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Research Article

The Interaction Between Digital Maturity and Dynamic Capabilities: A Prisma-Based Systematic Analysis

Dijital Olgunluk Ile Dinamik Yeteneklerin Etkileşimi: Prisma Temelli Sistematik Analiz

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Abstract

This research aims to systematically analyze the studies conducted to determine the factors affecting the relationship between digital maturity and dynamic. In this context, the studies that addressed the concepts of digital maturity and dynamic capabilities together in the Scopus, Web of Science and Google Academic databases are scanned. As a result of the scan, 9 studies were included in the research because they met the determined analysis criteria. Secondary data was used in the research. The PRISMA method was used in the preparation of systematic compilations. In addition, it was determined that 526 studies were conducted between 2012 and 2025 on the concept of digital maturity in the Scopus database and 7,271 studies were conducted between 1994 and 2025 on the concept of dynamic capabilities. These data were examined using the bibliometric analysis method and the research areas related to the concepts were determined. According to the findings, it has been seen that the interaction between digital maturity and dynamic capabilities should be addressed beyond the technology dimension, but also in the context of culture, organizational structure, business processes, customer relations and transformation capability.

Keywords: *Digital Maturity, Digitalization, Dynamic Capabilities, PRISMA Method, Bibliometric Analysis*

Öz

Bu araştırmada dijital olgunluk ile dinamik yetenekler arasındaki ilişkiyi etkileyen faktörleri belirlemek için yapılan çalışmaların sistematik olarak analizi ve bu kavramların literatürde ilişkili olduğu araştırma alanlarını tespit etmek amaçlanmıştır. Bu bağlamda Scopus, Web of Science ve Google Akademik veri tabanlarında dijital olgunluk ve dinamik yetenekler kavramlarını birlikte ele alan çalışmalar üzerinden tarama gerçekleştirilmiştir. Tarama sonucunda 9 çalışma belirlenen analiz kriterini sağladığı için incelemeye dahil edilmiştir. Araştırma, literatürde yapılan çalışmaların geriye dönük olarak taranması şeklinde gerçekleştirilmiştir ve araştırmada ikincil veriler kullanılmıştır. Sistematik derlemelerin hazırlanmasında PRISMA metodundan faydalanılmıştır. Ayrıca Scopus veri tabanı üzerinde dijital olgunluk kavramı ile ilgili 2012 – 2025 yılları arasında 526 çalışmanın ele alındığı, dinamik yetenekler kavramı ile ilgili ise 1994 – 2025 yılları arasında 7.271 çalışmanın yapıldığı tespit edilmiş, bu veriler bibliyometrik analiz yöntemiyle incelenerek kavramların ilişkili olduğu araştırma alanları belirlenmiştir. Elde edilen bulgulara göre, dijital olgunluk ile dinamik yetenekler arasındaki etkileşimin yalnızca teknoloji boyutunun ötesinde kültür, organizasyon yapısı, iş süreçleri, müşteri ilişkileri ve dönüşüm yeteneği bağlamında da ele alınması gerektiği görülmüştür.

Anahtar Kelimeler: *Dijital Olgunluk, Dijitalleşme, Dinamik Yetenekler, PRISMA Metodu, Bibliyometrik Analiz*

1. Introduction

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New digital technological innovations such as cloud computing, mobile internet, social media, big data and analytics (Remane et al., 2017) are rapidly advancing in the economic and social fields. In the digital age, the environment of organizations is increasingly different and the environment is becoming more variable, uncertain and complex than in the past (Teichert, 2019, p. 1673). In today's hypercompetitive conditions, where competitive advantage has become temporary rather than sustainable, organizations have become aware of the need to transform in order to place digital at the center of their business strategies. The fact that digital technology is widespread everywhere and has affected all segments of society reveals the fact that no sector is safe from the impact of digital transformation (Nasiri et al., 2022). However, it will be far from true that all businesses will start their digital journey with the same determination and method (Westerman et al., 2012).

In their study titled "Is your business ready for a digital future?" Kane et al. (2015a) state that simply implementing and using digital technologies is not enough, and the key to successful digital transformation is strategy, culture and talent development rather than technology.

Digital maturity models are a measurement-assessment model that allows companies to plan their organizational maturity, enables comparative benchmarks, and helps guide company actions to improve digital capabilities. As digital technologies provide “both game-changing opportunities and existential threats for companies,” organizations need to find ways to stay competitive (Vial, 2019: 63).

The fundamental question in the field of strategic management is how companies achieve and maintain competitive advantage (Teece et al., 1997, p. 510). It can be said that this problem has been shaped within the framework of two basic paradigms throughout the historical process (Teece, 2007; 2022, p. 266).

In the 1980s, the dominant paradigm was the ‘competitive forces’ approach developed by Porter (1980; 1985). This approach, based on the structure-behaviour-performance paradigm of industrial organisation (Bain, 1959; as cited in Church and Ware, 2000), emphasises the actions a firm can take to create defensible positions against competitive forces. Shaped in the context of opportunities and threats, the external elements of SWOT analysis, this approach investigates the ways in which a firm can achieve competitive advantage in the context of its relationships with its environment.

Another approach that began to dominate in the 1990s, emphasizes creating competitive advantage by capturing entrepreneurial rents resulting from core firm-level productivity advantages. The literature, often referred to as the ‘resource-based view’ (RBV), emphasizes firm-specific capabilities, assets and the existence of isolating mechanisms as the primary determinants of firm performance (Penrose, 1960; Rumelt, 1984; Wernerfelt, 1984; Barney, 1986, 1991). Again, researchers who adopt this idea as a continuation of SWOT analysis and a complement to the competitive forces approach (Pitelis, 2009; Nair et al., 2008; Volpe and Biferali, 2008; Kor et al., 2016) argue that competitive advantage should be addressed within the framework of internal strengths and weaknesses. The key tool in developing the RBV was the belief that the strategic management approach placed too much emphasis on the evaluation of external market opportunities, while ignoring internal organizational capabilities (Chen et al., 2021, p. 1820; Sirmon and Hitt, 2003).

The level of competition, or the ease with which firms can act and copy advantages, is an important variable in the resource-based view of competitive advantage (Smith et al., 2005). The RBV assumes that firms can be conceptualized as bundles of resources, that these resources are distributed heterogeneously across firms, and that resource differences persist over time. Based on these assumptions, researchers have theorized that when firms possess valuable, rare, inimitable, and non-substitutable (VRIN) resources, they can achieve sustainable competitive advantage by implementing new value-creating strategies that cannot be easily copied by rival firms (Eisenhardt and Martin, 2000, p. 1105; Sirmon et al., 2008; Schilke, 2014a, 2014b). The idea that competitive advantage requires both the exploitation of existing internal and external firm-specific capabilities and the development of new ones was first developed by Penrose (1959), Teece (1997), and Wernerfelt (1984). It was built on the theoretical foundations provided by Penrose (1959), Barney (1986, 1991), Nelson and Winter (1982) and Teece et al. (1997) and Teece (2007; 2022) (Schumpeter 1942 cited in Hitt et al., 2011).

