# Agile Strategy Formation: Knowledge-Creation Capability for Entrepreneurial Success in Bio-Based Commodities

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**Abstract.** A firm's development path leads to a series of strategy formulations and implementations, or strategy formation cycles. In the face of inevitable changing circumstances, businesses should build the agility to properly arrange strategy formations to maintain performance. This study explores the significance of knowledge-creation capability to ensure effective adaptation when strategy adjustments become imperative. Adopting a conceptual framework developed from previous literature, the case of ChiliCo was examined to evaluate strategy formation circumstances that lead to effectiveness. Case analysis offered three propositions related with embedding knowledge-creation capability as antecedent to strategy formulation. Discussions presented in this article shows that knowledge creation is especially important during entrepreneurial strategy formation where the choice to capture opportunities and adjust the business determine value enhancements.

**Keywords:** Business Strategy, Entrepreneurship, Knowledge Management, Firm Adaptation, Performance.

## 1 Introduction

Changing circumstances surrounding a firm are inevitable. Similar to evolutionary biologists who presume all living creatures are products of successful adaptations, firm performance could also be observed based on how well companies adapt to the changing ecosystem. From the strategy process perspective, one cycle of adaptation constitutes strategy formulation followed by implementation. Consequently, firm growth entails selection and implementation of entrepreneurial strategies. As a firm develops, consistently good performance can be characterized by formulating and implementing strategies that lead to increasing value. A firm's development path subsequently leads to a series of strategy formulations and implementations, or strategy formation cycles.

Previous literature coined the term strategy formation to represent the stream of research studies related with strategy formulation-implementation and the changes that occurred during strategy process [1]. Although initially stemmed from Andrews' 1971 book [2] that distinguished between formulation and implementation phases of strategy process, strategy formation discussions should not be detached as managers must focus

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on both the external and internal factors [3]. There is a reciprocal relationship between the formulation-implementation phases, as firms go through cycles of strategy processes, which makes separation of the two irrelevant. Particularly when faced with a dynamic business environment, firms must able to navigate the phases appropriately to ensure strategy formations lead to positive outcomes. In the face of inevitable changing circumstances, businesses should build the agility to properly arrange strategy formations to maintain performance.

The purpose of this study is to investigate how ChiliCo, a cooking ingredient Small Medium Enterprise (SME) located in Bogor West Java, was able to maintain consistently good performance from the strategy formation perspective. As an SME that produces cooking ingredients made from various herbs, ChiliCo was considered to be an interesting subject due to its constant predisposition to external complexities attributed to seasonality of raw material, commodity price fluctuations and changing consumer demands. Specifically, the investigation adopts a novel approach to encompass the use of the Strategic Entrepreneurship (SE) lens with the inclusion of knowledge creation capability in strategy formation. While the SE lens was selected to be in alignment with business development studies, the knowledge creation component has been presumed to be the missing element in previous SME research. Considering the volatility of businesses that process bio-commodities, a study in entrepreneurial strategy formation would be most useful as SMEs are faced with intricate issues related with commodity cultivation, supply chain and environmental factors. Moreover, such circumstances constantly provide challenges where SMEs are required to appropriately adapt to safeguard competitiveness, which is a recurring problem that necessitates knowledge acquisition and learning. The urgency to explore the significance of knowledge creation in SME entrepreneurial endeavors is the underlying motive for this case study. This study explores the significance of knowledge creation capability to ensure effective adaptation when strategy adjustments become imperative.

### 1.1 Strategy Formation and Agility

Different with studies on strategy alignment, which posited the consistent strategy-structure-process arrangement is needed to attain performance in line with the changing environment [4], Strategy Formation studies are not directed at the formulation-implementation alignment but rather on the made-decisions throughout adaptation cycles [5]. Specifically, this study focuses on the internal organizational circumstances that lead to selected management decisions. How management perceive the environment determines the strategy formulation aimed at attaining competitive advantage [6] [7] and selected strategy, in turn, provides the premise for strategy implementation leading to the emergence of strategy [1]. Hence, the terms strategy formation appears to be more appropriate than strategy process considering the interdependency between formulation and implementation of strategy.

