

# Dynamic Capability of SMEs under Exogenous Crises: A Case Study of SMEs Faced with COVID-19

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## Abstract

Amid the coronavirus disease 2019 (COVID-19) pandemic, small and medium-sized enterprises (SMEs) faced unprecedented challenges. Hence, the ability to adapt and innovate business models to thrive in a disrupted environment has become paramount. This study employs the concept of dynamic capability, a theoretical framework designed to address adaptation in uncertain contexts. The objective is to conduct a qualitative analysis of how SMEs navigated these changes during the pandemic. Three dynamic capabilities are identified by examining three case studies, which enabled SMEs to mitigate the impacts of COVID-19. One is the capability to utilize crisis-induced moratoriums for organizational development, which is a new finding and theoretical contribution. This study offers strategic insights for managing and overcoming exogenous crises in the future.

*Keywords:* Dynamic capability, Crisis management, SMEs, BMI, COVID-19

## 1 Introduction

Currently, businesses operate in increasingly complex and uncertain environments owing to globalization. This case requires them to maintain a competitive advantage and survive regardless of size. Small and medium-sized enterprises (SMEs), in particular, must create value with more limited resources than large corporations. The coronavirus disease 2019 (COVID-19) pandemic, which began in Wuhan, China, on December 31, 2019, as declared by the WHO, has greatly restricted global activities, impacting businesses heavily. This sudden change has forced companies to adapt in various ways, including reducing onsite workers to avoid crowds, losing customers in the tourism sector, disruptions in supply chains, and introducing unfamiliar online tools, complicating service and product pricing maintenance.

Research in organizational management and business strategy has explored various responses to these COVID-19-induced changes. However, much of this research has been theoretical or based on quantitative methods such as surveys. Therefore, this study focuses on actual business actions through case studies and interviews, aiming to bridge the gap between theory and practice. This approach will highlight the real challenges and innovative strategies that organizations have adopted in response to the pandemic. Through this, the study provides new insights into the complexities and diversities of management that cannot be fully captured by theoretical frameworks alone. This empirical research is crucial for developing strategies to effectively handle future crises, offering valuable implications for scholars and practitioners.

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## 2 Literature Review

In this section, we review the prior research on the management of SMEs in the COVID-19 context and clarify the theoretical aspects used in this study. COVID-19 has brought significant changes to the business environment. Even against such sudden changes, SMEs must adapt to the environment and generate profits. A key theory that facilitates corporate adaptation and sustains competitive advantage in changing environments is dynamic capabilities (DCs). DC is generally defined as the ability to play a crucial role in strategic management by appropriately adapting, integrating, reconfiguring, and renewing internal and external organizational skills, resources, and functional competencies in response to changes in the business environment [1]. Research has also viewed DCs as routines and defined them as structural patterns in varying market dynamics [2]. Thus, DC represents the capacity to adapt to dynamically changing business environments using internal and external resources [1, 3]. Moreover, DC has been approached in various ways, such as studies focusing on operational routines generated during adaptation as stable patterns [2, 4]. Moreover, during the pandemic, the environment became not static but dynamic, frequently changing, and chaotic. Therefore, this study employs the dynamic capability view (DCV) to capture the transformations of SMEs exposed to the impacts of COVID-19, enabling a concrete understanding of the current situation.

### 2.1 Challenges for SMEs due to the impact of COVID-19

The challenges faced by SMEs owing to the impact of COVID-19 include disruptions in the supply chain [5], financial resources [6], difficulties in continuing business in the conventional environment [7], and mismatches in business models. Chowdhury et al. [5] reviewed the literature from the early stages of the pandemic related to supply chain disruptions, focusing on production, human resources, and finance. They noted a decline in production capacity owing to measures such as reducing working hours and limiting the number of personnel attending work to ensure employee safety. In addition, Dente and Hashimoto [8] pointed out issues in managing capital assets under the impact of COVID-19, such as material inventories and equipment. Thus, efforts to maintain and improve production capacity considering the aforementioned conditions are gaining attention.

