

THE IMPLEMENTATION GAP IN THE DIGITAL MATURITY OF POLISH ENTERPRISES – MEASUREMENT AND IDENTIFICATION

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Purpose: The purpose of article is to define and empirically measure the implementation gap in enterprises' digital maturity, understood as the difference between the declarative–narrative and operational–implementation levels of digital transformation.

Design/methodology/approach: A quantitative survey was conducted on a sample of 697 enterprises in Poland, using the CAWI technique. A modified version of the “Digitalcheck Mittelstand” tool was employed. Two indices were constructed: the declaration index (ID) and the implementation index (IR), as well as the gap indicator $L = ID - IR$.

Findings: The implementation gap proved to be a structural phenomenon: only 10.3% of the enterprises achieve a relative alignment between the level of declarations and the implementation of digital technologies, 40.7% display overestimation, and 48.9% underestimation. The results confirm that the narrative–strategic and operational–implementation layers of digital maturity often develop asynchronously.

Research limitations/implications: The study is cross-sectional, based on self-report data and conducted in a single country, which limits the possibility of causal inference and generalizing the results to other economies.

Practical implications: The results indicate the need to design digital-maturity measurement tools that separate the level of declarations and the level of implementation of digital technologies and report at least two indices (ID, IR) and their difference. Diagnosing the implementation gap enables managers to identify situations in which strategy and narrative run ahead of operational capabilities ($L > 0$), or conversely, where implementation capabilities are not supported by a coherent vision, leadership, and communication ($L < 0$). The structure of the gap, differentiated by sector and firm size, suggests the necessity of designing individualized transformation programs.

Social implications: The implementation gap distorts the diagnosis of the state of digital transformation at the system level and may lead to errors in public policy, including supporting entities that are narratively skilled at the expense of those that actually possess advanced digital capabilities. Introducing an explicit gap indicator into measurement tools improves the quality of information used in designing support programs, economy-wide digitalization strategies, and initiatives related to social responsibility and sustainable development.

Originality/value: The article proposes a coherent Resource-Based View based concept of the implementation gap in digital maturity. It demonstrates empirically that this gap is not “measurement noise” but a dominant feature of contemporary enterprises.

Keywords: digital maturity, economic entities, Poland.

Category of the paper: research paper.

1. Introduction

Digital maturity of enterprises is a widely discussed concept, approached in the literature through numerous, partially overlapping ideas of how to define and measure it. The starting point for conceptualizing digital maturity is the process of digital transformation. Digital transformation is understood as the implementation of advanced technologies in order to optimize economic and social processes (Pricopoaia et al., 2025). Many authors define digital transformation as the implementation of technologies across all areas of an organization (Babaçoğlu et al., 2025). They treat this process as evolutionary, oriented toward leveraging digital opportunities and technologies to create value propositions within existing business models. Enterprises that invest resources in digital transformation usually experience growth and are more likely to achieve their intended outcomes (Kotiranta et al., 2024; Rossmann, 2018). Digital transformation can therefore be seen as a development path aimed at accomplishing goals and identifying ways of solving or preventing problems (da Costa et al., 2022; Nikkhou et al., 2016).

One of the most frequently cited definitions of digital maturity comes from Chanas and Hess (2016), who describe it as “the state of a firm’s digital transformation” and as a measure of “what the firm has already achieved in terms of transformation activities”. In this sense, digital maturity functions as an indicator of an organization’s current position and as a tool for identifying subsequent steps in the digital transformation process. At the same time, measuring it remains difficult, mainly due to the multitude of interpretations of digital transformation itself (Zaoui, Souissi, 2022). Ka et al. (2023) emphasize that digital transformation is a continuous process; accordingly, digital maturity supports the assessment of an organization’s current level of digitalization and provides ongoing feedback on its progress (Berghaus, Back, 2016).

Models used to assess levels of digital maturity offer a detailed description of the current state of enterprises and their strategies for implementing the Industry 4.0 concept (Gajdzik et al., 2025). They are research-oriented in nature, providing structured methods for assessing enterprises and the actions they have taken to reach a given maturity level.

The architecture and areas of application of digital maturity models vary considerably (Laaber et al., 2024; Hizam-Hanafiah et al., 2020). Nonetheless, important similarities can be identified: these models delineate analogous stages that guide organizations toward higher levels of digital maturity (Ochoa-Urrego, Pena, 2021). They usually assume that a clearly formulated digital strategy, aligned with the corporate strategy, is the starting point for any digitally oriented organization. In the initial phases, these models stress strategic prioritization, work flexibility, and managerial engagement in the transformation process. At this stage, they highlight the strategic importance of innovation, as well as the need to consciously develop digital innovation capabilities, support collaboration, and systematically explore the potential of new technologies. The next step is to develop digital innovations and collaboration aimed at

implementing digital business models, which translates into new products, services, and channels of operation. In parallel, a digital culture is shaped, organizational structures, leadership style, and change management are modified so that values, norms, and work practices foster experimentation and learning. In the later phase, digital progress is sustained through specific initiatives, flexible work arrangements, and continuous support from management, which reinforce the development of digital solutions. As a result, the organization attains digital maturity, understood as the ability to continuously anticipate changes in the digital environment, critically monitor its own performance, and rapidly adapt strategies, processes, and business models to a dynamically changing reality (van Tonder et al., 2024).

