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Approaches To the Digital Transformation of Traditional Business Processes.

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Abstract: The article provides a detailed account of approaches applied to the digital transformation of traditional business processes. In the context of a rapid technological shift, such transformations become indispensable for the survival and competitiveness of economic actors. However, despite a proliferation of publications, both academic and practitioner literature remain fragmented in their definitions of the nature of transformational steps, their scope, and the organizational mechanisms involved. The objective of this paper is to undertake a critical analysis of the conceptual foundations of digital transformation and to identify the primary directions that underpin the rethinking and reconfiguration of established operational models. Special attention is given to juxtaposing strategic, institutional, and industry-applied approaches, as well as to exploring the tensions between normative rhetoric and the empirical feasibility of these changes. A typology of the approaches under review is presented, key limitations and barriers are delineated, and the author's position on the novelty of processes for the digital reconfiguration of business architecture is articulated. The scientific and practical value of this work lies in systematizing diverse viewpoints on the topic and interpreting them through an interdisciplinary lens. The material set forth will be of use to scholars in management, digital economics, organizational theory, and applied informatics, as well as to consulting professionals and business architects engaged in facilitating digital transformations.

Keywords: business process, institutional constraints, organizational changes, strategic restructuring, digital transformation, economy.

Introduction

Despite extensive discourse on digital transformations, the concept of business-process transformation in a digital environment is still often interpreted superficially—as merely the deployment of IT infrastructure or the automation of routine tasks. Such oversimplification overlooks profound shifts in organizational logic, managerial decision-making, and the redefinition of the human role in economic interactions.

The core issue stems from a gap between technological potential and the capacity of traditional business structures for institutional adaptation. Digitalization is frequently proclaimed but seldom achieves systemic restructuring, remaining a collection of fragmented IT initiatives without altering the semantic architecture of processes.

Amid the rapid evolution of the digital ecosystem, emphasis must shift from technological tools to the methodologies underpinning the transformation of established operational models. Contemporary research focuses on distinguishing between superficial automation and genuine transformation, which entails redefining business logic, managerial models, customer engagement, and ecosystem positioning. Accordingly, existing approaches to the digital transformation of traditional processes warrant systematization, their substantive divergences elucidated, and well-grounded recommendations proposed, with a focus on the functional and strategic justification of change.

Materials and Methods

A review of contemporary publications reveals several conceptual groups differing in subject matter, methodological focus, and research depth. Overall, the emphasis is shifting from descriptive models toward efforts to systematize and interpret digital transformation as a multi-level organizational shift.

Among works emphasizing the strategic structuring of digital transformations as an element of the overall business model are the studies by T. H. Halim, M. M. Kesuma, and S. Ridha [1], A. Z. Ismaeel and S. R. M. Zeebaree [2], and J. G. M. Jonathan and J. Kuika Watat [3]. In these investigations, the transformation in question is understood as a process requiring alignment of business strategies with technological initiatives. The authors examine it through the lens of enhanced operational efficiency, underscoring the importance of digital KPIs and changes in the composition of business objectives. They systematically review the evolution of e-business and identify key practices, including cloud technologies and analytics platforms. Particular attention is paid to the issue of strategic coherence: these works describe how companies coordinate their IT infrastructure with organizational goals to avoid fragmented initiatives.

A more structured, institutional perspective is presented in the research by G. Liu, J. Liu, and P. Gao [5], which uses Chinese firms as a case study to analyze how digital changes are embedded within institutional norms and corporate culture. It is noted that formal regulations and administrative barriers exert a defining influence on the pace and form of transformation. In N. Kravchuk's work [4], the interaction between digital practices and business models is also raised; however, the emphasis there is on trending changes in corporate strategies rather than on deep institutional restructuring. These publications point out that change necessitates not only technology adoption but also the adaptation of managerial logic and the adjustment of regulatory frameworks.

A number of sources focus on quantitative and trend analysis. For example, analytical reports [9, 10] offer an overview of current directions—from the application of AI in personalization to the growth of digital platforms. These sources prove useful for identifying empirical nuances and the general digital conjuncture. The scientific reflection of trends is captured by S. Nadkarni and R. Prügl [6], who propose a synthetic framework for description, highlighting the interdisciplinary nature of the issue.

An important complementary layer comprises publications that concentrate on specific industries. For instance, S. Soellner, R. Helm, and P. Klee [7] examine the transformation of industrial companies under digital servitization. They demonstrate how manufacturing firms integrate digital services into their product portfolios, restructuring operational processes according to principles of agility and customer co-creation. The article by S. Syamsuddin, S. Marsudi, and B. Hasanuddin [8] contains a review of practical challenges faced by traditional companies when transitioning to digital formats, including skill shortages and organizational inertia.

