

Operationalizing Dynamic Capabilities and Market Orientation: Empirical Insights for Startups in Dynamic Environments

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Abstract

In today's markets, companies operate in dynamic environments characterized by rapid changes, complexity, and uncertainty. For these companies, especially startups that are based on fast-growing, high technology, and innovative approaches to create new markets or offer superior solutions in existing markets, marketing management presents one of the most significant challenges for entrepreneurs. This study aims to address this challenge by developing a practical framework based on the theory of dynamic capabilities (DCs) and market orientation (MO). The objective is to build long-term competitive advantages for startups operating in dynamic environments. A theoretical model was built using a systematic literature review, and this was later refined through longitudinal case studies of Brazilian startups. The result is a robust framework that supports both literature and entrepreneurs. It assists in the identification and exploitation of market opportunities by leveraging DCs and MO. Furthermore, it supports decision-making processes aimed at achieving sustainable competitive advantages. The framework also encourages entrepreneurs to reflect on their practices related to the dimensions of these constructs.

Keywords: market orientation, dynamic capabilities, dynamic environments, startups

1. Introduction

Companies operate in dynamic markets characterized by rapid changes, complexity, and frequent interactions with external entities amidst current market uncertainties. Such markets have products with shorter life cycles, necessitating more frequent product launches (Fillis, 2010; Hansen et al., 2020; Jones et al., 2013a; Perez et al., 2013; Sasmoko et al., 2019; Whalen & Akaka, 2016; Yannopoulos et al., 2012). Small tech companies face their own challenges in these dynamic environments (Jones & Rowley, 2012; Jones et al., 2013c), such as limited foresight, low barriers to competitor entry, shifting goals, evolving management structures (Alqahtani & Usay, 2020), and difficulties accessing crucial decision-making information (Qureshi & Kratzer, 2011).

In dynamic environments, startups emerge as fast-growing, high-tech companies. They adopt innovative approaches to either create new markets or enhance existing ones (Jones et al., 2013b). These entities uniquely operationalize traditional administrative tasks (Eggers et al., 2012) and leverage alternative strategies to gain a competitive edge via innovation, agility, and flexibility (Jones et al., 2013c; Ries, 2011). For startups, mastering marketing has been a predominant challenge (Alqahtani & Usay, 2020; de Oliveira Lacerda et al., 2017; Eggers, 2010; Franco et al., 2014). Traditional marketing paradigms, commonly found in research and textbooks, often fall short in addressing the nuances of tech-based emerging companies (Eggers et al., 2012; Jones et al., 2013c; Kocak et al., 2017; Morrish & Deacon, 2011; Sigué & Biboum, 2020; Stokes, 2000; Whalen & Akaka, 2016). This is attributed to marketing studies' focus on established firms and a rationalist decision-making paradigm (Eggers et al., 2012).

Given these limitations, fresh approaches to marketing analysis have surfaced, addressing gaps in the prevailing literature (Eggers et al., 2012). Market Orientation (MO) has been introduced as a novel method to more effectively cultivate superior consumer value, focusing primarily on understanding and rapidly reacting to market dynamics and trends (Narver & Slater, 1990; Morrish, 2011).

This concept was then incorporated into MO research, viewed either through a resources (Iyer et al., 2019; Kocak et al., 2017) or capabilities lens (Iyer et al., 2019; Yang et al., 2020). From this standpoint, MO is perceived as a

firm's capability, drawing upon its intangible assets to carve out competitive advantages (Eisenhardt & Martin, 2000; Helfat & Peteraf, 2003; Schriber & Löwstedt, 2015; Sok et al., 2016). Such capabilities find expression in organizational activities, routines (Teece, 2014), and human capital (Katkalo et al., 2010).

Recent research in marketing emphasizes that aptly aligning a company's Market Orientation (MO) with its Dynamic Capabilities (DC) positively influences performance. Implementing both OM and DC can guide organizations in volatile environments to establish and sustain market presence (Correia et al., 2021; Randhawa et al., 2020; Wilden et al., 2019).

Given the observations, this study aims to explore the alignment of MO and DC in companies within dynamic settings. The objective is to propose a practical framework anchored in Dynamic Capabilities and Market Orientation, offering a foundation for long-term competitive advantage in such contexts.

Existing literature offers limited insight into DC's role in fostering innovation, especially in smaller firms (Randhawa et al., 2020). Recognizing which Dynamic Capabilities most effectively address environmental shifts remains a gap (Tabares et al., 2015). While the integration of MO and DC is critical to company performance, research in this domain remains in its early stages (Correia et al., 2021; Randhawa et al., 2020; Wilden et al., 2019).

There is also great interest from governments, policymakers, and researchers on how to facilitate the growth of new businesses in knowledge-intensive industries (Jones et al., 2013a; Urbano et al., 2019), as is the case with startups. However, although there is a vast body of knowledge about small and medium-sized companies and their marketing strategies, startups have not received the same level of attention in the literature (Ahmadi & O'Casey, 2016).

2. Theoretical Framework

2.1 Market Orientation

MO is a strategic orientation of organizations coined in the late eighties, which became known mainly through the seminal works of Kohli and Jaworski (1990) and Narver and Slater (1990) (Ashwin & Hirst, 2015).

Kohli and Jaworski (1990, p. 6) define WM, from a behavioral perspective, as "...is the organization-wide Generation of Market intelligence about current and future customer needs, dissemination of the intelligence across departments, and organization-wide responsiveness to it".

