

Research Article

Organizational Ambidexterity and Digital Transformation: Literature Review with Empirical and Conceptual Insights

Örgütsel Çift Yönlülük ve Dijital Dönüşüm: Ampirik ve Kavramsal İçgörülerle Yazın Taraması

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Abstract

Although digital transformation (DT) and organizational ambidexterity (OA) have been studied extensively, few reviews synthesize research at their intersection. Existing reviews tend to emphasize themes and findings while giving less attention to the theoretical frameworks, contexts, study types, and methods needed for robust conclusions. This study addresses that gap by examining how DT and OA interact to support innovation and performance. It offers a systematic overview of publication trends, geographical contexts, theoretical lenses, study types, methods, and findings through a content analysis of 43 peer-reviewed articles retrieved from the Web of Science database.

The results show growing academic interest in the intersection of DT and OA. The dominant theoretical lenses are organizational ambidexterity, dynamic capabilities, the resource-based view, paradox theory, and absorptive capacity. Empirical research is concentrated in the Asia-Pacific and European regions and frequently examines regulated sectors or cross-industry samples. Quantitative designs are most common, followed by qualitative and mixed-method designs; frequently used methods include structural equation modeling, fuzzy-set qualitative comparative analysis, panel-data analysis, and case studies. The synthesis indicates a reciprocal relationship: DT can enable exploration and exploitation, whereas OA can help organizations translate digital initiatives into innovation, resilience, sustainability, and performance.

Keywords: Digital transformation, organizational ambidexterity, literature review, bibliometric analysis, research methods

Öz

Yazında dijital dönüşüm (DT) ve örgütsel çift yönlülük (OA) yoğun biçimde incelenmiş olsa da, iki alanın kesişimini sentezleyen derlemeler sınırlıdır. Mevcut derlemeler çoğunlukla temalara ve bulgulara odaklanmakta; sağlam sonuçlara ulaşmak için gerekli kuramsal çerçevelere, bağlamlara, çalışma türlerine ve yöntemlere daha az yer vermektedir. Bu çalışma, DT ile OA'nın yenilik ve performansı desteklemek üzere nasıl etkileştiğini

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inceleyerek söz konusu boşluğu ele almaktadır. Web of Science veri tabanından seçilen 43 hakemli makalenin içerik analizine dayanan çalışma; yayın eğilimlerini, coğrafi bağlamları, kuramsal yaklaşımları, çalışma türlerini, yöntemleri ve temel bulguları sistematik biçimde değerlendirmektedir.

Bulgular, DT ve OA kesişimine yönelik akademik ilginin arttığını göstermektedir. En sık kullanılan kuramsal yaklaşımlar örgütsel çift yönlülük, dinamik yetenekler, kaynaklara dayalı görüş, paradoks teorisi ve özümseme kapasitesidir. Ampirik araştırmalar ağırlıklı olarak Asya-Pasifik ve Avrupa bölgelerinde yürütülmüş; düzenlemeye tabi sektörler ile birden çok sektörü kapsayan örneklemeler öne çıkmıştır. Nicel tasarımlar ilk sırada yer almakta, bunları nitel ve karma yöntemli çalışmalar izlemektedir. Yaygın yöntemler arasında yapısal eşitlik modellemesi, bulanık küme nitel karşılaştırmalı analiz, panel veri analizi ve vaka çalışmaları bulunmaktadır. Sentez, DT'nin keşif ve yararlanmayı destekleyebildiğini, OA'nın ise dijital girişimlerin yenilik, dayanıklılık, sürdürülebilirlik ve performansa dönüşmesini kolaylaştırdığını göstermektedir. Bu karşılıklı ilişkinin yönü ve gücü bağlama ve araştırma modeline göre değişmektedir.

Anahtar kelimeler: *Dijital dönüşüm, örgütsel çift yönlülük, yazın taraması, bibliyometrik analiz, araştırma yöntemleri*

1. Introduction

Organizations must manage the tension between maintaining stable operations and adapting to ongoing technological change. The convergence of digital efforts with organizational ambidexterity (OA) has become a defining feature of this context. Digital transformation (DT) is described as “complex, radical, disruptive, evolutionary and continuous” (Bråthen, Doan, & Breunig, 2021). DT supports both innovation and operational efficiency, whereas ambidextrous strategies help organizations build on their existing capabilities while exploring new possibilities (Ayari et al., 2024). DT strategies demonstrate considerable promise in enabling novel work practices that leverage human knowledge (Ukko et al., 2019), strengthening innovation capabilities (Tortorella et al., 2020), and linking the exploitation of existing knowledge with the exploration of future knowledge (Borangiu et al., 2019). DT and OA complement each other because both require organizations to manage competing demands related to learning, efficiency, and innovation (Bråthen et al., 2021). Organizational learning is important for digital transformation, but it remains unclear how ambidextrous learning influences this process (Chen & Lin, 2025). DT can facilitate ambidexterity. Dezi et al. (2018) found that big data helps ambidextrous organizations identify market opportunities more effectively and improve their internal processes.

A 2022 McKinsey survey suggests that firms should give greater attention to exploration. To gain more value from digital transformation, they need to use digital technologies not only to reduce costs but also to differentiate strategically, improve customer engagement, and support more ambitious innovation (LaBerge et al., 2022).

To navigate ongoing turbulence and uncertainty, digitally transformed firms must cultivate agility and adaptability through an ambidextrous organizational design (O'Reilly & Tushman, 2004) that supports both exploitation through maximizing current resources and processes and exploration through developing new capabilities and opportunities. For instance, responding to digital disruption entails not only enhancing core operations through new technologies but also experimenting with innovative, technology-enabled business models. These tensions between exploitation and exploration are often addressed through organizational integration mechanisms, such as reintegrating separate digital units into traditional business structures (Sia, Weill, & Zhang, 2021).

Bain & Company's 2025 Innovation Report draws on surveys and interviews with companies included in Fast Company's list of the 50 Most Innovative Companies. The report indicates that firms increasingly combine human- and AI-led innovation, technology and research-and-development investment are rising together, time to market for innovation has improved by 20%, and AI accelerates each stage of the innovation process. It also suggests that deliberate innovation-system design can mitigate human risk aversion and support structural ambidexterity. Separate operating systems—one optimized for operational efficiency and another for exploratory discovery—can enable more ambitious innovation. Approximately 79% of respondents reported using distinct operating models, including different structures, working methods, and key performance indicators, for breakthrough innovation and for sustaining the current business (Dent et al., 2025).

Although DT and OA have been widely studied separately, reviews combining the two areas remain limited and often focus mainly on themes and findings (Bråthen et al., 2021). This study addresses this gap by reviewing 43 articles from the Web of Science database. It examines publication trends, geographical contexts, theoretical lenses, study types, research methods, and key findings at the intersection of DT and OA. It also considers how their relationship contributes to resilience, innovation, and organizational performance.

Accordingly, this study provides a comprehensive overview of research at the intersection of DT and OA. It examines the geographical distribution, publication trends, and citation performance of the selected studies; identifies the theoretical frameworks employed; classifies the studies by type; evaluates the methods used in empirical investigations; and synthesizes the literature's key findings. In addressing these objectives, the review seeks to strengthen the academic literature on DT and OA and provide insights relevant to both research and practice.

The remainder of the study presents the theoretical background, methodology, descriptive and content analyses, limitations, and conclusions.

2. Theoretical Background

2.1. Digital Transformation

Research on digital transformation (DT) has developed across information systems, marketing, and strategic management. As a result, the field includes different definitions and perspectives (Holand et al., 2019). It is therefore useful to distinguish DT from digitization and digitalization (Bråthen et al., 2021).

Digitization means converting analogue information into digital form and is generally linked with Industry 3.0 (Freitas Junior et al., 2016). Digitalization goes one step further by using digital information to improve or simplify particular activities and business processes (Vrana & Singh, 2021). It may also change products, services, and business models through stronger interaction between people and technology (Imran et al., 2021). This development supports the transition toward Industry 4.0.

DT is broader than both concepts. It refers to organization-wide change in business models, processes, systems, products, services, and ways of thinking through connected digital technologies (Gupta, 2018; Nambisan et al., 2017; Vrana & Singh, 2021). DT often starts with improving the basic digital infrastructure and core operations, but it also requires organizations to develop future-oriented capabilities and cooperate within wider data ecosystems. Vial (2019) explains DT as major organizational change created by the combined use of information, communication, computing, and connectivity technologies. Thus, DT should be understood as a holistic process rather than only a technology investment.

The literature also presents DT as a multidimensional concept that includes organizational, technological, social, sustainability, and smart-city perspectives (Reis & Melão, 2023). Its main drivers include technological change, digital competition, changing customer behavior, employee skills, leadership, strategy, organizational culture, and a shared digital vision among senior managers (Kane et al., 2015; Salviotti et al., 2019; Teichert, 2019; Verhoef et al., 2021).

Company surveys show that investment alone does not guarantee successful outcomes. In McKinsey's 2022 survey, leading firms captured around 50% of the possible revenue benefits from DT, compared with 31% for the full sample. They also achieved about 40% of the possible cost benefits, while the general result was 25%. These firms were more successful in maintaining both financial and operational improvements. The survey examined three forms of transformation: developing new digital businesses, transforming the existing core business, and renewing core technologies. Building a new digital business was the most difficult form, as 70% of the companies could not sustain their targets. The findings suggest that firms should invest in both their core and new businesses, use acquisitions to obtain digital capabilities, and give more attention to new digital products and business models rather than only improving present operations (LaBerge et al., 2022).