In the last decade, research on digital maturity of enterprises has focused primarily on identifying factors conducive to transformation and on mapping the stages of moving from an “analog” to a “digital” organization (Kane et al., 2015; Vial, 2019). In typical measurement approaches, a single scale is used to measure simultaneously: (a) the existence of a digital strategy, (b) leadership and culture supportive of change, and (c) the extent of use of technologies, data, and automation. The implicit assumption is that the strategic and cultural layer is a sufficient predictor of the operational layer. Empirically, this does not have to be true: an organization may have a strategy, financial resources, and communication, but lack integrated systems, unified data dictionaries, security procedures, and mechanisms for financing IT investments (Ross et al., 2019). The opposite situation is also possible: the enterprise has systems, procedures, and data but is unable to communicate the digital transformation process and the successes it achieves in this area. Thus, classical models, by combining intention and execution, may overestimate the level of digital maturity in organizations that “speak well about digitalization” but “implement it poorly”, or underestimate maturity in organizations that “implement it excellently” but “speak about it insufficiently”.

The problem is important because in classical measurements of digital maturity both types of variables “we want to, we have a strategy” and “we are able to, we have data and integration” are aggregated into a single index, which smooths over real infrastructural and competence gaps. As a result, an enterprise may be classified as “advanced” solely because it fulfills the narrative–strategic layer of transformation, even though it lacks the technical and procedural conditions to reach higher levels of digital maturity (Warner, Wäger, 2019), or as “non-advanced” solely because it does not fulfill the narrative–strategic layer, despite having the technical and organizational conditions for digital maturity. This leads to a flawed diagnosis of the state of digital transformation both at the organizational level and at the level of the entire economic system.

A precondition for effective digital transformation of an enterprise is its IT capability and process-based data management. In line with Resource-Based View (RBV) theory in the context of IT capability, a strategic orientation toward digitalization alone is insufficient if the enterprise does not possess IT capabilities that enable fast and reliable implementation of solutions. IT capability is understood here as a bundle of technical resources (infrastructure,

system integration, architecture), human resources (development competencies, project management, security), and relational resources (business–IT collaboration), which together form the basis for translating strategy into working services and processes (Ross et al., 2019). A modular, well-documented architecture and the ability to quickly integrate new components distinguish firms that merely talk about transformation from those that exploit it economically (Ross et al., 2019).

The second pillar of effective digital transformation is process-based data management and data governance. Khatri and Brown (2010) argue that organizations without clearly defined decision roles concerning data quality, standards, security, and access end up with fragmented, inconsistent data sets that cannot serve as a basis for advanced analytics or process automation. Otto (2011) adds that maturity in data management requires a process perspective: data must be embedded in process flows rather than treated as a “by-product” of transactional systems. In this light, indicators such as “we have an AI strategy” or “management supports digitalization” do not yet reveal whether the organization is actually able to fuel these ambitions with high-quality, integrated data.

The perspective of dynamic capabilities (Teece, 2007) provides a theoretical framework to explain why organizations are able to recognize the importance of digitalization (sensing) and even communicate it (partial seizing), but fail to carry out deep resource reconfiguration (reconfiguration). In Teece’s view, real transformation requires not only recognizing a technological opportunity but also launching costly and often politically difficult processes: standardization, decommissioning of legacy systems, investments in infrastructure, retraining employees, and changing IT budgeting rules. If the enterprise lacks sufficient reconfiguration capability because it does not have enough capital, operational-level managerial determination, or IT competences, a typical pattern emerges: high awareness, low operationalization.

Applying this perspective to research on digital maturity allows the implementation gap to be interpreted not as a “measurement error” but as a real characteristic of many contemporary enterprises: they are exposed to technological and regulatory pressures, so they learn to speak the language of digital strategy, but do not have a parallel capability to reconfigure their operational core. The gap is thus a manifestation of an asymmetry between sensing/seizing and reconfiguration.

The gap between the narrative–strategic layer and the operational layer in the measurement of digital maturity leads to systematic distortion of results: organizations that “loudly talk about digitalization” are overestimated, while those that “quietly implement it” are underestimated, which reduces the validity of indices and their ability to provide a reliable diagnosis of the state of transformation. Aggregating the variables “we want to, we have a strategy” and “we are able to, we have data and integration” into a single indicator masks real deficits or advantages in the area of IT capability and data governance, makes it difficult to distinguish strategic–cultural problems from infrastructural–process ones, and distorts the classification of maturity stages in “stage-based” models. Consequently, the observed relationships between digital maturity and

outcomes (business, operational, ESG) are weakened, which may lead to erroneous theoretical conclusions (within RBV, IT capability, dynamic capabilities) and misguided public policy decisions and support programs that reward entities skilled in narrative at the expense of those that actually possess advanced digital capabilities.

The aim of this article is to define and empirically measure the gap between the declarative–narrative level and the operational–implementation level of digital maturity within a single survey-based measurement on a sample of 697 Polish enterprises. For the purposes of this article, the following research questions are posed:

1. Does an implementation gap in digital transformation occur in Polish enterprises?
2. What is the direction of the implementation gap: overestimation or underestimation?

The remainder of the article presents the theoretical framework and operationalization of the implementation gap, the research methodology applied, the results of the empirical analyses, and the implications for the design of digital maturity measurement tools and for the practice of managing digital transformation.

2. Methods

2.1. Digital Maturity Measurement Tool

There is a wide range of models for assessing digital maturity. Thordsen and Bick (2023) conducted a systematic literature review of solutions developed between 2011 and 2022 and showed that existing models differ substantially in terms of quality and content, which makes them difficult to compare. Most of them do not meet standard academic criteria, as they are often created by business consultants outside the scientific context. The choice of model for this study was driven by the availability of the measurement scale (e.g., Deloitte and PwC models are not accessible without a paid license), its reliability, and the universality of the model (preference was given to tools not restricted to a single sector, such as manufacturing). Another important criterion was the range of dimensions included in the scale, with priority given to tools covering the broadest possible spectrum of digital maturity dimensions.