Table 1. Main perspectives in the MO literature

Perspective	MO Seminal Concept
MO as culture	An organizational culture fosters activities that create exceptional customer value, thus allowing companies to sustain superior performance (Narver & Slater, 1990).
MO like behavior	Generation of market intelligence across the organization regarding current and future customer needs, dissemination of intelligence across departments, and responsiveness across the organization (Kohli & Jaworski, 1990).
MO as a resource or capabilities	A capability at the company level that connects it to its external environment allows the organization to compete by anticipating market requirements before competitors and creating lasting relationships with customers, channel members, and suppliers (Day, 1994).

Source. Prepared by the authors (2021).

Narver et al. (2004) also introduced a way to explain MO through two dimensions: a proactive dimension and a responsive dimension.

The Proactive Market Orientation (PMO) aspect of MO zeroes in on forthcoming markets with a long-term view (Cai et al., 2015a). Through PMO, a company endeavors to anticipate and address the unexpressed or latent needs of consumers. While these needs are genuine, they may not be overtly stated or even recognized by the consumer (Cai et al., 2015b; Herhausen, 2016; Jaeger et al., 2016; Kocak et al., 2017; Lamore et al., 2013; Narver et al., 2004).

PMO is typically linked with radical innovations, pioneering product development (Cai et al., 2015a; Cai et al., 2015b; Kocak et al., 2017; Narver et al., 2004; Tan & Liu, 2014), and exploration processes (Iyer et al., 2019; Kocak et al., 2017; Tan & Liu, 2014). Furthermore, PMO aids in retaining existing customers while also creating avenues to attract new ones (Jaeger et al., 2016), all while ensuring sustained value creation (Ozdemir et al., 2017).

MO's responsive dimension, RMO, initially introduced with the theory, revolves around businesses' market information reactions (Kohli & Jaworski, 1990; Narver & Slater, 1990). RMO involves producing, disseminating, and employing market insights centered on existing customers and their articulated needs (Wei et al., 2014), emphasizing short-term objectives (Ozdemir et al., 2017). Moreover, RMO is market-responsive, customer-focused (Cai et al., 2015b; Lamore et al., 2013; Narver et al., 2004; Wei et al., 2014), and distinguished by its exploitation tactics (Iyer et al., 2019; Kocak et al., 2017; Tan & Liu, 2014).

Due to the characteristics presented, RMO is often associated with the promotion of incremental innovations and described as a possible obstacle to radical innovations (Cai et al., 2015a; Eggers, 2010; Kocak et al., 2017; Narver et al., 2004; Tan & Liu, 2014; Yannopoulos et al., 2012).

Based on the literature descriptions about the PMO and RMO presented, Chart 2 was prepared with the main attributes of each dimension and the corresponding theoretical support.

Table 2. PMO and RMO attributes

Attributes	PMO	RMO	Theoretical support
Demands met	latent	express	Cai et al. (2015b); Herhausen (2016); Jaeger et al. (2016); Kocak et al. (2017); Lamore et al. (2013); Narver et al. (2004); Ozdemir et al. (2017); Tan and Liu (2014); Wei et al. (2014); Zhang and Duan (2010).
focus market	futures market	current market	Iyer et al. (2019); Wei et al. (2014); Yang et al. (2020).
Innovation	Radical	incremental	Cai et al. (2015a); Cai et al. (2015b); Eggers (2010); Kocak et al. (2017); Narver et al. (2004); Tan and Liu (2014); Yannopoulos et al. (2012).
time horizon	Long term	Short term	Cai et al. (2015a); Narver et al. (2004); Ozdemir et al. (2017); Qureshi and Kratzer (2011).
Guidance	<i>market-driving</i>	<i>market-driven</i>	Cai et al. (2015b); Iyer et al. (2019); Lamore et al. (2013); Narver et al. (2004); Randhawa et al. (2020); Wei et al. (2014).
exploration of opportunities	<i>Exploration</i>	<i>Exploitation</i>	Eggers, (2010); Iyer et al. (2019); Kocak et al. (2017); Tan and Liu (2014).
Risks when excessive	Increased costs; ineffectiveness	Economic vulnerability; Obsolescence	Jaeger et al. (2016); Kocak et al. (2017); Tan and Liu (2014).

Source. Prepared by the authors (2021).

Exploitation refers to activities aimed at enhancing and fine-tuning existing competencies and methods, while exploration targets potential markets and forthcoming trends (Chen, 2017; Herhausen, 2016).

A well-coordinated interplay between MO dimensions and Dynamic Capabilities can enable companies to sharpen their strategies and adapt effectively in fluid environments (Correia et al., 2021; Randhawa et al., 2020; Wilden et al., 2019).

2.2 Dynamic Capabilities

Dynamic Capabilities theory is currently considered one of the most promising approaches in the strategic agenda (Katkalo et al., 2010), having been related to different themes, levels of analysis, and theories (Schilke et al., 2018). DC is understood as one of the two main types of capabilities of companies, along with Ordinary Capabilities (Kump et al., 2019; Schilke et al., 2018; Teece, 2014; 2018a; Vu, 2020) and whose employment is positively associated with the generation of sustainable competitive advantages (Eisenhardt & Martin, 2000; Kump et al., 2019; Schilke et al., 2018; Teece, 2018a). Table 3 presents the main DC concepts.

