Analysis of dynamic capacities in organizations, current trends and barriers to growth development in the TECNM/ITS - Fresnillo

Análisis de las capacidades dinámicas en las organizaciones, tendencias actuales y barreras al crecimiento en el TECNM/ITS – Fresnillo

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Abstract

This article analyzes the development and evolution of dynamic capabilities, focusing on cur-rent trends in their study and application within organizations. Dynamic capabilities have gained significant attention in recent years due to their relationship with innovation, adaptation, and organizational resilience. However, organizations face barriers to their effective implementation, such as resistance to change, lack of technological integration, and ineffective knowledge management. Key trends include digitalization, technological transformation, and sustainability, which are reshaping how dynamic capabilities are developed. The article aims to provide a comprehensive overview of these capabilities, identifying emerging trends and persistent obstacles. It addresses two main research questions: What are the current trends in the study of dynamic capabilities? And what barriers limit their implementation in organizations? his approach highlights the im-portance of the topic, emphasizing trends and framing the questions that guide the analysis.

Keywords: dynamic capabilities, development, business practice, organization

The objective of this article is to analyze the development and evolution of the concept of dynamic capabilities, with a particular focus on current trends in its study and application in organizations. In the last decade, dynamic capabilities have been the subject of increasing interest, not only in academia, but also in business practice, due to their direct relationship with innovation, adaptation, and organizational resilience. However, despite its potential, organizations face various barriers to its effective development and implementation.

Among the main current trends, the emphasis on digitalization, technological transformation and sustain-ability stands out, which have led to the reconfiguration of dynamic capabilities. Likewise, common barriers include resistance to change, lack of technological integration, and ineffective knowledge management, factors that limit organizational growth and its ability to adapt quickly to the changing environment.

In this context, the article seeks to offer a comprehensive view of dynamic capabilities in organizations, identifying both emerging trends and obstacles that still persist in their development. To this end, the following research questions will be addressed: What are the main trends in the study of dynamic capabilities? and What are the most significant barriers that limit its implementation and development in organizations?

This approach seeks to clearly establish the importance of the topic, highlight the most relevant trends, and frame the research questions that will guide the analysis.

Introduction

For the analysis of dynamic capabilities in organizations, it is crucial to identify patterns and gaps in the existing literature. The theory of dynamic capabilities has been widely discussed since its initial formulation by Teece, Pisano, and Shuen (1997), who define these capabilities as “the organization’s ability to integrate, build, and reconfigure internal and external competences” (p. 516). This concept has evolved into a broader approach, including the capacity for adaptation in highly changing environments, highlighting its importance in organizational innovation strategies (Teece, 2018).

Over the last decade, the emphasis on digitalization has transformed the study of dynamic capabilities. According to Helfat and Martin (2015), digitalization has led to a “reconfiguration of organizational capabilities” (p. 130), enabling companies to become more agile. Similarly, Wang and Ahmed (2007) emphasize that innovation capability is a critical component of dynamic capabilities, making it a key driver for organizational growth, particularly in technological environments.

Despite these advances, significant barriers hinder the effective implementation of dynamic capabilities. A common obstacle is organizational resistance to change, a phenomenon discussed by Burnes (2004), who

asserts that “resistance to change is an inevitable factor in any organizational transformation process” (p. 985). This issue is especially prevalent in organizations lacking a culture of adaptive learning (Senge, 1990).

Another key barrier is the lack of technological integration. Teece (2007) argues that “an organization’s ability to integrate new technologies is essential for the development of dynamic capabilities” (p. 1346). However, many companies struggle to align their internal processes with emerging technologies, limiting their ability to adapt quickly to market changes (Helfat & Peteraf, 2009).

In terms of patterns in the literature, there is growing consensus on the relationship between dynamic capabilities and organizational resilience. According to Kor and Mesko (2013), dynamic capabilities allow organizations to “recover quickly from external crises by reconfiguring their resources and competences” (p. 321). This connection between resilience and dynamic capabilities is particularly relevant in the context of economic or technological crises, as demonstrated by Wilden et al. (2016), who highlight the importance of strategic adaptability.

Nevertheless, there are also areas of controversy in the literature. One of them is the lack of consensus on how to measure dynamic capabilities effectively. While Eisenhardt and Martin (2000) argue that dynamic capabilities can be measured through the frequency and speed at which an organization reconfigures its resources, other authors like Barreto (2010) point out that “measuring dynamic capabilities remains a challenge due to their abstract nature” (p. 269).