The measurement instrument used in this study was based on the “Digitalcheck Mittelstand” model (<https://digitalzentrum-berlin.de/digitalcheck-mittelstand>, accessed on 16 November 2025). This model distinguishes seven core dimensions of digital maturity, which were adopted as the framework for the assessment tool. The questionnaire was translated from German into Polish, preserving the structure of the maturity dimensions: strategy, customers, products and services, processes, organization, IT infrastructure, and external environment. An additional dimension, integrated digital leadership, was introduced to extend the measurement of digital maturity to the area of skillfully combining strategy, human capital, and communication into

a single stream of actions aimed at digital transformation. The final instrument consisted of 73 items rated on a 7-point Likert scale (1 – strongly disagree, 7 – strongly agree). The version tested in Poland demonstrated very high internal consistency (Cronbach's $\alpha = 0.99$) (Jaciow et al., 2025).

2.2. Theoretical framework of the implementation gap

The theoretical framework of the implementation gap is based on the assumption that digital maturity is a multidimensional construct encompassing both the declarative–strategic layer and the operational–implementation layer. The scale used measures eight dimensions: strategy (10 variables), customers (7 variables), products and services (8 variables), processes (12 variables), organization (21 variables), IT infrastructure/technology (10 variables), environment (2 variables), and integrated digital leadership (3 variables). On this basis, the implementation gap is conceptualized as an asymmetry between two levels of maturity: (1) the declarative–narrative level, covering strategy, organization, and integrated digital leadership (vision, transformation plans, communication, culture, leadership), and (2) the operational–implementation level, covering customers, products and services, processes, IT infrastructure/technology, and environment (the actual use of digital technologies to collect and analyze data, digital channels of customer reach, data-driven offer development, digitalization and automation of processes, data quality, scalability and flexibility of IT architecture, financing of digitalization processes from external sources).

The implementation gap is not treated here as “measurement noise” but as a structural feature of the organization: positive when the level of declarations, vision, culture, and leadership is ahead of the level of IT capabilities, data quality, and digital processes; negative when operational capabilities are more developed than the narrative–strategic layer. In this way, the scale anchors the implementation gap in the paradigms of RBV and IT capability (the distinction between strategic orientation and actual technological resources and capabilities) and dynamic capabilities (sensing/seizing – mainly in the dimensions of strategy and leadership – versus reconfiguration, reflected in processes, products/services, the customer area, and IT infrastructure).

2.3. Reliability of both sets forming two levels of maturity

The high reliability of both maturity levels, the declarative–narrative level (1) of 0.91 and the operational–implementation level (2) of 0.92, is confirmed by the very high reliability of their constituent subscales (Table 1). Level (1) is based on the dimensions strategy, organization, and integrated digital leadership, whose Cronbach's α coefficients range from 0.88 to 0.96, indicating high internal consistency of the items describing vision, culture, leadership, and the use of external-environment instruments in the context of digitalization. Level (2) is built from the dimensions customers, products and services, processes, and IT infrastructure/technology, environment, for which Cronbach's α ranges from 0.92 to

0.95, confirming the reliable measurement of the actual use of digital technologies in customer relationships, the offering, processes, and IT architecture.

Table 1.

Cronbach's α coefficient values for the constructs under study

Declarative-narrative level (1)	Cronbach's α	Operational-implementation level (2)	Cronbach's α
For all variables at the (1)	0.91	For all variables at the (2)	0.92
In the dimension:		In the dimension:	
- Strategy	0.94	- Customers	0.92
- Organization	0.96	- Products and services	0.93
- Integrated digital leadership	0.88	- Processes	0.95
		- IT infrastructure	0.95
		- Environment	0.94

Source: own study.

Such values of reliability factors mean that both the declarative-narrative and operational-implementation components are stable, coherent constructs, and the observed gap between them is substantive in nature, and not an artifact resulting from poor measurement quality.

2.4. Operationalize the implementation gap

Based on the two levels of digital maturity established as separate theoretical constructs, they were subsequently operationalized. The operationalization of the implementation gap consisted in constructing two separate indices: the declaration index (ID) and the implementation index (IR). Items describing the declarative-narrative level of transformation (1) were assigned to ID, whereas items describing the operational-implementation level (2) were assigned to IR.

For each unit of analysis, the arithmetic mean of the items assigned to a given level (separately for ID and IR) was calculated and then rescaled to a 0-100 scale using a linear transformation. Since the study employed a 7-point Likert scale, the rescaling was performed using the formula (1):

$$(M - 1) / 6 \times 100 \quad (1)$$

A value of 0 indicates the minimum level of maturity in a given dimension, and 100 the maximum level. In the next step, the implementation gap (L) (2) was defined as the difference between the declaration index (ID) and the implementation index (IR), i.e.:

$$L = ID - IR \quad (2)$$

Positive values of L indicate that the narrative-strategic layer outweighs the operational layer (overestimation), negative values indicate that operational-implementation capabilities exceed the level of declarations (underestimation), while values close to zero are interpreted as a relative alignment between "what we say" and "what we do" in terms of digital maturity.