Despite the relative diversity of approaches, the literature retains several methodological and substantive contradictions. First, there is no unified typology of the transformation under consideration: authors interpret the depth and nature of changes differently. Second, there is scant treatment of cognitive and behavioral barriers that arise at the levels of management and staff. In addition, a significant portion of the research is either overly abstract or focuses on localized case studies. Studies exploring the logic of change in small and medium-sized enterprises, as well as comparative analyses of transformational strategies across different national and cultural contexts, remain underrepresented. Insufficient attention is paid to synchronizing transformations with ethical, legal, and environmental sustainability parameters.

The present article employs the following methods: systematic reviews and bibliographic meta-analyses; case studies with an institutional focus; comparative analysis; content analysis; statistical data processing; and synthesis.

Results and Discussion

At the initial analytical stage, it is essential to distinguish among three concepts that are often conflated: automation, digitization, and digital transformation. Automation involves delegating routine tasks to technical tools without revisiting the underlying operational logic. Digitization denotes the expanded use of digital tools within the existing paradigm. By contrast, digital transformation rests on a radical rethinking of processes, where technology becomes not an adjunct but the foundation of a new operating model [2, 3, 6].

This differentiation helps avoid conceptual confusion. For example, replacing paper-based document workflows with electronic ones constitutes digitization, whereas shifting from a centralized procurement model to a decentralized system based on blockchain and smart contracts represents transformation, since it alters the fundamental principles governing interactions among supply-chain participants.

According to statistical summaries from Gartner and Forrester, 2025 has seen an unprecedented level of adoption in the realm of digital transformation: over 94 % of organizations now engage in various digital initiatives, underscoring the pervasive nature of digitalization across all sectors [9]. Only 18 % of economic actors remain independent of digital operations or products, highlighting the integration of relevant technologies into core organizational processes. Among companies that have completed the transformation in question, 60 % have successfully implemented new business models [4]. Approximately 63 % of organizations have experienced productivity gains over the past two years as a result of their digital efforts [10].

To date, four dominant approaches to the digital transformation of traditional business structures emerge clearly in the scholarly literature (see Fig. 1):