From a human perspective, companies demanding physical presence in industries primarily based on manufacturing sites are forced to reduce interactions among employees to prevent the spread of the infection. This case poses significant overall impacts on businesses. Furthermore, SMEs facing COVID-19 are noted to experience reductions in cash flow [9-12]. Particularly, SMEs in crises struggle more with cash flow than large enterprises and have a higher business closure rate. The aspect of the business model deals with the three previously mentioned items as a highly comprehensive challenge. The business model describes the design or structure of mechanisms for creating, delivering, and capturing value [13]. Thus, this model comprises complex elements, such as production capacity, resources, and finances, indicating the company's overall value. Therefore, pre-pandemic business models may no longer apply under COVID-19 conditions. In this way, SMEs have been forced into situations where survival within traditional frameworks is challenging.

## 2.2 Research on SME strategies in times of exogenous crisis and challenges

As mentioned in the previous section, COVID-19 has significantly impacted the survival of SMEs. However, some SMEs have adapted to environmental changes. The factors enabling survival under the impact of COVID-19 have been discussed from various perspectives, with studies conducted in the context of crisis management and strategy. Ragazou et al. [14] emphasized the importance of business model innovation (BMI) in “uncharted waters” business environments. Specifically, one method to respond to environmental changes caused by the pandemic is integrating strategic ability, ambidexterity, open innovation, and digital transformation into BMI. In addition, Ibarra et al. [15] suggested that BMI becomes effective when constructed with complex elements in the BMI context, emphasizing the importance of protecting a company’s core competencies in the approach to BMI.

Kahveci [11] presented a management model for SMEs to survive the impacts of COVID-19 through a strategic crisis management framework consisting of four steps. The first stage, “data gathering,” involves a great understanding of the market situation and external environment that has changed owing to the pandemic. The second stage, “analyze with strategic management tools,” aims to understand and plan the relationship between the external environment and the organization using strategic management tools. The third stage, “strategic,” consists of decisions such as cost-cutting and divestment; diversification and innovation; and ambidexterity, committing to the action plans established in the second stage. The fourth stage, “implementation,” involves mobilizing all resources to execute strategies to address the crisis. This framework indicates that SMEs can secure stable cash flows and survive in highly uncertain environments by following these four steps.

In the DC context, AI-Omouh et al. [16] demonstrated that collaborative knowledge creation through intellectual capital plays a crucial role in developing supply chain agility. Agility involves sensing changes in the environment externally, accepting them internally, proactively responding, and ultimately adapting to new realities, a concept common to the three elements of DC, “sensing,” “seizing,” and “transforming,” as described by Teece [3]. Moreover, Zouaghi et al. [17] showed that opening the innovation process leads to better post-crisis performance than pre-crisis. Similarly, AI-Omouh et al. [16] indicated the effectiveness of collaborative knowledge creation through intellectual capital, meaning stakeholders inside and outside the organization.

Dyduch et al. [18] found that DCs were prominently visible during the pandemic and created a unique index of DCs for investigation. The results showed that DCs necessary during the pandemic include fundraising capabilities, innovation capabilities, the ability to move resources quickly, the ability to seize new opportunities, the ability to build relationships with stakeholders, and the ability to establish appropriate IT systems and organizational structures.

Many studies from the perspectives of DC and BMI have shown the capabilities required during a pandemic. However, prior research on the impact of COVID-19 on SMEs’ actions in detail is limited, and the discussion on which SME actions are key factors for survival in the business environment remains. Purnomo et al. [19] and Rashid and Ratten [20] focused on the actions of entrepreneurs in SMEs faced with COVID-19, primarily in vulnerable industries such as the B2C sector, including the food and beverage industry. As these studies were conducted in the early stages of the pandemic, focusing on cases four years after the outbreak and other industries could contribute to prior research and practitioners. Moreover, this study will focus on the interactions among specific stakeholders (employees and the

president) because prior research has often described a broad range of stakeholders. This focus will enhance the perspective on crisis management in SMEs. Therefore, this study aims to investigate SME actions through interviews and describe the DCs that have become survival factors.

### 3 Case Studies

This study examines the cases of three companies that responded to COVID-19, analyzing their actions compared with previous research. Our goal is to clarify the patterns of corporate behavior in crisis. We selected companies that experienced significant environmental changes owing to COVID-19 and implemented specific external and internal actions. Data collection involved semi-structured interviews with the presidents of these three SMEs. The study focuses on three SMEs that improved their performance through distinctive activities during the COVID-19 pandemic.

The semi-structured interviews were adjusted based on the seven criteria presented by Dyduch et al [18], which are grounded in the DCV: “obtain financing,” “innovate,” “move resources quickly,” “seize new opportunities,” “build relation with stakeholders,” “develop IT systems,” and “establish proper organizational structure.” The actual items set for the interviews were (1) the ability to obtain financing, (2) the ability to acquire resources, (3) initiatives toward employees, and (4) the creation of new businesses. These specific items were explored in depth during the interviews.