2.5. Data collection and sample

The survey was conducted by the Research and Development Center of the University of Economics in Katowice using the SurveyMonkey platform. Drawing on an extensive database of enterprises, the research team constructed a sample that included firms from the main sectors of the economy (manufacturing, trade, and services), which enabled the collection of cross-sectional data capturing the diversity of business activity in Poland. Access to this database also allowed for the inclusion of enterprises with different legal forms (limited liability companies, civil law partnerships, sole proprietorships, and joint-stock companies). This sampling strategy ensured that the results reflect the specific characteristics of both corporate-type organizations and individual entrepreneurs, thereby enhancing the generalizability of conclusions regarding business operations in the Polish market.

Using the available information, the sample was balanced across the three primary types of business activity: manufacturing, trade, and services. These proportions were chosen to mirror the actual sectoral structure at the national level, enabling comparisons of firm characteristics and behaviors across different segments of the economy. To maximize response rates and reach a broad pool of respondents, a mixed-mode survey design was applied, combining three channels: CAWI (Computer-Assisted Web Interviewing), telephone-supported CAWI, and CATI (Computer-Assisted Telephone Interviewing). The use of these methods was motivated by their broad coverage and the possibility of targeting respondents according to predefined criteria. Additionally, CAWI is a widely used technique in business research (Kocot et al., 2024; Pawłowska et al., 2025; Andruszkiewicz et al., 2024). Fieldwork took place in January 2025. In total, 697 fully completed questionnaires were obtained, including 69 via CAWI, 501 via telephone-supported CAWI, and 127 via CATI.

The research sample consisted of 697 enterprises: 230 manufacturing firms, 216 trading firms, and 251 service enterprises. In legal terms, the largest group were limited liability companies (37.9%), followed by civil law partnerships (21.4%) and sole proprietorships (18.8%). Registered partnerships represented 9.2% and joint stock companies 8.5%, while other partnership forms (including limited and professional partnerships) accounted for 4.4%. The legal structure varies by sector: manufacturing is clearly more “corporate” (58.7% limited liability companies and 12.6% joint stock companies, with virtually no sole proprietorships), whereas trading and service activities show higher shares of sole proprietors (28.2% and 27.9%) and civil law partnerships (19.0% and 27.9%).

With respect to size, the sample is dominated by small and medium-sized enterprises. Across the whole sample, 29.7% of firms employ up to 9 people, 12.2% have 10-49 employees, 28.7% have 50-249 employees, 23.4% employ 250-499 people, and 6.0% have 500 or more employees. Manufacturing companies are concentrated in the medium and large size classes (50-249 employees: 50.9%; 250-499: 36.1%; 500 and more: 13.0%). Trading and service firms are more often micro and small entities: in trade, 41.2% of enterprises have up to 9 employees,

while in services the share of micro firms reaches 47.0%, and a further 32.3% employ 10-49 people.

The enterprises covered by the survey are also heterogeneous in terms of age. In the overall sample, the oldest firm was established in 1932 and the youngest in 2022, with a median year of establishment of 2005. Manufacturing firms include relatively older entities (median 2000), trading firms have a median founding year of 2005, and service firms are on average the youngest group (median 2007). This structure means the sample captures both long-established companies and newer market entrants across key sectors of the Polish economy.

Analysis conducted for another article indicated that the surveyed Polish enterprises are characterized by a moderate level of digital maturity – the average global score was 4.65 (median 5.08) on a 7-point Likert scale, which classifies them at the "Moderate Digital Advancement" stage (Level 4). The highest-rated dimensions of digital maturity were organization (average 4.94) and processes (average 4.85). The lowest-rated dimension was environment (average 4.04). The remaining scores for the surveyed dimensions were relatively similar (ranging from 4.74 to 4.63) (Jaciow et al., 2025).

3. Results

For the purposes of the analysis, two indices were constructed – the declaration index (ID) and the implementation index (IR) – as well as an implementation gap indicator $L = ID - IR$. On this basis, each firm was classified into one of three categories: overestimation ($L > 0$), underestimation ($L < 0$), and relative alignment between the level of declarations and the level of implementation ($L \approx 0$).

In the total sample, only 10.3% of enterprises are characterized by a relative alignment of the narrative–strategic and operational–implementation levels of digital maturity. The vast majority of organizations exhibit a significant implementation gap: in 40.7% the declarative layer prevails (overestimation), whereas in 48.9% the level of actual technological and process capabilities is higher than the level of declarations (underestimation) (Fig. 1). These results confirm that the asymmetry between “what we say” and “what we do” is structural rather than marginal.

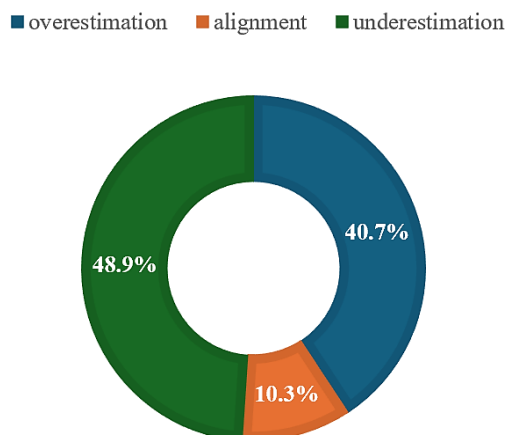


Figure 1. Distribution of enterprises by implementation gap.

Source: own research.