Regarding gaps in the literature, one of the least studied aspects is how small and medium-sized enterprises (SMEs) develop and apply dynamic capabilities compared to large corporations. According to Zahra, Sapienza, and Davidsson (2006), “research has predominantly focused on large organizations, overlooking the particularities of SMEs” (p. 923). This represents a limitation, as SMEs face unique barriers such as a lack of resources and specialized personnel, which affects their ability to innovate and adapt.

On the other hand, the literature has increasingly addressed the impact of sustainability on dynamic capabilities. According to Schrettle et al. (2014), “sustainability is becoming a central factor in the development of dynamic capabilities, as organizations seek to balance profitability with social responsibility” (p. 40).

This has led to a more holistic approach in analyzing organizational capabilities, integrating environmental and social concerns However, it is important to note that sustainability can also pose a barrier to dynamic capabilities, especially when companies fail to integrate these objectives into their core strategy.

Porter and Kramer (2011) suggest that “organizations that treat sustainability as an add-on, rather than fully integrating it into their business model, face greater difficulties in developing dynamic capabilities” (p. 77).

In retrospect, the evolution of dynamic capabilities has been marked by growing interest in digitalization and sustainability, but organizational barriers such as resistance to change and the lack of technological integration continue to be significant obstacles. The literature review indicates that while dynamic capabilities are essential for competitiveness and growth, their effective development and implementation require a clear strategic alignment (Teece, 2018).

Despite these challenges, organizational adaptability remains a key area of interest. According to Ambrosini and Bowman (2009), “dynamic capabilities are fundamental to ensuring that organizations can adjust to disruptive changes in their environment” (p. 45). This idea has been supported by recent empirical studies, which demonstrate that companies with well-developed dynamic capabilities are more likely to survive and thrive in environments of high uncertainty (Wang et al., 2015).

To recap, the comparative analysis of the findings suggests that while progress has been made in understanding dynamic capabilities, there are still areas that require further research. Specifically, the measurement of these capabilities and their application in different types of organizations, such as SMEs, are topics that need to be addressed in future studies.

Methodology

This methodology is a disruptive and conceptual analysis of the current trends of dynamic capacities and their development in the environment, for which the following is proposed:

Definition of the research problem and inclusion/exclusion criteria

Clearly state the objective of the analysis: to review current trends and barriers in the study of dynamic capabilities.

Determine inclusion criteria: Peer-reviewed academic sources only, publications from the last 10 years, written in English or Spanish.

Systematic literature search

Academic databases such as Scopus, Web of Science and Google Scholar were used.

It focused on keywords such as "dynamic capabilities", "organizational growth barriers", "innovation adaptation", "technological transformation".

Application of filters by date (last decade), type of source (scientific articles, books), and relevance.

Review and selection of studies

Analyze the abstracts and keywords of the selected articles.

Conduct a second in-depth review of articles that meet the inclusion criteria.

Use bibliographic management software such as Mendeley or EndNote to organize references.

Thematic coding and categorization

Group studies by emerging themes: current trends, barriers, theoretical and methodological approaches.

Identify the main concepts, theoretical frameworks and models analyzed in each study.

Synthesis and critical analysis

Conduct a comparative analysis of the findings.

Identify patterns, gaps in the literature, and areas of consensus and controversy.

Include a critical discussion of how barriers impact the implementation of dynamic capabilities.

For the analysis of dynamic capabilities in organizations, it is crucial to identify patterns and gaps in the existing literature. The theory of dynamic capabilities has been widely discussed since its initial formulation by Teece, Pisano, and Shuen (1997), who define these capabilities as "the organization's ability to integrate, build, and reconfigure internal and external competences" (p. 516). This concept has evolved into a broader approach, including the capacity for adaptation in highly changing environments, highlighting its importance in organizational innovation strategies (Teece, 2018).

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Despite these advances, significant barriers hinder the effective implementation of dynamic capabilities. A common obstacle is organizational resistance to change, a phenomenon discussed by Burnes (2004), who asserts that "resistance to change is an inevitable factor in any organizational transformation process" (p. 985). This issue is especially prevalent in organizations lacking a culture of adaptive learning (Senge, 1990).