This research aims to systematically compile academic studies focused on digital maturity and dynamic capabilities in the literature. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-

Analyses) method was used in the preparation of the systematic evaluation in the research. In addition, bibliometric analysis was applied to determine the research areas that the concepts are related to in the literature. The findings were put into a table, the interaction of the concepts with each other was revealed, and the direction of development of the literature was described for future research. Thus, the development direction of the digital maturity literature will be determined and gaps in the literature will be identified.

1.1. Digital Maturity

Digital maturity is defined as the organization's ability to align its corporate strategy, workforce, culture, technology and structure to meet the digital expectations of customers, employees and partners in order to adapt to the digital market environment and provide temporary competitive advantage (Kane et al., 2017, p. 5; Kane et al., 2018). In other words, digital maturity refers to the degree of adoption and implementation of digital technologies in corporate business models (Rossmann, 2018, p. 3).

Digital transformations are often approached as a series of separate projects or investments, under the responsibility of a designated team. In such cases, the team executes a fully defined program with a defined goal, scope, duration, budget, and milestones. In his article "The Technology Fallacy," Kane (2019) offers an alternative to the concept of digital transformation: a learning journey rather than a time-limited program. It is stated that this journey, called "Digital Maturity," is not an end state, but a continuous and ongoing process of adapting to the digital environment (Rader, 2019). Successfully integrating today's digital technologies requires companies to work in new ways. Digital technologies affect all levels of the firm, including business model frameworks, customer interfaces, customer experience, and internal processes.

Digital maturity encompasses an organization's current state or ability to effectively use digital technologies and processes to increase innovation, efficiency, and competitiveness across its operations. Digital maturity serves as a metric to measure an organization's progress from one maturity level to another as it improves its business capabilities (Kane et al., 2018, p. 7).

The word "Maturity", which is the basis of digital maturity, is defined in the Turkish Language Association (TDK) dictionary as "the state of being sufficiently developed in terms of knowledge, manners and tolerance; perfection, completeness, competence, perfection" (TDK, https://sozluk.gov.tr/). Lahrmann et al. (2011, p. 2) consider this concept as "the state of being completed, perfect or ready". In general, the term "maturity" means "the state of being completed, perfect or ready" and implies some progress in the development of a system. Accordingly, maturing systems (e.g. biological, organizational or technological) increase their capabilities to achieve some desired future states over time (Schumacher et al., 2016, p. 162).

"Digital Maturity" is defined as adapting an organization's people, culture, structure, and tasks to compete effectively by taking advantage of the opportunities provided by the technological infrastructure both within and outside the organization (Rader, 2019, p. 29; Kane, 2019). In this context, simply implementing or using digital technologies is not enough for digital maturity. The key to digital transformation depends on ensuring and sustaining strategy, culture, and talent development rather than technology (Westerman et al., 2012; Kane et al., 2015a; Kane et al., 2015b; Johnson and Uwaoma, 2023, p. 27).

In other words, implementing or using digital technologies alone is not enough for digital maturation. In fact, many of the cultural, organizational, strategic, leadership and talent responses are much more important and much more difficult than technological ones. The latest technologies applied in organizations with outdated organizational practices are not enough for organizations to achieve their strategic goals (Rader, 2019, p. 25).

1.2. Dynamic Capabilities

Organizations face rapid and continuous changes in competitive dynamics. Intensifying competition, globalization, time-to-market pressures, and changing consumer demands are some of the contributing forces. In the face of such challenges, only organizations that can continually improve their internal capabilities can deliver competitive customer value in goods and services (Kim et al., 2012, p. 328).

The development of the framework, referred to as the dynamic capabilities approach, stems from the fact that strategic theory is rife with analyses of organizational-level strategies for maintaining and preserving existing competitive advantage, but is less successful in helping understand how and why particular organizations create competitive advantage in environments of rapid change (Teece et al., 1997, p. 509).

In the dynamic 21st century business environment, competitive advantage is based on the organization's ability to continuously improve the organizational capabilities that form the basis of the goods and services it offers. It is not enough to have strong resources and organizational capabilities to remain competitive. The organization also needs to have strong dynamic capabilities to develop and renew its resources and organizational capabilities. This is especially true for companies competing in dynamic markets. Dynamic capabilities enable the firm to respond to changing market conditions by developing and renewing its organizational capabilities, thereby achieving and sustaining competitive advantage (Nielsen, 2006, p. 59; Sirmon and Hitt, 2009).

The dynamic capabilities view is based on Schumpeter's (Schumpeter 1942 as cited in Hitt et al., 2011) innovation-based competition, where competitive advantage is based on the creative destruction of existing resources and their novel recombination into new operational capabilities. Extending his work in this area, Teece and colleagues (1997) developed the concept of dynamic capabilities (Teece, 2007). Teece and colleagues (Teece et al., 1997; Teece, 2007) view competitive advantage in turbulent environments as a function of dynamic capabilities rather than competitive positioning or industry conflict. They used the term "dynamic" to reflect "the capacity to renew capabilities to adapt to a changing environment." The dynamic capabilities view is based on the RBV. While RBV emphasizes resource selection (choosing resource combinations), dynamic capabilities emphasize resource renewal (reconfiguring resources into new combinations of operational capabilities) (Pavlou and Sawy: 2011, p. 241). The development of the Dynamic Capabilities framework throughout the historical process is expressed in Table 1 (Teece, 2023, p. 123) as follows:

Table 1. Development Process of Dynamic Capabilities Framework

	Teece et al., (1997)	**Eisenhardt and Martin (2000)**	**Winter (2003)**	**Teece (2007; 2018)**
Dynamic Capabilities Definition (Sense, Seize, Transform)	"Dynamic capabilities" are the organization's ability to integrate, create, and restructure internal and external competencies to adapt to rapidly changing environments (Teece et al., 1997)		"Higher level"—investments in organizational learning to facilitate the creation and change of dynamic capabilities for managing acquisitions and alliances (Winter, 2003)	"Dynamic capabilities" – Strong dynamic capabilities help a business profitably create and replace resources and assets located both within and outside its borders, reconfiguring them as needed to respond to (or bring about) changes in the market and business environment (Teece, 2018).
The Role of Routines	"Dynamic routines" – "Oriented to learning and new product and process development" (Teece et al., 1997)	"Dynamic capabilities"—organizational and strategic routines through which managers acquire and dispose of resources, combine and recombine them to produce new value-creating strategies, and even market change.	"First order" — A "dynamic capability" that enables an organization to change how it currently makes a living. (Helfat and Winter, 2011).	"Low-Level Dynamic Capabilities" or "micro-foundations" – Processes for building external partnerships or developing new products. These consist of routines that are used less frequently (often idiosyncratic) than the routines of ordinary

		(Eisenhardt and Martin, 2000).		capabilities. (Teece, 2007)
Definition of Operational (Ordinary) Capabilities (Operations, Administration, Management)	"Static routines" – "Static routines embody the capacity to repeat specific tasks that have been performed previously (Teece et al, 1997)		"Zero level" – the capabilities of "how we make a living now": producing and selling the same product, on the same scale and to the same customer base (Winter, 2003)	"Ordinary capabilities" – administrative, operational, and management-related functions required to execute existing plans (Teece, 2018).