Table 3. Main concepts of dynamic capabilities

Reference	Concept
Teece et al. (1997)	"... the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. Dynamic capabilities thus reflect an organization's ability to achieve new and innovative forms of competitive advantage given path dependencies and market positions."
Eisenhardt and Martin (2000)	"... the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die."
Winter (2000)	"... capabilities that operate to extend, modify or create ordinary capabilities."
Zollo and Winter (2002)	"... a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness."
Teece (2007)	"... capabilities that can be harnessed to continuously create, extend, upgrade, protect, and keep relevant the enterprise's unique asset base."
Helfat and Peteraf (2009)	"... the capacity of an organization to purposefully create, extend, or modify its resource base."

Source: Prepared by the authors (2021).

For the present work, the definitions presented by Teece (1997; 2007) are considered to define DC as a meta-competence that goes beyond operational competencies and that seeks to understand and adapt to the contingencies characteristic of operations in dynamic environments to generate sustainable competitive advantages over long time horizons.

In this sense, the DC's main activities are a) Detecting environmental changes that may represent threats or opportunities through market and technology research; b) Respond to change by modifying existing capabilities in innovative ways or adding new capabilities through partnerships or acquisitions; c) Select the best arrangement and business model to deliver value to customers and generate superior performance (Kay et al., 2018; Teece, 2007).

2.2.1 Types of CD

As delineated by Teece (2007), scholars categorize SC into two primary types: microfoundations and higher-order capabilities (Eisenhardt & Martin, 2000; Kump et al., 2019; Teece, 2007; 2018b).

Microfoundations are nuanced capabilities characterized by unique routines that are less commonly employed than typical capability routines. These foundations empower organizations to integrate, reshape, augment, or shed resources and ordinary capabilities (Eisenhardt & Martin, 2000; Teece, 2007; 2018b). They entail refining, amalgamating, and cultivating new standard capabilities (Teece, 2018a).

On the other hand, higher-order capabilities can alter or discard other capabilities, encompassing both ordinary capabilities and microfoundations (Kump et al., 2019; Teece, 2018b).

These higher-order capabilities are segmented into three activity and organizational process categories: sensing, seizing, and transformation (or reconfiguration) (Bogers et al., 2019; Katkalo et al., 2010; Schoemaker et al., 2018; Teece, 2014; 2018b). Sensing and seizing pertain to marshaling resources and strategies to pinpoint and capitalize on opportunities, while transformation emphasizes sustained rejuvenation for maintaining a competitive edge (Katkalo et al., 2010). Figure 1 visually depicts these capability types and the stance of higher-order capabilities.

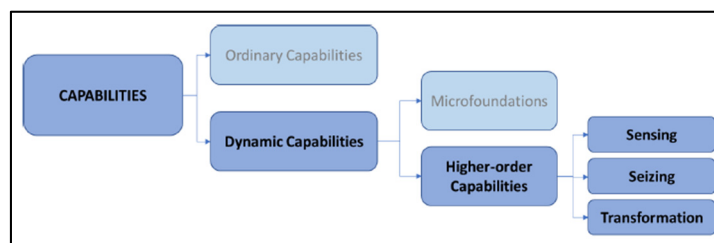


Figure 1. Types of Capabilities

Source: Prepared by the authors (2021).

3. Methodology

This section delineates the research approach addressing the proposed problem, detailing the methods and techniques for its orchestration and execution (Voss et al., 2002). In light of the literature's concerns, we will embark on a multiple case study focusing on startups.

The research will be qualitative, echoing the recommendations of studies exploring firms in dynamic environments (Bettiol et al., 2012; Jones et al., 2013a; 2013b; Jones & Rowley, 2012; Perez et al., 2013; Sigué & Biboum, 2020; Whalen et al., 2016). While quantitative research and statistical analysis aim for result generalizations, often sidelining organizational nuances, qualitative approaches prove adept at delving into distinct, micro-level organizational aspects (Jones et al., 2013a).

Some authors argue that scales or measures may not adequately grasp innovative behaviors, often missing the foundational activities, attitudes, and behaviors of a company (Fillis, 2010; Jones et al., 2013a). Adopting a qualitative lens can yield deeper insights and foster a more intimate connection between the researcher and the subject (Fillis, 2010).

In terms of time scope, this study will adopt a longitudinal approach. Analyzing over extended periods offers a heightened probability of observing the sequential nature of events and discerning causative relationships (Miguel, 2007; Voss et al., 2002). Such a temporal approach can enhance the internal validity of the findings and mitigate risks of participants' potential recall biases or forgetting pivotal events (Leonard-Barton, 1990; Trentin et al., 2015; Voss et al., 2002). It remains particularly apt for deciphering how processes distinctly impact companies over time (Jones et al., 2013b; Perez et al., 2013).

This way, qualitative research was conducted based on a study of multiple cases, with an explanatory character and a longitudinal time horizon. In Figure 2, the main activities of this research are presented, each step being detailed in the sequence.

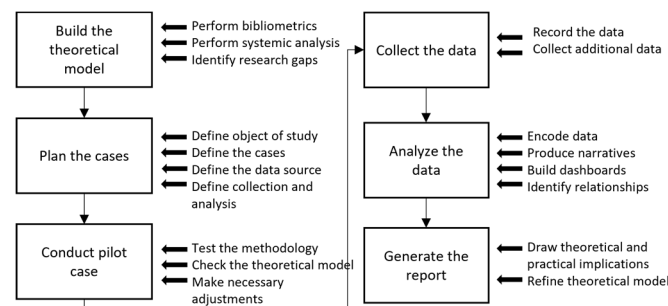


Figure 2. Research steps

Source. Adapted from Miguel (2007).