Another key barrier is the lack of technological integration. Teece (2007) argues that "an organization's ability to integrate new technologies is essential for the development of dynamic capabilities" (p. 1346). However, many companies struggle to align their internal processes with emerging technologies, limiting their ability to adapt quickly to market changes (Helfat & Peteraf, 2009).

In terms of patterns in the literature, there is growing consensus on the relationship between dynamic capabilities and organizational

resilience. According to Kor and Mesko (2013), dynamic capabilities allow organizations to "recover quickly from external crises by reconfiguring their resources and competences" (p. 321). This connection between resilience and dynamic capabilities is particularly relevant in the context of economic or technological crises, as demonstrated by Wilden et al. (2016), who highlight the im-portance of strategic adaptability.

Nevertheless, there are also areas of controversy in the literature. One of them is the lack of consensus on how to measure dynamic capabilities effectively. While Eisenhardt and Martin (2000) argue that dynamic capabilities can be measured through the frequency and speed at which an organization reconfigures its resources, other authors like Barreto (2010) point out that "measuring dynamic capabilities re-mains a challenge due to their abstract nature" (p. 269).

Regarding gaps in the literature, one of the least studied aspects is how small and medium sized enterprises (SMEs) develop and apply dynamic capabilities compared to large corporations. According to Zahra, Sapienza, and Davidson (2006), "research has predominantly focused on large organizations, overlooking the particularities of SMEs" (p. 923). This represents a limitation, as SMEs face unique barriers such as a lack of resources and specialized personnel, which affects their ability to innovate and adapt.

On the other hand, the literature has increasingly addressed the impact of sustainability on dynamic capabilities. According to Schrettle et al. (2014), "sustainability is becoming a central factor in the development of dynamic capabilities, as organizations seek to balance profitability with social responsibility" (p. 40). This has led to a more holistic approach in analyzing organizational capabilities, integrating environ-mental and social concerns.

However, it is important to note that sustainability can also pose a barrier to dynamic capabilities, especially when companies fail to integrate these objectives into their core strategy. Porter and Kramer (2011) suggest that "organizations that treat sustainability as an add-on, rather than fully integrating it into their business model, face greater difficulties in developing dynamic capabilities" (p. 77).

In retrospect, the evolution of dynamic capabilities has been marked by growing interest in digitalization and sustainability, but organizational barriers such as resistance to change and the lack of technological integration continue to be significant obstacles. The literature review indicates that while dynamic capabilities are essential for competitiveness and growth, their effective development and implementation require a clear strategic alignment (Teece, 2018).

Despite these challenges, organizational adaptability remains a key area of interest. According to Ambrosini and Bowman (2009),

“dynamic capabilities are fundamental to ensuring that organizations can adjust to disruptive changes in their environment” (p. 45). This idea has been supported by recent studies, which demonstrate that companies with well-developed dynamic capabilities are more likely to survive and thrive in environments of high uncertainty (Wang et al., 2015).

To recap, the comparative analysis of the findings suggests that while progress has been made in understanding dynamic capabilities, there are still areas that require further research. Specifically, the measurement of the capabilities and their application in different types of organizations, such as SMEs, are topics that need to be addressed in future studies.

To create a comparative analysis of the provided information, let's break it down into key themes, identify similarities and differences, and highlight the evolving discourse around dynamic capabilities.

1. Definition and Evolution of Dynamic Capabilities

- Original Definition: Teece, Pisano, and Shuen (1997) define dynamic capabilities as the ability of an organization to "integrate, build, and reconfigure internal and external competences" to adapt to changing environments. This early definition centers on the organization's internal competences and their adaptability.

- Evolution: Teece (2018) extends the concept, emphasizing adaptability in highly volatile environments. This evolution acknowledges that dynamic capabilities are critical not only for internal organizational functions but also for driving innovation, especially as markets become more unpredictable.

Comparison: The original definition by Teece et al. (1997) focuses on internal organizational mechanisms, while the 2018 update broadens this to include external factors like market dynamism, linking dynamic capabilities more directly to innovation strategies.

2. Impact of Digitalization

- Digital Transformation: Helfat and Martin (2015) highlight that digitalization has significantly reconfigured organizational capabilities, making firms more agile. Wang and Ahmed (2007) emphasize that innovation is a critical aspect of dynamic capabilities, particularly in technological environments.

Comparison: Both Helfat and Martin (2015) and Wang and Ahmed (2007) align in showing that digitalization transforms organizations by enhancing their agility and innovation. Digitalization allows firms to respond more effectively to rapid changes, suggesting that technology is an enabler of dynamic capabilities.