Similar results are reported in the KPMG Global Tech Report. Based on responses from 2,450 executives in 26 countries, the technologies most often associated with profit improvement were data

analytics, artificial intelligence and automation, cloud systems, cybersecurity, modern delivery methods, and augmented or virtual reality. The report also stresses the need for a clear strategy, effective governance, risk management, and early attention to security concerns (KPMG, 2024).

Academic evidence generally supports a positive relationship between DT and firm performance. A meta-analysis of 109 studies published between 2006 and 2021 found a moderately strong overall effect. The largest effect was related to innovation performance, followed by operational and financial performance. Artificial intelligence showed the strongest result among individual technologies. However, outcomes differ according to firm size and age, industry, national development, technological intensity, research period, study design, sampling, and the type of performance measure used (Oduro et al., 2023).

2.2. Exploration and Exploitation

March (1991) identifies exploration and exploitation as two central forms of organizational learning. Exploitation focuses on improving what the organization already knows and does. It includes refinement, repetition, efficiency, and better use of existing capabilities. Exploration concerns the search for unfamiliar knowledge, methods, products, or opportunities. It involves experimentation, discovery, and innovation. These concepts have also become important in organization theory, strategic management, and managerial economics (He & Wong, 2004).

The two activities have different risk and return patterns. Exploitation may provide more predictable and short-term benefits because it builds on existing experience. However, too much exploitation can create inertia and limit the organization's ability to respond to change. Exploration involves more uncertainty, and its results may take longer to appear. It can produce major gains, but it may also lead to costly failures (March, 1991). Organizations usually prefer exploitation because its benefits are easier to observe and measure (Levinthal & March, 1993). Still, depending only on exploration may prevent a firm from obtaining stable returns, while depending only on exploitation may cause its products, knowledge, and routines to become outdated. For this reason, organizations need to manage both activities together.

2.3. Organizational Ambidexterity

The term ambidexterity comes from the idea of using both hands with similar ability. In organizational research, it describes the capacity to manage exploration and exploitation at the same time or over time (Bodwell & Chermack, 2010; March, 1991). It is also related to the need for both adaptability and alignment and for combining the development of new resources with the improvement of existing ones (Birkinshaw & Gibson, 2004; Eisenhardt & Martin, 2000; He & Wong, 2004).

Organizational ambidexterity responds to a basic tension between innovation and efficiency. Firms need efficiency, consistency, and experience to operate successfully, but they also need change and experimentation to remain competitive (Dodgson, 1993). The processes that support exploitation are often different from those required for exploration, which creates a continuing managerial challenge (O'Reilly & Tushman, 2008). A strong focus on efficiency may produce rigidity, whereas excessive experimentation may increase costs and reduce strategic direction. Studies therefore emphasize the importance of finding a workable balance between these competing demands (Andriopoulos & Lewis, 2009; Chakma et al., 2021; March, 1991). He and Wong (2004) also found that firms combining exploration and exploitation are more likely to achieve stronger performance.

Ambidexterity may take structural, temporal, or contextual forms. Structural ambidexterity separates exploratory and exploitative work into different units, systems, cultures, or processes. This arrangement allows each activity to follow its own priorities and working methods. Temporal ambidexterity means that firms shift their emphasis between exploration and exploitation at different times. These activities may therefore be carried out sequentially or simultaneously, depending on organizational needs (O'Reilly & Tushman, 2008).

Contextual ambidexterity does not depend mainly on separate units. Instead, employees and teams decide how to divide their effort between exploration and exploitation according to the situation (Birkinshaw & Gibson, 2004; Kostopoulos et al., 2015; Raisch & Birkinshaw, 2008). Organizational

systems, shared values, and management practices create the context that supports these decisions. This approach may reduce the coordination costs and resource conflicts that can arise when exploration and exploitation are formally separated (Gibson & Birkinshaw, 2004; Raisch et al., 2009; Turner et al., 2014).

Fourné et al. (2019), in a meta-analysis covering 114 studies and 33,492 organizations, found that structural ambidexterity was more beneficial in manufacturing and high-technology industries, while contextual ambidexterity was more useful in service industries. Findings on performance are not fully consistent because they are influenced by market conditions, firm size, definitions, measurement methods, and the role assigned to ambidexterity in research models (Marín-Idarraga et al., 2022; Simsek, 2009; Zhao et al., 2021). Recent evidence also suggests that ambidexterity may improve performance indirectly through innovation rather than through a direct effect (Marin Idarraga et al., 2025). For this reason, future research should continue to examine the conditions, forms, and implementation factors that make ambidexterity successful (Kafetzopoulos et al., 2023).

Ambidexterity can also be examined from an innovation perspective. Exploratory innovation develops products, services, markets, or business models that are new to the firm. Exploitative innovation improves existing offerings for current customers, for example through product extensions or process improvements. The joint management of these two activities is described as ambidextrous innovation (He & Wong, 2004; Mueller et al., 2013).

2.4. Digital Transformation and Organizational Ambidexterity in Previous Review Studies

Following a bibliometric analysis of 141 articles and a content analysis of nine articles, Bråthen, Doan, and Breunig (2021) identified three dimensions in research on organizational learning and digital transformation and proposed them as a bridge between OA and DT. The first, internal orientation, emphasizes employee involvement and contribution; active communication, decentralized structures, and continuous learning facilitate exploitation. The second, external orientation, involves seeking knowledge and capabilities outside the organization through networks, partnerships, and participation by knowledgeable actors to support exploration. The third, structural integration, combines internal and external orientations to balance exploration and exploitation in DT activities. Similarly, a review of DT and knowledge management in small and medium-sized enterprises (SMEs) identified two collaboration patterns: collaboration within the core value chain and with network partners, which enables linear knowledge exploration and exploitation; and collaboration within ecosystems and innovation platforms, where SMEs use an ambidextrous, nonlinear approach to knowledge exploration and exploitation in support of DT (Hafeez et al., 2025).

A regional review of ten articles concerning Gulf Cooperation Council countries highlights the importance of government-led DT projects, policy-maker investment in digital infrastructure, public-private collaboration, and private-sector collaboration with industry and academia. Together, these arrangements can help organizations address the challenges of digital initiatives and create opportunities for knowledge sharing (Ayari et al., 2024).

Another review included in the present sample, by de Castilho Junior, Rocha Loures, Portela Santos, and Deschamps (2023), presents a planning-to-execution framework for DT in which OA is one of the planning layers. The planning dimension comprises three core layers: enterprise architecture, OA as an organizational feature, and enterprise interoperability. These layers connect directly to DT execution through the interaction of human resources and technological artifacts. Performance indicators are then used to assess and control execution, supporting alignment between strategic intent and operational outcomes.

Nyagadza's (2022) literature review and proposed model position OA as a dynamic digital capability and suggest that it moderates digital marketing firms' sustainable DT.

Schrader, Hoeborn, Gross, and Bauernhansl (2023) conclude that DT, particularly in the circular-economy context, can support sustainable value creation but requires firms to build new capabilities while maintaining existing operations. OA can support this requirement through temporal, structural, domain, and contextual forms. These forms offer different mechanisms for balancing exploration and exploitation, from top-down cycles to bottom-up employee autonomy. They may coexist or be combined

across organizational levels, enabling both large and small firms to manage innovation and efficiency simultaneously.

Hoessler and Carbon (2022) reviewed 94 articles to explain the role of DT in exploration and exploitation. Their findings indicate that DT requires direction from digital strategies and support from appropriate business models and organizational structures if it is to produce radical change. For exploitation, DT expands data availability and analysis, communication channels, operational productivity, and customer experience while reducing costs. All reviewed articles addressed both exploration and exploitation, yet few explained precisely how ambidexterity is achieved. The identified mechanisms include structural ambidexterity, collaboration through networks, alliances, or acquisitions, and top-management support. The priority assigned to exploration or exploitation may also vary with digital maturity. Contextual and sequential ambidexterity were the least frequently discussed forms.

3. General Overview and Literature Review

3.1. Methodology

The Web of Science Core Collection (WoS) was selected because it is a comprehensive database that applies high indexing standards (Kuzgun, 2024). Its category field also facilitates a descriptive analysis of search results.

The term digital transformation and the wildcard string organizational ambidexterity, which captures both organizational and organisational spellings, were searched in the Topic field. This field covers titles, abstracts, author keywords, and Keywords Plus. No date restriction was applied. The results were restricted to English-language articles to reduce interpretation risk and to peer-reviewed articles to support academic rigor. The search returned 43 articles. The following sections first provide a descriptive overview and then report a content analysis organized around five research questions:

1. What is the overall profile of research at the intersection of DT and OA in terms of geographical context, publication trends, and citation performance?
2. Which theoretical frameworks are used?
3. What types of studies have been conducted?
4. Which methods are used in empirical studies?
5. What are the key findings?