In particular, strategy formation to be discussed in this article relates to addressing agility. As business dynamics become increasingly challenging, strategy formations must include the necessary agility to allow firms to adjust accordingly. Previous studies prescribed business agility as a firm's ability to execute organization-wide modifications in the face of anticipated or unanticipated, internally or externally sourced, changes in a well and consistent manner [8] [9]. From the Business Model Innovation perspective, the term agility is defined as the ability of a firm to make swift and accurate adjustments to the business model so as to maintain effective performance [10]. Here, agility from the strategy formation perspective will be explored and can be observed when reflected in the consistently improving performance.

### 1.2 The Case of the Chili Spice Business

Fresh vegetables and herbs, such as lime leaf, basil, lemongrass, turmeric and others, are an integral part of the culinary arts in any society. In Indonesia, the culinary arts are quite unique where the development of food trends center on local food ingredients, fundamental to the traditional recipes. Chili is one of the most vital ingredients in many traditional dishes in Indonesia and consumption of spicy food is part of the day-to-day routine. For example, in West Java, culinary enthusiasts would understand the not-so-recent popularity surrounding particular street-food dishes as those that centers around a steamy, spicy and fiery broth, such as noodles, 'bakso' and 'seblak.' As a matter of fact, an array of thriving street food vendors has gained avid followers due to the use of Chili in the broth, sauce or 'sambal' included with the particular dishes. Food entrepreneurs have swiftly seized the opportunity for addressing the trending demand and spicy food businesses quickly became ubiquitous as many of them are able to generate millions of rupiahs of sales per month. The high interest and preferences for spicy food turned trends into lifestyle and evolved into the culinary culture we see today. As a result, there is an abundant use of Chili in not only for home-cooking meals but also in large volumes by food vendors when providing signature dishes to the customers. Unsurprisingly, there is a massive constant daily demand for chili in the markets while supply is subject to agricultural production, which may cause disparities and can lead to price fluctuations.

ChiliCo (a pseudo name used upon request of the shareholders for confidentiality purposes) has been making Chili-based products, including, Chili powders, Chili oils and chill flakes, that are used for the main cooking ingredients in many popular dishes found throughout West Java. Specifically, ChiliCo directly sells their products to the food vendors as they are able to produce high volume of products, at consistent quality and reasonable prices. This way, ChiliCo offers a solution for street food vendors who rely on affordable ingredients in order to sell at reasonable prices. To provide good quality at efficient costs, ChiliCo developed an appropriate processing facility to process any quality of chili that are available in the market. This requires careful considerations because supply of fresh chili predominantly depend on crop cultivation, harvesting and transportation, which lead to the fluctuations of the market price of fresh chili. Such conditions pose a threat to the consistency and continuation of production at ChiliCo.

This article intends to analyze the ChiliCo case in order to gain insights on how the Company is able to thrive despite the many complexities surrounding its products. Moreover, when faced with the options for developing growth, this author observed

ChiliCo's ability to discern signals from the noise when identifying opportunities to further advance the business. As a consequence, ChiliCo development appears to be initiated based on effective discernments that resulted in knowledge creation. Using the Strategic Entrepreneurship lens, this article analyzes how ChiliCo exceled by pursuing the right opportunities and simultaneously taking advantage of existing resources to leverage a strong positioning in the market. The ChiliCo case analysis will provide insights for other SMEs that struggles with the challenges revolved around bio-commodities as well as can offer a new perspective for any businesses undertaking entrepreneurial endeavors.

## 2 Literature Review

Literature review conducted for this study was aimed at building the foundations for the theoretical framework utilized in the case analysis. In particular, the fundamental theories underlying the prescribed framework consist of two main constructs, namely, Strategic Entrepreneurship (SE) and knowledge-creation capability. The following subsections intend to present relevant literature as the conceptual premise of this study so as to ensure consistent application of the concepts.

### 2.1 Strategic Entrepreneurship

In his seminal work, Schumpeter [11] defined entrepreneurs as the individuals who instigated innovations aimed at exploiting market opportunities through introduction of new products, processes or marketing initiatives. Although both entrepreneurship and strategic management are similarly concerned with the creation of growth and wealth, special interest in entrepreneurial behavior has promoted various studies in strategic management research [12]. The emergence of such concepts as hyper-competition, innovative, high-speed, aggressive, adaptive and flexible have characterized the state of today's business environment, which inspire scientific discussions on consolidating entrepreneurship and strategic management [13]. Nevertheless, the challenge lies in the distinguishable approaches to creating value. Strategic Entrepreneurship (SE) encompass exploiting current competitive advantages while exploring future innovations at the same time [14].