3.1 Construction of the Theoretical Model

A bibliographical analysis was conducted in the exploratory phase of the research to understand the state of the art regarding the Marketing of companies such as startups to identify gaps and research opportunities. The results of this analysis (Ribeiro & Lacerda, 2023) were the basis for identifying the problem and defining the objectives of this project.

The Knowledge Development Process – Constructivist (ProKnow-C) method developed by LabMCDA from the Federal University of Santa Catarina - Brazil (Becker et al., 2022; de Lima et al., 2023) was used for this step.

3.2 Planning the Cases

For the research, case studies of multiple startups were used to increase external validity, minimize the possibility of observer bias (Voss et al., 2002), and enable greater generalization of results (de Oliveira Lacerda et al., 2017; Eisenhardt, 1989; Miguel, 2007).

For case selection, relevance to the conceptual framework and research questions was considered (Eisenhardt, 1989; Voss et al., 2002). In this way, the criteria defined, based on the definition of startups (Ries, 2011), that the companies in the study should:

- Have up to five years of foundation at the beginning of data collection;

- b) Present a business model and products based on high technology and some type of engineering, be it electrical, mechanical, or software;
- c) Have several effective employees below 99, being considered small companies, according to the classification of the Brazilian Micro and Small Business Support Service (Sebrae);
- d) Be part of a startup incubation, acceleration, or mentoring project that validates it as such;
- e) Be located or be operated totally or partially in Santa Catarina.

Therefore, the companies described in Chart 4 were defined as research cases.

Table 4. Research cases

Company	Founded in	Products)
Rentou (pilot case)	2020	Software
Beupse	2020	Software
Beepay	2017	Software
VanellusRad	2019	Software and Hardware

Source. Prepared by the authors (2021).

3.3 Conducting the Pilot Case

The company Rentou, already part of the case studies, was used as a pilot case. The pilot case aims to verify the adequacy of data collection and provide improvements and adjustments in application procedures (Miguel, 2007). Furthermore, it enables the first empirical verification of the theoretical model, which can also be adjusted when necessary.

3.4 Collecting the Data

This research relied on multiple secondary and primary data sources to ensure triangulation. Institutional documents of the companies, data from participant observation, and semi-structured interviews were considered. Secondary data come from the UFSC Integration Laboratory between Research and Entrepreneurial Practices database (LIPPE/UFSC).

Table 5. Research data sources

Type	Source	Description
Secondary data	Documents	Company documents: electronic (websites, social media pages, landing pages) and physical (brochures, folders, flyers). LIPPE/UFSC documents: research reports.
	videos and recordings	Videos and audio recordings of LIPPE/UFSC mentorships and meetings with companies held before the structuring of this research
primary data	participant observation	Collection in mentorships offered by LIPPE/UFSC for the startups participating in the study.
	semi-structured interviews	Semi-structured interviews with entrepreneurs from selected startups

Source. Prepared by the authors (2021).

3.5 Analyzing the Data

Once the body of research data was formed, considering the multiple sources of evidence, the analysis phase began with the ATLAS's help.ti® software. Interview transcripts, participant observation notes, and document analysis were inputted into the software, facilitating the coding and visualization processes to support comprehensive analysis.

Post-coding, panels were constructed to present codes and scrutinize event sequences for each case (Miguel, 2007; Voss et al., 2002). These panels were utilized for cross-analysis, highlighting alignment or disparity across evidence sources, as well as discerning patterns and interrelationships among codes (Miguel, 2007; Voss et al., 2002). Findings were then juxtaposed with existing literature to align the results (Miguel, 2007).

3.6 Generating the Report

Finally, the report was generated, presenting the theoretical implications - with the theoretical model - and the practical implications - with the practical framework. The Framework's structure was inspired by the project management guide PMBOK (Project Management Institute - PMI, 2008).

4. Discussion of the Results

4.1 Theoretical Model

In the theoretical model construction, MO is proposed as a strategic direction that the organization pursues. Adopting MO activates DCs, serving as unique and invaluable resources that ensure MO's objectives are met. The dimensions that characterize MO include proactive (PMO) and responsive (RMO), while DC encompasses Sensing, Seizing, and Transformation practices. Both concepts collaboratively function when firms engage with dynamic environments.

DC and MO equip firms with processes to pinpoint both overt and latent market demands in fluctuating environments. Once informed, MO ensures company-wide information dissemination, aiding in decision-making. Subsequently, the organization determines which demands to cater to and how to deploy its DC. Consequently, DCs play a pivotal role in detecting (sensing) and capitalizing on novel opportunities by reshaping resources (transformation).

In our proposed model, DC dimensions correlate with the two MO dimensions, albeit differently. With RMO, DC assists in market scanning for existing opportunities (sensing) related to consumers' explicit demands. Capitalizing on these opportunities (seizing) ties in with routine operations. Meanwhile, alterations in products and business blueprints (transformation) target customer loyalty, addressing immediate demands, and ushering in incremental innovations derived from customer requests.

Regarding the PMO, DCs engage in activities related to creating new opportunities. In this sense, market scanning (sensing) is linked to identifying latent demands, new technologies, and information supporting decisions related to radical innovations. Seizing and transformation actions will aim to materialize these radical innovations in favor of the identified latent demands. Figure 3 illustrates these relationships.

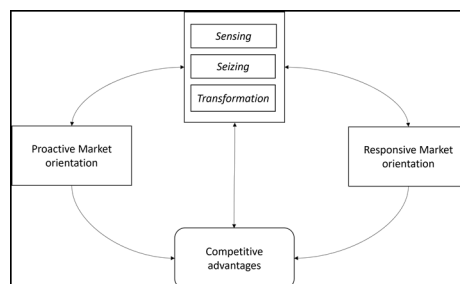


Figure 3. Relationship between DC and MO in dynamic environments

Source. Prepared by the authors (2021).