Source: Adapted from Teece (2023, p. 123-124)

It can be stated that throughout the historical process, dynamic capabilities were considered as the internal and external competencies of the organization to adapt to rapidly changing environments (Teece et al., 1997), and in the following years, they were seen as organizational and strategic routines through which managers acquired and disposed of resources, thus produced value-creating strategies, and made market changes (Eisenhardt and Martin, 2000).

2. Purpose and Method

In this section, information will be given about the purpose of the research, data collection method and limitations of the research.

2.1. Purpose of the Research

This research aims to systematically compile academic studies in the literature focused on digital maturity and dynamic capabilities. A systematic evaluation of the studies conducted between 2012 and 2025 on these two concepts was conducted to determine the interaction between the concepts and the direction of development in the literature. The aim was to present the analysis and results in tables and visuals to describe the interaction between digital maturity and dynamic capabilities in an objective, transparent and understandable manner.

2.2. Data Collection Method

The study utilized secondary data. The systematic review method was used as a data collection tool. In systematic reviews, findings related to the topic under review are selected and synthesized according to certain criteria (Filiz and Kaya, 2019). A systematic review is an examination of a clearly formulated problem that uses systematic and explicit methods to identify, select, and critically evaluate relevant studies and to collect and analyze data from the studies included in the review. Statistical methods (meta-analysis) can be used to analyze and summarize the results of the included studies (Moher et al., 2009).

Systematic reviews and meta-analyses are important tools for accurately and reliably summarizing evidence. A systematic review attempts to bring together all empirical evidence that meets predetermined eligibility criteria to answer a specific research question. It uses open, systematic methods chosen to minimize bias, thus providing reliable findings from which conclusions can be drawn and decisions made (Liberati et al., 2009). As is true of all research, systematic reviews should be reported fully and transparently to allow readers to assess the strengths and weaknesses of the research.

In this study, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method was followed in the preparation of the systematic review. The PRISMA statement was designed to help authors transparently report why reviews were conducted, what they did, and what they found (Page et al., 2021). The PRISMA method consists of a 27-item checklist and a four-step flowchart (Moher et al., 2009). The purpose of the PRISMA statement is to help authors improve their systematic review and meta-analysis reporting. The PRISMA method also provides a written guide to improving the presentation of meta-analysis and systematic review research. It is also used for the critical evaluation of published systematic review and meta-analysis studies. In addition, bibliometric analysis was applied to determine the research areas that the concepts are related to in the literature. The findings

were put into a table, the interaction of the concepts with each other was revealed, and the direction of development of the literature for future research was described. Search criteria and keywords are given in Table 2.

Table 2. Data Search Criteria, Databases and Keywords

Databases	• Scopus • Web of Science • Google Scholar
Keywords	• Digital Maturity • Technological Transformation • Digitalization • Digital Technology • Dynamic Capabilities • Resource Based Approach
Data Search Criteria	• The research was conducted between April 1-30, 2025 • Studies conducted with quantitative analysis method were included. • Limited to article type academic studies • The publication language has been selected as English. • Limited to Business Administration, Management and Accounting field and Economics, Econometrics and Finance field • Studies that can be accessed in full text are included.

Source: Created by the author

Within the scope of the study, a search was conducted on Scopus, Web of Science and Google Academic databases by establishing various combinations of the keywords "digital maturity, technological transformation, digitalization, digital technology, dynamic capabilities, resource-based approach" in English. Studies published between 2012 and April 2025 in these databases were considered.

Another method used in the analysis of academic texts in the study is bibliometric analysis. Bibliometric analysis is the numerical and relational analysis of publications produced by individuals or institutions in a certain field, in a certain period and in a certain region and the connections between these publications. Within the scope of the study, bibliometric analysis of the concepts of digital maturity and dynamic capabilities was performed using the Vosviewer program on the Scopus database.

2.3. Limitations of the Study

Within the scope of the inclusion criteria, a literature review was conducted between the specified dates and with the identified keywords. In this context, studies published in languages other than English, studies for which full texts could not be accessed, and studies that were not quantitative were not included in the study. Studies limited to the field of "Business, Accounting and Finance" were analyzed. Finally, research was conducted on studies included in the Scopus, Web of Science and Google Academic databases.

3. Findings

The stages of the screening process conducted according to the PRISMA method, including identification, screening, eligibility and inclusion, are shown in Table 2.

A total of 465 studies were reached in the screening conducted in the databases with the determined keywords. After excluding 133 duplicate studies and 92 studies with different subjects, 240 studies were included in the screening stage. After examining the abstracts and keywords of the studies in the screening, 147 studies were not included in the evaluation because they did not meet the determined criteria. 93 studies that met the criteria were examined in full text. After the studies were evaluated in full text, 84 studies were not included in the research because they are either non-English studies, full-text not available or non-article studies. As a result, 9 studies whose eligibility was fully accepted were included in the research.