The framework of SE consists of four parts, entrepreneurial mindset, entrepreneurial culture and leadership, firm resources organized for opportunity-seeking and advantage-seeking, and applying creativity for innovation developments [15]. Challenges that arise with simultaneous management of opportunity-seeking and advantage seeking behaviors are beyond resource allocation considering the clear distinctions in operations, structure and culture between exploration and exploitation [14]. Firms implementing SE must balance between these two orientations of current and future competitive advantages. In particular, firms must understand the significance of identifying and exploring opportunities, while at the same time having the ability to leverage off knowledge and capabilities to exploit existing competitive advantage [16]. Based on the SE concept, strategy formation oriented towards business development was posited to consist of entrepreneurial strategy formulation and implementation.

### 2.2 Knowledge-Creation Capability

Previous studies showed evidence of the strong and positive relationships between information, knowledge and attitude [17]. Nonaka [18] prescribed that the source of a firm's competitive advantage centered on knowledge creation, where a knowledge-creating company is determined by its unique ability to manage acquisition, dissemination and embodiment of knowledge into new businesses. Creation of knowledge requires a process that entails Socialization-Externalization-Combination-Internalization called the SECI process [19]. A recent study by Rukmana and Widhianto [20], for example, concluded the effectiveness of applying the SECI Model in implementing a university's Knowledge Management System. Eminently important, knowledge creation is facilitated and fueled by information [21], which requires dynamic interactions between individuals as well as between individuals and the respective organizational environment [22]. Acquisition of information does not necessarily lead to organizational knowledge as creation require a process of information transformation through social interactions within the organization. Hence, although individual knowledge is embedded within each member, organizational knowledge does not appear instantaneously but rather involve conversion mechanisms and intermember interactions [5].

In a knowledge-creating entity, a "synthesis of thinking and actions" of the organization members through dynamic interactions remain the prevailing prerequisite for competitive advantage [23]. Consequently, effective knowledge creation entails a robust knowledge management process to be included in the inner-workings of firm operations. Through appropriate knowledge management process and enablers, firms would be able to use knowledge in order to optimize operations and attain performance [24]. Knowledge management mechanisms should include frequently scanning for various information at a timely manner in order to power organizational knowledge creation. Environmental scanning entails discerning signs and then properly processing the acquired information in order to accurately interpret reality [5]. Furthermore, in the face of changing circumstances requiring adjustments to align with environmental dynamics, firms must build adaptive capabilities by ensuring the mechanisms are in place for maintaining consistent use of knowledge [25]. Hence, knowledge-creation is essential in strategy formation and the necessary mechanisms would be most useful during formulation.

## 3 Methodology

Subsequent to the literature review, method of analysis employed in this case study can be divided into two parts. First is the formulation of the theoretical framework denoted as the Agile Strategy Formation to be used as the underlying model for case analysis. Second, qualitative data collection through in-depth interviews were conducted over the course of several months to include confirmations with respondents. Throughout the interview process, qualitative data was mapped back to the theoretical framework defined so as to structure analysis accordingly and formulate the propositions.

### 3.1 Theoretical Framework: Agile Strategy Formation

Adopting a framework developed from previous study, the case of ChiliCo was examined to evaluate strategy formation circumstances that lead to effectiveness. In Zubaedah [5], the article offered a conceptual framework for ensuring effectiveness in a new business development. The framework was developed based on two elements. First element is the strategy process framework defined by Chakravarthy et al. [1] that consisted of strategy formulation, or the organizational context, as the basis of strategy implementation, or the undertaken decisions-actions. In the strategy formulation portion, organization context include structure, planning, control, human resource management and incentive systems, and the informal organization portion consisting of values, norms, culture and leadership style. Second element is the addition of knowledge-creation capability as antecedent to strategy formation. Combining the two elements, this base conceptual framework posited the need for embedding a capability in the organization context by establishing the necessary information processing and conversion mechanisms necessary for organizational knowledge creation [5].