3.2. General Descriptive Overview

The distribution of the 43 studies across WoS indexes is shown below:

Table 1. Studies by Web of Science Index

Web of Science Index	No of Studies	% of Total
Social Science Citation Index (SSCI)	22	51%
Emerging Sources Citation Index (ESCI)	13	30%
Science Citation Index Expanded (SCI-EXPANDED); Social Science Citation Index (SSCI)	6	14%
Science Citation Index Expanded (SCI-EXPANDED)	2	5%
Grand Total	43	100%

Table 1 shows that 65% of the articles are indexed in the Social Sciences Citation Index (SSCI), one of WoS's selective citation indexes. This indicates that much of the reviewed literature appears in journals with established visibility in the social sciences.

Most studies are categorized under management and business, followed by industrial engineering, information science, and economics. Multidisciplinary combinations that include business or management—business and industrial engineering (7% of the total) and computer science, information

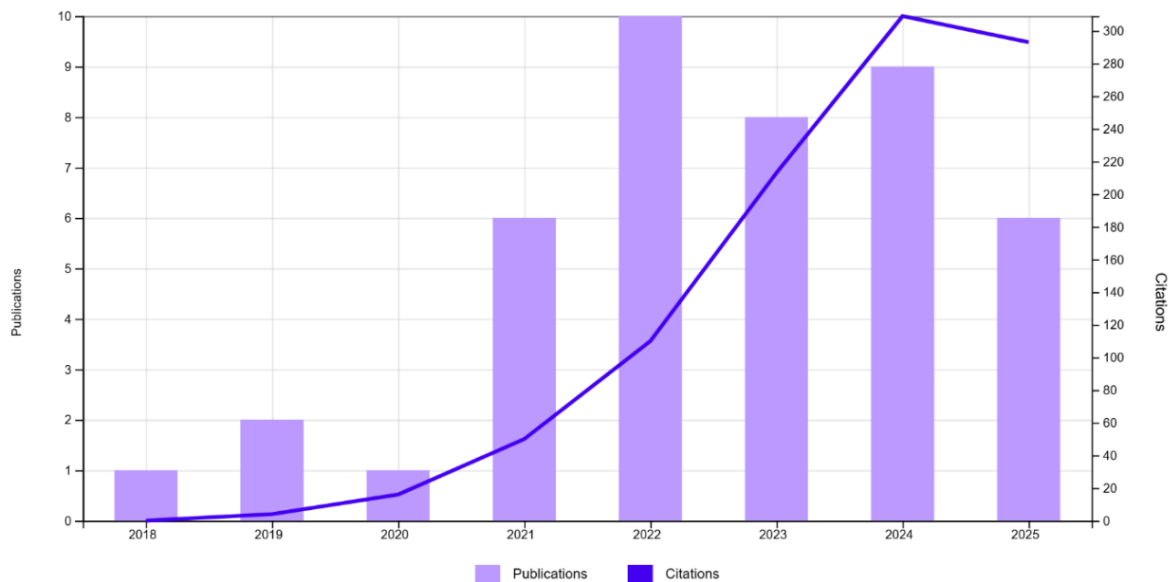
science, and management (2%)—represent only a small share of the sample. Greater collaboration between business and management scholars and computer and information scientists could broaden and deepen research on DT for both scholarship and practice.

Table 2. Studies by Web of Science Categories

Web of Science Kategorileri	No of Studies	% of Total
Management	11	26%
Business; Management	9	21%
Business	5	12%
Business; Engineering, Industrial; Management	3	7%
Information Science & Library Science	2	5%
Economics; Management	2	5%
Business, Finance	2	5%
Other	9	21%
Grand Total	43	100%

Both publications and citations increased over time, broadly coinciding with the growing prominence of DT in practice and academic research.

Graph 1. Number of Publications and Citations per Year



Source: Web of Science Database

The 43 articles were cited by 931 articles when self-citations were excluded and received 979 citations excluding self-citations. Most scholarly attention came from management, business, and industrial engineering, followed by information and computer science. The h-index of the reviewed set is 15, indicating a moderate level of academic impact and scope for a stronger knowledge base. Of the 43 studies, 37 are empirical. Quantitative designs are the most common, followed by qualitative designs, with mixed-method studies also represented. This distribution indicates methodological variety across the field.

Table 3. Study Types

Study Type	Total	% of Total
Quantitative	18	42%
Qualitative	15	35%
Mixed method	4	9%
Literature Review	3	7%
Conceptual	3	7%
Grand Total	43	100%

Empirical studies were conducted mainly in Asia-Pacific—especially China and Vietnam—and Europe—especially Germany and Italy. Studies of innovation ambidexterity were likewise concentrated in China and Vietnam, as discussed later in the review.

Table 4. Geographical Context Distribution for Empirical Studies

Context (Empirical studies)	Number	% of Total
Asia Pacific	16	43%
Europe	16	43%
Middle East	2	5%
Others	3	8%
Total	37	100%

Several contextual factors may help explain these patterns, although they require further empirical testing. China and Vietnam, as emerging economies, have pursued rapid industrial upgrading from low-cost manufacturing toward higher-value, innovation-driven industries. In this setting, firms must exploit established manufacturing strengths while exploring digital, AI-enabled, and platform-based business models. Industry 4.0 originated as a German policy concept (Şaşmaztürk & Uğurlu, 2025); the term Industrie 4.0 was introduced at the 2011 Hannover Fair as part of Germany’s High-Tech Strategy 2020 (Yıldırım, 2020). Germany and Italy, as advanced industrial economies, also have strong manufacturing traditions. For these firms, DT creates a tension between digitizing established operations and preserving accumulated craft and engineering capabilities. OA can help firms exploit those capabilities while exploring digital ecosystems, the Internet of Things (IoT), and AI-driven innovation.

China and Vietnam also have strong government-led digitalization initiatives. Central planning and industrial policy encourage firms to manage tensions between established and emerging activities. Programs such as Made in China 2025 and Vietnam’s Industry 4.0 strategy prioritize DT while pressing firms to balance continuity and innovation. Germany and Italy likewise benefit from European Union and national programs, including Germany’s Industrie 4.0 and Italy’s Transizione 4.0, that encourage digital transformation while supporting competitive strengths in traditional sectors.

The sectoral distribution is fragmented. Banking, healthcare, and manufacturing are the most frequently examined individual industries, while 17 studies cover multiple sectors. Banking and healthcare provide suitable contexts because they are regulated, data-intensive, and exposed to pressures for both efficiency and innovation. Manufacturing firms face similar tensions as they modernize established infrastructure and adopt Industry 4.0 technologies and new business models.

Of the 37 empirical studies, seven examine small and medium-sized enterprises (SMEs), two examine family businesses, and two examine large enterprises; the remaining studies include organizations of various sizes.

OA is the dominant theoretical framework, used in 21 studies. The dynamic-capabilities perspective ranks second, appearing in seven studies, followed by paradox theory in four studies and the resource-based view and absorptive capacity in three studies each. Other frameworks—each used once—include resource orchestration theory, signaling theory, trade theory, the technology–organization–environment framework, behavioral theory of the firm, the capability-based view, sensemaking, and digital

affordances. Some studies combine two or more lenses, including Hashem (2024), Wang, Song, and Zhang (2025), Jassem and Abdelfattah (2025), and Oberländer, Röglinger, and Rosemann (2021).

The four most common lenses after OA—the dynamic-capabilities perspective, paradox theory, the resource-based view, and absorptive capacity—provide a strong conceptual foundation for research at the intersection of DT and OA. Dynamic capabilities explain how firms transform under changing conditions; paradox theory addresses the management of competing demands; the resource-based view explains how distinctive, difficult-to-imitate resources create advantage; and absorptive capacity explains how firms learn, adapt, and innovate. These compatible perspectives are often combined, for example by treating ambidexterity as a dynamic capability enabled by absorptive capacity. Together, they illuminate how organizations balance stability and change across management, innovation, information systems, and organizational research.

3.3. Literature Review

The content analysis of the selected studies was organized thematically. Because it is itself a review article, de Castilho Junior et al. (2023) is discussed in Section 2.4, “Digital Transformation and Organizational Ambidexterity in Previous Review Studies.”

3.3.1. Ambidexterity in Regulated Sectors

Using dynamic capabilities as a theoretical framework, Nasution, Muafi, El-Qadri, and Suprihanto (2025) surveyed 120 Indonesian insurance executives and applied structural equation modeling (SEM) to examine how digital-business intensity and transformation affect ambidexterity and sustainable performance. They found that OA mediates the relationship between digital business transformation and sustainable organizational performance and that digital-business intensity moderates this relationship.

Rahardjo, Lim, and Tan (2024) surveyed 161 traditional media firms and used SmartPLS 4 to test how organizational unlearning shapes the relationship between entrepreneurial orientation and OA during DT. Innovativeness emerged as critical to transformation, and unlearning mediated the relationship between entrepreneurial orientation and OA.

Horváth, Kerényi, and Szabó (2022) conducted 27 qualitative interviews with representatives of Hungarian banks, FinTech start-ups, and regulatory bodies to examine the benefits of and barriers to collaboration. They found that banks’ excessive emphasis on exploitation can impede FinTech partnerships and called for ambidextrous internal champions or external suppliers to balance innovation and control.