3- Barriers to Implementing Dynamic Capabilities

- Resistance to Change: Burnes (2004) and Senge (1990) argue that resistance to change is a significant obstacle to organizational

transformation. This resistance can be institutional or cultural, particularly in organizations that lack a learning mindset.

- Technological Integration: Teece (2007) stresses that technological integration is vital for dynamic capabilities development. However, many organizations struggle to synchronize internal processes with new technologies (Helfat & Peteraf, 2009).

Comparison: Both resistances to change and the lack of technological integration are recurrent barriers to implementing dynamic capabilities. The cultural resistance identified by Burnes (2004) and Senge (1990) parallels the technological limitations pointed out by Teece (2007) and Helfat & Peteraf (2009), suggesting that both human and technical factors must be aligned for effective capability building.

4. Dynamic Capabilities and Organizational Resilience

- Resilience through Dynamic Capabilities: Kor and Mesko (2013) argue that dynamic capabilities enable organizations to recover from crises by reconfiguring resources. Wilden et al. (2016) extend this, emphasizing the role of strategic adaptability during economic and technological crises.

Comparison: Kor and Mesko (2013) and Wilden et al. (2016) highlight the link between dynamic capabilities and organizational resilience, suggesting that firms with these capabilities can respond more effectively to crises. Both studies support the idea that dynamic capabilities are not only beneficial for growth but also for survival.

5. Measurement and Controversies

- Measuring Dynamic Capabilities: Eisenhardt and Martin (2000) propose that dynamic capabilities can be measured by the frequency and speed of resource reconfiguration. Conversely, Barreto (2010) argues that measuring dynamic capabilities remains difficult due to their abstract nature.

Comparison: There is no clear consensus on how to measure dynamic capabilities. Eisenhardt and Martin (2000) advocate for quantitative indicators like speed, while Barreto (2010) raises concerns about the abstract and qualitative nature of capabilities, pointing to a significant gap in the literature.

6. Gaps in the Literature: SMEs vs. Large Corporations

- Focus on Large Corporations: Zahra, Sapienza, and Davidson (2006) point out that most research has focused on large organizations, neglecting SMEs. This is critical because SMEs face unique challenges such as resource scarcity, which affects their ability to develop dynamic capabilities.

Comparison: The gap in SME research identified by Zahra et al. (2006) indicates that current frameworks may not be entirely applicable to smaller firms. While large firms

may have the resources to invest in dynamic capabilities, SMEs need more tailored research to address their distinct challenges.

7. Sustainability and Dynamic Capabilities

- Sustainability as a Driver: Schrettle et al. (2014) highlight the growing importance of sustainability in dynamic capability development, as organizations increasingly aim to balance profitability with social responsibility. Porter and Kramer (2011) caution that sustainability can also become a barrier if not integrated into the core business strategy.

Comparison: Schrettle et al. (2014) view sustainability as a new dimension in the evolution of dynamic capabilities, reflecting broader societal expectations. Porter and Kramer (2011), however, warn that sustainability must be deeply embedded in the organization's strategy to avoid becoming a hindrance. The difference lies in whether sustainability is treated as a strategic imperative or an add-on.

8. Strategic Adaptability and Future Research

- Need for Strategic Alignment: Both Teece (2018) and Ambrosini and Bowman (2009) highlight that dynamic capabilities are essential for responding to disruptive environmental changes. Firms with well-developed dynamic capabilities are more likely to thrive in uncertainty (Wang et al., 2015).

- Future Research Directions: The analysis identifies the need for further research on dynamic capability measurement and their application in SMEs, reflecting ongoing gaps in the literature.

Comparison: The emphasis on strategic alignment across studies suggests that dynamic capabilities are pivotal not only for innovation but also for survival. Ambrosini and Bowman (2009) complement Teece's (2018) notion that firms must align their strategy with their dynamic capabilities to navigate uncertainty.

Conclusion

This comparative analysis reveals several consistent themes and evolving aspects within the literature on dynamic capabilities. There is consensus on the importance of adaptability and innovation, with digitalization playing a transformative role. However, barriers such as resistance to change and technological integration persist, particularly in SMEs. The relationship between dynamic capabilities and resilience is well-established, yet measurement and sustainability present ongoing challenges. Future research should focus on refining measurement tools and exploring the specific dynamics of smaller enterprises.

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