For this particular study, the previously developed strategy formation framework was adjusted to explore agility by incorporating SE. Specifically, adapting SE in strategy formation, requires incorporating both opportunity-seeking and advantage-seeking approaches in strategy formulation and implementation. As prescribed by Ireland and Webb [26], attributes of exploration and exploitation include operational, structural and cultural. Balancing operationally means utilizing broad and diverse knowledge as well as leveraging existing knowledge to existing markets; balancing structurally involves embedding flexibility and autonomy while at the same time have centralized hierarchies to facilitate focus and speed; and, finally, balancing culturally between experimenting and risk-taking with needs for certainty and commitment to focus [26]. These attributes can be implanted in the strategy formulation portion where decisions-actions in the implementation portion would consequently include those directed at opportunity-seeking and advantage-seeking behaviors.

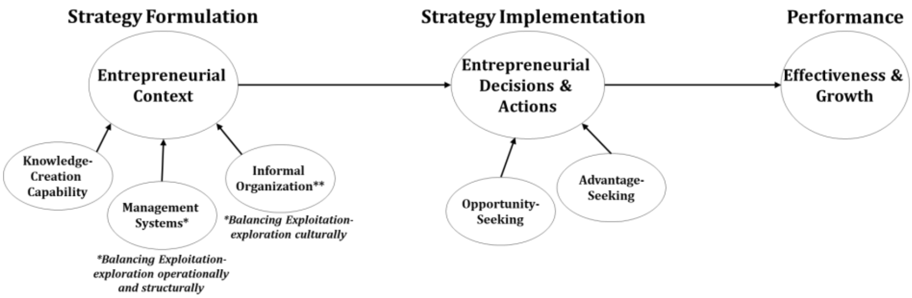


**Fig. 1.** Theoretical Framework: The Agile Strategy Formation Framework as Adapted from Zubaedah (2022)

Based on SE, the base conceptual framework previously conceived was adapted to accommodate agility. In other words, the theoretical framework used in this study incorporates agile components aimed for ensuring performance and simultaneously motivating growth. The agile formation framework includes entrepreneurial strategy formulation, followed by entrepreneurial strategy implementation, which prescribed to lead to effectiveness and growth. Particularly, strategy formulation is defined by the Entrepreneurial Context, which consists of Knowledge-Creation Capability, Management Systems (includes balancing exploration-exploitation operationally and structurally) and Informal Organization (includes balancing exploration-exploitation culturally), while strategy implementation is denoted as Entrepreneurial Decisions and Actions, which consists of Opportunity-seeking and Advantage-seeking elements. The theoretical framework used in this study is as presented in Figure 1.

### 3.2 Data Collection and Case Analysis

Method of analysis employed was the case study of a Small Medium Enterprise (SME) denoted in this article as ChiliCo. Data collection was conducted based on in-depth interviews with key executives of ChiliCo as well as with one of the co-founders and representative of the shareholders. Overall, a total of five members of management and one shareholder representative were interviewed over the course of January to March 2024. Based on a total of two site visits to Bogor, one online interview and one onsite interview, transcripts were documented in a memo form. Collected data was then codified into the constructs included with the prescribed theoretical framework to ensure consistency of applying the SE and knowledge creation concepts. All information has been confirmed with the respondents and analysis was further discussed to ensure thorough examination.

A case study method is deemed appropriate for this article considering the explorative nature of the investigation. The theoretical framework utilized for analysis was based on a conceptual examination and have not previously been investigated empirically. Such circumstances require further exploration and the case of ChiliCo would provide deeper insights. Moreover, in order to apply strategy formation theories, require contextual adaptations to allow for extending strategy formation to include both internal and external stakeholders as they are equally likely to be the source of strategy [27].

## 4 Analysis and Discussions

In the following sections, the evolution of strategy formation of ChiliCo is presented in sufficient details to provide a detailed descriptions of the Company's business and entrepreneurial initiatives. Through thick descriptions, the ChiliCo case will be analyzed using the Agile Strategy Formation framework previously discussed. This way, the case analysis provides explanations on the strategy formation necessary for agility. In particular, the ChiliCo case is directed for formulating prescriptions for ensuring effective adaptation for herb-based businesses.