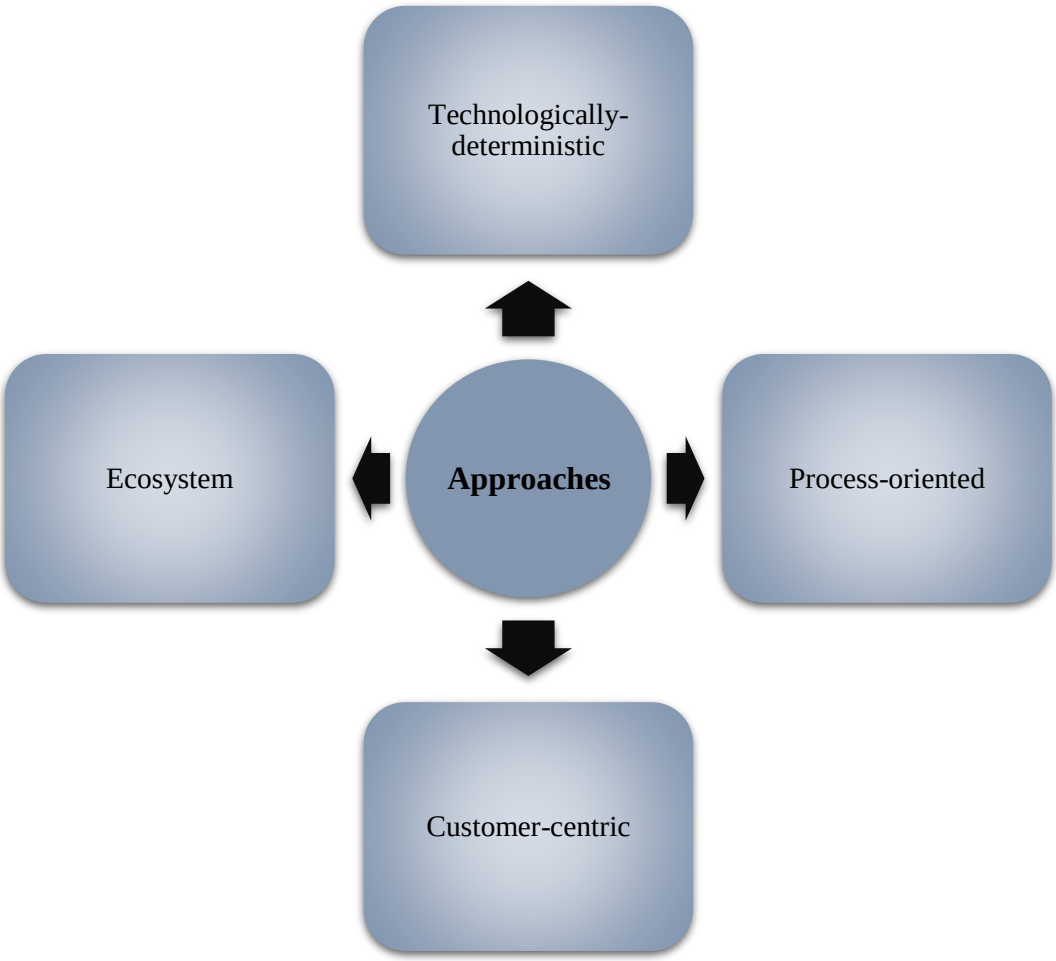

Fig. 1. Systematization of approaches to digital transformation of traditional business processes (compiled by the author on the basis of [1–3, 5, 7, 8])

Thus, under the technology-deterministic vector, there is a tendency to prioritize the implementation of technologies (AI, IoT, RPA, and others) as if they alone constitute a sufficient means of transformation. This approach assumes that technological upgrading will automatically yield efficiency gains. However, without a thoughtful reorganization of processes and roles within the organization, the outcome is limited to increased speed rather than genuine added value.

In the process-oriented approach, the emphasis shifts to redefining business operations by leveraging digital capabilities. The primary objectives become:

1. optimizing information flows;
2. eliminating redundant steps;
3. enhancing transparency and controllability.

This approach envisions the creation of digital twins of processes, the deployment of real-time analytics, and the pursuit of continuous procedural improvement. Its key advantage lies in focusing on targeted functionality rather than on the latest technological trend.

Within the client-centric framework, the spotlight falls on user experience. Digital transformation is viewed as a means of aligning processes with customer expectations and behavioral patterns. This entails personalization, flexible service modularity, and multichannel interfaces. Such an approach proves especially effective in B2C environments, where the consumer's "digital footprint" becomes an invaluable resource for designing product and service offerings.

The most comprehensive is the ecosystem-driven direction, which assumes that business processes are transformed not in isolation but through networked interactions with external partners. The organization ceases to operate as an autonomous entity and instead becomes a "node" within a digital platform, where co-creation of value supplants linear supply-chain logic. This requires not merely digitization but institutional flexibility, a redefinition of accountability boundaries, and a cooperative data-governance model.

For example, digital transformation in the manufacturing of protective glass for mobile device screens illustrates how even a high-tech yet traditionally organized production can radically alter its operating model through digital solutions. First, the transformation touches the production processes themselves: the introduction of IoT sensors and real-time monitoring systems enables precise tracking of thermal-treatment and glass-cutting parameters, thereby minimizing waste and defects. Machine-learning algorithms forecast potential flaws based on historical data, allowing the organization not only to respond to disruptions but also to prevent them. At the logistics and supply-chain level, digital platforms synchronize orders, deliveries, and production cycles, adapting dynamically to demand fluctuations. The use of digital twins for equipment facilitates preventive maintenance and helps avoid downtime. Customer interactions also evolve: online configurators allow B2B clients to specify protective-glass parameters in real time, integrating orders directly into the production system. Moreover, market-feedback analytics enable rapid adjustments to coating compositions or cut-out shapes in response to new device models.

Thus, the transformation in this segment goes far beyond automation: it restructures the entire value-creation chain—from design and production through customer engagement and after-sales support.

Despite methodological diversity, most organizations encounter a number of persistent challenges (Table 1).

Table 1 – Limitations of digital transformation implementation (compiled by the author based on [2, 5, 8])

Aspect	Characteristic
Misalignment of organizational structure with new digital demands	Horizontal data flows conflict with hierarchical management architecture
Fragmentation of IT initiatives	Without strategic unity, digital projects are executed as isolated improvements, failing to generate end-to-end synergy
Cognitive conservatism among management	Leadership often perceives digital transformation as an external threat rather than an opportunity for internal renewal
Lack of competencies at the intersection of technology and business modelling	The absence of transdisciplinary specialists impedes the shift to a hybrid decision-making logic

As this overview suggests, successful digital transformations are unattainable without a fundamental methodological shift—moving from technological fetishism to strategic synchronization of processes, architecture, and organizational culture. In this regard, the following recommendations are proposed (Fig. 2):