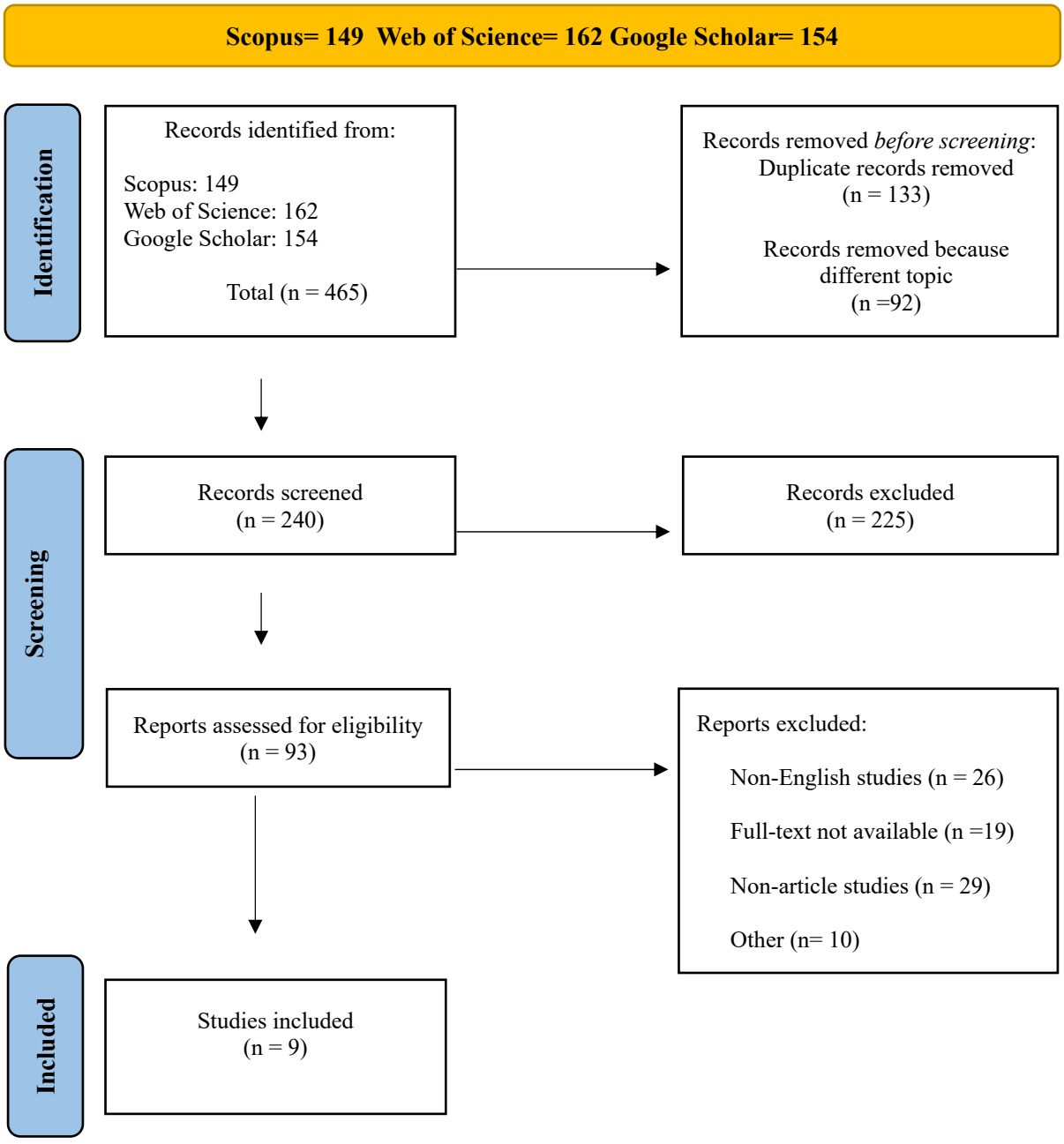

Figure 1: PRISMA Flow Diagram (Moher et al., 2009; Page et al., 2021)

Data regarding the examination of the 9 articles included in the systematic evaluation according to the criteria specified in Figure 1 are given in Table 3.

Table 3: Studies Included in the Research

No	Author/Year	Findings on the Interaction between Digital Maturity and Dynamic Capabilities
1	Haryanti et al., 2023	The interaction is expressed in 5 dimensions: 1. Structure and Organization 2. Technology 3. Strategy 4. Sustomer 5. Employee 6. Culture 7. Transformation Process
2	Al Ali and Marks, 2022	The maturity process is expressed in 5 dimensions.: 1. Vision, Strategy and Leadership 2. Transformation Ability, Skills and Knowledge 3. Processes, Controls and Digital Technologies 4. Technology Infrastructure 5. Relationship with Customers
3	Herceg et al., 2020	5 dimensions: 1. Strategy 2. Technology 3. Transactions 4. Organization and Culture 5. Customer
4	Hongziong and Xiaowen, 2022	It consists of 3 dimensions and 5 domains.: 1. Digital Willingness: Strategy and Organization, Infrastructure 2. Digital Efforts: Innovation and Transformation, Supply Chain Structure 3. Digital Achievements: Digital Performance
5	Duncan et al., 2022	Interaction is expressed in 7 dimensions: 1. Strategy 2. Information Technology Capability 3. Ability to Work Together 4. Management and Administration 5. Customer Focused Work 6. People, Skills and Behavior 7. Data Analytics
6	Sandor and Guban, 2021	The interaction is expressed in 2 dimensions and 6 components:

		1. Information Technologies Dimension: Technical Solutions, Hardware, Software 2. Organizational Dimension: Organizational Software, Online Presence, Employee Quality
7	Diller et al., 2020	The relationship is described within the framework of 5 factors: 1. Business Model Transformation 2. Digital Collaboration 3. Remote Access 4. Digital Communication 5. Connectivity
8	Gimpel et al., 2018	Interactions are grouped into 6 areas: 1. Customer 2. Value Creation 3. Transactions 4. Data 5. Organization 6. Transformation Management
9	De Carolis et al., 2017	4 dimensions expressed 1. Process 2. Monitoring and Control 3. Technology 4. Organization

Source: Created by the author

When we look at the studies on the interaction of digital maturity and dynamic capabilities, it is seen that the dimensions of strategy, people, process, technology, culture, leadership and control stand out (Duncan et al., 2022; Hongxiong and Xiaowen, 2022; Haryanti et al., 2023; De Carolis et al., 2017). Another issue that stands out in these studies is that digital maturity is far beyond being evaluated in the context of a single dimension as technology (Haryanti et al., 2023; Al Ali and Marks, 2022; Herceg et al., 2020, Duncan et al., 2022; Gimpel et al., 2018; De Carolis et al., 2017; Rossmann, 2018).

Dynamic capability is a learned collective activity pattern in which the organization systematically

creates and changes its operational routines in order to increase its effectiveness. Zollo and Winter (2002, p. 348), who frame changes in routines as a dynamic capability, define dynamic capabilities as "systematic organizational activity patterns aimed at the creation and adaptation of operating routines". In this context, knowing the characteristics of digital maturity models is of fundamental importance in order to make an effective assessment of the use of digital technologies by organizations with a focus on dynamic capability development (Silva et al., 2024).

When we consider the interaction of the Digital Maturity concept with dynamic capabilities using the PRISMA method, it is seen that the relationship develops within the framework of the sub-dimensions mentioned above. In addition, a bibliometric analysis was carried out in order to determine the areas in which these two concepts are related in the literature and the direction of development of the literature.