### 4.1 Early Development of ChiliCo

In 2014, a group of students in a prominent University in Bogor, West Java, was assigned a project to develop a start-up related to agribusiness. At the time, the Professor suggested that the team observes the demand and supply of fresh chilis. This was considered as a follow-up of a chili cultivation project previously established in 2011 by another research team. In addition, around the time of the assignment, the price of red and green chilis were skyrocketing. This directly affects the production cost for street food vendors and customers were complaining as the quality of the food was perceived to be declining due to the reduction use of spicy chilis. The team recognized an opportunity to serve those vendors that sell chili-related products or dishes, offering a steady supply at stable prices. Close proximity from the chili buyers allows for efficient operational costs and, consequently, stable selling prices.

A simple business model was immediately constructed, to include planting quality chilis at available sites near the campus, with proper yet affordable cultivation facilities, to supply consistently good quality chilis and at steady quantity to the surrounding food vendors. One executive noted, "in addition to planting chilis at a site near campus, we had a lot of students to also plant chili in pots, at their dorms or where they lived, so as to have the operating costs as low as possible while ensuring good quality and quantity with the quality chili seeds." In addition to the university-owned planting site designated for chili planting, the students also engaged with other students to plant chilis in their homes, gardens or any space in the surrounding locations. Using planting pots, a technique known as "tabulampot" or planting fruits and vegetable plants in pots, a community of chili planters was established to ensure proper upkeep and in a controlled planting environment. The planting model resulted in good standard quality of harvested chilis at sufficient scale of production. Under the sales unit, students collected data on the buyers needs and arrange fresh chili deliveries to the vendors upon request. The management member in charge of marketing explains, "we did not have any trouble finding buyers for our fresh chilis, we just go around to food stalls and vendors around campus." As chili cultivation and harvest managed effectively through collaborations with the planting partners, the team quickly gained loyal customers in a considerable scale and attained profitable performance after only a short period of time.

After several planting cycles, the chili business was thriving with increasing number of customers and gaining strategic planting partners at larger sites. In 2016, ChiliCo was established as an SME legal entity under the guardian of another University-owned commercial entity. During one of the interview sessions, the shareholder representative noted, "by 2016 we had to ramp up production and operations had to be better organized due to the scale, so we established an SME legal entity as a subsidiary of an already established commodity company, and that's how we obtained the initial working capital." To support the establishment of ChiliCo, the team prepared a study in order to properly formulate strategic planning and estimate financial feasibility of the Company. Specifically, the team conducted a thorough environmental scanning in order to build financial projections and business development plans. Analysis on the collected information was directed towards not only determining decisions on the capacity and capability of production, but also in considering the option for producing added-value products. They included estimates on the investment expenses for back-office assets and operations, as well as design of the necessary structure and processes for venturing into chili processing. However, during this formulation stage, the team discovered facts that lead to a dramatic change in their business model.

As part of the environmental scanning exercise, ChiliCo surveyed the surrounding markets that provide fresh chilis. They discovered an interesting fact about chili consumption and buyers' behavior. Consumers who purchase chili from the markets consist of individuals (for own-consumption), food vendors or stall owners and restaurants. These customers always go to the markets for the freshest chili, considering the color, shape and, of course, spiciness. As a result, fresh chilis that are over 3 days old are mostly discarded, returned to the wholesalers or sold for very low prices. From ChiliCo's perspective, such circumstances opened the path of new opportunities to leapfrog production to a higher-volumed operations by sourcing unsold fresh chillis in addition to the already developing plantations. Based on the knowledge on the abundant chili availability, ChiliCo experimented to formulate processing methods and recipes for chili-based spices, beginning with chili powders and chili flakes. They conducted focused group discussions and surveyed different buyers to understand what chili-based spices were highly demanded. The investigation resulted in an optimal processing formula that ensures the output product is of the right color, structure, taste, aroma and spiciness. Moreover, ChiliCo determined up to five different chili powder products that vary in compositions, such as in the types of chillis, or added salt and other herbs, that result in end-products with variances in tastes, flavors and heat levels. A marketing officer explained, "we only started with chili-based cooking powder in various intensities and flavors, in accordance with the buyer's preferences, for example one buyer wanted spicy-salty only, while another preferred spicy-salty and a little sweet."

