Innovation Dynamics: A Framework for Strategic Competitive Positioning

Salman Ali*

Indian Institute of Management Kozhikode

Abstract

This paper presents a conceptual framework from a thorough academic literature review supported by examples from real-world industrial practices. The objective is to articulate how organizations strategically approach innovation based on triggers to innovate and their intended competitive positions. The 2*2 matrix framework suggests strategic options for firms using proactive or reactive strategies based on internal and external triggers to develop their innovation efforts to gain or defend competitive advantages. Proactive strategies include (1) incremental innovation for cost-based positioning and (2) radical innovation for differentiation-based positioning. Meanwhile, reactive strategies include (3) modular innovation for cost-based positioning and (4) architectural innovation for differentiation-based positioning. Industry examples enhance the framework, connecting theoretical concepts to actual implementations and laying the groundwork for comprehending the complex link between innovation strategies and competitive positioning.

Keywords: Innovation, Strategy, Competitive Positioning, Exploration, Exploitation, Adaptation

JEL Classification: O31, O32

**Salman Ali*

E-mail address: *salman@iimk.ac.in*

Address: Assistant Professor, Indian Institute of Management Kozhikode, Kerala, India - 673570

1. Introduction

Innovation has become an inevitable requisite for the survival of firms owing to rapidly changing undercurrents in firms' environments and escalating competitive pressures, let alone the necessity for achieving a sustainable competitive advantage (Ali and Rahman, 2020). Consequently, all firms find themselves compelled to innovate, either as proactive measures to gain or sustain a competitive advantage against rivals, or as reactive responses to defend an existing competitive edge or to ensure the firm's survival.

It is crucial to acknowledge that firm mortality rates are significantly higher in the absence of adequate innovation (Bessant, 2003; Buddelmeyer et al., 2010; Gërguri-Rashiti et al., 2017). Notably, a comprehensive study analyzing the performance of firms in the Dow Jones 100 index revealed that only a single entity managed to endure from the beginning to the end of the twentieth century (De Geus, 1996), underscoring that even the largest enterprises face no guarantee of survival. A pertinent example is the rapid demise of once-dominant companies like Kodak and Blockbuster, which failed to innovate and adapt to the digital revolution, leading to their eventual downfall (Christensen, 1997). Furthermore, extensive industry analyses indicate that smaller firms, often characterized by resource constraints and agility challenges, exhibit notably higher mortality rates than their larger counterparts when unable to innovate effectively (Agarwal, 1998). For instance, startups in the tech industry that failed to pivot and embrace emerging technologies faced heightened risks of failure. Innovation, in its various forms, stands out as a primary driver behind this alarming mortality rate among firms (Audretsch, 1995; Cefis and Marshili, 2006). Recent global crises, including the COVID-19 pandemic, have accentuated the imperative for firms to demonstrate agility and resilience through innovative adaptations to the evolving business landscape (Guderian, Bican, Riar, and Chattopadhyay, 2021; Heinonen and Strandvik, 2021).

In essence, these observations underline the critical role of innovation in empowering firms to adapt to environmental dynamism, mitigate threats from competitors, and sustain superior performance in the long run. This imperative for innovation is vividly exemplified in the case of companies like Apple, which, through a relentless commitment to product innovation and design, has not only navigated dynamic market landscapes but has consistently outperformed competitors (Podolny and Hansen, 2020). Additionally, firms are increasingly driven to explore external avenues rather than relying solely on internal resources for innovative solutions. For instance, pharmaceutical companies, such as GlaxoSmithKline and Pfizer, have strategically engaged in open innovation by collaborating with external research institutions and startups to accelerate drug discovery and development processes (Gillespie et. al., 2019; Schuhmacher et al., 2018). A noteworthy trend among successful organizations is the widespread engagement in collaborative and open innovations, exemplified by initiatives like Tesla's decision to open up its electric vehicle patents to the public, fostering industry-wide innovation (Portuguez-Castro, 2023).