In this section, we focus on the unique corporate actions undertaken by each of the three companies, introducing them through specific case studies. Please see Table 1 for an overview of the interviews. This approach not only highlights how these companies have navigated the challenges posed by COVID-19 but also provides a detailed look into the strategies that enabled them to adapt and potentially thrive despite the adverse conditions. This in-depth examination aims to contribute to a deep understanding of effective crisis management practices and the role of DCs in fostering resilience and innovation in the face of unprecedented disruptions.

Table 1: Interview lists

	Date	Time	Interviewee
<b>Company A</b>	March 19, 2024	1.5hour	Director and Designer
<b>Company B</b>	May 2, 2024	1.5hour	President
<b>Company C</b>	May 2, 2024	1.5hour	President

#### 3.1 Response to COVID-19 taken by company A

Facing the unprecedented challenges brought on by COVID-19, company A, which primarily designs and sells bridal items for weddings, experienced a critical crisis as revenues plummeted to zero or even negative values. Originally established in 2005 as a private design studio and incorporated in 2007, the company had shifted its focus toward the wedding sector, with bridal items accounting for 80% of its sales by 2019. The pandemic significantly affected the company which is composed of two executives and seven employees.

The director of company A reported that many competitors in the industry either went out of business or were forced to give up continuing their bridal items operations altogether. This situation underscored the severity of the crisis and the vulnerability of businesses heavily reliant on social gatherings and events. Such a challenging scenario forced company A to

reconsider its business strategy and explore new avenues for survival and growth during and beyond the pandemic crisis.

#### **Obtain financing:**

Company A took proactive measures to secure funding in response to the worsening financial situation owing to the COVID-19 crisis. The company applied for special loan programs related to COVID-19 from two financial institutions, demonstrating a strategic approach to managing liquidity risks. In addition, company A applied for multiple grants, including the “Sustainability Subsidy for Small Enterprises” provided by local governments.

Company A aimed to stabilize its cash flow not only through the acquisition of grants but also by diversifying its economic relationships by engaging in these financial activities.

#### **Creation of new businesses:**

Company A adapted to the disruptions caused by COVID-19 by significantly transforming its business model. Originally, the design orders constituted less than 10% of its total revenue; however, the company pivoted to make this its primary business, achieving a new revenue contribution of 80%. Initially, the company ventured into selling gifts for Father’s Day and Mother’s Day. These products stemmed from their experience in crafting gifts for the parents of brides and grooms as part of their wedding offerings. However, this initiative proved to be a one-off endeavor owing to its limited profitability, driven by the annual nature of the events.

Subsequently, company A launched its second initiative: selling elegantly designed partitions crafted using traditional techniques from Ishikawa. The company participated in business meetings organized by the Ishikawa Sunrise Industries Creation Organization, a public institution in Ishikawa Prefecture, to expand its market reach. This strategic move led to international hotel chains and restaurants adopting their products. However, the partitions faced challenges as they were not frequently repurchased, and the market soon flooded with cheaper alternatives owing to the rising demand.

The third initiative involved marketing products made from Noto Hiba wood, beginning with a commission from a hotel, which had previously ordered partitions, to create an environmentally friendly nameplate. This project expanded to include country nameplates, table numbers, costar, and traditional crafts at the international conference, crafted from Noto Hiba. The success of these items generated further inquiries from various hotels, and the company continues to fulfill orders to this day. Company A revitalized its performance amidst an unpredictable business environment through these adaptive strategies.

#### **Initiatives towards employees:**

Company A leveraged the COVID-19 pandemic as a catalyst to pivot toward markets with a high demand for design expertise by providing in-house vocational training to its employees on design tools, such as Adobe Photoshop and Adobe Illustrator. Previously, employee tasks were primarily focused on inventory management, preparation, shipping of bridal items for online sales, and general office duties. This shift was essential as the market’s demand for designers intensified, yet the potential monthly revenue per designer was constrained by a critical shortage of qualified personnel.

To address this, company A initiated vocational training programs aimed at broadening the skill sets of their employees, thereby enhancing the organizational value generated from each employee’s work. Hence, employees gained proficiency in using advanced design tools, which not only diversified their capabilities but also increased their contribution to the company’s revenue streams.

