DIGITIZATION FACTORS SERVICES VALUE CHAIN ALONG EFFECT MECHANISMS AND PLATFORMING AND TO THE INFORMATION BASED MANAGEMENT MODEL ECONOMIC CONTENT

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Abstract: *This article examines the mechanisms through which digitalization factors affect the service value chain (demand formation → service design → delivery → after-sales support) and clarifies the economic meaning of platformization and data-driven management. Using a conceptual-systems perspective, the study integrates service-dominant logic, the resource-based view, dynamic capabilities, transaction cost economics, and network effects theory. The paper explains how digital infrastructure, human capital, institutions, data governance, and platform capabilities reshape productivity, quality, personalization, innovation speed, and go-to-market costs across each stage of the service value chain. The Results section provides (i) an impact matrix linking digitization factors to value chain stages, (ii) a profitability logic of platforms, and (iii) a KPI system for data-driven management—presented as tables—along with conceptual diagrams of the digital service transformation model and the platform ecosystem. The conclusion offers practical guidance for measuring and governing digital transformation in services and outlines future research directions. (Note: page numbers may vary by edition/format.)*

Keywords: *digitalization, service value chain, platformization, network effects, data-driven management, service innovation, digital maturity, transaction costs, dynamic capabilities.*

INTRODUCTION

The services sector is one of the main sources of employment, added value and consumer welfare in the modern economy. Digitalization is fundamentally changing the logic of value creation in the services sector by measuring, standardizing, automating and personalizing “ invisible ” processes. However, the impact of digitalization is not uniform: it produces different economic outcomes at different points in the value chain , sharply reducing costs in some places, while at other points it strengthens the “winner-takes-most” dynamics in the market due to network effects.

The main goal of the article is to systematically explain the mechanisms of influence of digitalization factors along the service value chain and to reveal the economic content of the platformization and data-driven management model in a

conceptual framework. In doing so, answers to the following scientific questions are sought:

1. At what points in the services value chain and through what channels do digitalization factors (infrastructure, human capital, institutions, data management, platform capabilities) have an impact?

2. What is the economic essence of platformization: is it reducing transaction costs, changing market structure through network effects, or capitalizing on a data asset?

3. Through what metrics (KPIs) and institutional mechanisms does data-driven management translate into efficiency in service organizations ?

interprets digital transformation not as “just the introduction of technology” but as a set of economic changes generated by information, platform and institutional coordination along the value chain . Digitalization processes often lead to three major outcomes: (i) reduction of transaction and coordination costs; (ii) increase in information and quality management decisions; (iii) expansion of ecosystems through platforms and new value creation combinations [Coase, 1937, p. 392; Williamson, 1985, p. 18; Parker et al., 2016, p. 27].

LITERATURE ANALYSIS AND METHODS

1. Synthesis of theoretical approaches

Service-Dominant Logic views service not as a “finished product” but as a process of collaborative value creation through the integration of resources [Vargo & Lusch, 2004, p. 3]. Digitalization enhances this process: information about customer behavior and needs becomes closer to real time, and interactive channels accelerate collaboration.

The resource-based approach (RBV) emphasizes that digital assets (databases, algorithms, IT architecture) provide competitive advantage, but the advantage is not only related to the availability of the resource, but also to its transformation into organizational capabilities [Barney, 1991, p. 106]. In this perspective, data is the “raw material”, and data governance and analytics are the “processing power”.

The theory of dynamic capabilities (sensing–seizing–transforming) focuses on the organization's adaptability to rapidly changing demands and technologies in a digital environment [Teece, 2007, p. 1320]. In the service sector, this means rapidly redesigning the customer experience, changing the digital channel , and reconfiguring processes.

The transaction cost approach provides a “simple” economic explanation of platformization: the costs of search, negotiation, monitoring, and enforcement are reduced [Williamson, 1985, p. 20]. At the same time, the platform not only reduces costs, but also reorganizes the market: two-sided markets, network effects, and multilateral cooperation emerge [Rochet & Tirole, 2003, p. 990].

Network effects and platform economics suggest that the value of a platform increases as the number of users increases , and that information improves quality

through a “feedback loop” [Katz & Shapiro, 1985, p. 424; Parker et al., 2016, p. 54]. This is often the case in the service sector (transportation, education, finance, tourism, trade).