DC acts in an interrelated way with the two dimensions of MO but favors decision-making with different objectives. In the RMO, the DC assists in carrying out incremental innovations and taking advantage of existing opportunities, while in the PMO, the DC looks for radical innovations and the creation of new market opportunities.

4.2 Practical Framework

The first point of construction of the Framework was the definition of the areas of knowledge involved. These areas were based on DC and MO theories. Chart 6 demonstrates the areas and their provenance related to CD theory.

Table 6. Practice framework knowledge areas

Dynamic Capabilities	Framework Knowledge Areas
<i>SENSING</i> : Detect environmental changes and identify market opportunities	Consumer scanning Technology scan Competitor scanning
<i>SEIZING</i> : Address opportunities and circumvent market threats	Data interpretation Claims service planning Innovation planning Resource mobilization Improve value proposition Approach to opportunities
<i>TRANSFORMATION</i> : Support the necessary changes to deal with market opportunities and threats	Unlearning Apprenticeship Resource acquisition Resource adjustment Elimination of resources

Source. Prepared by the authors (2021).

The second step consisted of defining the process groups, which were defined based on the MO dimensions. Table 7 shows the resulting groups.

Table 7. Framework process groups

MO dimensions	Process Groups
RMO: Service of express demands	Taking advantage of opportunities
PMO: Meeting latent demands	Creation of opportunities

Source: Prepared by the authors (2021).

Based on these definitions, knowledge areas intersected with process groups, determining the Framework's component processes. These were assessed in case studies to empirically identify them through longitudinal analyses. The integration of Dynamic Capabilities (DC) with Market Orientation (MO) in startups within dynamic settings was scrutinized via their everyday activities aiming for competitive edges.

This unveiled a clear link between MO and DC in these entities, pinpointing 23 specific processes. Supported by compelling evidence from the case studies, these processes account for roughly 80% of the processes initially spotted in the systemic review, as detailed in Table 8.

Table 8. Processes considered in the construction of the framework

Code	MO	A.D	no. Evidence
Identify latent demands	PMO	<i>Sensing</i>	33
Identify express demands	RMO	<i>Sensing</i>	23
Identify possibilities and developments of new technologies	PMO	<i>Sensing</i>	18
Keep track of competitors' activities	RMO	<i>Sensing</i>	18
Speculate on product use	PMO	<i>Sensing</i>	12
Perform diagnostics on current products	RMO	<i>Sensing</i>	10
Plan how latent demands will be met	PMO	<i>Seizing</i>	29
Plan radical innovations	PMO	<i>Seizing</i>	28

Plan how express demands will be met	RMO <i>Seizing</i>	27
Interpret intelligence data on market trends	PMO <i>Seizing</i>	23
Interpret current market intelligence data	RMO <i>Seizing</i>	19
Plan incremental innovations	RMO <i>Seizing</i>	16
Take advantage of identified market opportunities	RMO <i>Seizing</i>	14
Disseminate intelligence on market trends	PMO <i>Seizing</i>	10
Disseminate current market intelligence	RMO <i>Seizing</i>	8
Mobilize resources to seize opportunities	RMO <i>Seizing</i>	8
Mobilizing resources to create opportunities	PMO <i>Seizing</i>	7
Acquire new resources to create opportunities	PMO <i>Transformation</i>	17
Adjust and/or adapt resources to take advantage of opportunities	RMO <i>Transformation</i>	17
Acquire new resources to seize opportunities	RMO <i>Transformation</i>	17
Learn new processes and concepts to seize opportunities	RMO <i>Transformation</i>	15
Learn new processes and concepts to create opportunities	PMO <i>Transformation</i>	8
Adjust and/or adapt resources to create opportunities	PMO <i>Transformation</i>	8

Source: Prepared by the authors (2023).

Examples of the evidences and codes from cases to legitimate the framework are presented in Table 9. The full list of evidences can be found in supplementary material.

Table 9. Examples of evidence considered in the construction of the framework

ID	Evidences from cases	Codes
10:3	The initial product is software for property customizations. The problem we were solving was the difficulty for construction companies to offer customizations in properties. (With the product) They had a reduction of up to 80% in management costs and an increase of up to 20% in revenue.	Perform diagnostics on current products
10:5	First year we earned R\$75,000. Second year we earned R\$275,000. The projection with this product this year was to earn R\$855,000. Because we have already managed to solve the pain of several construction companies. So you start to have patterns like that.	Interpret current market intelligence data
10:6	Then we saw an opportunity called metaverse in 2022 and we decided to bet. Because we already have the same technology, for games. The market is bigger, there are fewer occurrences, more opportunities, there are some latent pains.	Identify latent demands identify possibilities and developments of new technologies
10:8	And the market doesn't have enough metaverse companies to meet demand.	Monitor competitors' activities
10:13	Because all of our competitors have the same technology, so if they decide to create a metaverse, all the construction companies that we had as clients, they won't want to have a solution that is isolated from the rest.	Monitor competitors' activities
10:14	But we started to have some insights. Firstly, if the internet is to be this for real, our business could be threatened in one way or another.	Speculating about product use
10:15	And the other point was that we started to see some absurdities happening like a metaverse was promised, but so far no one has anything	Monitor competitors' activities quickly notice changes in competitors

Source: Prepared by the authors (2023).