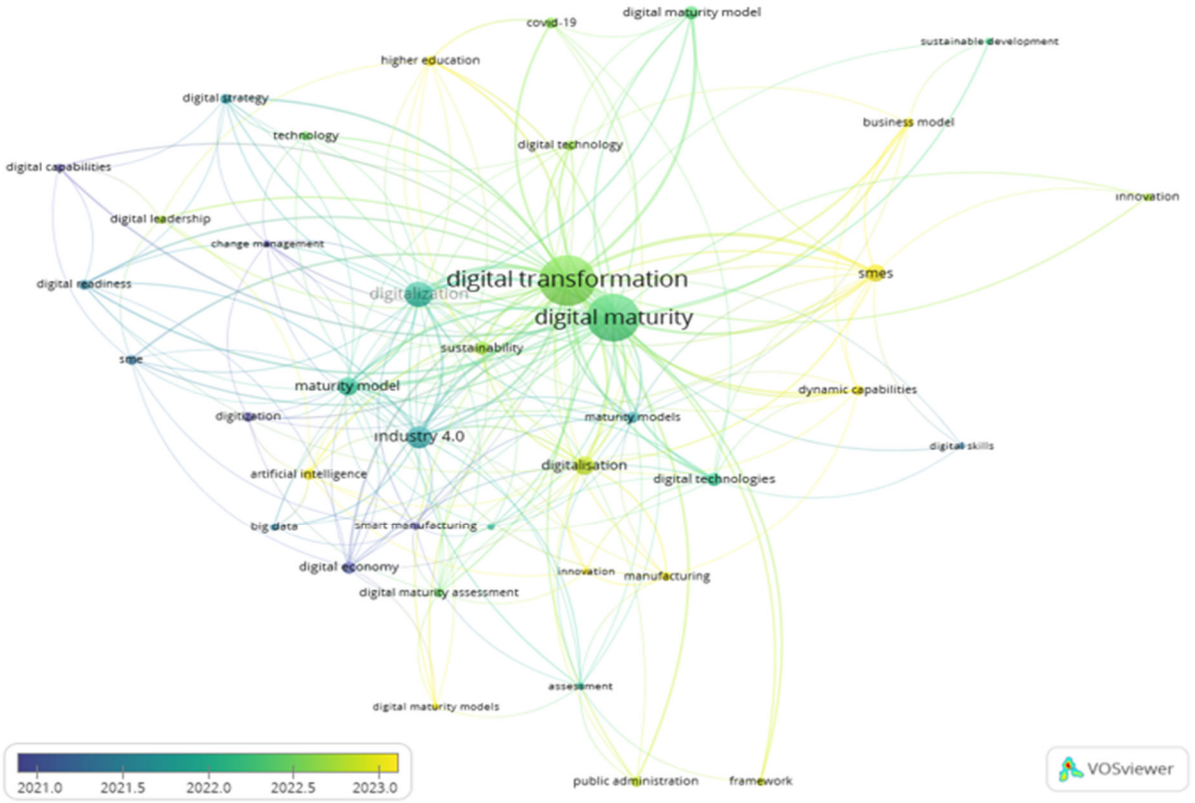

Figure 2: Bibliographic Analysis of the Concept of Digital Maturity (Source: Created by the author)

When the articles related to the concept of "Digital Maturity" in the fields of "Business, Management and Accounting", "Social Sciences", "Decision Sciences", "Economics, Econometrics and Finance" in the Scopus database were analyzed, it was determined that 526 academic studies were addressed within the framework of the determined criteria between the years 2012 and 2025. It was observed that only one academic study was written between each year. 2012 and 2015, and the concept began to become widespread in the literature in 2016 and after.

A common keyword analysis was performed on the 526 academic studies identified above, with a minimum of five interrelationships, and 39 key concepts were identified. While it was determined that the concept of digital maturity was used more frequently with the concepts of "digitalization", "digital economy", "digital talent", and "digital strategy" in the 2020s, it is seen that the literature is moving in relation to the concepts of "business model", "dynamic capabilities", "artificial intelligence", and "digital maturity model" in 2023 and beyond.

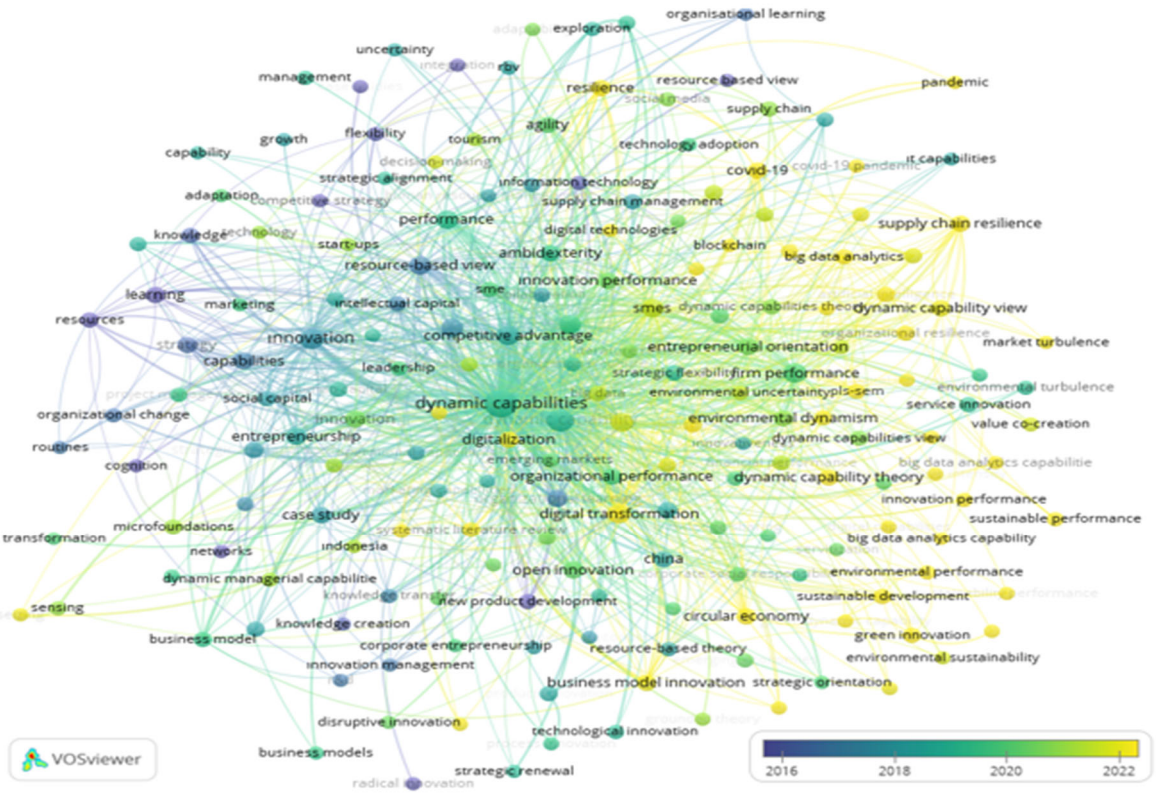

Figure 3: Bibliographic Analysis of the Concept of Dynamic Capabilities (Source: Created by the author)

When the articles, papers, book chapters and reviews/critiques related to the concept of "Dynamic Capabilities" in the fields of "Business, Management and Accounting", "Social Sciences", "Decision Sciences", "Economy, Econometrics and Finance" were analyzed on the Scopus database, it was determined that 7,271 academic studies were addressed within the framework of the determined criteria between 1994 and 2025. It was observed that two academic studies were written between 1994 and 1995, and the concept started to become widespread in the literature from the 2000s onwards.