Drawing on the resource-based and knowledge-based views, Dwipayana, Prijadi, and Hamsal (2022) used covariance-based structural equation modeling to test relationships among dominant logic, exploration, exploitation, and organizational performance in Indonesian commercial banks. Dominant logic positively influenced both exploitation and exploration and indirectly affected performance through exploitation. However, during DT, established technical routines lost some of their capacity to produce superior performance. The findings indicate that banks must move beyond inertial beliefs, behaviors, and governance mechanisms as new technological realities reshape traditional business models.

Sia, Weill & Zhang (2021) drew lessons from DBS Bank as a case study to argue that future-ready digital enterprises have both ambidexterity and a full integration of business and IT, creating a new business model.

Drawing on paradox theory, Johansson et al. (2022) used survey and workshop data from a co-production project in a Swedish healthcare region to identify tensions in digitalization. DT initiatives involved two principal configurations: organizing/performing/belonging and organizing/performing/learning. The authors argue that organizations can enable digital ambidexterity by navigating and connecting disparate elements, negotiating boundaries between contradictions, and prioritizing competing demands to develop a holistic view of goals and strategies.

Gastaldi, Appio, Corso, and Pistorio (2018) studied 14 Italian hospitals over a two-year period (2009–2011), conducting 107 interviews. Their multiple-case design revealed three DT pathways that help

hospitals manage the exploration–exploitation paradox. These pathways are asset digitalization, process integration, and analytics-driven decision-making.

Irgang, Sestino, Barth, and Holmén (2025) investigated healthcare workers' responses to AI adoption. Using survey data from 357 employees, regression analyses showed that paradoxical tensions increase both willingness to adopt AI tools and satisfaction with them, mediated by a paradoxical mindset.

The studies show that dominant logic and path dependence can support exploitation but may suppress exploration when overemphasized. Organizational unlearning may therefore be needed to benefit from entrepreneurial orientation. Taken together, the findings position ambidexterity as both a dynamic capability and a mediating mechanism that helps organizations translate digital initiatives into long-term advantage by balancing innovation and efficiency, managing paradoxical tensions, and enabling continuous renewal. They also show that particular DT pathways can enable ambidexterity. The relationship between OA and DT is therefore reciprocal rather than unidirectional, although its form depends on context and the research model.

3.3.2. Role of Government Support

Regulatory support refers to the extent to which laws, regulations, and policies respond to organizations' technological-transformation needs and facilitate access to support for digital upgrading. Drawing on the resource-based view, Trieu et al. (2024) surveyed 336 Vietnamese SMEs and used partial least squares structural equation modeling (PLS-SEM) to examine how IT competencies, ambidexterity, and paradoxical leadership contribute to organizational resilience and performance, with government DT policies treated as an external resource. IT competencies and ambidexterity jointly strengthened resilience and responsiveness to market volatility, and paradoxical leadership enhanced these outcomes. Government support positively influenced IT competencies and resilience. Similarly, Trieu, Nguyen, and Tran (2025) used PLS-SEM with data from 321 Vietnamese firms to examine IT capabilities and regulatory support through a dynamic-capabilities lens. Organizational agility and ambidexterity mediated the relationship between IT capabilities and business performance, while regulatory support moderated these relationships.

3.3.3. Ambidextrous Innovation Studies

Most studies examining ambidextrous innovation from multiple perspectives were conducted in China; three additional empirical studies examined Vietnam, Brazil, and Egypt.

Xia, Zhu, Tan, and Xie (2024) examined innovation ambidexterity among Chinese SMEs. Using secondary data from 69 equipment-manufacturing firms, they applied fuzzy-set qualitative comparative analysis (fsQCA) to combinations of individual, organizational, and institutional factors. The study identified three configurations that foster exploration–exploitation balance and two that inhibit it. Owner openness was present in all three enabling configurations. Firm age and digitization were partly substitutable: both younger firms with digitally oriented owners and older, less digitized firms could achieve high innovation ambidexterity under different institutional conditions. Legitimacy and regulatory, normative, and cognitive pressures also shaped whether firms emphasized exploratory or exploitative innovation. However, the operationalization of variables and the small secondary dataset limit the generalizability of the findings.

Luu (2023) surveyed 364 managers from 107 Vietnamese export firms and used PLS-SEM. The findings indicate that digital transformational leadership influences DT through firm digital capabilities and that DT improves export performance through employees' exploratory and exploitative innovation.

Using the innovation configuration theory, Zhao and Gao (2024) analysed panel data from 613 Chinese manufacturing firms to examine how four ambidextrous innovation configurations (dual exploration, dual exploitation, technology leveraging, business model leveraging) affect performance under different levels of digitalisation. Dual exploration refers to the exploratory technological innovation combined with exploratory business model innovation, and dual exploitation is the combination of exploitative technological and business model innovation. They found that dual exploration strategy and technology leveraging strategy each positively influences organizational performance. At a high level of digitalization, the impact of dual exploration strategy becomes even stronger. Similarly, based on the

theory of dual innovation, and using data from several databases on Chinese listed enterprises (2012–2022), Wang and Yan (2024) showed that DT significantly enhances organizational performance by fostering both exploitative and exploratory innovation, as well as by improving the balance and complementarity between these two types of innovation. Managerial power further strengthens this positive effect, amplifying the benefits of DT. Moreover, the impact is especially stronger in high-tech industries, and among enterprises with stronger profitability. To complement these findings at a macro level, there is another study: Xing, Gong, Moon, and Ge (2025) drew on OA theory, and used panel data of Chinese listed companies (2010–2022) to perform econometric analyses and showed that digital economy development improves labour productivity, with the effect amplified by exploitative and exploratory innovation capabilities. Effects vary by industry and firm life-cycle stage, but growing companies and technology intensive businesses can leverage digital resources better than others.

Xue, Tan, and Anwar (2024) surveyed 183 Chinese manufacturers and used regression and mediation models to test how DT mediates the relationship between innovation strategy and competitive advantage. Exploitative innovation had a stronger effect on DT than either exploratory innovation or the combined ambidexterity measure, and transformation in service and organizational activities had the strongest effect on competitive advantage.

Wang, Song, and Zhang (2025) examined big data marketing capability (BDMC) in 151 Chinese automotive firms. Using hierarchical regression and nonlinear modeling, they found BDMC reshapes the relationship between exploration, exploitation, and innovation performance as a moderator. Notably, BDMC transformed linear and U-shaped patterns into new performance curves, confirming its moderating power in digital innovation contexts.

Drawing on signaling theory, Lu, Zhou, Luan, and Song (2024) linked ambidextrous innovation to supply-chain financing performance (SCFP) in Chinese SMEs. Their mixed-method study combined six qualitative cases with survey data from 259 firms and showed that both exploration and exploitation support financing opportunities. The breadth and depth of digital-technology deployment moderated these effects. Breadth captures the range of technologies used across a firm and with its partners, whereas depth captures the intensity with which technologies are integrated into core operations and business models. Breadth strengthened the relationship between exploitative innovation and SCFP. Depth weakened the relationship between exploratory innovation and SCFP but strengthened the positive effect of ambidextrous innovation on SCFP.

Based on resource orchestration as the theoretical basis, Yoshikuni, Dwivedi, and Dwivedi (2024) tested a structural equation model with responses from 441 Brazilian firms. Their findings showed that strategic knowledge and IT capabilities enhance business process performance, which leads to ambidextrous innovation outcomes. Importantly, environmental turbulence strengthened these effects, especially for large firms.

In a conceptual study, Oberländer, Röglinger, and Rosemann (2021) developed a taxonomy of digital opportunities for incumbent firms grounded in the resource-based view and innovation ambidexterity. The taxonomy distinguishes internal, shared, and external forms of both exploitation and exploration and highlights the interplay of resources in converting opportunities into value.

Hashem (2024) investigated absorptive capacity and innovation ambidexterity in 175 manufacturing firms in Egypt. Surveying 468 managers and analyzing the data via PLS-SEM, the study confirmed that absorptive capacity directly supports Industry 4.0 adoption, particularly through exploration. Learning capability was found to moderate the relationship between Industry 4.0 adoption and exploration.

These recent studies show that DT and organizational capabilities jointly enable ambidextrous innovation, thereby improving performance, competitive advantage, and productivity. The effects depend on firm characteristics, digital orientation, managerial power, and institutional context; configurations such as dual exploration and technology leveraging often produce strong outcomes. DT moderates ambidextrous innovation in some models, while ambidextrous innovation shapes DT in others. Digital leadership, owner openness, big-data capabilities, and the breadth and depth of technology deployment further influence how innovation translates into performance. Overall, digital technologies and resource orchestration create context-specific paths to ambidextrous innovation across

industries and firm life-cycle stages. Testing these relationships in additional contexts and synthesizing them through meta-analysis would benefit both research and practice.

3.3.4. Organizational Design Ideas

Holotiuk, Beimborn, and Hund (2024) examined digital innovation labs (DILs) as a link between ambidexterity and DT that combines structural and contextual forms. Employees rotate full-time between exploration in DILs and exploitation in the main organization, helping disseminate knowledge about digital technologies. Based on nine DILs, the study shows that transferring employees between the main organization and the labs recombines different forms of ambidexterity, addresses tensions in digital innovation, and creates a foundation for DT.

In an exploratory study of six digital innovation units (DIUs), Trischler, Bason, and Li-Ying (2022) identified two interdependent cycles that DIU leaders must manage to sustain ambidextrous impact during DT: life-cycle transitions and growth traps. Leaders must facilitate transitions across the seed, growth, harvest, and evolution stages and mitigate traps such as drifting from the core, becoming too embedded in core business processes, and facing unexpected changes in top management or the external environment. They do so by alternating between exploration and exploitation.