The digital business strategy literature, however, notes that digital technologies are “at the center” of an organization’s strategy, not “on the sidelines” [Bharadwaj et al., 2013, p. 472]. It is precisely along the value chain of services that digitalization needs to be analyzed in conjunction with strategic alignment.

2. Methodology

The following methods were used in the article :

1. Conceptual modeling : a chain of digitalization factors → digital maturity → service innovation → outcomes (productivity, quality, exportability, inclusiveness) was built [Teece, 2007, p. 1322; Bharadwaj et al., 2013, p. 473].

2. Mechanism mapping along the value chain : at each link, the "input–process–output" relationships were identified and measurement indicators were proposed.

3. Theoretical synthesis : platform economics, transaction costs, and data governance approaches were combined [Rochet & Tirole, 2003, p. 991; Williamson, 1985, p. 22].

4. Normative-practical analysis : a data-driven management KPI system and institutional conditions (data quality, ethical standards, cybersecurity, accountability) for service organizations were established [Provost & Fawcett, 2013, p. 52; Davenport, 2006, p. 100].

DISCUSSION

1. Services value chain and digitalization factors

The Service Value Chain (SVC) can be viewed in the following stages :

1. Demand identification and engagement (marketing, communication, customer segmentation)
2. Service design (service design, packaging, pricing, experience design)
3. Delivery (operations, front-office/back-office, SLA)
4. After-sales support and relationship management (CRM, service recovery, loyalty)

Digitalization factors are usually divided into five blocks: A) digital infrastructure (network, cloud, devices), B) human capital (digital skills), C) institutions (standards, regulation, trust), D) data governance, E) platform capabilities (API, ecosystem, modular architecture) [Bharadwaj et al., 2013, p. 472; Yoo et al., 2012, p. 1400].

These factors translate into "economic impact" through three main mechanisms in the value chain:

1.1. Mechanism for reducing transaction costs

can quickly “compare”, “order”, “ pay ”, “track”. The organization can find customers and offer services on standard terms [Williamson, 1985, p. 19]. For example, online booking, electronic queuing, digital contracts - all reduce transactional “friction”.

1.2. Mechanism for improving efficiency and quality through data

The problem with the service sector is that quality is often subjective and difficult to measure. Digitization makes quality measurable through sensors, logs, CRM traces, and "journey analytics. " The measurable process is optimized (queue management, demand forecasting, workforce scheduling) [Davenport, 2006, p. 101; Provost & Fawcett, 2013, p. 56]. As a result, the production function begins to perceive "information" as additional capital .

1.3. Mechanism of market reorganization through platformization

A platform brings together two or more parties (customer—service provider — partner—developer) to create value in an ecosystem. The main economic force here is network effects: the more users a platform has, the more attractive it becomes [Katz & Shapiro, 1985, p. 424; Rochet & Tirole, 2003, p. 992]. A platform also enhances the flow of information and makes personalization cheaper.

2. The economic content of platformization

Platformization can be explained in three layers:

2.1. Platform as "Market Infrastructure"

The platform transfers the "institutional" part of the market to the internal system through standard interfaces (rules, ratings, payments). As a result, the number of transactions increases, but the cost of each transaction decreases [Williamson, 1985, p. 22]. The platform generates trust through rating, guarantee, dispute-resolution mechanisms.

2.2. Platform as "architecture"

The platform connects services through a modular architecture and API; partners create new service combinations. This reduces the cost of innovation, because each innovation is not built " from scratch" , but is assembled from existing modules [Yoo et al., 2012, p. 1402]. At the same time, the platform sets standards through "governance": who can access, how to connect, how data is used.

2.3. Platform as "data capital"

Every transaction on the platform is data. As data increases , algorithms improve (matching, fraud detection, dynamic pricing). This "data feedback loop" increases profitability: service quality increases → more users → more data → the algorithm works better [Parker et al., 2016, p. 55]. At this point, the platform becomes an " intellectual coordination factory " rather than a simple intermediary .

3. The economic meaning of data-driven management

Data-driven management is a management model in which decisions are made based on data analysis, rather than intuition or experience alone. Its economic content is as follows:

1. Reducing uncertainty : demand forecasting, resource allocation, and risk assessment.

2. Mitigating the agency problem : performance monitoring and incentives are improved through KPIs [Davenport, 2006, p. 102].

3. Increased efficiency : process variation is reduced , “bottlenecks” are identified, and SLA violations are quickly found.