When shareholders were presented with ChiliCo's plans for expansion, there was no disagreement in selecting this new path for growth. ChiliCo was to maintain a limited size of planting operations and allocate more resources in establishing a large-scale processing facility to produce a range of chili-based products to supply a wide range of customers, located in the West Java area. To secure supply of chilis, ChiliCo developed a network of suppliers who acquired the unsold chilis from the surrounding the markets. "We didn't need to try too hard to look for wholesalers to sell the 'old' chilis to us at very cheap prices, they rather get some money out of the leftover fresh chilis than not get anything at all," explained the officer who interacts with chili suppliers. This way, ChiliCo ensures stable supply and also offers a sound solution for wholesalers to improve margins and eliminate waste. In addition, ChiliCo's wide range of chili-based products provide optimal solutions for affordable, high quality, cooking ingredients and allow food vendors to elevate their dishes as well as encouraged new food businesses to flourish. Given the high availability of chili-based cooking powder, the trending demand for spicy dishes lead to the rise of more food vendors that are able to offer spicy menu items at affordable prices.

Up to now, ChiliCo has continued to advance by processing more herb varieties and offering a wider range of product varieties. In addition to chili powder, ChiliCo also extended its processing capabilities to include making turmeric powder, lime leaf powder and additional variants of cooking powders. Moreover, ChiliCo expanded its distribution of cooking ingredients that were initially targeted at food vendors, cafes and restaurants, to also include end-consumers by developing a distribution channel through resellers who retail ChiliCo's products through online or offline stores. Several products have grown so popular that you can find a few variants available in e-commerce platforms, such as Tokopedia and Shoppee. While still focusing on its core competencies of processing herbs into cooking ingredients, ChiliCo expanded its network to build strong business alliances with suppliers, buyers and retailers. Currently, ChiliCo manages a 3-hectare area of processing facility in Tenjo, Bogor, 150 hectares of own-operated planting area in Jasinga, Bogor, and 350 hectares of planting areas that are spread out in West Java and Serang provinces, which are managed under partnerships with several sub-contractors.

## 4.2 Case Analysis: Propositions for Agility

Based on the narratives on ChiliCo strategy formation evolution, the case was further analyzed based on the Agile Strategy Formation framework previously defined. In the following discussions, analysis of the ChiliCo case is presented and organized based on the strategy formation phases. However, as previously mentioned, applying strategy process theories require considering both strategy formulation and implementation phases in parallel. Therefore, structure of the discussions will be interchanging between formulation and implementation phases when presenting arguments leading to the propositions. This way, the study allows for insights on attaining agility observed from the strategy formation perspective. Case analysis offered three propositions for embedding knowledge creation capability as antecedent to strategy formulation.

Since its initial start-up phase, ChiliCo selected strategies based on a set of studies. Selecting the chili business was founded on a complete comprehension of this vegetable, starting from determining the plant variant to be cultivated and sourcing the plant seeds to ramp-up planting scale. A member of the management team noted "we really started this business because we knew that chili price fluctuations made so many consumers especially MSMEs feel restless, chili planting was the easiest solution. We directly observed how homemakers had to omit the use of chilis and the fried food vendors (or "*gorengan*") had to reduce the amount of fresh chillis served. That's why our initial thought was to plant and sell fresh quality chilis at a reasonably stable price." From the very beginning, ChiliCo business model revolves around the value proposition of efficiency and consistency of supply.

Choosing the option to engage in the chili business were faced with implementing proper management systems necessary to organize cultivating, harvesting and selling fresh chilis. Effective systems were implemented both in the production as well as marketing and sales portions. The management team member who was in charge of marketing made a special note during the interview, "we always collect information from our surroundings and surveyed what chilis were used, how much at what level price. We always talk to the many MSMEs mainly food vendors that use a lot of chilis." Since the individuals involved come from similar background as university students, informal organization formed tend to orient towards making knowledgeable decisions rather than initiating businesses that are based on assumptions. Acquiring knowledge was initiated prior to establishing the necessary context to implement the fresh chili business. During this initial start-up, knowledge-creation capability allows for ChiliCo to adopt opportunity-seeking and advantage-seeking initiatives. In other words, ChiliCo's entrepreneurial context included knowledge-creating capability, management systems and the informal mechanisms oriented toward effective formulation.