3.3.5. Business Model and Organizational Change

Belhadi et al. (2022) used a hybrid SEM–fsQCA approach with data from 306 organizations across Europe, Asia, and Africa to examine how digital business transformation, OA, and circular business models shape the relationship between Industry 4.0 capabilities and sustainable performance. Industry 4.0 capabilities positively affected digital business transformation and OA, while OA mediated the relationship between those capabilities and sustainable performance. The findings suggest that circular business models are not indispensable when digital business transformation and OA are integrated in the development of sustainable models.

Latilla, Frattini, Franzò, and Chiesa (2020) examined how an Italian energy utility adapted its business model during DT. Their longitudinal single-case study traced business-model renewal and the organizational adjustments that supported it. Digitalization pressures, changes in the external environment, and earlier unsuccessful innovation efforts compelled the firm to renew its value propositions through a major organizational change process that enabled structural ambidexterity.

Jing, Zhang & Ma (2023) analysed 289 questionnaires from Chinese SME managers using SEM and fsQCA to test a capability–behaviour–performance model. They showed that digital exploitation capabilities foster market-driven business model innovation, while exploration capabilities drive market-creating innovation. Business model innovation fully mediates the relationship between ambidextrous digital capabilities and transformation performance, which is measured by sales, market share, and profit growth dimensions after DT.

Barile, Secundo, and Del Vecchio (2024) analyzed DT in food industry SMEs during the COVID-19 pandemic. Through action research on an Italian family-run start-up (ArteBianca Delivery), they demonstrated how marketing, delivery, and customer care processes were reconfigured via mobile apps and social tools. The study highlights how crisis-driven pressures accelerate digital strategy adoption, reshaping traditional supply chains and business models.

Drawing on dominant logic and sensemaking, Lowe and Maijanen (2019) examined business-model renewal in public-service broadcasting amid increased competition for younger audiences. Interviews with 16 strategic managers in Finland, Germany, and Sweden revealed tensions between legacy broadcasting logic and emerging digital-media logic. Managers attempted to balance continuity with digital responsiveness, illustrating the complexity of strategic adaptation. Dwipayana, Prijadi, and Hamsal (2022) likewise examined dominant logic in banking and showed how new technological realities reshape traditional business models.

Krzywdzinski and Butollo (2022) conducted 22 interviews and analyzed documents from a leading mechanical-engineering company to develop a process model of organizational change during DT. Their model extends ambidexterity theory through the phases of proof of concept, partial exploitation, and full

transformation. The study shows that organizations must combine established manufacturing know-how with new knowledge of digital technologies.

Hoessler and Carbon (2024) examined structural ambidexterity in incumbent firms' DTs. Based on 33 semi-structured interviews with managers across industries, their thematic analysis produced a decision tree guiding firms on when to separate or integrate digital activities. Findings emphasized digital maturity and strategic alignment as key determinants of successful ambidexterity.

These studies draw attention to organizational change processes and show how DT interacts with business-model innovation and OA to improve performance and sustainability across industries. Industry 4.0 capabilities, digital exploration and exploitation, and organizational adjustments enable firms to renew value propositions, balance legacy practices with digital responsiveness, and navigate crises. Business-model innovation often mediates the relationship between ambidextrous digital capabilities and performance. Circular business models are not always necessary when DT and ambidexterity are integrated. Overall, ambidexterity during DT is a dynamic, context-dependent process involving structural, procedural, and strategic adaptation.

3.3.6. Leadership, Governance, and Organizational Ambidexterity

Karippur and Balaramachandran (2022) analyzed the antecedents of effective digital leadership in Asia-Pacific firms. Survey data from senior managers confirmed that leadership attributes, strategic alignment, an organizational focus on exploration, and governance of digital practices for exploitation significantly shape digital leadership.

Jackson and Dunn-Jensen (2021) reviewed ambidexterity in leadership succession planning. Their conceptual analysis explains how human-resource executives can balance exploitation of existing talent pipelines with exploration of emerging leadership needs. The proposed four-step framework begins with evaluating the business model, then addresses decision-making biases and traps, integrates succession actions into individual development plans, and tests those plans through a multilevel approach that incorporates predictive analytics.

Bürgel and Hiebl (2024) examined how family firms manage conflict during digitalization. Survey data from 85 German firms and 13 interviews showed that conflict-management strategies improve digitalization outcomes but vary with the distribution of ownership across generations. When multiple generations share ownership, younger members take responsibility for digitalization; concentrated ownership requires collaboration to prevent conflict escalation. Compromise as a conflict-management strategy is also associated with higher levels of digitalization.

Jöhnk, Ollig, Rövekamp, and Oesterle (2022) used three case studies of incumbent firms to show how the management of concurrent DT initiatives through alignment, governance, methods and IT, people, and culture fosters hybrid ambidexterity. Structural and contextual ambidexterity complement one another, helping firms balance exploration and exploitation, reduce organizational tensions, and improve transformation outcomes.

Drawing on paradox theory, Toutaoui, Benlian, and Hess (2022) conducted an interpretive study of nine German-headquartered companies with bi-modal IT functions. They identified nine tensions between traditional and agile IT and mapped them onto five underlying paradoxes. At the organizational level, firms must build future digital talent while maintaining current IT performance, balance competing IT modes, and grant freedom for IT exploration while preserving organization-wide order. At the individual level, employees face tensions between perceptions of agile IT roles and between personal digital ambitions and occupational demands. The study identifies integration and differentiation practices for managing these tensions and extends understanding of structural ambidexterity at the IT-function level.

3.3.7. Industrial Collaboration

Cepa and Schildt (2023) conducted an inductive case study of five long-term buyer–supplier collaborations. Digital technologies, particularly big-data technologies, enabled specialized units to manage data flows across firm boundaries and create “unitary spaces” in which structural tensions were temporarily suspended. Data-induced rationalities—holistic, data-centered ways of integrating data flows, algorithms, and human work—guided observation, problem framing, reasoning, and response.

Together with organizational compartmentalization, these rationalities narrowed goals, muted competing demands, and focused employees on cooperative short-term outcomes. Although these arrangements improved collaboration in the short term, their long-term sustainability remained uncertain.

3.3.8. Other Studies

Several studies build conceptual or taxonomic frameworks to map ambidexterity and DT.

Drawing on organizational-capabilities theory, Razzak, Al-Riyami, and Palalic (2022) proposed a conceptual model linking organizational meta-capabilities. The model connects foresight with strategic agility and ambidextrousness and treats the degree of digitalization as a moderator of these relationships.

Jackson (2019) extended the discussion of ambidexterity to higher education by identifying three pitfalls that institutions face when balancing established competencies and innovation. The analysis uses absorptive-capacity frameworks as change-management tools and identifies linear and staged processes, faculty control over knowledge sharing, and overdependence on prior scientific accumulation and data analytics as key risks. Experiential learning is proposed as one response.

Crusoe, Magnusson, and Eklund (2024) developed digital-transformation decoupling theory to explain willful ignorance of prerequisites in public-sector transformation. Their exploratory and confirmatory factor analyses used national panel data. One proposition relevant to this review is that DT decoupling is positively associated with ambidextrous decoupling.

Drawing on trade theory, Erdey, Liu, and Nagy (2024) analyzed 13,251 firm-level observations from World Bank Enterprise Surveys across 19 OECD countries. Digital technologies, platforms, and infrastructure helped explain export performance, but the relationship was nonlinear: digital affordances had a U-shaped association with export performance that became stronger at high levels of OA.

Del Giudice et al. (2021) studied 280 Italian smart-manufacturing SMEs to assess how agility, adaptability, and ambidexterity jointly enable digital innovation. Structural equation modeling showed that ambidexterity positively affects digital innovation, defined as the adoption of novel organizational practices and the strategic orchestration of digital technologies to develop and support products, platforms, services, and value propositions that improve customer experience.

Based on ambidexterity theory and the technology-organization-environment framework, Jassem and Abdelfattah (2025) explored how digitalizing accounting processes (DAP) affects SME performance in Oman. Using survey data from 254 SMEs and structural equation modeling, they found that DAP enhances both exploitation and performance, with exploitation acting as a mediator. The study highlights the role of digital accounting in sustaining SME growth.