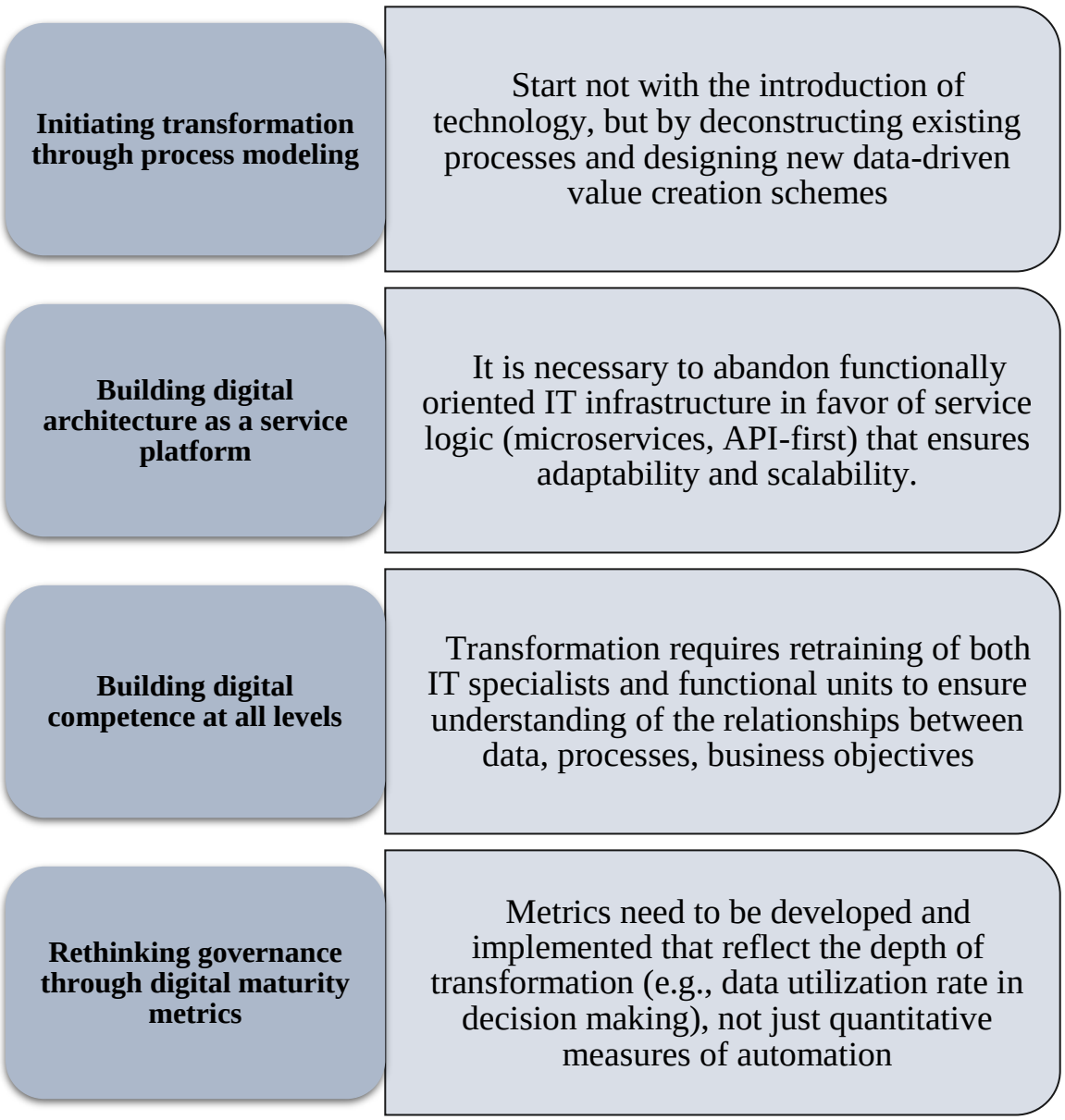

Fig. 2. Proposals for optimizing the digital transformation of traditional business processes (compiled by the author)

The novelty of the proposed approach resides in its emphasis on process-cultural reorganization as the primary driver of successful digital transformations. Unlike traditional models that focus either on technology deployment or strategy adaptation, this framework asserts the primacy of structural coordination among process flows, data architecture, and organizational culture as a unified triad.

Conclusions

Digital transformation of traditional business processes is not merely a technological pathway but a profound institutional shift. Superficial automation practices cannot substitute for the necessity to rethink organizational logic.

Effective approaches to the transformations under study rely on comprehensive work with process architectures and ecosystem interactions. Mechanisms for value generation play a central role.

From the author's perspective, only the combination of client-centricity, process logic, and platform thinking can ensure not only adaptation to the digital environment but also its proactive shaping.

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