to be essential conditions enabling effective system adoption. Hypothesis H3 was also confirmed, as organizational and situational determinants—particularly management commitment and strategic adaptability—clearly differentiated perceived implementation success.

Despite these contributions, the study has limitations that should be acknowledged. The small sample size and exploratory nature of the research restrict the generalizability of the findings. The focus on enterprises associated with the Kielce Technology Park further narrows the empirical scope, although it provides valuable insight into a specific innovation-oriented ecosystem. Consequently, the results should be interpreted as indicative rather than conclusive. Nevertheless, exploratory studies play an important role in identifying patterns and generating hypotheses for further investigation (Churchill, 2002).

Future research should aim to validate these findings using larger and more diverse samples, enabling the application of advanced statistical techniques and cross-sectoral comparisons. Longitudinal studies would be particularly valuable in examining how strategic adjustments

evolve throughout different stages of IT implementation and how they affect long-term organizational performance. Additionally, integrating objective performance indicators, such as productivity gains or cost reductions, with perceptual measures of satisfaction would strengthen the explanatory power of future analyses.

6. Conclusion

The results of the survey conducted among enterprises operating within the Kielce Technology Park ($n = 11$) indicate that managerial and strategic factors differentiate satisfaction with IT implementation outcomes. Two empirical patterns are particularly clear. First, the Mann–Whitney U test confirmed that organizations with active management involvement in the IT project reported significantly higher satisfaction levels than those without such involvement ($p < 0.01$). Second—and most importantly—the Student's t-test demonstrated a statistically significant difference in satisfaction with achieved objectives between enterprises that introduced changes to their overall strategy because of IT implementation and those that did not (t values exceeding the critical threshold under both equal and unequal variance assumptions). In contrast, the existence of a written IT strategy did not yield statistically significant differences in satisfaction, suggesting that formal documentation alone is not sufficient to increase perceived implementation success.

These findings provide new knowledge by indicating that what drives positive evaluations of IT implementation is not only alignment with a pre-existing plan, but also the organization's capacity to adapt strategy during implementation, i.e., to reconfigure priorities, governance, and operating logic in response to implementation challenges. This result extends earlier observations that digital transformation is a comprehensive organizational change rather than a technological upgrade (Pieriegud, 2016) and is consistent with evidence that successful digitalization requires leadership commitment and adaptive capabilities (Deloitte, 2021; PARP, 2022). The lesson learned from the study is that strategic flexibility should be treated as a success factor: IT implementation disrupts processes, roles, and power structures, and therefore organizations that modify strategy during implementation may be better positioned to absorb those disruptions and translate technology into perceived benefits.

From a theoretical perspective, the results support approaches to IT success that emphasize user satisfaction and perceived benefits as meaningful outcome variables (William, Tjhin, 2021) and suggest that "strategy" should be conceptualized not only as a static document, but as an adaptive mechanism interacting with implementation dynamics. From a practical perspective, the results imply that managers should prioritize: (1) visible top-management engagement and accountability structures; (2) process identification as the foundation for integration and automation; and (3) structured strategic review points during implementation,

where business goals and operating assumptions are adjusted rather than treated as fixed. Such an approach can reduce the risk of implementation failure and increase satisfaction with achieved objectives, which is particularly important in the Polish context where enterprises face strong cost pressure and rising demands for digital competitiveness (Deloitte, 2021; Polcom, 2025, Kowalewski, Weresa, 2020).

One of the clearest empirical findings emerging from the presented data is the existence of a perception–behaviour gap in the context of IT system implementation and digital transformation. While managers generally expressed high levels of satisfaction with implemented IT solutions and perceived their organizations as digitally mature and well prepared, qualitative responses and selected survey indicators revealed inconsistencies between these positive perceptions and actual organizational practices.

This gap is particularly visible in areas related to process discipline, user behaviour, and everyday system use. Respondents frequently declared confidence in the effectiveness, security, and usability of implemented systems, yet simultaneously reported behaviours and practices that contradict these assessments, such as incomplete process formalization, ad hoc workarounds, limited exploitation of system functionalities, or reliance on informal routines outside the system. These findings suggest that subjective satisfaction and declared readiness do not necessarily translate into consistent, system-aligned behaviour at the operational level.

The observed perception–behaviour gap can be interpreted through the lens of the Information Systems Success Model, which distinguishes between user satisfaction, system use, and net benefits (DeLone, McLean, 2003). The results indicate that high satisfaction does not automatically imply intensive or correct system use, nor does it guarantee the realization of full organizational benefits. This divergence is consistent with prior research showing that users may report positive attitudes toward IT systems while continuing to apply familiar practices that limit the transformative potential of digital solutions (Petter et al., 2008; Vial, 2019).

From a managerial perspective, the presence of this gap highlights the risk of overestimating digital maturity based solely on declarative indicators. Organizations may prematurely conclude that digital transformation objectives have been achieved, while underlying behavioural patterns remain unchanged. This finding reinforces the importance of combining perceptual measures with behavioural and process-oriented indicators when evaluating IT implementation outcomes. It also underscores the need for ongoing training, monitoring, and reinforcement mechanisms that align everyday practices with strategic and technological intentions.

In theoretical terms, the perception–behaviour gap supports arguments that digital transformation is a continuous learning process rather than a one-time implementation event. The gap further explains why strategic change and managerial involvement—both empirically confirmed in this study—are critical for sustaining behavioural alignment over time. Without active leadership and adaptive governance, positive perceptions of IT systems may

coexist with practices that undermine their effective use and limit the realization of expected benefits.

At the same time, the study's limitations—particularly the small sample size and reliance on perceptual indicators—mean that conclusions should be interpreted as exploratory. Nevertheless, the identified patterns are sufficiently consistent to justify further research. Future studies should verify the observed relationships on larger samples, incorporate objective performance indicators, and test whether strategic adaptability remains significant when controlling for sectoral and organizational differences. In this way, the findings of the present study can be further used to build evidence-based models of digital transformation success factors in Polish enterprises and to develop managerial guidance supporting more effective and sustainable IT implementation.

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