It is important to point out that not observing the processes in the research, leading to their exclusion from the framework, does not eliminate their existence or importance. This may indicate that new studies should be conducted with other companies to validate their presence.

The processes presented in Table 8 structure the practical Framework set out in Annex A.

Practical Framework serves as an invaluable resource for startups. Designed explicitly for entrepreneurs aiming to navigate the complexities of dynamic landscapes, this tool underscores the necessity to both harness a company's dynamic capabilities and to adopt a resolute market focus to remain competitive.

Anchored in the tenets of Dynamic Capabilities and Market Orientation, and further reinforced through empirical field validation as detailed in the third chapter's methodology, the Practical Framework stands as a strategic guide for startups in fluid market conditions.

5. Conclusion

Focusing on the theoretical constructs of DC and MO, this study uses a systemic analysis based on Sensing, Seizing, and Transformation (for DC) and Proactive and Responsive Market Orientation (for MO). We propose a theoretical model connecting these constructs, tailored for startups in dynamic settings. Analyzing the practical implementation of MO and DC in startups adds value to literature. The collective impact of these processes on company performance remains an under-researched topic (Correia et al., 2021; Randhawa et al., 2020; Wilden et al., 2019).

Following this, we construct a practical framework based on the theoretical model and empirical evidence from various case studies. This aids startups in dynamic settings to cultivate long-term competitive advantages. In the companies examined, practical operationalization and routine activities embody elements of both MO and DC. These practices intertwine the two constructs, leveraging principles from both to capture and innovate market opportunities. Consequently, companies exercise MO as a capability to secure sustainable competitive edges over time.

This provides economic value to society, as standard marketing paradigms fall short in capturing startup marketing dynamics (Whalen et al., 2016). Given startups navigate swiftly evolving markets, they require specialized tools.

Future studies might replicate this methodology across various regions in Brazil and globally, including new company profiles and expanded samples, contributing to generalizations. A deeper dive into the Transformation aspect of DC is recommended, given its limited evidence in our findings. This paves the way for richer insights into the interplay between DC and MO within startups in dynamic settings, and how this relationship manifests in diverse contexts and growth stages.

We anticipate our proposed framework will serve as a roadmap for startups and can be adjusted to enhance its usability. It aims to help them navigate dynamic market challenges, maintaining long-term competitiveness. By aligning Dynamic Capabilities with Market Orientation, startups are better positioned to recognize and capitalize on evolving market opportunities.

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Authors contributions

Dr. Ana Maria Simões Ribeiro and Prof. Rogério Tadeu de Oliveira Lacerda were responsible for the study design, data collection, analysis, and review of the thesis resulting from this study. Author Michel Becker prepared and revised this manuscript. All authors read and approved the final manuscript.

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Competing interests

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Informed consent

Obtained.

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The journal and publisher adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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Annex A. Practical framework process

process name	element type	process element	Description
Perform diagnostics on current products (1.1)	Prohibited	A. Current products	Product that the company currently markets to its consumers
		B. Current Product Information	Commercial data, characteristics and elements about the product
		C. Consumer Feedback	Opinions, information, praise and complaints from consumers about the product
	Tools and Techniques	A. Brainstorming	Also known as brainstorming is a group technique for brainstorming or problem solving.
		B. Business metrics analysis	Analysis of product market performance
	Departures	A. Incremental innovation idea	Ideas for incremental improvements to the current product
Speculate about product use (1.2)	Prohibited	A. Technology data	Information from scanning technology; possibilities and developments of new technologies
		B. Market data	Information from the market in question, such as metrics, consumer profile, competition, etc.
	Tools and Techniques	A. Brainstorming	Also known as brainstorming is a group technique for brainstorming or problem solving.
		B. MVP Construction	Technique with the objective of developing an MVP (Minimum Viable Product) of a product or service
	Departures	A. MVP	<i>Minimum Viable Product</i> , or in Portuguese, minimum viable product is a way to validate a product or service. It could be a prototype, a presentation, a survey, a graphic representation, etc.
		B. New Product Ideas	Ideas for a new product that presents novelty in terms of value proposition
	Prohibited	A. New Product Ideas (1.2)	Ideas for a new product that presents novelty in terms of value proposition
		B. MVP (1.2)	Technique with the objective of developing an MVP (Minimum Viable Product) of a product or service
		C. Studies on trends and possibilities of new technologies	Research products, participation in events, reports, etc. that provide data on new technologies
		Tools and Techniques	A. Data collection techniques
Identify possibilities and developments of new technologies (2.1)	Departures	A. List of technological possibilities	List of trends and technological innovations that can be developed or improved by the company
		A. Data about competitors' movements	Publicly available information about actions taken by competitors.
	Prohibited	B. Data about competitors' products	Publicly available information about competitors' products.
		C. Data on competitors' value proposition	Publicly available information about competitors' value propositions.
	Tools and Techniques	A. Data collection techniques	Content analysis, interviews, document analysis, direct observation, etc.
		Departures	A. List of industry best practices
	B. Strategies for learning from competitors		Strategy development to learn from competitors' strategies
Keep track of competitors' activities (3.1)	Departures	C. Strategies to	Developing a strategy that deviates from competitors' strategies