When the common keyword analysis was performed on the 7,271 academic studies identified above, with at least twenty interrelationships, it was determined that 186 key concepts exceeded the specified threshold. While it was determined that the concept of dynamic capabilities was used more frequently with the concepts of "innovation", "organizational change", "organizational learning", "flexibility", "new product development" in the 2016s, it was determined that the literature developed in relation to the concepts of "blockchain", "big data analytics", "circular economy", "green innovation", "digital transformation" in the 2020s and later.

Discussion and Conclusion

Since the 2000s, the development of digital technologies has been a major force that has reshaped business models in various industries, and countless organizations have expressed the need for digital transformation. In this context, digital transformation opportunities are greater than ever, and there are more digital solutions on the market than ever (Ellström et al., 2022, p. 272).

Digitalization and industry 4.0 technologies promise to provide industrial organizations with many new opportunities and benefits, such as increased product quality, process reliability, and improved flexibility and productivity. Although digitalization shows great potential from a technological perspective, many industries still face difficulties in using these innovations (Chirumalla, 2021).

When digital transformation threatens to render existing skills and resources in an organization obsolete, organizations need to shift their focus to change capabilities. Since digital transformation implies changes in, for example, value creation processes and organizational tasks, with the aim of achieving competitive advantage, it can be argued that dynamic capabilities are necessary to successfully implement these changes. The concept of dynamic capabilities was first articulated by Teece et al. (1997) and aimed to explain how organizations achieve and sustain competitive advantage. Dynamic capabilities focus on the steps organizations take to continuously adapt and change their resources to create competitive advantage in a changing environment (Teece et al., 1997).

The dynamic capabilities framework includes a set of microfoundations that practitioners and researchers can adopt to address specific situations. Digital transformation is a process by which organizations change their value creation processes by responding to changes in their environment using digital technologies. Fundamental questions about the effectiveness of these responses relate to the ability of companies to perceive developments, grasp them, and restructure elements of their business models accordingly. It is a necessity for companies to consider the mechanisms that interact with digital transformation to achieve strategic renewal, that is, to consider dynamic capabilities. Dynamic capabilities extend the RBV of the organization and focus on the ability of organizations to change their resource base to increase their degree of fit with their environment and ensure their survival (Vial, 2019, p. 134).

Determining the antecedents affecting digital transformation is among the important issues that need to be focused on in achieving competitive advantage. In this regard, there are a few studies suggesting that dynamic capabilities lead to a successful digital transformation. Among these, Weritz et al. (2020, p. 6-7), who investigated the relationship between dynamic capabilities and digital culture to discover the antecedents of digital transformation, stated that the factors of absorptive capacity, agility, flexibility, interfunctional collaboration, innovation capacity, market orientation and relational capability support digital transformation as relevant dynamic capabilities.

Although digital transformation is a growing topic in both theory and practice, companies have difficulty achieving digital maturity. Therefore, to successfully participate in digital transformation, organizations need a set of capabilities that facilitate changes in their business models and structures (Ellström et al., 2022). Due to the complexities of digital transformation, finding strategic options that match company goals is difficult and requires continuous and procedural effort. Digital maturity, which refers to a systematic way of ensuring the necessary readiness to adapt to continuous digital transformation and enabling structural changes over time, is critical in digital transformation strategies because procedural effort manages their development, implementation and evolution (Nasiri et al., 2022, p. 275). Digital maturity is not the simple implementation of new technology to support company strategies, personnel, culture, technology or structures in order to meet the needs of end users, employees or stakeholders. Digital maturity is also not achieved by quick actions or by chance. Rather, digital maturity is achieved through a process of continuous adaptation to a transforming digital landscape (Kane et al., 2017).

One of the key tasks in digital transformation is to design and implement a new business model (Verhoef et al., 2021). A business model encompasses the complete architecture of value creation, delivery, and capture mechanisms for a business. The process of designing a new business model usually begins with perceiving opportunities in new (or not yet adopted) technologies and how they can meet unmet (or undermet) needs of new or existing customers. An organization's capture capabilities govern the creation of a revenue mechanism. To be sustainable, a business model must provide a customer solution that can support a price high enough to cover all costs and generate at least enough profit to support the business and its growth. Capture also involves planning the organization's value chain; this includes determining which activities will be internalized and which will be left to external suppliers (Teece, 2023, p. 123).

Therefore, digital transformation affects the entire organization and the way of doing business. It often goes beyond digitalization and affects an organization's strategy, activities, processes, structures, competencies, and culture. Digital capability creation should consider not only information and communication technology (ICT) and technology deployment, but also the organization's total management optimization, encompassing strategies, organization, technologies, business processes, structures, operating modes, etc. Therefore, all organizations aiming to achieve digital maturity or digital

readiness should focus on multiple capabilities, such as resources, information systems, culture, and organizational structure. In particular, organizations should be prepared to fundamentally restructure or reengineer their resource base, structures, infrastructure, and culture; this is vital in the case of organizational transformation (Remane et al., 2017). Organizations can generate both process and product competencies through dynamic capabilities that can differentiate their product development efforts from their competitors. As a result, with the accelerating pace of change, the context of digitalization and new digital technologies challenges the traditional approach of organizations to strategy formulation and the nature of developing dynamic capabilities. Although companies have dynamic capabilities, inconsistencies can lead to failure at any stage of perception, capture and restructuring.

This study examines the interaction between the concepts of digital maturity and dynamic capabilities. Based on the analyses, the first contribution of this research to the literature is to understand that the dimensions of digital willingness, value creation, organization, technology, and culture are prominent in relevant academic studies. Another contribution is to identify the direction of development of the concept of digital maturity in the literature. The concept of digital maturity has been observed to have become widespread in the literature since the early 2020s and was initially discussed alongside concepts such as big data, Industry 4.0, change management, and the digital economy. Recent studies have focused on sustainability, artificial intelligence, and digital leadership. The concept of dynamic capabilities, on the other hand, entered the literature in the 2010s. Initially addressed in relation to innovation, knowledge management, and organizational change, it has now been addressed alongside concepts such as digital transformation, big data analytics, circular economy, and sustainable development. Consequently, the direction of development of both concepts in the literature is explored within the context of this research. Limitations of the research include the fact that the analysis only covers academic studies conducted in English, that only articles are included in the research, and that only texts that are accessible in full text are considered.