The dynamic nature of the business environment has heightened the necessity for firms to embrace both proactive and reactive innovation strategies, enabling them to navigate the complexities of the market successfully (Fan et. al., 2013). Proactive innovation encompasses pursuing novel opportunities and continuously improving existing products, processes, and technologies to gain a competitive edge over rivals (Dana, Wright, and Etemad, 2007). This strategic approach is evident in companies like Google, which consistently explores new technological frontiers, introducing products like Google Glass and investing in research initiatives such as DeepMind to maintain leadership in the technology landscape (Powles and Hodson, 2017; Rao et. al., 2021).

On the other hand, reactive innovation involves responding to external triggers such as technological advancements, regulatory changes, or competitive pressures to defend market position and ensure organizational survival (Segarra-Ciprés and Bou-Llusar, 2018). An illustrative example is the automotive industry's response to regulatory shifts towards electric vehicles (EVs). Companies like Ford and General Motors have strategically invested in reactive innovation by accelerating the development and production of electric vehicles to align with changing consumer preferences and regulatory frameworks (Kapustin and Grushevenko, 2020; Segarra-Ciprés and Bou-Llusar, 2018). This adaptive approach has become essential for firms seeking to thrive amid evolving market dynamics.

The concept of innovation spans a diverse spectrum of activities, encompassing technical, design, manufacturing, management, and commercial endeavors to introduce new or improved products, processes, or equipment to the market (Freeman, 1982). However, it is crucial to recognize that innovation extends beyond mere technological advancements, permeating various facets of organizations, including strategic, structural, and process-related transformations (Sahut, Dana, and Laroche, 2020). This comprehensive perspective on innovation highlights its pervasive impact on firms' performance and growth.

In contemporary business scenarios, innovation serves as a catalyst for multifaceted improvements, contributing to enhanced efficiency, heightened productivity, elevated product quality, expanded market share, and fortified competitive positioning. For instance, Apple Inc. exemplifies this holistic approach to innovation, as the company not only introduces groundbreaking technological products like the iPhone but also strategically innovates in areas such as design, marketing, and retail experience, thereby influencing diverse dimensions of its organizational performance and market presence (Sharma et. al., 2016). This integrative understanding of innovation underscores its role as a cornerstone for sustained success and growth in today's dynamic business landscape.

This paper endeavors to construct a robust conceptual framework that unravels the intricate interplay between innovation strategies and firms' competitive positioning. Drawing insights from an extensive review of existing literature and a close examination of contemporary industry practices, the framework aspires to offer a comprehensive understanding of both proactive and reactive

innovation strategies. Through this exploration, the paper aims to shed light on the implications of these strategies for achieving and sustaining a competitive advantage in the dynamic business landscape.

The envisioned framework will not only delineate the landscape of innovation strategies but will also emphasize the paramount importance of aligning these strategies with a firm's generic competitive position. This alignment encompasses crucial dimensions such as cost leadership and differentiation, providing a nuanced perspective on how innovation can be strategically harnessed for optimal competitive positioning.

In summary, as the business landscape continues to evolve, there is an escalating need for a nuanced comprehension of innovation strategies and their profound impact on firms' competitive positioning. By crafting a comprehensive conceptual framework, this paper seeks to make a substantial contribution to the theoretical foundations of innovation management and strategic decision-making within organizations. Through this contribution, the aim is to foster a deeper understanding that can guide firms in navigating the complexities of the contemporary business environment effectively.

2. Dimensions of Innovation

The classification of innovation spans two distinct dimensions: incremental (continuous) and radical (discontinuous) (Forés and Camisón, 2016). Incremental innovation involves making small or gradual changes to existing products or processes, while radical innovation introduces breakthrough products or processes that mark a significant departure from the norm (Norman and Verganti, 2014). Between these two extremes, there exist two additional types of innovation: architectural and modular (Henderson and Clark, 1990).