The structure of the gap varies according to business profile (Fig. 2). In manufacturing, underestimation dominates – more than half of producers operate at a higher level of implementation than of declaration, with a relatively lower share of firms displaying overestimation. In trade, the relationship between overestimation and underestimation is more balanced, although underestimation still prevails. In services, the share of enterprises with overestimation increases, while the share of underestimation is somewhat lower than in manufacturing and trade. This means that service firms more often develop a digital transformation narrative that outpaces actual actions, whereas in manufacturing we more frequently observe “silent digitalization” – advanced processes and infrastructure accompanied by a less articulated vision.

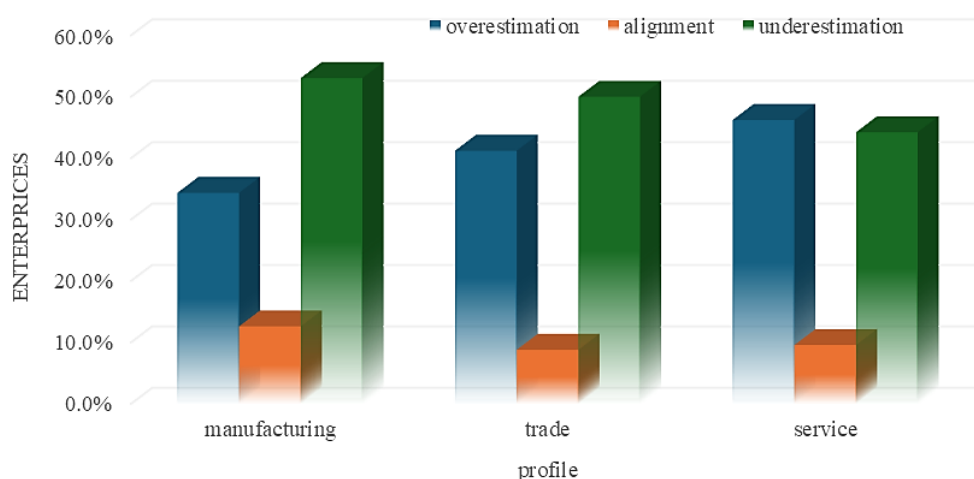


Figure 2. Implementation gap by profile of enterprises.

Source: own research.

Equally clear differentiation is visible with respect to firm size. In all size classes, the share of firms with a substantial gap is very high, while the share of alignment remains low and usually does not exceed a dozen or so percent. Micro-enterprises (up to 9 employees) more often show overestimation, with a relatively lower scale of underestimation, which can be

interpreted as the dominance of an aspirational narrative over actual capabilities. Among small and medium-sized firms (10-249 employees), the structure shifts towards increasing underestimation – these organizations develop digital solutions faster than they are able to describe and embed them in a coherent strategy. In large enterprises (250-499 and 500 or more employees), the dominance of underestimation is even stronger: actual technological and process capabilities clearly exceed the level of declarations, while the share of firms with alignment falls to a marginal level (Fig. 3). This points to a deficit of integrated digital leadership and weak internalization of the transformation vision in the largest organizations.

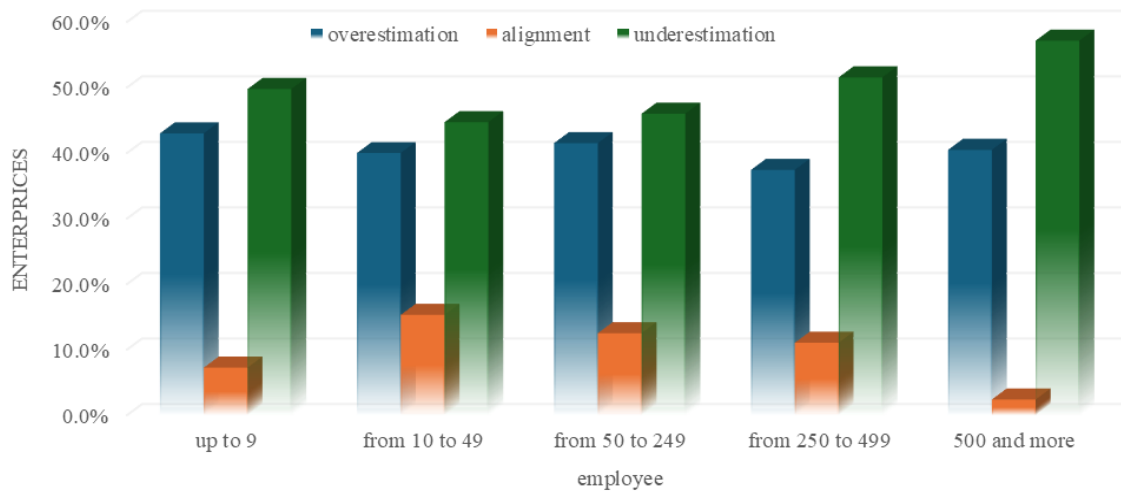


Figure 3. Implementation gap by size of enterprises.

Source: own research.

The pattern of the gap is most strongly differentiated by the level of digital maturity. At the lowest level (1), the vast majority of enterprises underestimate their maturity: the share of underestimation reaches around 70%, whereas overestimation and alignment are relatively rare (Fig. 4). This means that some organizations assigning themselves a very low level of maturity in fact possess more advanced digital processes and infrastructure than their self-description suggests. At levels 2-5, the share of both overestimation and underestimation remains high (around 40-55% each), with only a very small proportion of firms showing alignment. This indicates that in the “middle” phases of digital transformation enterprises are particularly exposed to a mismatch between the strategic and operational layers – some of them assess their preparedness too optimistically, while others underestimate their actual resources and capabilities. Only at the highest level of digital maturity (6) does the share of firms with alignment clearly increase – reaching about one third of the sample. At the same time, the proportions of both overestimation and underestimation decline, although cases with an existing implementation gap still predominate. This means that a high level of digital maturity favors the synchronization of the narrative–strategic and operational layers, but does not guarantee their full convergence.