*Proposition 1: Embedding knowledge-creation capability within strategy formulation allows for effective entrepreneurial strategy formulation.*

When the business came to the predicament of selecting the path for increasing production capacity, ChiliCo did not automatically fall back on previous business model of planting, harvesting and selling fresh chilis. Rather, they conducted a thorough analysis on the various options available in the market. In fact, ChiliCo extended their environmental scanning to include availability of chili in the public markets. All information was collected and then converted to knowledge necessary for directing resources to experiment with various chili processing techniques. The shareholder representative noted, "after some time, we were at the point of expanding our operations and initially we focused on expanding our planting, but then we noticed that more and more spicy food vendors are going viral. Also, we learned of the many unsold chilis at the fresh markets were processed into other products, like dried or grounded chilis. So, we thought, why don't we make processed chilis for the food vendors, but those that are really tasty and produced at good standards since we understand food commodity processing, and we started to interact with the micro-small businesses, studied what kind of ready-for-cooking spices would be suitable." Based on the basic knowledge on circular innovation, ChliCo saw the abundance of unsold fresh chilis in the market as an opportunity to come up with an alternative solution for the chili vendors, wholesalers and, also society. Through timely and accurate market studies, ChiliCo ensures strategy decisions were sound and based on credible information. This shows that ChiliCo, prior to proceeding with opportunity-seeking decisions-actions, have the internal organizational mechanisms appropriate for processing information and knowledge creation.

ChiliCo's decision to allocate resources to increase processing capacity rather than planting areas is another representation of strategy formulation based on knowledge. Updated information was consistently feed into the knowledge creation processes embedded in the organization context that allow for availability of most updated information as reference for making decisions. The shareholder representative interviewed made special emphasis, "we always study the market, talk to the food vendors, look at what's trending on social media and e-commerce before making any major, especially investment-related, decisions. Including when managing our processing operations, we would tirelessly do market tasting and experimenting, to ensure our products are in accordance with demand while applying 'food-grade' practices." Risks associated with redesigning the business model to include a large-scale chili processing capability were mitigated with the knowledge of the market demands that guided the product recipes. Organization internal mechanisms allowed for decisions on production capacity and processes to be defined by marketing insights collected from customer requirements. Moreover, the strong academic culture of ChiliCo's informal organization motivated discoveries of optimal chili processing methods, which result in implementation of effective production processes leading to good quality products. Again, ChiliCo demonstrated the ability to manage both opportunity-seeking and advantage-seeking orientations at the same time. Evidently, ChiliCo's strategy formulation leads to the decisions-actions relevant for implementation of strategy that balances exploration and exploitation. Decisions and actions carried out both explored new opportunities and exploited existing advantages, in line with ChiliCo's context, which able to ensure performance.

*Proposition 2: Simultaneously managing opportunity-seeking and advantage-seeking decisions-actions lead to effective performance.*

Initially opportunity-seeking decisions-action reflected in the selection of the initial business model design for cultivating and selling fresh chilis. During implementation, ChiliCo was simultaneously seeking advantages by selecting the seeds, planting techniques and product delivery appropriate for the adopted business model. Similar approach was evident in the consecutive opportunity-seeking decisions-actions of rearranging the business model to include large-scale processing. At the same time, ChiliCo demonstrated consistent advantage-seeking decision-actions when determining product formulas that drive facility design and capacity. Also, advantage-seeking decisions-actions were represented in the strengthening of the network of partners necessary for securing supply, which includes planting partners and wholesalers. Manager in charge of operations explained, "how we conduct operations, including our recipes and hygiene standards and so on, are under full direction of the leaders and in full coordination with marketing who communicates directly with the buyers. Our production team is always updated with the latest information and know-how." With complete knowledge of the market and industry, ChiliCo was able to implement the selected strategy and orchestrate the necessary resources to ensure effective performance.