For instance, incremental innovation involving small or gradual changes to existing products or processes can be understood from the evolution of a ceiling fan, such as the introduction of energy-efficient motors, ergonomic blade designs, or noise reduction features. Each of these represents incremental improvements that enhance the overall performance and user experience without fundamentally altering the core design.

Conversely, radical innovation introduces breakthrough products or processes that mark a significant departure from the norm, comparable to the advent of a completely new type of fan, perhaps a bladeless fan. This radical innovation revolutionizes the traditional fan design, discarding blades altogether and employing innovative air amplification technology. Such a fan represents a radical departure from the conventional, introducing a groundbreaking product that reshapes the industry landscape (Verganti, 2008).

Architectural innovation is characterized by changes to the product architecture without altering its components. An illustrative example of architectural innovation is evident in a table fan that

utilizes the motors and blades of a ceiling fan, representing a rearrangement in the way components are interrelated.

Conversely, modular innovation retains some parts of the product while preserving the core design concept of the technology. This form of innovation necessitates a fundamental change in the technological approach employed in a component while leaving the overall architecture unchanged. An example of modular innovation is altering the type of motor used in a ceiling fan, where the technical architecture remains consistent. This nuanced classification offers a more detailed understanding of the diverse pathways through which firms can drive innovation (Henderson and Clark, 1990; Rothwell, 1992).

3. Innovative Strategy Framework for Generic Competitive Positioning

Innovation can be instigated by either internal motives within firms or external factors (Wu et. al., 2013). Firms employing self-triggered innovations, often characterized by a proactive innovation strategy, allocate substantial resources to research and development (R&D) facilities. There are primarily two ways to achieve this: continuous improvement of existing products through exploitation or the development of radically new products and technologies through exploration. Proactive strategies emphasize the deliberate pursuit of novel opportunities and sustained advancements, positioning firms on the innovation frontier (Teece, 2006). Conversely, firms adopting a reactive strategy are compelled to innovate as an adaptation to the changing environment, driven by the necessity for survival. Reactive strategies respond to external triggers such as technological advancements, regulatory changes, or competitive pressures. The impetus for innovation stems from the need to defend market position and ensure organizational survival (Schindehutte et. al, 2000). Reactive strategies showcase firms' adaptability and resilience in the face of external challenges.

The proactive strategies of firms are intricately woven into the fabric of their innovation pursuits. Teece (2006) illuminates the deliberate pursuit of novel opportunities as a defining feature of proactive innovation. This forward-looking orientation positions firms on the vanguard of the innovation frontier, fostering an environment where sustained advancements become the norm. Proactive strategies manifest not merely as reactive responses to the market but as intentional initiatives to chart new territories and seize emerging opportunities (Liem et. al., 2019)

Moreover, proactive innovation as a strategic asset aligns with the notion that innovation is not just a byproduct of R&D efforts but a deliberate pursuit with transformative implications. By allocating substantial resources to R&D, firms express their commitment to staying ahead of the curve, ensuring continuous improvements to existing products and processes. This strategic allocation, coupled with an exploration-oriented mindset, emphasizes the proactive innovation paradigm as a cornerstone for achieving and sustaining competitive advantage (Teece, 2006).

Continued proactive engagement with innovation not only amplifies a firm's responsiveness to market demands but also positions it as an industry trailblazer. It represents a strategic decision to

shape the contours of the market landscape actively. In doing so, firms adopting proactive strategies align themselves with the evolving needs and preferences of their target audience, fostering a culture of continual improvement and forward-thinking innovation (de Oliveira Teixeira, 2013).

In contrast to proactive strategies, firms adopting a reactive approach innovate out of necessity, compelled to adapt to a changing environment for survival. This reactive orientation acknowledges that external triggers, such as rapid technological advancements, evolving regulatory landscapes, or intensified competitive pressures, demand strategic responses. Reactive strategies, therefore, are not driven by a deliberate pursuit of opportunities but rather by the need to navigate external disruptions effectively (Segarra-Ciprés and Bou-Llusar, 2018).