Furthermore, the training enabled internal staff members, who previously specialized in tasks such as packaging, to now take on roles involving image editing and manuscript preparation as assistant designers. This capability has allowed them to contribute more significantly to the company's revenue. Over time, as employees mastered these expanded roles, they developed specialized skills and proposed innovative ideas, such as the use of “mizuhiki” in accessory products, which further contributed to the organization's strengths.

### **3.2 Response to COVID-19 taken by Company B**

Company B, a small to medium-sized manufacturer specializing in welded structural components, has built its reputation on 37 years of in-house integrated production since its inception in 1987. However, the onset of COVID-19 led to reduced production capacities and a consequent decline in its sales by 30%, primarily owing to the need to limit employee attendance to avoid crowding, a preventive measure against the spread of the virus.

The pandemic's impact was exacerbated for SMEs such as company B owing to their dependency on large corporations within the supply chain. For instance, company B supplied components for washing machines used in hotels. As the tourism industry plummeted, demand for hotel linen washing decreased, negatively affecting the operational rates of these machines. Although there was a surge in hospital linen washing, it did not compensate for the overall decline, leading to a significant reduction in parts orders for company B.

Despite these challenges, company B has impressively managed a 30% increase in sales compared with pre-pandemic. This turnaround is attributed to the company's proactive adjustments and optimization in response to the changing market dynamics induced by COVID-19. The key strategies and characteristic behaviors that facilitated this recovery are detailed below.

#### **Obtain financing:**

Company B took out a loan from a financial institution immediately after the COVID-19 pandemic began to provide cash flow. The reason was that predicting how long the impact of COVID-19 would affect cash flow was impossible. Therefore, measures were taken to obtain a special interest-free Corona loan for 3 years from a financial institution to cope with the risk of a funding shortfall. However, they did not use the loan and were able to repay it without interest. Thus, company B was prepared to cope with a cash-flow surplus before its own company faced a crisis.

#### **Creation of new businesses:**

In response to the COVID-19 pandemic, company B implemented two key initiatives to mitigate the impact of decreased orders from their traditional supply chain and to engage new customer segments. First, the company identified an increasing demand for transport equipment and semiconductors, driven by the rise in online shopping and widespread use of personal computers. Company B actively sought new business partnerships within these sectors, diversifying its customer base beyond its conventional markets, to capitalize on these trends.

The second major initiative involved a transformative shift in sales strategy spearheaded by the company's president. The president introduced an online sales model, breaking away from the traditional reliance on face-to-face interactions. This strategic pivot was influenced by the president's previous experience in the private sector, where he had developed effective sales techniques. Upon assuming leadership at company B, a family-owned business, the president of company B adapted these techniques to suit the company's operations. Initially,

the president personally managed these new sales efforts, but over time, this knowledge was disseminated to other sales department members. As the impact of the pandemic subsided, these new methods were also integrated into traditional face-to-face sales strategies.

This dual approach not only broadened company B's geographic reach beyond its mainstay in Ishikawa Prefecture but also led to a 20% increase in sales compared with pre-pandemic.

#### **Resource acquisition:**

In addressing the challenges posed by the COVID-19 pandemic, company B focused on two key areas of resource acquisition: expanding channels for material procurement and enhancing human resource recruitment efforts. This strategic shift led to a significant diversification in the sources of material procurement, enabling the company to source materials beyond the confines of its local prefecture. The decline in sales within the existing supply chain, a challenge faced by company B and similarly situated companies, necessitated an expansion into other prefectures. This geographical broadening of the network provided company B and its new business partners in other regions with valuable opportunities to enhance their operational scale and diversify their resource channels. Consequently, this expansion strategy facilitated an increase in material options, which is expected to confer a cost advantage in production activities.

In addition, the president of company B capitalized on the shift in the employment market dynamics from a seller to a buyer's market post-COVID-19. Prior to the pandemic, recruitment efforts had been challenging and yielded limited success. However, with the onset of the pandemic and a strengthened focus on recruitment, Company B experienced a steady increase in acquiring highly qualified personnel. For SMEs, which often grapple with workforce shortages, the successful enhancement of recruitment practices has proven to be highly significant.

#### **Initiatives towards employees:**

During the COVID-19 pandemic, company B started a strategic response called "YCM" aimed at maintaining operational profitability even when key personnel were unable to work owing to illness or quarantine measures. YCM was essentially a framework designed to ensure that the company could continue to generate profits despite the reduced availability of skilled workers, particularly those adept at operating high-margin machinery.