4. Personalization : Offering the same service to micro-segments rather than everyone increases the profitability of marketing and service design [Provost & Fawcett, 2013, p. 60].

However, data-driven management does not mean “just having more data is enough.” It requires data quality , integration , confidentiality , and ethical standards ; otherwise, “bad data” will lead to bad decisions and damage the organization’s reputation .

RESULTS

Below are the conceptual results formulated within the article: mechanism matrices, KPI system, and schematic diagrams.

Table 1. Mechanisms of influence of digitalization factors on the links of the service value chain (mechanism matrix)

Digitization factor	Attracting demand	Service design	Delivery (operation)	After-sales support
Digital infrastructure	Omnichannel marketing, instant communication	Design prototyping (digital tools)	Automation, remote service	24/7 support, chatbot
Human capital	Segmentation, content management	Service design competence	Lean + digital ops	CRM culture, service recovery
Institutions (trust, standards)	Online payment trust	Standardized packages	SLAs and compliance	Complaints management procedure
Data management	Customer data lake, attribution	Experiment design A/B testing	Forecasting, scheduling	Loyalty model, churn analysis
Platform capability	Market expansion (marketplace)	Co-creation with partners	Matching and dynamic routing	Ecosystem services (add-on)

Note: The matrix summarizes the economic impact of digitalization factors “at which link and through which mechanism” in the value chain [Bharadwaj et al., 2013, p. 473; Vargo & Lusch, 2004, p. 5].

Table 2. Platformization profitability logic: revenue sources and cost structure

Element	Traditional service model	Platform model
Income	Basically fee-for-service	Commission, subscription, advertising, data/insight, premium placement
Cost	Employee, branch, equipment, marketing	IT architecture, cybersecurity, ecosystem management, moderation
Scale	Limited (depending on operating power)	Rapid expansion with network effects
Pricing	Relatively static	Dynamic pricing, differential packages
Risk	Operational risk	Platform governance, reputational risk, regulatory risk

Note: The platform model can increase market concentration through network effects while reducing transaction costs [Rochet & Tirole, 2003, p. 992; Parker et al., 2016, p. 58].

Table 3. KPI system for data-driven management (services sector)

KPI group	Main indicators	Economic meaning
Demand and marketing	CAC, conversion, retention, churn	Customer acquisition cost and lifetime value (LTV)
Operational efficiency	Cycle time, queue time, utilization, SLA	Resource usage, idle time, service speed
Quality and experience	NPS/CSAT, complaint rate, first-contact resolution	Quality becomes demand, reputation
Data quality	Completeness, accuracy, timeliness, lineage	Analytics reliability and risk
Platform indicators	MAU/DAU, match rate, take rate, multi-homing	The power of network effects and monetization

Note: KPIs are necessary to close the “information → decision → result ” chain; otherwise, analytics remain at the “ reporting ” level [Davenport, 2006, p. 103; Provost & Fawcett, 2013, p. 61].

CONCLUSION

The article conceptually systematizes the mechanisms of influence of digitalization factors along the services value chain and reveals the economic content of platformization and data-driven management. The analysis provides the following main conclusions:

1. across the value chain . At the demand generation stage, digital channels dramatically reduce search and negotiation costs, enhance segmentation and personalization. At the delivery stage , efficiency and quality are increased through operational optimization (queuing, scheduling, SLA). In after-sales support , CRM and service recovery mechanisms strengthen loyalty and increase LTV.

2. The economic essence of platformization is threefold: (i) reducing transaction costs (reducing market frictions), (ii) reshaping market structures through network effects, (iii) creating value through algorithmic coordination by turning data into an asset. Therefore, a platform strategy is not just an IT project, but an economic model that requires the design of governance, institutions, trust, and collaboration.

3. is the bridge that turns digitalization into “efficiency . ” Without data quality, integration, and a system of KPIs, digitalization can become “digital decoration.” Organizations need to elevate data governance, ethical standards, and cybersecurity to the level of governance architecture .

4. Practical recommendations:

5. Create a digitalization portfolio in service organizations based on a "value chain map" (at which link is the greatest ROI).

6. When building a platform, governance (rules, ratings, dispute resolution) should be designed as a separate economic block.

7. Implement a balanced mix of KPIs (operations + experience + data quality + platform metrics) for data-driven management.

8. Future research: competition policy, data ownership, and service exports in the context of platformization; as well as empirical testing of the digital maturity index in the services sector.

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