The impetus for innovation under a reactive strategy goes beyond a desire for continuous improvement or the pursuit of groundbreaking opportunities; it becomes a defensive mechanism to protect market position and to ensure the survival of the firm. Scholars argue that reactive strategies highlight a firm's adaptability and resilience, showcasing its ability to respond effectively to external challenges and threats (Marcazzan et. al., 2022). In this context, innovation becomes a means of strategic survival, emphasizing the dynamic nature of a firm's response to external stimuli.

Delving into the dimensions of generic competitive positioning unveils two foundational strategic avenues for firms: cost-based advantage and differentiation-based advantage (Porter, 1985). This strategic decision entails choosing whether to target a broad or narrow set of customers, giving rise to four distinct options. Additionally, there exists a fifth option that amalgamates elements of both low-cost and differentiation, commonly known as a best-cost or hybrid strategy (Thompson Jr., Peteraf, Gamble, Strickland III, and Joseph, 2019). The strategic positioning a firm adopts is pivotal in determining its competitive stance within the industry and the value it creates for its customers.

Cost-based advantage, as outlined by Porter (1985), involves achieving the lowest cost of production or delivery in the industry. Firms pursuing this strategy aim to be the overall cost leader, allowing them to offer products or services at a lower price point than competitors. This cost leadership strategy necessitates operational efficiency, economies of scale, and tight cost control mechanisms (Grant, 2021). Toyota, for instance, has excelled in cost leadership by implementing efficient production processes such as the Toyota Production System, enabling them to offer reliable and affordable vehicles to a broad customer base (Reitsperger et. al., 1993).

On the other end of the spectrum, differentiation-based advantage focuses on providing unique and distinctive products or services valued by customers. Firms adopting this strategy seek to stand out in the market through innovation, brand image, superior quality, or other differentiating factors (Porter, 1985). Apple Inc. is a quintessential example of a firm that has successfully pursued a differentiation strategy. Apple has cultivated a devoted consumer base by employing innovative product design, advanced technology, and a well-established brand identity, resulting in customers who are willing to pay a premium for its unique products (Mao et. al., 2020).

A hybrid or best-cost strategy entails integrating components of both low cost and differentiation to provide customers with superior value. This approach seeks a balance between cost efficiency and product/service distinctiveness. Toyota's Lexus brand illustrates a successful implementation of the best-cost strategy, offering a blend of quality, innovation, and affordability in the premium automobile market (Chowdhury, 2014).

In essence, each strategic option has its merits, and the choice depends on a firm's internal capabilities, external environment, and overall business goals. Successful firms align their innovation strategies with their chosen generic competitive position, creating a synergy that propels them ahead in the dynamic business landscape.

The conceptual framework articulated in this study, as depicted in Figure 1 below, intricately captures the dynamic interplay between triggers to innovation and the type of competitiveness a firm aspires to achieve. This framework differentiates between proactive actions, propelled by internal motives, and reactive moves, which respond adeptly to external factors. Simultaneously, it takes into account the broader competitive landscape, empowering firms to strategically align their innovation endeavors with their chosen generic competitive position.

In navigating the diverse terrain of innovation, firms can leverage this framework as a guiding compass. By discerning between proactive and reactive strategies, firms gain clarity on the impetus driving their innovation initiatives. Proactive actions, rooted in internal motives, involve deliberate pursuits of novel opportunities and sustained advancements. In contrast, reactive moves respond astutely to external triggers, whether technological advancements, regulatory changes, or competitive pressures, aiming to defend market position and ensure organizational survival (Lambrechts et. al., 2008).