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Araştırma Makalesi

The Interaction Between Digital Maturity and Dynamic Capabilities: A Prisma-Based Systematic Analysis

Dijital Olgunluk Ile Dinamik Yeteneklerin Etkileşimi: Prisma Temelli Sistematik Analiz

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Genişletilmiş Özet

1. Giriş

Bulut bilişim, mobil internet, sosyal medya, büyük veri ve analitik gibi konularda meydana gelen yeni dijital teknolojik yenilikler (Remane et al., 2017), ekonomik ve toplumsal alanda hızla ilerlemektedir. Dijital çağda, organizasyonların ortamı giderek farklılaşmakta ve çevre, geçmişe göre daha değişken, belirsiz ve karmaşık hale gelmektedir (Teichert, 2019, s. 1673). Rekabet avantajının sürdürülebilir olmaktan geçici bir yapıya büründüğü günümüz hiper rekabet koşullarında organizasyonlar, dijitali iş stratejilerinin merkezine yerleştirmek için dönüşmesi gerektiğinin bilincine varmışlardır. Dijital teknolojinin her yerde yaygınlaşması ve toplumun tüm kesimini etkisi altına alması, hiçbir sektörün dijital dönüşümün etkisinden güvende olmadığı gerçeğini ortaya koymaktadır (Nasiri et al., 2022). Ancak tüm şirketlerin dijital yolculuğa aynı kararlılık ve yöntemle başlaması gerçekten uzak olacaktır (Westerman et al., 2012).

Dinamik yetenekler, rekabet avantajını açıklamada Kaynak Tabanlı Yaklaşım'ın eksik yönlerini gidermek üzere ileri sürülen, sürdürülebilir rekabet avantajı kazanma ve sürekli değişen çevresel koşullara sahip yüksek rekabet ortamlarında örgütlerin çevrelerine uyum sağlamalarına odaklanan bir bakış açısıdır (Özdemir, 2023). Dinamik yetenekler, bir firmanın rekabet avantajı elde etmek ve sürdürmek için kaynaklarını ve yeteneklerini sürekli olarak entegre etmeye, yenilemeye en önemlisi temel yeteneklerini değişen ortama yanıt olarak yeniden yapılandırmaya yönelik davranışsal yönelimi olarak tanımlanmaktadır (Wang ve Ahmed, 2007, s. 35).

Bu araştırma ile literatürde dijital olgunluk ve dinamik yetenekler odağında ele alınan akademik çalışmaların sistematik olarak derlemesi amaçlanmıştır. Araştırmada sistematik değerlendirmenin hazırlanmasında **PRISMA** (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) yöntemi izlenmiştir. Ayrıca kavramların literatürde ilişkili olduğu araştırma alanlarının tespiti için bibliyometrik analiz uygulanmıştır. Bulgular bir tablo haline getirilerek kavramların birbirleri ile olan etkileşimi ortaya çıkarılmış, gelecek araştırmalar için literatürün gelişim yönü betimlenmiştir.

1.1. Dijital Olgunluk

Dijital olgunluk, dijital pazar ortamına uyum sağlamak ve geçici rekabet avantajı sağlayabilmek için organizasyonun şirket stratejisini, iş gücünü, kültürünü, teknolojisini ve yapısını müşterilerin, çalışanların ve ortakların dijital beklentilerini karşılayacak şekilde hizalaması olarak tanımlanmaktadır (Kane et al., 2017. s. 5; Kane et al., 2018). Bir başka bir ifade ile dijital olgunluk, kurumsal iş modellerinde dijital teknolojilerin benimsenme ve uygulanma derecesini ifade eder (Rossmann, 2018, s. 3).

Dijital olgunluğun temelindeki "**Olgunluk**" kelimesi Türk Dil Kurumu (TDK) sözlüğünde "İnsanların bilgi, görgü ve hoşgörü bakımından gereği kadar gelişmiş olma durumu; kâmillik, tamlık, yetkinlik, kemal" olarak tanımlanmaktadır (TDK, https://sozluk.gov.tr/). Lahrmann et al. (2011, s. 2) bu kavramı "tamamlanmış, mükemmel veya hazır olma durumu" olarak ele almaktadır. Genel olarak, "olgunluk" terimi "tamamlanmış, mükemmel veya hazır olma durumu" anlamına gelir ve bir sistemin geliştirilmesinde bir miktar ilerleme anlamına gelir. Buna göre, olgunlaşan sistemler (örneğin biyolojik, örgütsel veya teknolojik) zamanla bazı arzu edilen gelecek durumların elde edilmesiyle ilgili yeteneklerini artırırlar (Schumacher et al., 2016, s. 162).

1.2. Dinamik Yetenekler

Organizasyonlar, rekabet dinamiklerindeki hızlı ve sürekli değişimlerle karşı karşıyadır. Yoğunlaşan rekabet, küreselleşme, pazara sunma süresi baskıları ve değişken tüketici talepleri, buna katkıda bulunan güçlerden bazılarıdır. Bu tür zorluklar karşısında, yalnızca iç yeteneklerini sürekli olarak yeniden tanımlayabilen ve geliştirebilen organizasyonlar, mal ve hizmetlerde rekabetçi müşteri değerleri sunabilir (Kim et al., 2012. s. 328).

Dinamik yetenekler yaklaşımı olarak isimlendirilen çerçevenin geliştirilmesi, stratejik teorinin mevcut rekabet avantajını sürdürmek ve korumak için organizasyon düzeyindeki stratejilerin analizleriyle dolu olduğu, ancak belirli organizasyonların hızlı değişim ortamlarında rekabet avantajını nasıl ve neden oluşturduklarının anlaşılmasına yardımcı olma konusunda daha az başarılı olduğu gerçeğinden kaynaklanmaktadır (Teece et al., 1997, s. 509).

2. Amaç ve Yöntem

2.1. Araştırmanın Amacı

Bu araştırma ile literatürde dijital olgunluk ve dinamik yetenekler odağında ele alınan akademik çalışmaların sistematik olarak derlemesi amaçlanmıştır. 2012 – 2025 yılları arasında bu iki kavram odağında yapılan çalışmaların sistematik değerlendirmesi yapılarak kavramlar arasındaki etkileşim ve literatürün gelişme yönü belirlenmeye çalışılmıştır. Analiz ve sonuçların tablo ve görsel halinde sunumu ile dijital olgunluk ve dinamik yetenekler arasındaki etkileşimin objektif, şeffaf ve anlaşılır bir şekilde betimlenmesi amaçlanmıştır.