		differentiate yourself from competitors	
Quickly notice changes in competitors (3.2)	Prohibited	List of technological possibilities (2.1)	List of trends and technological innovations that can be developed or improved by the company
	Tools and Techniques	Recent data on competitor movements	Publicly available information about the most recent actions taken by competitors
		A. Data collection techniques	Content analysis, interviews, document analysis, direct observation, etc.
	Departures	Competitors change list	Listing with the most recent movements and pivot points of the main competitors
Identify express demands (4.1)	Prohibited	A. Consumer expectations and needs	What customers need and expect can be provided by the organization
		B. Consumer Feedback	Consumer feedback on attributes and their experience with current products
	Tools and Techniques	A. Interviews and informal conversations	with current consumers and potential consumers
		B. Document reviews	Research in online and offline materials about market opportunities
Identify latent demands (4.2)	Departures	A. List of express demands	List with identified express demands that are relevant to the public and the organization
	Prohibited	A. List of express demands (4.1)	List with identified express demands that are relevant to the public and the organization
		B. Feedback from consumers and early adopters	Feedback from consumers and early adopters about attributes and their experience with current products
		C. MVP (1.2)	<i>Minimum Viable Product</i> , or in Portuguese, minimum viable product is a way to validate a product or service. It could be a prototype, a presentation, a survey, a graphic representation, etc.
Disseminate current market intelligence (5.1)	Tools and Techniques	D. New Product Ideas (1.2)	Ideas for a new product that presents novelty in terms of value proposition
		Interviews and informal conversations	With current consumers, early adopters and potential consumers
	Departures	Document reviews	Research in online and offline materials about market opportunities
	Prohibited	List of latent demands	List of identified latent demands that are relevant to the public and the organization
A. List of best market practices (3.1)		Gathering the best practices currently adopted by competitors	
Disseminate intelligence about market trends (5.2)	Tools and Techniques	B. List of express demands (4.1)	List with identified express demands that are relevant to the public and the organization
		A. Internal organizational communication techniques	Tools and techniques to disseminate organizational information internally in companies
	Departures	A. Internal documentation about the current market	Reports, newsletters, internal meetings, memos, posts in communication channels, etc.
	Prohibited	Competitors change list (3.2)	Listing with the most recent movements and pivot points of the main competitors
List of latent demands (4.2)		List of identified latent demands that are relevant to the public and the organization	
Interpret current market intelligence data (6.1)	Tools and Techniques	Internal organizational communication techniques	Tools and techniques to disseminate organizational information internally in companies
		Internal documentation about market trends	Reports, newsletters, internal meetings, memos, posts in communication channels, etc.
	Prohibited	List of best market practices (3.1)	Gathering the best practices currently adopted by competitors
		Internal documentation about the current market (5.1)	Reports, newsletters, internal meetings, memos, posts in communication channels, etc.

Interpret intelligence data about market trends (6.2)	Tools and Techniques	Data analysis techniques	Descriptive analysis, qualitative analysis, statistical analysis, content analysis, etc.
	Departures	Conclusions about the current market	Systematization of knowledge about the current market based on conclusions, inferences and assumptions.
	Prohibited	Competitors change list (3.2)	Listing with the most recent movements and pivot points of the main competitors
Plan how express demands will be met (7.1)	Tools and Techniques	Internal documentation about market trends (5.2)	Reports, newsletters, internal meetings, memos, posts in communication channels, etc.
	Departures	Data analysis techniques	Descriptive analysis, qualitative analysis, content analysis, etc.
	Prohibited	Brainstorming about market trends	Also known as brainstorming is a group technique for brainstorming or problem solving.
Plan how latent demands will be met (7.2)	Departures	Conclusions about market trends	Systematization of knowledge about the current market from conclusions, inferences, suppositions and speculations.
	Prohibited	A. List of express demands (4.1)	List with identified express demands that are relevant to the public and the organization. Conducting market experiments, A/B tests and trial and error sessions based on hypotheses.
	Tools and Techniques	Conclusions about the current market (6.1)	Systematization of knowledge about the current market based on conclusions, inferences and assumptions.
Plan incremental innovations (8.1)	Tools and Techniques	A. Strategic planning	Elaboration of a set of action plans aimed at achieving the organization's strategic objectives
	Departures	B. Product development planning	Elaboration of an action plan to develop a product that meets expressed consumer demands
	Prohibited	A. Planning for express demands	Structured plan to define how expressed demands will be met
Plan radical innovations (8.2)	Prohibited	List of latent demands (4.2)	List with identified latent demands that are relevant to the public and the organization. Conducting market experiments, A/B tests and trial and error sessions, based on hypotheses.
	Tools and Techniques	Conclusions about market trends (6.2)	Systematization of knowledge about the current market from conclusions, inferences, suppositions and speculations.
	Departures	Strategic planning	Elaboration of a set of action plans aimed at achieving the organization's strategic objectives
Mobilize resources to	Tools and Techniques	Product development planning	Action plan to develop a product that meets latent consumer demands
	Departures	Planning for latent demands	Structured plan to define how latent demands will be met
	Prohibited	A. Incremental innovation idea (1.1)	Ideas for incremental improvements to the current product. And definition of decision-making criteria for proceeding or not with the innovation project.
Mobilize resources to	Prohibited	B. Planning for express demands (7.1)	Elaboration of a structured plan to define how the expressed demands will be met
	Tools and Techniques	Product development planning	Action plan to develop a product that features incremental innovations
	Departures	Plan for the development of incremental innovations	Action plan to develop a product that features incremental innovations
Mobilize resources to	Prohibited	MVP (1.2)	<i>Minimum Viable Product</i> , or in Portuguese, minimum viable product is a way to validate a product or service. It could be a prototype, a presentation, a survey, a graphic representation, etc. And definition of decision-making criteria for proceeding or not with the innovation project
	Tools and Techniques	New product ideas (1.2)	Ideas for a new product that presents novelty in terms of value proposition
	Departures	List of technological possibilities (2.1)	List of trends and technological innovations that can be developed or improved by the company
Mobilize resources to	Tools and Techniques	Planning for latent demands (7.2)	Elaboration of a structured plan to define how latent demands will be met
	Departures	Product development planning	Elaboration of an action plan to develop a product that presents radical innovations
	Prohibited	Plan for the development of radical innovations	Action plan to develop a product that features radical innovations
Mobilize resources to	Prohibited	Plan for the development	Action plan to develop a product that features incremental