Moreover, the framework extends its purview to encompass the broader competitive context, recognizing the fundamental dimensions of cost-based and differentiation-based advantages. As firms strategically align their innovation endeavors with their chosen competitive position, they create a symbiotic relationship that propels them forward in the ever-evolving business landscape. This alignment fosters a more nuanced and effective approach to innovation management, ensuring that firms tailor their strategies according to their unique circumstances and aspirations (Teece, 2006).

As firms embark on their innovation journeys, the conceptual framework outlined here serves as a valuable tool, offering strategic guidance and a comprehensive understanding of the intricate relationship between innovation strategies and competitive positioning.

		Type of Competitive Advantage Pursued	
		Cost-Based	**Differentiation-Based**
Trigger for Innovation	**Internal (Proactive Move)**	**A. Incremental Innovation (Exploitation)**	**B. Radical Innovation (Exploration)**
	External (Reactive Move)	**C. Modular Innovation (Adaptation)**	**D. Architectural Innovation (Adaptation)**

Figure 1. Framework to analyze innovative strategy pursued by an organization

4. Discussion on the Blocks

The innovation strategy outlined in the matrix need not be understood as confined to a binary framework but represents a nuanced spectrum of strategies that firms are inclined to adopt. It is essential to acknowledge the potential for combination strategies, wherein firms may opt for hybrid approaches that blend elements of different strategies during the process of choosing their competitive positioning. The matrix, therefore, serves as a guiding framework rather than a rigid classification.

Blocks A and B in the matrix delineate innovation strategies for firms with an internal trigger for innovation or those proactively shaping their environment. Internal triggers emanate from the firm's aspirations or self-defined goals, reflecting a deliberate and strategic approach to innovation (Gaba and Bhattacharya, 2012). In Block A, firms focus on incremental innovations, leveraging small-scale improvements to existing products or processes. Conversely, Block B represents firms embracing radical innovations, pursuing groundbreaking products or processes that align with their internal motives.

On the other hand, Blocks C and D signify innovation strategies for firms responding to external triggers or those reacting to changes in the environment. External triggers encompass shifts in competitiveness, technology, regulations, or other environmental aspects, compelling firms to respond swiftly to ensure their survival (Cefis and Marsili, 2019). When confronted with external triggers, firms are pressed to adapt rapidly to environmental changes, marking a shift toward reactive strategies (Pérez-Luño et. al., 2014). While incremental innovation remains necessary, its sole reliance may prove insufficient to catch up with rivals when confronted with significant challenges. Therefore, firms often opt for an innovation strategy that falls between incremental and radical innovation, namely, modular or architectural innovation.

This nuanced perspective recognizes the adaptive nature of firms operating in dynamic environments, emphasizing the strategic choices they make based on the interplay between internal aspirations, external pressures, and the need for innovation. The ensuing exploration of each block will shed light on the specific characteristics, challenges, and opportunities associated with the corresponding innovation strategies.

4.1 Block A

Block A of the matrix encapsulates scenarios where internal factors serve as the driving force for innovation and where the firm pursues a cost-based competitive advantage. In this context, the strategic pathway aligns with incremental innovation - a method characterized by continuous, small-scale enhancements to existing products or processes. This strategic choice empowers the firm to extract optimal value from its current resources and technologies, which can be termed as exploitation, emphasizing gradual improvements for heightened cost efficiency and increased competitiveness (Caggese, 2019).

Academic scholarship affirms the pivotal role of incremental innovations, synonymous with exploitation, in maximizing internal resources within the firm's boundaries and deriving cost benefits while enhancing operational efficiency (Schumpeter, 1934; Danneels, 2002). Teece's (2006) perspective on intentionally pursuing opportunities through persistent improvement resonates with this approach. The literature substantiates the significance of incremental innovation as a key driver of cost efficiency and sustained competitiveness (Rosenberg, 1982; Cohen and Levinthal, 1990).