Traditionally, only a limited number of employees, identified as skilled, could operate these profitable machines. This specialization posed a significant risk when skilled workers were required to isolate due to COVID-19, potentially leading to substantial profit losses. In response, company B's "YCM" initiative sought to decentralize these critical skills across a broader segment of the workforce.

This shift was facilitated by a change in organizational culture as articulated by the president of company B. The focus transitioned from an individual-based competency model ("it is sufficient if one person can operate the machine") to a highly resilient model centered on collective capability ("Who will operate the machine when that person is absent?"). This cultural shift also led to the development of a structured, step-by-step training process for operating complex machinery.

Moreover, the company enriched its training programs by leveraging external expertise, including inviting employees from global and publicly listed companies to participate as trainers. This case not only enhanced the skill set within company B but also significantly shifted employee perceptions toward a highly collaborative and proactive approach to skill acquisition and operational readiness.

Through these measures, company B not only mitigated the immediate impacts of the pandemic on its operations but also fostered a highly adaptable and robust organizational culture, positioning itself favorably for future challenges.

### **3.3 Response to COVID-19 taken by Company C**

Company C, a SME specializing in the design and manufacture of printed circuit boards, CNC control panels, and microcomputer development, has a robust history of 45 years in the electronics industry. Like many in the supply chain, company C faced a significant downturn in sales owing to the COVID-19 pandemic, prompting a strategic response to diversify into new sectors.

#### **Creation of new businesses:**

Company C embarked on sector diversification to mitigate the pandemic's impact, expanding into the healthcare, amusement, and plant equipment sectors. This strategic pivot involved substantial capital investments, particularly in the healthcare sector, where the company invested in manufacturing equipment capable of producing impurity-free products. In addition, in the plant equipment sector, company C engaged as a subcontractor in constructing a facility for a major electronics manufacturer, ensuring high labor costs but securing continuous work through demonstrated capabilities.

These initiatives enabled a gradual recovery in sales and altered the company's profit structure, positioning company C for sustainable growth. The company is now planning to construct a "Smart Factory" to further enhance its production capabilities and address labor shortages through digital transformation.

#### **Initiatives towards employees:**

Company C also launched significant initiatives targeting employee welfare and productivity. These initiatives included a reform of the pay system, transitioning from a seniority-based to a job-based system while still accommodating the increasing costs associated with older employees. This hybrid approach aims to reward performance while respecting traditional compensation structures.

In terms of skill development, company C has prioritized digital literacy among its workforces. A comprehensive education program, involving 60 training sessions conducted by a subcontractor, was introduced. This program not only supports the implementation of new digital systems but also fosters financial acumen among employees. Leadership skills cultivated through this program are expected to translate into practical applications within the company. In addition, proactive efforts to provide educational opportunities continued even during the pandemic. For example, a group of employees visited a peer company, company D, which is also undergoing digital transformation, to learn directly about their DX strategies.

Company C's multifaceted approach to navigating the COVID-19 crisis—through strategic sector diversification, investment in capital and human resources, and adapting to digital advancements—illustrates its proactive stance in overcoming business challenges and setting a foundation for future growth.



Table 2: Impact of COVID-19 on three companies and their responses

	Impact of COVID-19	Response to COVID-19
Company A	<ul style="list-style-type: none"> <li>Decrease in sales of main businesses.</li> <li>Difficulty in continuing major businesses.</li> </ul>	<ul style="list-style-type: none"> <li>Obtaining external funding</li> <li>Continuous new product development in response to market needs</li> <li>Vocational training to improve employee skills</li> </ul>
Company B	<ul style="list-style-type: none"> <li>Decrease in production capacity.</li> <li>Decrease in sales of businesses.</li> </ul>	<ul style="list-style-type: none"> <li>Organizational change actions focused on employees and production systems through “YMC”.</li> <li>Develop new sales channels through digitalization of sales style.</li> <li>Strengthen recruitment of human resources.</li> </ul>
Company C	<ul style="list-style-type: none"> <li>Deterioration in business performance of major business partners</li> </ul>	<ul style="list-style-type: none"> <li>Diversification of revenue sources through field diversification</li> <li>Reviewing the salary system and strengthening digital skills through organizational reform</li> </ul>

### 3.4 Capabilities identified from case studies

This analysis integrates the experiences of three SMEs during the COVID-19 outbreak to identify common capabilities that facilitated their resilience and growth, aligning with theoretical constructs in strategic management literature. The study delineates three distinct capabilities that emerged consistently across the cases (Figure 1).