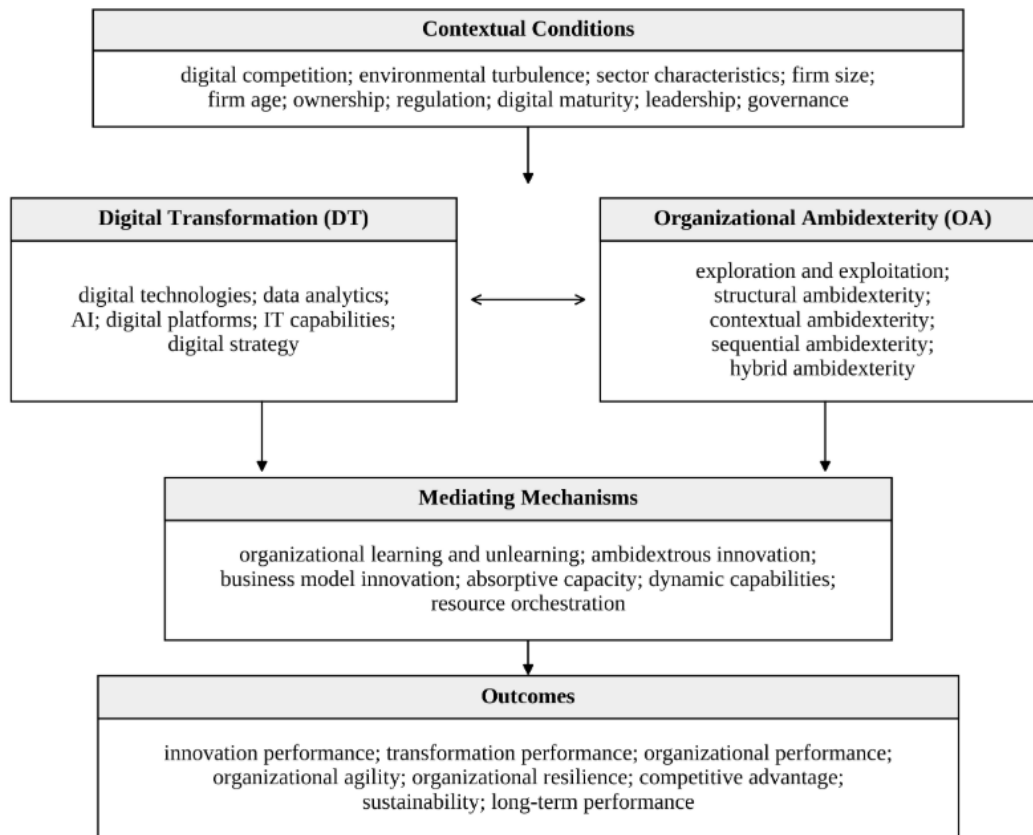
3.4. Synthesis and Conceptual Framework

The findings of this review suggest that the relationship between DT and OA is reciprocal. DT can support ambidexterity by providing new tools for efficiency, innovation, coordination, and decision-making. OA can support DT by helping organizations manage the tension between stability and change. In this sense, ambidexterity helps firms use digital technologies not only for operational improvement, but also for strategic renewal and innovation.

This relationship is shaped by several contextual conditions. Digital competition, environmental turbulence, sector characteristics, firm size, firm age, ownership, regulation, digital maturity, leadership, and governance can influence how firms combine DT and OA. For example, firms with higher digital maturity may be better able to use digital technologies for both exploitation and exploration, while older firms may face stronger legacy routines and structural inertia.

The framework also shows the mechanisms through which DT and OA may influence organizational outcomes. Organizational learning and unlearning, ambidextrous innovation, business model innovation, absorptive capacity, dynamic capabilities, and resource orchestration are important mechanisms in this process. Through these mechanisms, firms may improve innovation performance, transformation performance, organizational performance, organizational agility, organizational resilience, competitive advantage, sustainability, and long-term performance.

Figure 1 summarizes this co-evolutionary relationship between digital transformation and organizational ambidexterity. The framework is intended as a synthesis of the reviewed literature rather than as a set of formal propositions. It summarizes the main relationships, mechanisms, contextual conditions, and outcomes that emerged from the content analysis.



Source: Developed by the authors based on the literature review.

Figure 1: A Co-Evolutionary Framework of Digital Transformation and Organizational Ambidexterity

4. Limitations and Suggestions for Future Studies

This study has several limitations. First, the analysis covers 43 articles retrieved solely from the Web of Science database; relevant studies indexed in Scopus, Google Scholar, or other databases may therefore have been omitted. Reviews based on other databases were summarized to partly mitigate this limitation, but future research should combine multiple databases and larger samples. Second, the review includes only English-language, peer-reviewed articles and may have missed work published in other languages or formats. The search terms may also have excluded studies that use related concepts. Third, the concentration of empirical research in Asia-Pacific and Europe limits the geographical generalizability of the findings. Finally, variation in theories, methods, and contexts restricted direct comparison, and the content analysis necessarily involved researcher judgment. Future studies should use broader search strings, more diverse sources and settings, transparent coding protocols, and complementary review methods.

Most reviewed studies also come from management and business. Multidisciplinary combinations such as business and industrial engineering or computer science, information science, and management account for only a small share of the sample. Greater collaboration among business, management, computer-science, and information-science researchers could increase the breadth, methodological sophistication, and practical relevance of future DT research.

5. Discussion and Conclusion

This study reviewed 43 Web of Science articles to examine the development of research at the intersection of DT and OA. The findings show increasing academic interest, although the field remains concentrated mainly in management and business research. Of the reviewed studies, 37 are empirical and use quantitative, qualitative, or mixed-method designs. Common methods include SEM, fsQCA, panel-data analysis, and qualitative case studies. Empirical research is concentrated in Asia-Pacific and Europe, particularly China, Vietnam, Germany, and Italy. These contexts illustrate how firms attempt to combine established industrial capabilities with digital innovation.

Sixty-five percent of the reviewed articles are indexed in SSCI, indicating substantial visibility in the social sciences. Most studies are situated in management and business, followed by industrial engineering, information science, and economics. Multidisciplinary combinations—business and industrial engineering (7% of the sample) and computer science, information science, and management (2%)—remain uncommon. Publication and citation counts increased over time, signaling growing interest in the field. The h-index of the reviewed set is 15, suggesting moderate academic impact and an opportunity to strengthen the knowledge base through further research.

Empirical studies are concentrated in Asia-Pacific, particularly China and Vietnam, and in Europe, especially Germany and Italy. Most innovation-ambidexterity studies also examine China or Vietnam. These emerging economies are combining rapid industrial upgrading and state-led strategies with established manufacturing strengths and digital and AI-enabled business models, making OA important for balancing exploration and exploitation. Germany and Italy similarly combine strong manufacturing traditions with national and European Union Industry 4.0 initiatives, managing the tension between DT and the preservation of established industrial capabilities.

The dominant theoretical lenses are OA, dynamic capabilities, paradox theory, the resource-based view, and absorptive capacity. Overall, the studies indicate a reciprocal relationship between DT and OA. DT can support exploration and exploitation, while ambidexterity helps firms convert digital initiatives into innovation, resilience, sustainability, and performance. These relationships vary according to leadership, governance, regulatory support, organizational design, business models, and sector conditions.

Across contexts, OA—whether framed as an exploration–exploitation balance, hybrid ambidexterity, or a configuration of ambidextrous innovation—emerges as a key mechanism linking DT with resilience, performance, and sustainability. Government intervention, leadership, business models, and organizational design act as external or moderating conditions that can amplify these benefits. The evidence also indicates that DT and OA have a reciprocal relationship whose strength and direction vary across contexts and research models.

This review identifies the theoretical frameworks used in the selected studies. Beyond these established approaches, research could examine DT and OA through different forms of learning. Multilevel studies of learning at the individual, group, organizational, and interorganizational levels could clarify how ambidextrous knowledge moves and changes across levels of analysis.

Resource dependence theory (RDT; Pfeffer & Salancik, 1978) was not used in the reviewed studies but offers a promising additional lens. RDT holds that organizations depend on external actors for critical resources, creating interdependencies and power asymmetries that prompt strategic responses such as alliances, acquisitions, collaboration, and vertical integration. DT intensifies such dependencies because digital ecosystems are platform-based and often dominated by a small number of global providers. Ambidexterity in this context may require firms to structure external relationships so that they can access both exploitative and exploratory resources. RDT can therefore explain how firms manage lock-in risks, negotiate dependencies, and diversify their digital-resource bases.

Testing these and related relationships in additional contexts and synthesizing the results through meta-analysis would benefit both research and practice.

6. Endnotes

No endnotes.