For instance, CERA Ltd, a leading sanitary-ware products firm in India with the largest manufacturing capacity, strategically employs incremental innovation to implement cost-cutting measures in its manufacturing processes. This ongoing refinement allows CERA to optimize existing resources, maintaining a competitive edge with a cost-based advantage. Similarly, major players in the sports shoe manufacturing industry, such as Adidas, Fila, and Reebok, strategically adopt incremental innovation to continually refine and enhance their shoe models, optimizing manufacturing processes for a competitive advantage in cost (Calori et. al., 2000). Procter & Gamble (P&G), a prominent consumer goods company, introduces incremental innovations in product formulations and packaging, enhancing cost efficiency and meeting evolving consumer preferences (Dodgson et. al., 2008; Huston and Sakkab, 2006). Toyota, a renowned automobile manufacturer, implements incremental innovations in its production processes, contributing to cost savings and operational efficiency (Womack et. al., 1990).

The above discussion highlights the importance of incremental innovation as a cornerstone for sustained competitiveness and cost leadership. In essence, Block A signifies a strategic orientation where firms leverage internal triggers for innovation, focusing on incremental improvements to secure and enhance their cost-based competitive positioning in the market. This dual perspective, grounded in scholarly concepts and illustrated through practical instances, emphasizes the role of incremental innovation in navigating dynamic market demands and sustaining a competitive advantage based on cost efficiency.

4.2 Block B

Block B of the matrix navigates scenarios where internal factors serve as the catalyst for innovation, with the organization aspiring to carve out a differentiation-based competitive advantage.

In such contexts, the optimal strategy for a firm revolves around radical innovation - an approach that can lead to the creation of entirely new products or processes, setting the firm apart from competitors (Colombo et. al., 2017). Termed as exploration, this form of innovation involves venturing into uncharted territories and introducing products or processes that were previously unavailable in the market. However, it demands substantial commitment, including investments in R&D infrastructure, resources, and a willingness to shoulder relatively higher risks.

The commitment required for radical innovation is echoed in academic literature, emphasizing firms' need to invest significantly in R&D and other resources to foster a culture of exploration (Damanpour, 1992; Tidd and Bessant, 2018). This strategic choice aligns with the idea that radical innovation is a deliberate effort to create groundbreaking opportunities and transformative advancements (Teece, 2006). Scholars argue that radical innovation is not just about incremental improvements but involves a fundamental departure from existing norms, pushing the boundaries of what is possible (Danneels, 2002; Utterback, 1994).

For instance, 3M, a conglomerate known for its innovative culture, sets a target of deriving 25% of its total revenues from products developed in the last five years. This ambitious goal propels the company to pursue a radical innovation strategy, continually introducing entirely new products to the market (Bartlett and Mohammed, 1999). Similarly, Apple Inc., a global technology giant, exemplifies radical innovation by introducing groundbreaking products like the iPod and iPhone. These products not only transformed their respective industries but also positioned Apple as an industry leader in innovation and differentiation (Ray Gehani, 2013).

Additionally, pharmaceutical companies like Pfizer, with its development of groundbreaking vaccines, and biotechnology firms like CRISPR Therapeutics, with innovations in gene editing, exemplify radical innovation in industries driven by internal triggers (Boni et. al., 2021). All these firms leverage internal triggers to explore new frontiers and differentiate themselves through transformative products and technologies.

In essence, Block B signifies a strategic orientation where firms, propelled by internal triggers, embrace radical innovation to differentiate themselves in the market. This approach involves a commitment to exploration, pushing the boundaries of what is achievable, and positioning the firm as a pioneer in its industry. The combination of academic insights and practical examples highlights the transformative power of radical innovation in achieving and sustaining a differentiation-based competitive advantage.

4.3 Block C

Block C explores situations in which external triggers push companies to pursue cost-based competitiveness, leading to the implementation of a modular innovation approach. Within this strategic framework, companies respond to shifts in their surroundings by deliberately modifying certain aspects of their products or procedures while retaining the core elements. This strategy allows

companies to effectively address external stimuli, making the required adaptations demanded by the surrounding conditions in a reasonably simple way.