#### 1. Sensing the external environment condition:

The first capability involves accurately perceiving changes in the external environment, a critical aspect of DCs, as proposed by Teece [3]. This “sensing” capability was evident in the firms’ ability to detect the impacts of the pandemic on business performance and adapt their market and entrepreneurial orientations accordingly. Eriksson [21] highlighted these orientations as internal antecedents of DCs, supported by the necessary resources. For SMEs, which typically face resource constraints, the ability to leverage external resources proved essential. For instance, company A strategically expanded its design orders, which previously represented only 10% of its profits, in response to shifts in market demands.

#### 2. Seizing opportunities by leveraging core competencies

The second capability relates to the firms’ agility in adapting their core business to suit the altered market conditions. This involved identifying and capturing opportunities in emerging markets by anchoring on their core competencies. Company C, for example, capitalized on its expertise in manufacturing printed circuit boards and electronic components to diversify into the healthcare and amusement sectors. This approach aligns with Sharif et al. [22], who emphasize the importance of “knowledge binding”—the integration of external and internal knowledge for achieving agility in crisis situations. The cases demonstrate how recognizing and developing business axes can foster interactions between external and internal environments, enhancing the firms’ adaptability.

### 3. Utilizing crisis-induced moratoriums for organizational development

The third capability identified is the strategic use of crisis-induced moratoriums to pursue internal improvements and challenges. The third capability apply to Transforming by Teece[3]. Pandemic-related restrictions, including the avoidance of crowded spaces, required a reduced workforce presence and led to a temporary decrease in job availability. The companies utilized this period as a moratorium to enhance employee training and overhaul internal systems. This proactive use of downtime not only mitigated immediate impacts but also fortified organizational strengths, continuing to provide benefits post-crisis. Prior research has emphasized less this aspect of crisis management, but it proves crucial in the context of these case studies.

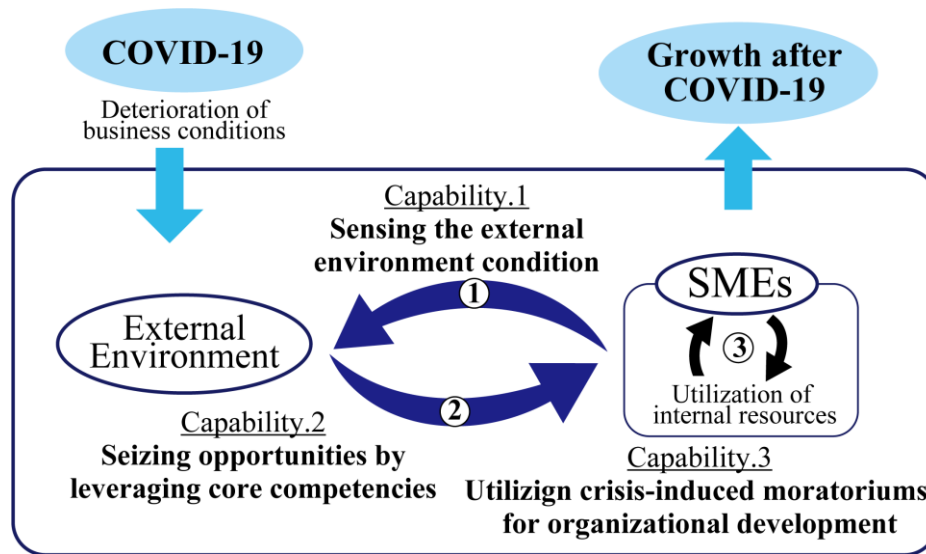


Figure 1 : Capabilities for SME Survival in an Exogenous Crisis

In conclusion, the investigation of these three companies elucidates how SMEs can harness specific capabilities to not only withstand a global health crisis but also position themselves for sustained growth and resilience. The findings contribute to the theory and practice of strategic management by demonstrating effective adaptation strategies in the face of unprecedented challenges.