Throughout adaptation cycles, ChliCo manages the reciprocity of formulation and implementation phases of its strategy formation. Decisions made in setting the organization context determine the decisions-actions implemented, and vice versa, implementations provided feedback for the knowledge creation process. ChiliCo's advantage-seeking decisions-actions by optimizing chili processing, provided the knowledge of the product recipes and guide the decisions on the equipment, facilities and processes that make good quality, large-scale, production possible. Special emphasis made by the shareholder representative, "we are always reviewing our performance and continuously improve production processes, constantly gaining feedback from our buyers and collect information about the chili supplies. With our extensive experience in commodity business, we are used to regular interactions with the buyers and suppliers who gave us insights on highly demanded products, and gave us more ideas to further enhance processing capabilities." In congruence with opportunity-seeking decisions-action in diversifying product variants, ChiliCo maintains advantage-seeking orientation by ensuring consistency and high-quality cooking powders. As a consequence, we can observe the increasingly good performance that ChiliCo has experienced.

*Proposition 3: Knowledge-creation capability constructs the entrepreneurial context necessary for strategy formation to obtain effectiveness and growth.*

The initial fresh chili business model effectively provided solutions that lead to the profitability necessary to elevate a university project into a 'real' business. Moreover, the knowledge-oriented strategy formation that ChiliCo employs provided guidelines on how the business should properly grow and evolve to the next level of operations. ChiliCo sought to further elevate its business and optimize the use of excess resources to invest in a new business model design. This shows agility where ChiliCo simultaneously manage existing while pursuing a new business model. Furthermore, agility is reflected in the fact that ChiliCo has been able to improve performance along its development path. Increasing value of the firm is apparent in the strong market share for cooking powders and the growing number of assets managed by ChiliCo.

## 5 Conclusions

Purposefully directing efforts toward developing agility is essential for SMEs, specifically those related with processing herbs. Heavy reliance on agricultural goods poses challenges related with consistency of raw material supply and fluctuating commodity prices. In addition, consumer preferences on fresh produce led to high amount of waste when products are available in abundance and unable to be fully absorbed by the market. Businesses need to find strategic solutions to resolve production cost issues while at the same time taking advantage of the excess raw material available in the market. To formulate appropriate solutions, firms can resort to the knowledge-based perspective and incorporate knowledge management processes within the organization. Discussions presented in this article shows that knowledge creation is especially important during entrepreneurial strategy formation where the choice to capture opportunities and adjust the business determine value enhancements.

Investigations on ChiliCo showed the significance of embedding knowledge creation in strategy formation, particularly within the organizational context. Positioning knowledge-creation capability as an antecedent enable forming the management systems and informal organization necessary for pursuing entrepreneurial ventures. Evidently, knowledge-creation capability facilitates the balancing of exploration-exploitation attributes in strategy formation. As knowledge-creation capability allows formation of entrepreneurial strategy formulation, simultaneously organizing opportunity-seeking and advantage-seeking decisions-actions can be implemented effectively. In line with the SE concept, ChiliCo exemplifies strategy formation appropriate for effective performance and consistently creating value. The resulted conceptual framework offers a solution for developing agility of bio-commodity businesses so as to overcome the inherent and complex challenges necessary for sustainability.

This study contributes to the various discourse related with growth strategy, innovation and adaptation literature as well as exploring sustainable solutions for herbs-based businesses. Limited scope of analysis in a single case study provides opportunities for analyzing more cases to observe relevancy of the agile strategy framework. The three propositions articulated allow for future empirical studies and require further academic scrutiny in order to ensure a robust framework for building agility. Other types of bio-commodity businesses can be examined to determine usability of the proposed agility strategy formation framework, such as, patchouli, cloves and other essential oils commodities with longer planting periods as well as more sensitive to volatile market prices. Empirical evidence is imperative to support the arguments presented in this article.

In addition, the propositions provided a reference for practitioners and aimed for guiding companies to navigate through turbulences by strengthening the organization and build agility. Placing emphasis on knowledge-creation capability is hoped to inspire managers to develop learning capabilities and instilling motivation for acquiring new-updated knowledge. Ultimately, this study offers a starting point for invoking willingness to persistently pursues new opportunities and promoting collaborations for continuous learning.

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