7. References

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Appendix - Study Summary

Authors & Year	Context			Theoretical Lens	Study Type
	Country	Industry	Organization Type		
Latilla, Frattini, Franzo, & Chiesa (2020)	Italy	Energy		Organisational ambidexterity theory.	Qualitative
Xia, Zhu, Tan, & Xie (2024)	China	Equipment manufacturing	SME	Configurational perspective on ambidexterity.	Qualitative
Karippur & Balaramachandran (2022)	Asia Pacific (Singapore, India, Australia, UAE and Others)	IT, consulting, retail, banking and finance and healthcare	Various	Transformational leadership, ambidexterity, dynamic capabilities.	Literature Review
Gastaldi, Appio, Corso, & Pistorio (2018)	Italy	Health Care / Hospital		Ambidexterity, Exploration–exploitation paradox.	Qualitative
Bürgel & Hiebl (2024)	Germany	Manufacturing & Non-manufacturing	Family firms (Large and Smaller)	Conflict theory.	Qualitative
Dwipayana, Prijadi, & Hamsal (2022)	Indonesia	Banking		Dynamic capabilities/dominant logic.	Quantitative
Cepa & Schildt (2023)	Northern Europe	Industrial services and equipment sectors		Data-induced rationality/digital collaboration.	Qualitative
Hoessler & Carbon (2024)	Not mentioned	Various sectors		Ambidexterity and digital innovation.	Qualitative
Del Giudice et al. (2021)	Italy	Furnishing, textiles, machinery and equipment, motor vehicles, trailers, and semi-trailers	SME	Framework development based on digital Innovation, self-tuning design and absorptive capacity	Quantitative
Lowe & Maijanen (2019)	Finland, Germany, and Sweden	Broadcasting		Dominant logic and sense-making.	Qualitative
Barile, Secundo, & Del Vecchio (2024)	Italy	Food	Family firm / SME	Digital transformation in family firms.	Qualitative
Irgang, Sestino, Barth, & Holmén (2025)	Sweden	Health Care	Various	Paradoxical tensions framework / paradox theory	Quantitative
Jackson & Dunn-Jensen (2021)	N/A	N/A	N/A	Dynamic Capabilities Theory.	Literature Review
Yoshikuni, Dwivedi, & Dwivedi (2024)	Brazil	Services, manufacturing, commerce, finance, agribusiness and government	Various (62% large)	Resource orchestration theory.	Quantitative
Toutaoui, Benlian, & Hess (2022)	Germany	Various sectors	Various	Paradox theory.	Qualitative
Hashem (2024)	Egypt	Manufacturing		Innovation ambidexterity & absorptive capacity.	Quantitative
Lu, Zhou, Luan, & Song (2024)	China	Agriculture, manufacturing and international trade	SME	Signaling theory.	Mixed method
Wang, Song, & Zhang (2025)	China	Automotive		Behavioral theory of the firm, capability-based view (CBV) perspective	Quantitative
Jassem & Abdelfattah (2025)	Oman	Various sectors	SME	Ambidexterity theory & technology-organization-environment (TOE) framework.	Quantitative
Trieu et al. (2024)	Vietnam	Various sectors	SME	Resource-Based View (RBV).	Quantitative
Nasution, Muafi, El-Qadri & Suprihanto (2025)	Indonesia	Insurance	Various	Dynamic Capability Perspective.	Quantitative
Rahardjo, Lim & Tan (2024)	Southeast Asia	Traditional media firms		Multidimensional entrepreneurial orientation (EO) and organisational ambidexterity (OA) relationship model.	Quantitative

Authors & Year	Context			Theoretical Lens	Study Type
	Country	Industry	Organization Type		
Oberländer, Röglinger & Rosemann (2021)	N/A	N/A	N/A	RBV & innovation ambidexterity.	Conceptual
de Castilho Jr et al. (2023)	N/A	N/A	N/A	Organizational Ambidexterity & Enterprise Architecture.	Literature Review
Holotiuk, Beimborn & Hund (2024)	Not mentioned	Apparel, banking, logistics, insurance, and transportation		Ambidexterity & Organizational Design.	Qualitative
Jing, Zhang & Ma (2023)	China	Various sectors	SME	Capability–Behaviour–Performance Paradigm.	Mixed method
Trieu, Nguyen & Tran (2025)	Vietnam	Various sectors	Various	Dynamic Capabilities Theory.	Quantitative
Xing, Gong, Moon & Ge (2025)	China	Various sectors	Various	Organizational Ambidexterity Theory.	Quantitative
Jöhnk, Ollig, Rvekamp & Oesterle (2022)	Germany	Automotive, Food and beverages & Medical aids	Large	Organizational Ambidexterity (Hybrid).	Qualitative
Jackson (2019)	N/A	N/A	N/A	Absorptive Capacity & Ambidexterity.	Conceptual
Erdey, Liu & Nagy (2024)	19 OECD countries	Various sectors		Heterogenous trade model, Digital Affordances and Organizational Ambidexterity	Quantitative
Sia, Weill & Zhang (2021)	Singapore	Banking		Ambidexterity and Strategic IT Alignment	Qualitative
Razzak, Al-Riyami & Palalic (2022)	N/A	N/A	N/A	Theory of organizational capabilities	Conceptual
Wang & Yan (2024)	China	Various sectors		Theory of Dual Innovation & Managerial Power.	Quantitative
Horváth, Kerényi & Szabó (2022)	Hungary	Banking		Ambidexterity	Qualitative
Crusoe, Magnusson & Eklund (2024)	Sweden	Public Sector		Digital Transformation Decoupling and Willful Ignorance	Qualitative
Xue, Tan & Anwar (2024)	China	Manufacturing companies	Various	Innovation Strategy, Ambidexterity and Digital Transformation literature.	Quantitative
Belhadi, Kamble, Gunasekaran & Mani (2022)	South Europe, North Africa & Southern Asia	Various sectors	Various	Extended Resource Based View theory using dynamic capabilities and practice based view	Mixed method
Zhao & Gao (2024)	China	Manufacturing companies	Various	Ambidextrous Innovation Configurations.	Quantitative
Luu (2023)	Vietnam	Export companies (mostly manufacturing and other)	Various	Dynamic Capabilities Theory.	Quantitative
Johansson et al. (2022)	Sweden	Healthcare		Paradox Theory & Digital Ambidexterity.	Mixed method
Trischler, Bason & Li-Ying (2022)	Denmark	Various sectors	Various	Dynamic Embedded Loops Concept.	Qualitative
Krzywdzinski & Butollo (2022)	Germany	A machine and plant manufacturer	Large	Ambidexterity theory & Dynamic process analysis	Qualitative

Araştırma Makalesi

Organizational Ambidexterity and Digital Transformation: Literature Review with Empirical and Conceptual Insights

*Örgütsel Çift Yönlülük ve Dijital Dönüşüm: Ampirik ve Kavramsal İçgörülerle Yazın
Taraması*

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Genişletilmiş Öz

Günümüzün hızla değişen küresel iş ortamında işletmeler, bir yandan istikrarı korurken diğer yandan teknolojik dönüşümlere uyum sağlamak zorundadır. Dijital dönüşüm hem yenilikçiliği hem verimliliği destekleyen bir güç olarak ortaya çıkarken örgütsel çift yönlülük, işletmelerin mevcut güçlü yönlerinden yararlanmasına ve yeni fırsatları keşfetmesine olanak tanımaktadır. Bain & Company'nin 2025 İnovasyon Raporu, Fast Company'nin "En Yenilikçi 50 Şirket" listesinde yer alan işletmelerle yapılan anket ve görüşmelere dayanmaktadır. Rapor, operasyonel verimliliğe odaklanan yapılar ile keşif odaklı yenilik yapıları arasında ayrım kuran, yapısal çift yönlülük anlayışıyla tasarlanmış yenilik sistemlerinin yaygınlaştığını göstermektedir. Nitekim katılımcıların yaklaşık %79'u, mevcut işleri geliştiren yenilikler ile çığır açıcı yenilikler için farklı çalışma modelleri kullandıklarını belirtmiştir (Dent ve ark., 2025).

Dijital dönüşüm ve örgütsel çift yönlülük yazında oldukça yoğun biçimde çalışılmış konular olmakla birlikte, bu iki alanı bir araya getiren, yani kesişim noktalarını inceleyen derleme, bibliyometrik analiz veya meta-analiz çalışmaları son derece sınırlıdır. Mevcut derlemeler çoğunlukla bulgulara ve tematik gruplamalara odaklanmakta; ancak bütüncül çıkarımlara ulaşabilmek için gerekli olan teorik çerçeveler, bağlamlar, çalışma türleri ve araştırma yöntemlerini göz ardı etmektedir. Bu çalışma, söz konusu boşluğu doldurmayı amaçlamakta ve dijital dönüşüm ile örgütsel çift yönlülüğün yenilik ve performansı nasıl birlikte yönlendirdiğini ortaya koymaktadır. Ayrıca, araştırma eğilimleri, bağlamlar, teoriler ve yöntemlere ilişkin genel bakış sunmakta; Web of Science veritabanından seçilen çalışmaların içerik analizini de gerçekleştirerek dijital dönüşüm ile örgütsel çift yönlülük arasındaki ilişkiyi göstermektedir.

Bu bağlamda çalışmanın temel amacı, DT ile OA kesişimine ilişkin WoS veri tabanındaki seçilmiş araştırmalar üzerinden sistematik bir genel çerçeve sunmak ve gelecekte bu iki alanı sentezleyecek araştırmalara rehberlik edecek kavramsal bir temel oluşturmaktır.

Çalışma şu temel araştırma sorularına yanıt aramaktadır:

Dijital dönüşüm ve örgütsel çift yönlülük kesişimindeki çalışmaların genel görünümü nasıldır? (coğrafi bağlamlar, yayın sayısı gelişimi, atıf performansı açısından)

1. Hangi teorik çerçeveler kullanılmaktadır?

2. Çalışma türleri nelerdir?
3. Ampirik araştırmalarda kullanılan yöntemler hangileridir?
4. Temel bulgular nelerdir?

Bu sorulara yanıt arayarak, çalışma hem akademik literatüre katkı sağlamayı hem de araştırmacılar ve uygulamacılar için yol gösterici ve ilham verici olacak öngörüler sunmayı hedeflemektedir.

Çalışmada, kapsamı ve yaygın kullanımı nedeniyle Web of Science (WoS) veri tabanı tercih edilmiştir. WoS kategori özelliği, sonuçların betimleyici analizini de kolaylaştırmaktadır. “Digital transformation” terimi ile “organizational/organisational ambidexterity” yazımlarını kapsayan “organizational ambidexterity” dizgesi; başlık, özet, yazar anahtar kelimeleri ve Keywords Plus alanlarını kapsayan Topic alanında taranmıştır. Tarih sınırlaması uygulanmamış; yanlış yorumlama riskini azaltmak amacıyla dil İngilizceyle, akademik güvenilirliği desteklemek amacıyla yayın türü hakemli makalelerle sınırlandırılmıştır. Bu arama ölçütleri sonucunda 43 makaleye ulaşılmıştır.