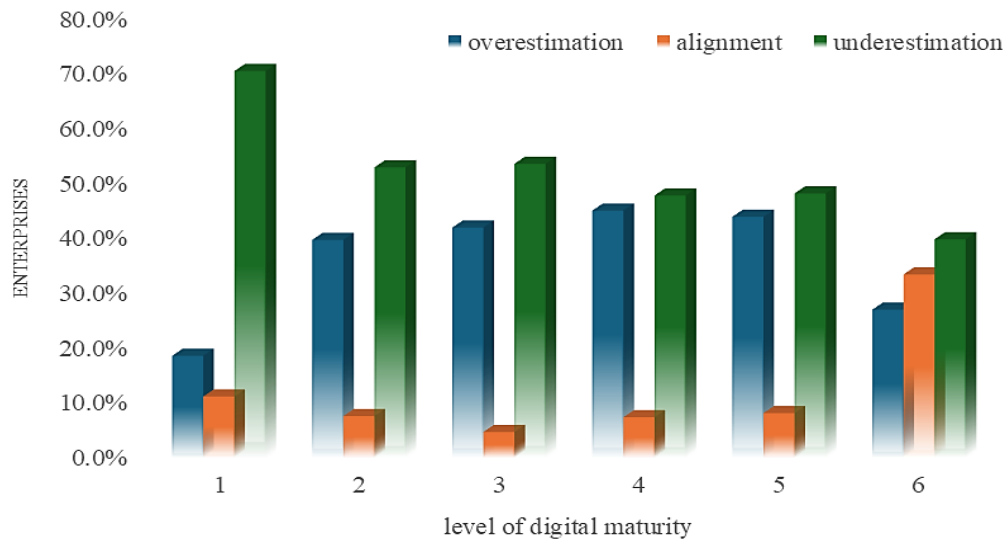


Figure 4. Implementation gap by level of digital maturity of enterprises.

Source: own research.

Taken together, the results indicate that the implementation of the digital transformation in Polish enterprises progresses in a highly asymmetric manner. Regardless of sector and firm size, there is a pronounced gap between declared and actually implemented digital maturity, while the direction and magnitude of this gap depend on the firm's profile, scale of operations, and maturity level.

4. Discussion

4.1. Research questions and interpretation of results

The research questions formulated in the introduction concerned the existence and direction of the implementation gap in the digital transformation of Polish enterprises. The distribution of the declaration–implementation index clearly confirmed that such a gap exists and is rather the norm than an exception. Only about one in ten surveyed enterprises is located at a level interpreted as alignment between what they implement and what they communicate within the analyzed dimensions of digital maturity. The vast majority of firms display either overestimation or underestimation of their level of digital maturity. This means that the declarative–narrative level of digital transformation and the operational–implementation level systematically diverge, which justifies (at least for the 697 Polish enterprises studied) treating the implementation gap as a structural property of organizations rather than a measurement artefact.

The second question concerned the direction of the identified gap. At the aggregated level, underestimation (48.9%) occurs slightly more often than overestimation (40.7%). This pattern is consistent with the observation that many enterprises develop operational digital capabilities in a fragmented and bottom-up manner and only later embed them in strategy, leadership narratives or formal transformation plans (Hortovanyi et al., 2023). At the same time, the high share of overestimation shows that digital visions and the strategic narrative of digitalization may run ahead of data quality, IT infrastructure and the level of process digitalization in the enterprise.

Sectoral differences complement this picture of the studied reality. In manufacturing and trade, underestimation dominates: operational capabilities (automation, data collection, digital channels) grow faster than the narrative layer, which remains anchored in a more traditional understanding of the business model. This is consistent with research indicating that in manufacturing firms digital transformation usually starts from technology and production, while organizational culture and customer-oriented capabilities lag behind (Hortovanyi et al., 2023). In the service sector, the structure is more balanced: the high share of both overestimation and underestimation means that some service firms aggressively experiment with digital narratives and customer-facing innovations, while others quietly build a digital core without reframing their strategy.

Firm size also differentiates the direction of the gap. Micro-enterprises and the largest entities (500+ employees) most often underestimate their level of digital maturity. In the smallest firms, digitalization is often informal and embedded in everyday practices. Managers do not necessarily label these improvements as “digital transformation”, thereby downplaying the maturity level of their organization. In large enterprises, the opposite holds: dispersed digital initiatives and strong operational capabilities in individual departments may not be fully visible at the top-management narrative level, which generates a negative implementation gap. Medium-sized firms display somewhat more balanced patterns, but alignment still remains rare.

The relationship between the implementation gap and the overall level of digital maturity of the surveyed enterprises is non-linear. At the lowest level (1), underestimation clearly dominates: the share of firms underestimating their digital maturity reaches about 70%, whereas overestimation and alignment are rare. This means that some organizations assigning themselves a very low level of maturity in fact possess more advanced digital processes and infrastructure than their self-description suggests. At levels 2-5, the shares of both overestimation and underestimation remain high (around 40-55% each), with only a very small group of aligned firms. This indicates that in the “middle” phases of digital transformation enterprises are particularly exposed to a discrepancy between the strategic and operational layers. Some of them assess their preparedness too optimistically, while others underestimate their resources and capabilities. Only at the highest level of digital maturity does the share of aligned enterprises clearly increase, reaching around one third of the sample, while the

proportions of both overestimation and underestimation decline. This means that high maturity favors the synchronization of the declarative–narrative and operational–implementation layers, although it does not guarantee full convergence. This is consistent with stage-based models that treat digital transformation as a process of gradual capability-building, culminating in a configuration in which strategy, structure, processes and technology are coherently integrated (Hortovanyi et al., 2023; Kane et al., 2017).