Researchers suggest that modular innovation, which involves adapting to external triggers, is a strategic approach for organizations to handle environmental changes without making drastic modifications (Lichtenthaler and Lichtenthaler, 2009). This strategy decision is in line with the idea that modular innovation is an efficient way to address external disruptions, enabling a smoother and more controlled adjustment process (Baldwin and Clark, 2000). Modular innovation, with its emphasis on adaptation, is particularly suitable for companies aiming to balance cost effectiveness with the ability to satisfy changing market demands (Danneels, 2007).

Kodak's adjustment to digital technology is an example of modular innovation. Confronted with the advent of the digital revolution in photography, Kodak, a conventional film-based photographic corporation, had to adjust to the evolving environment. While their response was delayed, Kodak eventually embraced digital technology, modifying their product offerings to align with market demands (Lucas and Goh, 2009). This adaptation, though not without difficulties, exemplifies the modular nature of their innovation strategy. Another example can be found in the case of Nokia, which adapted to external triggers by transitioning from traditional mobile phones to smartphones, retaining certain core elements while integrating new features (Vuori and Huy, 2016). The failures of these late innovations from Kodak and Nokia envision the difficulties in adapting a successful modular innovation strategy.

Similarly, IBM, faced with the rise of personal computers, strategically adopted modular innovation by diversifying its product line to include personal computers without abandoning its core business in mainframe computers (Langlois and Robertson, 1992). Further illustrating the adaptability of modular innovation, Amazon, originally an online bookstore, expanded its product and service offerings over time, incorporating new elements while maintaining its core competency in e-commerce (Chou et. al., 2016). These are some classic examples of success, although IBM later divested their personal computers business to Lenovo (Liu, 2007).

In essence, Block C signifies a strategic orientation where firms, triggered externally, leverage modular innovation to adapt to changing environments while maintaining cost efficiency. This approach involves a selective adjustment of components, allowing firms to respond effectively to external triggers without undergoing radical transformations. The combination of academic insights and practical examples underscores the adaptability and controlled evolution inherent in modular innovation as a strategy for achieving cost-based competitiveness in dynamic markets.

4.4 Block D

Block D unfolds scenarios where external triggers prompt firms to seek a differentiation-based competitive advantage, leading to the adoption of an architectural innovation strategy. In this strategic paradigm, firms aim to change the architecture of their products while preserving core concepts,

creating differentiated offerings in the market. While architectural innovation holds the potential for distinctiveness, it is acknowledged as one of the most challenging strategies to execute due to its complexity. Firms, when faced with external triggers, often prioritize adaptation over differentiation, making architectural innovation a less common choice.

Scholars emphasize that architectural innovation involves significant changes to the underlying structure or design of a product, challenging established norms and potentially creating groundbreaking solutions (Henderson and Clark, 1990). This strategic choice is intricate and demands a departure from existing practices, making it a less prevalent but impactful approach to innovation (Garcia and Calantone, 2002). The difficulty in executing architectural innovation lies in its disruptive nature and the need for firms to navigate uncertainties while introducing novel concepts to the market (Christensen, 1997).

For instance, the laptop industry offers valuable insights of the difficulties linked to architectural innovation. Toshiba, formerly a frontrunner in the sector, relinquished its competitive advantage to competitors as a result of its unwillingness to integrate a basic architectural advancement - the touchpad mouse - into their laptops during the initial stages of its evolution. Toshiba's reluctance to adopt a novel change played a role in its loss of market dominance, highlighting the dangers and outcomes of neglecting architectural innovation in a swiftly changing market (Utterback, 1994).