## 4 Discussion

SMEs must cultivate growth to endure in volatile environments. This study employs the DC theory to explore how SMEs create and capture value in the face of the COVID-19 crisis. SMEs must adaptively manage their internal and external contexts to navigate such uncertainties. We conducted a qualitative analysis through three SME case studies to augment previous theoretical and quantitative research on strategies that these businesses employed during the pandemic. This investigation aims to identify corporate behaviors that enable growth despite the adversities brought about by COVID-19, offering insights for managers and top management teams in local SMEs facing unpredictable, critical situations.

#### **4.1 Sensing and Seizing under the Influence of COVID-19**

Many studies have discussed the roles of “sensing” and “seizing” within DCs in the COVID-19 context. Our case studies elucidate capabilities resembling these concepts: “capability to sense the external environment” and “capability to seize opportunities by leveraging core competencies.” Furthermore, aligning interests with new business partners is crucial for keeping pace with environmental changes, as suggested by Rashid and Ratten [20]. This case necessitates ecosystem-wide sensing and seizing, not merely self-directed actions, as inter-organizational learning within such ecosystems serves as a beneficial precursor to DCs [21]. Recognizing and adhering to a core business strategy is paramount, particularly for the longevity of firms [23].

#### **4.2 Utilizing crisis-induced moratoriums for transformation**

In addition to the above two capabilities, this study found a third important capability: “the capability to utilize crisis-induced moratoriums for organizational development,” which emerges as a critical factor in creating sustainable competitive advantages and is an essential element of transforming in DC. The COVID-19 pandemic inadvertently provided organizations with a grace period marked by reduced workforce presence and diminished orders. Although this phenomenon initially appears detrimental from a short-term profit perspective, it presents a long-term opportunity to diagnose organizational issues and devise new systems. Leveraging this period effectively facilitates ongoing organizational renewal and yields additional benefits. Our case studies indicate a focus on enhancing employee autonomy, which in turn contributes to organizational self-organization and agility [24]. The strategic utilization of grace periods during crises may enhance the sophistication of DCs. This approach is applicable to various exogenous crises, including the temporary suspension of services owing to infrastructure disruptions during earthquakes [25] or grace periods arising from supply chain disruptions during economic downturns in financial crises. Consequently, discussion should be extended to other exogenous events to fully understand their implications and potential strategies. This limitation highlights the need for further research to delineate the impacts of various external crises on firms and to examine their relationships with COVID-19.

#### **4.3 Findings from case study and relationship to BMI in DCs**

In this study, we use the case studies of three SMEs to examine three capabilities: (1) sensing external environmental conditions, (2) seizing opportunities by leveraging core competencies, and (3) utilizing crisis-induced moratoriums for organizational development. Ibarra et al. [15] concluded that SMEs’ ability to perceive customer needs through open innovation activities is crucial for BMI. Thus, SMEs need to interact closely with their customers to achieve a high level of BMI. In addition, our case studies indicate that, in the context of DCs, improving DC during an exogenous crisis can be achieved by strengthening internal employee efforts. Therefore, SMEs should focus not only on external customer relationships but also on reexamining their internal structures and employee development efforts to achieve a high level of BMI during such crises.

## **5 Conclusion**

### **5.1 Implications for SME management**

In crisis situations, SMEs should be adept at sensing and seizing external opportunities, a well-supported assertion in the existing literature. However, initiatives should focus on empowering employees to capitalize on internal opportunities and enhance organizational capabilities. This factor is particularly vital in SMEs, where the proximity of employees throughout the organization can facilitate rapid and effective responses. The utilization of crisis-induced moratoriums for transformation, a new finding of this study, offers significant managerial implications for SMEs in navigating DC and crisis scenarios.

## 5.2 Limitations and future developments of this study

The first limitation of this study is the small sample size, which restricts the generalizability of the findings, and the lack of a detailed decision-making process for strategic behavior. Consequently, the insights derived from this study may not be broadly applicable. This study indicates that the moratorium caused by COVID-19 has been effective in fostering the growth of SMEs. However, recovery efforts in the case of natural disasters, economic crises, and other exogenous crises are expected to differ. Therefore, the DC observed in this study may not be universally applicable. Future research should examine crisis situations with varied characteristics to identify a universal DC applicable during exogenous crises.

In future research, we aim to draw conclusions about DC influenced by the generalized impact of COVID-19 through an increased number of case studies involving SMEs. Moreover, this study lacks detailed case studies on the decision-making processes leading to strategic actions. While the case studies highlighted the actions taken, they did not detail the decision-making processes behind those actions. Future research should analyze DC by focusing on the decision-making processes that lead to strategic behavior.

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