Taken together, the results show that the implementation gap is widespread, directionally differentiated and sensitive to sector, firm size and stage of digital transformation.

4.2. Theoretical implications

The findings contribute to the debate on digital maturity models in several respects. First, they support the claim that digital maturity is multidimensional and internally uneven. Most existing models present maturity as a single trajectory or aggregated index and implicitly assume that higher maturity directly translates into better firm performance (Laouar, Boukerch, 2025; Hortovanyi et al., 2023). The overestimations and underestimations identified in the study show that strategic narratives and operational capabilities often develop along partly independent paths. Digital transformation should therefore be conceptualized as the co-evolution of at least two layers: the declarative–narrative layer (vision, culture, leadership, formal strategy) and the operational–implementation layer (processes, IT infrastructure, customer interfaces, data practices).

Furthermore, the results empirically reinforce the argument, present in more recent work, that digital maturity models often fail to explain how digital capabilities actually translate into competitive advantage (Laouar, Boukerch, 2025). The implementation gap provides the missing mechanism: even high scores in narrative dimensions do not generate benefits if they are not accompanied by investments in processes, technologies and data. Conversely, strong operational capabilities may remain underexploited if they are not embedded in a strategic narrative that guides resource allocation, organizational learning and market positioning. This is consistent with the resource-based view and dynamic capabilities theory, which distinguish between sensing and seizing opportunities on the one hand and reconfiguring processes and assets on the other. Additionally, studies on value creation for the digital consumer demonstrate that digital transformation must be understood not only as a technological and organizational process but also as a strategic response to evolving consumer expectations regarding convenience, personalization and speed. These findings (Gajdzik et al., 2025) reinforce the multidimensional nature of maturity and support the argument that narrative and operational layers co-evolve rather than develop uniformly.

It is also worth emphasizing that the study extends multidimensional digital-maturity frameworks, including organizational and process levels (Tubis, 2023). By operationalizing two maturity indices (ID and IR) and calculating their difference, it shows that misalignment between levels is not an incidental anomaly but a statistically dominant pattern. This strengthens

calls for maturity models that explicitly account for asymmetries between strategy and operations and for disproportionate development of individual organizational subsystems. It also complements comparative studies showing the heterogeneity of existing models and their limited comparability (Cognet et al., 2023). The implementation-gap perspective introduces a new axis of interpretation: models can be compared not only in terms of the dimensions they cover, but also in terms of whether they allow the identification of positive and negative asymmetries between narrative and implementation.

4.3. Implications for the design of digital-maturity measurement tools

The empirical data presented in the article may also have consequences for the design and use of digital-maturity assessment tools. First, such tools should explicitly distinguish between declarative–narrative and operational–implementation items and report at least two separate indices instead of a single aggregated score. The approach used here, based on ID, IR and their difference L , shows that the direction and magnitude of misalignment carry important information that would be completely lost in a one-dimensional indicator. This is consistent with models that propose separate organizational and process dimensions and point to the risk of drawing conclusions from global averages in the presence of strong variation in the level of digitalization across departments (Tubis, 2023).

Second, the design of digital-maturity measurement tools should go beyond a static snapshot of the firm and include mechanisms that link diagnostic results to concrete improvement paths. The literature on maturity models criticizes their prescriptive limitations and static character, emphasizing that they often fail to provide practical guidance on how to translate digital capabilities into competitive advantage (Laouar, Boukerch, 2025). The implementation-gap perspective can be embedded into such frameworks: maturity tools should not only assess the level but also diagnose whether the priority is to strengthen operations ($L > 0$, overestimation) or to raise the level of strategy and leadership to match existing capabilities ($L < 0$, underestimation).

Third, the revealed patterns of overestimation and underestimation highlight the need for measurement rigor and multi-perspective data collection. Comparative studies of maturity models point to their heterogeneity in terms of structure, dimensions, KPIs and scoring algorithms and call for more systematic, quantitative validation (Cognet et al., 2023; Hortovanyi et al., 2023). The high reliability of both maturity levels in this study shows that carefully constructed scales can achieve very good internal consistency, which is a prerequisite for treating the implementation gap as a substantive construct rather than a measurement error. Future tools should build on validated scales, use consistent Likert-type formats and, where possible, triangulate managerial self-assessments with data from operational employees or system logs in order to reduce social desirability bias in the declarative layer.

Fourth, maturity tools must transparently disclose their dimensional coverage and be interoperable. Comparative frameworks based on keyword matrices and KPI mapping show that existing models differ greatly in the number and scope of dimensions, which hampers benchmarking and the use of results in public policy (Cognet et al., 2023). Introducing an explicit implementation-gap indicator would facilitate comparisons between models by adding a common measure describing the relationship between strategic declarations and operational reality, regardless of the detailed dimensional structure of a given tool.