In contrast to established incumbents, new entrants often capitalize on architectural innovation to disrupt markets and gain leadership positions. The rise of Tesla in the automotive industry serves as a contemporary example. Tesla introduced architectural innovations in electric vehicle design, fundamentally changing the industry landscape. The incorporation of electric powertrains, advanced software features, and over-the-air updates represents a departure from traditional automotive architectures. Tesla's success highlights how new entrants can leverage architectural innovation to challenge established players and redefine industry standards (Habib et. al., 2020).

Another instance is the introduction of smartphones, where Apple revolutionized the mobile phone industry through architectural innovations in design, user interface, and functionality. Apple's iPhone, with its distinctive touch-based interface and app ecosystem, exemplifies how architectural innovation can reshape an entire market and set new benchmarks for competitors (Raviola and Dubini, 2008)

In essence, Block D signifies a strategic orientation where firms, triggered externally, opt for architectural innovation to achieve a differentiation-based competitive advantage. While challenging to execute, architectural innovation has the potential to redefine industries and position firms as market leaders. This strategic choice involves reshaping product architectures to introduce novel and distinctive features, aiming to stand out in a competitive landscape characterized by rapidly evolving consumer preferences and technological advancements. The combination of academic insights and

practical examples underlines the intricacies and transformative potential inherent in architectural innovation as a strategy for achieving differentiation-based competitiveness in dynamic markets.

5. Conclusion

In the backdrop of heightened environmental dynamism and intensified market competitiveness spurred by globalization and liberalization policies, the imperative of innovation for firm survival and sustained performance has become increasingly evident. A lack of innovation may also contribute to firms exiting international markets (Ali and Mathur, 2022). The triggers for innovation, stemming either from internal drivers such as principles and goals or external changes encompassing technological shifts, competitive pressures, regulatory dynamics, and political transformations, underscore the multifaceted landscape that firms navigate. Within this context, innovation emerges as a linchpin for creating and advancing competitive advantages against industry rivals (Utterback and Suárez,1993).

The conceptual framework presented in this study serves as a guiding compass for firms seeking to align their innovation strategies with distinct competitive positions. The nuanced interplay between triggers for innovation and the intended competitive advantage unfolds across four blocks, each representing a strategic avenue that firms are likely to pursue when confronted with the need to innovate. These suggestive strategies offer valuable insights for firms striving to carve out diverse types of competitive advantages within their respective industries.

It is imperative to recognize that firms are not bound to adopt a singular strategy at any given point. The choice of innovation strategy depends on a myriad of factors, including the nature of the trigger, the firm's internal capabilities, and its overarching business goals. For instance, a firm may opt for incremental innovation as a pragmatic choice for survival, avoiding more elaborate strategies such as modular or architectural innovation in response to external triggers. Moreover, the landscape of innovation strategies is not rigidly compartmentalized; firms often engage in combination strategies, embracing ambidexterity or simultaneously pursuing exploitation and exploration. Numerous successful firms serve as exemplars of the efficacy of multifaceted innovation approaches.

There are many opportunities for research to confirm the suitability and relevance of the conceptual framework presented in this paper. Empirical studies can scrutinize the framework's efficacy across diverse industries and contexts, shedding light on the extent to which firms adhere to the suggested strategies in the face of varying triggers and competitive landscapes. Further investigation can delve into the role of organizational culture, leadership styles, and resource endowments in shaping firms' proclivity toward specific innovation strategies. Comparative analyses of firms practicing combination strategies, such as ambidexterity, can offer nuanced insights into the synergies and trade-offs associated with simultaneous exploitation and exploration.

In conclusion, the developed framework offers a valuable lens through which firms can navigate the intricacies of innovation and strategically position themselves within dynamic business

landscapes. The fluidity of innovation strategies, coupled with the potential for combination approaches, speaks to the adaptability and resilience required for firms to thrive amidst evolving challenges. Future research holds the promise of enriching our understanding of the interplay between triggers for innovation and competitive positioning, providing actionable insights for firms seeking to chart their innovation journeys in a rapidly changing world.

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