2.2. Veri Toplama Yöntemi

Bu çalışmada sistematik değerlendirmenin hazırlanmasında **PRISMA** (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) yöntemi izlenmiştir. Ayrıca kavramların literatürde ilişkili olduğu araştırma alanlarının tespiti için bibliyometrik analiz uygulanmıştır. Bulgular bir tablo haline getirilerek kavramların birbirleri ile olan etkileşimi ortaya çıkarılmış, gelecek araştırmalar için literatürün gelişim yönü betimlenmiştir.

2.3. Araştırmanın Sınırlılıkları

Dahil etme kriterleri çerçevesinde, belirtilen tarihler arasında ve tespit edilen anahtar kelimelerle literatür taraması yapılmıştır. Bu kapsamda İngilizce dışında yayınlanan çalışmalar, tam metnine ulaşılamayan çalışmalar ile kantitatif nitelikte olmayan çalışmalar araştırmaya alınmamıştır. "İşletme, Muhasebe ve Finans" alanı ile sınırlı çalışmalar analize tabi tutulmuştur. Son olarak Scopus, Web of Science ve Google Akademik veri tabanlarında yer alan çalışmalar üzerinde araştırma yapılmıştır.

3. Bulgular

PRISMA yöntemine göre yapılan tarama işlemi neticesinde belirlenen anahtar kelimelerle veri tabanlarında gerçekleştirilen taramada toplamda 465 araştırmaya ulaşılmıştır. Tekrarlanan 133 araştırma ve konusu farklı olan 92 çalışma çıkarıldıktan sonra 240 çalışma tarama aşamasına dahil edilmiştir. Taramada çalışmaların özet kısımları ve anahtar kelimeleri incelendikten sonra, 147 araştırma belirlenen kriterleri sağlamadığı için değerlendirilmeye alınmamıştır. Kriterleri sağlayan 93 araştırma tam metin olarak incelenmiştir. Çalışmalar tam metin olarak değerlendirildikten sonra dahil edilmeme sebepleri belirtilerek 84 araştırma çalışmaya dahil edilmemiştir. Sonuç olarak uygunluğu tam olarak kabul edilen 9 çalışma araştırmaya alınmıştır.

Dijital olgunluk ile dinamik yetenekler etkileşimi üzerine yapılan çalışmalara bakıldığı zaman strateji, insan, süreç, teknoloji, kültür, liderlik ve kontrol boyutlarının öne çıktığı görülmektedir (Duncan et al., 2022). Bu çalışmalarda öne çıkan bir diğer husus ise dijital olgunluğun teknoloji olarak tek boyut bağlamında değerlendirmenin çok ötesinde olduğudur (Haryanti et al., 2023; Al Ali ve Marks, 2022; Herceg et al., 2020, Duncan et al., 2022; Gimpel et al., 2018).

Dinamik yetenek, organizasyonun etkinliğini artırmak amacıyla operasyonel rutinlerini sistematik olarak oluşturduğu ve değiştirdiği öğrenilmiş bir kolektif etkinlik örüntüsüdür. Rutinlerdeki değişiklikleri dinamik bir yetenek olarak çerçeveleyen Zollo ve Winter (2002, s. 348), dinamik yetenekleri "işletme rutinlerinin oluşturulması ve uyarlanmasını amaçlayan sistematik organizasyonel etkinlik kalıpları" olarak tanımlarlar. Bu bağlamda dijital olgunluk modellerinin özelliklerini bilmek, dinamik yetenek geliştirme odağında organizasyonların dijital teknolojilerin kullanımına ilişkin etkili bir değerlendirme yapabilmek için temel öneme sahiptir (Silva et al., 2024).

4. Tartışma ve Sonuç

Dijital dönüşüm hem teoride hem de pratikte giderek artan bir konu olmasına rağmen şirketler dijital olgunluğa ulaşmakta zorlanmaktadır. Bu nedenle, dijital dönüşüme başarılı bir şekilde katılmak için, organizasyonların iş modellerinde ve yapılarında değişiklikleri kolaylaştıran bir dizi yeteneğe ihtiyaçları vardır (Ellström et al., 2022). Dijital dönüşümün karmaşıklıkları nedeniyle, şirket hedefleriyle eşleşen stratejik seçeneklerin bulunması zordur ve sürekli ve prosedürel çaba gerektirir. Bu, sürekli dijital dönüşüme uyum sağlamak için gerekli hazırlığı sağlamanın sistematik bir yolunu ifade eden ve zaman içinde yapısal değişikliklere olanak tanıma olarak ifade edilen dijital olgunluk, dijital dönüşüm stratejilerinde kritik öneme sahiptir çünkü prosedürel çaba, bunların geliştirilmesini, uygulanmasını ve evrimini yönetir (Nasiri et al., 2022, s. 275). Dijital olgunluk, son kullanıcıların, çalışanların veya paydaşların ihtiyaçlarını karşılamak amacıyla şirket stratejilerini, personeli, kültürü, teknolojiyi veya yapıları desteklemek için yeni teknolojinin basit bir şekilde uygulanması değildir. Dijital olgunluk, ayrıca hızlı eylemlerle veya tesadüfen de elde edilemez. Aksine, dijital olgunluk, dönüşen bir dijital manzaraya kesintisiz uyum süreciyle elde edilir (Kane et al., 2017).

Dijital dönüşümdeki temel görevlerden biri yeni bir iş modeli tasarlamak ve uygulamaktır (Verhoef et al., 2021). Bir iş modeli, bir işletme için değer yaratma, teslim etme ve yakalama mekanizmalarının tam mimarisini kapsar. Yeni bir iş modeli tasarlama süreci, genellikle yeni (veya henüz benimsenmemiş) teknolojilerdeki fırsatları ve bunların yeni veya mevcut müşterilerin karşılanmamış (veya yetersiz karşılanmış) ihtiyaçlarını nasıl karşılayabileceğini algılayarak başlar. Bir organizasyonun ele geçirme yetenekleri, bir gelir mekanizmasının oluşturulmasını yönetir. Sürdürülebilir olmak için, bir iş modeli tüm maliyetleri karşılayacak kadar yüksek bir fiyatı destekleyebilen ve en azından işletmeyi ve büyümesini desteklemek için yeterli karı sağlayabilen bir müşteri çözümü sağlamalıdır. Ele geçirme, organizasyonun değer zincirinin planlanmasını da kapsar; bu, hangi faaliyetlerin içselleştirileceğinin ve hangilerinin dış tedarikçilere bırakılacağının belirlenmesini içerir (Teece, 2023, s. 123).