4.4. Implications for the practice of managing digital transformation

From a management perspective, the results indicate that effective digital transformation requires active management of the implementation gap. The very low share of enterprises located at a level of relative balance between declaration and implementation means that managers cannot treat digital-maturity self-assessments as a straightforward indicator. Organizations with overestimation are in a situation where ambitious digital strategies are not accompanied by adequate investments in data quality, IT architecture and process redesign. This imbalance is particularly visible when contrasted with the expectations of digital consumers, who require speed, reliability, seamless omnichannel experiences and personalized interactions - capabilities that depend directly on robust operational processes, high-quality data and integrated IT architectures (Jaciow, Wolny, 2011; Jaciow et al., 2013; Jaciow, Wolny, 2022). Such a configuration entails the risk of stalled projects, employee cynicism and “digital fatigue”. Studies of digitally maturing firms emphasize that real progress depends on cross-functional collaboration, investment in digital talent and a long-term orientation, elements that connect narrative ambitions with concrete organizational changes (Kane et al., 2017).

Enterprises that underestimate their level are also not in a comfortable position. When operational capabilities outpace the narrative and leadership attention, organizations risk underutilizing their digital assets, missing opportunities for new business models and underinvesting in complementary capabilities such as data-driven customer orientation or building ecosystem partnerships. Research on capability maturity indicates that digital capabilities are complementary and should be developed in a balanced way. Excessive or insufficient development of particular capabilities at a given stage leads to predictable “transformation pains” (Hortovanyi et al., 2023). An explicit diagnosis of the implementation gap helps managers see where the imbalance lies and target their actions accordingly.

The patterns differentiated by sector and firm size identified in the study suggest the need for an individualized approach to digital-transformation programs. In manufacturing, where underestimation dominates, managers should focus on making existing digital practices visible, codifying them in strategy and investing in integrated digital leadership that links production-level innovations with the narrative at the level of the entire enterprise. In services, where overestimation is more common, the priority is to translate promises made to customers in the digital domain into a robust operational backbone, reliable data infrastructure and redesigned

processes. Large firms, characterized by strong underestimation, need governance mechanisms—steering committees, enterprise architects, digital-transformation offices—that consolidate dispersed operational progress into a coherent strategic perspective. Micro and small firms need simple, practice-oriented frameworks that prevent both complacency resulting from overestimation and self-limiting underestimation and that link digital initiatives to concrete value creation in their context (Laouar, Boukerch, 2025; Tubis, 2023).

The findings also strengthen the call for a practice-based approach to managing digital transformation. The literature emphasizes that maturity models are useful for diagnosis and benchmarking but insufficient for steering day-to-day transformation work. Organizations must translate assessment results into concrete practices and routines that yield measurable effects (Laouar, Boukerch, 2025). Managing the implementation gap is a specific way of operationalizing such an approach: instead of asking only “how mature are we?”, managers monitor “where does our narrative run ahead of implementation and where do implementation capabilities run ahead of the narrative?” and design targeted interventions in leadership, culture, process design and technology deployment.

Finally, the higher share of enterprises at the highest maturity level that do not fall into the implementation gap indicates that digital mastery requires not only advanced technologies and sophisticated use of data, but also the ability to continuously recalibrate narratives and operations. This is consistent with the view of digital transformation in terms of dynamic capabilities and with research showing that digitally mature organizations treat transformation as an ongoing organizational competence rather than a one-off project (Hortovanyi et al., 2023; Kane et al., 2017).

5. Summary

The article analyzes the digital maturity of Polish enterprises from the perspective of the implementation gap between what organizations declare about digital transformation and what they actually implement in the areas of processes, technologies, and data. Drawing on a modified version of the “Digitalcheck Mittelstand” tool, two levels of maturity were distinguished: the declarative–narrative level (strategy, organization, integrated digital leadership) and the operational–implementation level (customers, products and services, processes, IT infrastructure, environment). For 697 enterprises, a declaration index (ID), an implementation index (IR), and the gap $L = ID - IR$ were calculated and rescaled to a 0-100 range. The high Cronbach’s alpha coefficients for both levels indicate strong internal consistency, which makes it possible to treat the observed gap as a substantive effect rather than a measurement error.

The results show that the implementation gap is a widespread phenomenon: only about 10% of firms exhibit a relative alignment between the narrative and implementation layers, while the remaining enterprises either overestimate or underestimate their level of digital maturity. The direction and magnitude of this gap vary by sector, firm size, and maturity level. In manufacturing and trade, underestimation occurs more frequently, which can be interpreted as “silent digitalization”, whereas in services narratives that outpace actual operational capabilities are observed more often. Micro-enterprises tend to overestimate, while large firms tend to underestimate their digital maturity. The relationship between the gap and the level of maturity is non-linear: at the lowest maturity level, underestimation dominates; at intermediate levels, both types of gap are frequent; and only at the highest maturity level does the share of firms with relative alignment increase.

The interpretation of the results is grounded in the Resource-Based View and dynamic capabilities theory. The implementation gap reflects an asymmetry between the “sensing/seizing” layer (strategy, leadership, culture, communication) and the ability to deeply reconfigure resources (processes, data, IT infrastructure). The article shows that traditional, one-dimensional digital-maturity indices mask this asymmetry, leading to distorted diagnoses at both the organizational and economic-system levels. The authors argue that digital-maturity measurement tools should separate the level of declarations from the level of implementation and report a gap indicator as a standard diagnostic element. This has implications both for the practice of managing digital transformation (more precise identification of areas where the narrative or operational capabilities need to be strengthened) and for the design of public policies and support programs, which should be based on a robust diagnosis of actual digital capabilities rather than on declarations alone.

Acknowledgements

This research was funded by the Ministry of Science under the “Regional Excellence Initiative” Program, grant number RID/SP/0034/2024/01.

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