İncelenen çalışmaların %65’i Sosyal Bilimler Atıf Dizini (SSCI) kapsamındadır. Çalışmaların büyük çoğunluğu işletme ve yönetim alanlarında yer almakta; bunları endüstri mühendisliği, bilgi bilimi ve iktisat izlemektedir. Disiplinlerarası çalışmalar arasında işletme/yönetim ile endüstri mühendisliği (%7) ve bilgisayar/bilgi bilimleri ile yönetim (%2) birliktelikleri öne çıkmakla birlikte, bu çalışmaların toplam içindeki payı düşüktür. Özellikle dijital dönüşüm bağlamında işletme ve yönetim alanları ile bilgisayar ve bilgi bilimleri arasındaki iş birlikleri, araştırmaların hem akademi hem uygulama açısından kapsamını ve derinliğini geliştirme potansiyeli taşımaktadır.

Yayın ve atıf sayıları artan bir eğilim göstermektedir; bu da alana yönelik artan akademik ilgiye işaret etmektedir. Dahil edilen yayınların ortalama h-indeksi 15 olup, çalışmaların orta düzeyde akademik etki yarattığını göstermektedir. Bu durum, bilgi birikimini güçlendirmek ve daha geniş akademik etki yaratmak için yeni araştırmalara duyulan ihtiyacı da ortaya koymaktadır.

İncelenen 43 çalışmanın 37’si ampiriktir. Nicel çalışmalar ilk sırada yer almakta, bunları nitel araştırmalar izlemektedir; karma yöntemli çalışmalar da bulunmaktadır. Diğer çalışmalar yazın taraması ve kavramsal araştırma niteliğindedir. Bu dağılım, alandaki yöntem çeşitliliğini göstermektedir. En sık kullanılan yöntemler arasında yapısal eşitlik modellemesi (SEM), bulanık küme nitel karşılaştırmalı analiz (fsQCA), panel veri analizi ve nitel vaka çalışmaları bulunmaktadır.

Ampirik çalışmaların büyük bölümü Asya-Pasifik (özellikle Çin ve Vietnam) ve Avrupa (özellikle Almanya ve İtalya) bağlamlarında yürütülmüştür. Yenilikçi çift yönlülük (innovation ambidexterity) çalışmalarının çoğu Çin’den gelmekte, Çin’i Vietnam izlemektedir. Çin ve Vietnam gibi gelişen ekonomiler, devlet stratejileri doğrultusunda hızlı sanayi geliştirme süreçleri izlemekte; geleneksel üretim avantajlarını yenilik odaklı, dijital ve yapay zekâ destekli iş modelleri ile birleştirmektedir. Bu bağlamda, örgütsel çift yönlülük, yararlanma (exploitation) ile keşif (exploration) arasında denge kurmada kritik bir rol oynamaktadır. Benzer şekilde, Almanya ve İtalya gibi gelişmiş sanayi ekonomileri de, güçlü imalat miraslarını devlet ve Avrupa Birliği (AB) destekli Endüstri 4.0 girişimleriyle birleştirerek dijital dönüşüm ile yerleşik sanayi kabiliyetlerini koruma arasındaki dengeyi yönetmektedir.

İncelenen çalışmalar, DT ile OA arasındaki ilişkiyi ağırlıklı olarak şu kuramsal yaklaşımlarla açıklamaktadır:

- Örgütsel çift yönlülük
- Dinamik yetenekler yaklaşımı
- Kaynaklara dayalı görüş (RBV)
- Paradoks teorisi
- Özümseme kapasitesi

Bu teorik zenginlik, konunun farklı açılardan ele alındığını ve literatürde çok katmanlı bir analiz zemini bulunduğunu göstermektedir.

Çalışmalardan elde edilen bulgular, dijital dönüşüm girişimlerinin tek başına yüksek performans için yeterli olmadığını ortaya koymaktadır. İşletmelerin ayrıca dijital ortamlarda kaynakları algılama, fırsatları yakalama ve kaynak tabanını yeniden yapılandırma yetkinliğini destekleyen dinamik bir kabiliyet olarak çift yönlülüğü geliştirmesi gerekmektedir.

Sektörler ve işletme türleri arasında yapılan araştırmalar, dijital dönüşümün başarısı için yenilikçi çift yönlülüğün, liderlik ve yönetişimin, kamusal desteğin ve sektör dinamiklerinin kritik bir öneme sahip olduğunu vurgulamaktadır. Vaka çalışmaları, keşif ve yararlanma arasında denge kurmanın bağlama özgü mekanizmalarını ortaya koyarken; geniş ölçekli anketler ve modeller, çift yönlü yenilikçiliği mümkün kılan temel yetkinliklere (ör. özümseme kapasitesi, bilgi teknolojileri yetkinliği, büyük veri destekli pazarlama) işaret etmektedir. Ayrıca, aile mülkiyet yapıları, liderlikte halefiyet planlaması ve sektörler arası işbirlikleri gibi faktörler, çift yönlülüğün durağan değil, aksine örgütsel, teknolojik ve kurumsal faktörlerce şekillenen dinamik bir kabiliyet olduğunu doğrulamaktadır.

Araştırmalar, çift yönlülüğün—yararlanma-keşif dengesi, hibrit çift yönlülük veya çift yönlü yenilik yapılandırmaları biçiminde—dijital dönüşüm ile dayanıklılık, performans ve sürdürülebilirlik arasındaki kritik bağlantı mekanizması olduğunu göstermektedir. Kamu destekleri ve altyapı hazırlığı, liderlik tarzları, iş modelleri ve örgütsel tasarım özellikleri, dijital dönüşüm süreçlerinde çift yönlülüğün yararlarını güçlendiren dışsal veya düzenleyici etkenler olarak öne çıkmaktadır.

Ayrıca, bağlama ve araştırma modellerine bağlı olarak dijital dönüşüm ile örgütsel çift yönlülük arasında karşılıklı/çift yönlü bir ilişkinin varlığı dikkat çekmektedir. Kimi çalışmalarda dijital dönüşümün örgütsel çift yönlülük üzerindeki etkisi tespit edilmekte iken, kimi diğer çalışmalarda da örgütsel çift yönlülüğün dijital dönüşüme etkisi görülmektedir. Gelecek çalışmalarda, çalışma sayısının artması ile birlikte bu iki kavramı örgütsel performans ve yenilikçilik bağımlı değişkenleri ile inceleyen meta-analizlerin yapılması yazına katkı sağlayacaktır.

İçerik analizi kapsamında her makale; yayın yılı, WoS dizini, disiplin, coğrafi ve sektörel bağlam, örgüt türü ve büyüklüğü, kullanılan kuram, çalışma türü, yöntem ve temel bulgular bakımından kodlanmıştır. Bu sınıflandırma, yalnızca tematik örüntüleri değil, araştırma tasarımlarının dağılımını ve alandaki bilgi üretiminin hangi bağlamlarda yoğunlaştığını da görünür kılmıştır. Bulgular daha sonra betimleyici göstergeler ile tematik içerik analizi birlikte değerlendirilerek yorumlanmıştır.

İçerik sentezi, DT ile OA arasındaki karşılıklı ilişkiyi açıklayan ortak mekanizmaları ortaya koymaktadır. Örgütsel öğrenme ve bilgiyi terk etme, özümseme kapasitesi, dinamik yetenekler, kaynak düzenleme, çift yönlü yenilik ve iş modeli yeniliği bu ilişkinin başlıca taşıyıcılarıdır. Dijital rekabet, çevresel belirsizlik, sektör özellikleri, işletme yaşı ve büyüklüğü, mülkiyet yapısı, dijital olgunluk, liderlik, yönetim ve kamu desteği ise ilişkinin sonuçlarını güçlendiren ya da sınırlayan koşullar olarak öne çıkmaktadır. Bu çerçevede çift yönlülük, tek seferlik bir denge değil, dijital dönüşüm ilerledikçe yeniden kurulan dinamik bir örgütsel yetenek olarak değerlendirilmektedir.

Çalışmanın bazı sınırlılıkları bulunmaktadır. Analizin yalnızca WoS'ta dizinlenen İngilizce hakemli makalelerle sınırlandırılması, diğer veri tabanlarındaki ve farklı dillerdeki araştırmaların kapsam dışında kalmasına yol açmıştır. Kullanılan arama terimleri, yakın kavramlarla yürütülen bazı çalışmaları dışarıda bırakmış olabilir. Ayrıca yöntem, kuram ve bağlam farklılıkları doğrudan karşılaştırmaları sınırlandırmakta; içerik analizindeki kodlama kararları araştırmacı değerlendirmesi içermektedir. Gelecek çalışmaların birden çok veri tabanını, daha geniş arama dizinlerini ve farklı coğrafi bağlamları kullanması; bulguları boylamsal araştırmalar ve meta-analizlerle sınıması önerilmektedir. Bu yaklaşım, karşılaştırılabilirliği ileride güçlendirecektir.