seize opportunities (9.1)		of incremental innovations (8.1)	innovations
		Planning for express demands (7.1)	Structured plan to define how expressed demands will be met
		External fundraising	Search for sources of financing and external resources to take advantage of opportunities
	Tools and Techniques	Internal resource mobilization	Search for internal resources that can be used
Mobilize resources to create opportunities (9.2)		Allocation or adjustment in the business budget	Adjustment or formulation of a business budget that foresees expenses with taking advantage of opportunities
		List of resources mobilized to take advantage of opportunities	List of resources available and mobilized to take advantage of opportunities
		Plan for the development of radical innovations (8.2)	Action plan to develop a product that features radical innovations
		Planning for latent demands (7.2)	Structured plan to define how latent demands will be met
Take advantage of identified market opportunities (10.1)		External fundraising	Search for sources of financing and external resources to create opportunities
	Tools and Techniques	Internal resource mobilization	Search for internal resources that can be used
		Allocation or adjustment in the business budget	Adjustment or formulation of a business budget that foresees expenses with the creation of opportunities
		List of resources mobilized to create opportunities	List of resources available and mobilized to create opportunities
Create market opportunities (10.2)		Plan for the development of incremental innovations (8.1)	Action plan to develop a product that features incremental innovations
		List of resources mobilized to take advantage of opportunities (9.1)	List of resources available and mobilized to take advantage of opportunities
		Development of incremental innovations	Application of R&D and engineering processes to develop incremental innovations
	Tools and Techniques	Launch of incremental innovations	Process of getting to market and communicating to consumers about incremental innovations
Learn new processes and concepts to seize		Products with incremental innovations	Products launched offering incremental innovations for consumers
		A. Strategies to differentiate yourself from competitors (3.1)	Developing a strategy that deviates from competitors' strategies
		Plan for the development of radical innovations (8.2)	Action plan to develop a product that features radical innovations
		List of resources mobilized to create opportunities (9.2)	List of resources available and mobilized to create opportunities
Learn new processes and concepts to seize		Development of incremental innovations	Application of R&D and engineering processes to develop radical innovations
	Tools and Techniques	Launch of incremental innovations	Process of getting to market and communicating to consumers about incremental innovations
		New product proposal	New products, whether goods and/or services, with new value propositions for consumers
		New market differential proposal	New offer of innovative market differential, in addition to the product, such as in the business model, brand identity, logistics, distribution, etc.
Learn new processes and concepts to seize		Plan for the development of incremental	Ideas for incremental improvements to the current product.
	Prohibited	of incremental	Conducting market experiments, A/B tests and trial and error

opportunities (12.1)		innovations (8.1)	sessions based on hypotheses.
	Tools and Techniques Departures	decision making List of learned resources	Criteria analysis of each resource List of resources learned to take advantage of opportunities
Learning new processes and concepts to create opportunities (12.2)	Prohibited	Plan for the development of radical innovations (8.2)	<i>Minimum Viable Product</i> , or in Portuguese, minimum viable product is a way to validate a product or service. It could be a prototype, a presentation, a survey, a graphic representation, etc. Conducting market experiments, A/B tests and trial and error sessions based on hypotheses.
	Tools and Techniques Departures	decision making List of learned resources Plan for the development of incremental innovations (8.1)	Criteria analysis of each resource List of learned resources for creating opportunities Ideas for incremental improvements to the current product
Acquire new resources to seize opportunities (13.1)	Prohibited	of radical innovations (8.2)	
	Tools and Techniques Departures	decision making List of acquired resources Plan for the development of radical innovations (8.2)	Criteria analysis of each resource List of resources acquired to take advantage of opportunities <i>Minimum Viable Product</i> , or in Portuguese, minimum viable product is a way to validate a product or service. It could be a prototype, a presentation, a survey, a graphic representation, etc.
Acquire new resources to create opportunities (13.2)	Prohibited	of incremental innovations (8.1)	
	Tools and Techniques Departures	decision making List of acquired resources Plan for the development of incremental innovations (8.1)	Criteria analysis of each resource List of resources acquired to create opportunities Ideas for incremental improvements to the current product
Adjust and/or adapt resources to take advantage of opportunities (14.1)	Prohibited	of radical innovations (8.2)	
	Tools and Techniques Departures	decision making List of tweaked features Plan for the development of radical innovations (8.2)	Criteria analysis of each resource List with resources adjusted to take advantage of opportunities <i>Minimum Viable Product</i> , or in Portuguese, minimum viable product is a way to validate a product or service. It could be a prototype, a presentation, a survey, a graphic representation, etc.
Adjust and/or adapt resources to create opportunities (14.2)	Prohibited	of incremental innovations (8.1)	
	Tools and Techniques Departures	decision making List of tweaked features	Criteria analysis of each resource List of adjusted resources for creating opportunities

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