

**TURNING ECO-INVESTMENTS INTO SUSTAINABLE
COMPETITIVE ADVANTAGES: AN EXPLORATORY CASE
STUDY OF ECO-ORIENTED STARTUP****Ratna Pratama^{1*}, Sari Wahyuni²**^{1,2}Faculty of Economy and Business, University of Indonesia
Corresponding author: ratna.pratama@ui.ac.id**ABSTRACT**

Many studies have been conducted to understand eco-investment contribution on firms' competitive advantages but there are still limited studies about its effects on eco-oriented startups' competitive advantages. This qualitative study is written to explore more in detail on eco-oriented startups process in gaining sustained competitive advantages from their eco-investments. Using an existing conceptual framework for sustainability strategies, this single case study probes into a B corporation certified startup and found that eco-investments contribute to support the eco-oriented startup in gaining sustainable competitive advantages in multiple ways. The process can be categorized in to three stages. First, eco-investments improve attractiveness of the company in eyes of investors and improve the likelihood to get funding from multiple funding sources. Second, eco-investments improve job satisfaction, motivation and employees' sense of belonging. Lastly, eco-investments and eco-innovation support the company in executing eco-branding and beyond compliance leadership strategies but without sustainable value innovation, the startup can only achieve temporary competitive advantages not sustainable competitive advantages. The findings presented here may help startup founders and other business practitioners, especially those who are responsible in creating business strategy, to evaluate their eco-investment decisions based on the company's resources and capability in order to obtain sustainable competitive advantages.

Keywords: *Eco-investment, Eco-orientation, Startup, Competitive Advantages, B Corporation.*

1. Introduction

Corporate socialism and environmentalism are becoming an increasingly popular conversation topic among top business leaders as well as academic communities. Initially studies were conducted to understand how corporate social responsibility impact on return on equity (Aguinis & Glavas, 2012; Eccles et al., 2014; Inderst et al., 2012). Corporate socialism, environmentalism and the triple bottom line framework are presented as a process to achieve sustainable development which is defined as development that meets the needs of the present without compromising the ability of the future generations to meet their own needs (Brundtland, 1987). In his book, Orsato (2009) proposes two sustainable strategies that focus on environmental responsibility. Multiple studies have shown environment investment implication on firms' competitive advantages. Firms develop green strategies not only to reduce environmental impacts, they are also able to achieve economic benefits and competitiveness both internally and across the value chain with different implication in terms of bargaining power and value appropriation (De Marchi et al., 2013).

Another study also claim that business can gain a competitive edge through innovative compliance strategies given greater flexibility in structure and focus of environmental regulation (Bonifant et al., 1995). These potentials to obtain competitive advantages and pressure for business to contribute to sustainable development goals has resulted in numerous opportunities to renovate business models towards sustainability. Some main approaches to achieve industrial sustainability includes industrial ecology model (Graedel, 1996), Cradle-to-cradle (Braungart & McDonough, 2002), natural step (Robert, 2002), sustainability by design (Ehrenfeld, 2009), natural capitalism model (Lovins et al., 2007), cleaner production (Fresner & Yacooub, 2006), eco-innovation, and corporate social responsibility. Globally, many startups has been born out of sustainability development ideals in the past 10 to 20 years. European environment agency (n.d.) categorized those companies as eco-industry. Eco-industries develop technologies and offer products and services that reduce environmental risk and minimize pollution. Eco-industry can include many other conventional industries like automotive, food, manufacturing and service but with a renewed business model. In the UK, the market for ethically and sustainably sourced goods was worth £ 41 billion in 2019. This value having been risen almost fourfold within 20 years (Close, 2021). In the US, New York-based Nielsen forecasts the market for sustainable fast-moving consumer goods to reach somewhere between \$142.4 billion and \$150.1 billion by 2021 (Gelski, 2019). In Indonesia, movement towards sustainable products also visible. According to a World Economy Forum article, there is a 24% increase of Indonesian online searches for sustainable goods over the past five years (Close, 2021). This case study research explore business journey and performance of an Indonesian eco-oriented startup, MYCL. The business main activity is in manufacturing mushroom-based material such as non-animal leather alternative and construction board. The market for environmentally friendly product in Indonesia is increasing, yet, no non-animal leather alternative producer exists in Indonesia other than MYCL.

The past research papers have been providing some understanding on how competitive advantages can be obtained by companies with and without sustainability approach. However, there are less information can be found about eco-investment implication on eco-oriented startups' competitive advantage. The aim of this paper is to provide a critical analysis on how eco-oriented startups can turn eco-investment into sustainable competitive advantages. Many researches have studied about the return on eco-investments and tried to explain how the investments can help businesses build sustainable competitive advantages through sustainable strategies. However, since the natures of startup and mature company are different, there is a need to understand eco-investment implication on competitive advantage at this specific business stage. The findings of this study can further emphasis the value of eco-investments thus convinced more startup businesses to make such investment that have both public and private benefits. This exploratory single case study research has three objectives. First, the author hopes to understand how eco-investment plays a role in building eco-oriented startups' sustainable competitive advantages. Second, this research is designed to determine the necessary resources and capabilities that an eco-oriented company need to survive and how the resources and capability eventually build sustained competitive advantages. Finally, the author wishes to present an exemplary study to provide rationale on the return on eco-investment by explaining how eco-investment support eco-oriented startups in gaining sustainable competitive advantages. The author hopes this research may benefit readers in several ways; For readers in their entrepreneurial journey or management position, this research offers elaborate understanding of eco-investment transformation to sustainable competitive advantages. Therefore, may provide readers with guideline and direction to run their eco-oriented businesses. For investors, this research is hoped to provide more information that can help them to understand sustainability-oriented startups and as the result can help them to effectively assess the business potentials for potential investment decision. For academics, this research can be a valuable addition to the literature on entrepreneurial study and sustainability-oriented business. The author hopes to inspire more academics to continue this research topic in attempt to provide better understanding of sustainability oriented entrepreneurial journey.

2. Literature Review

Eco-investment

Despite of the common usage of the word, there has been no single agreed definition of eco-investment. The word has been consistently used to describe investment(s) made by organizations to achieve sustainability goals. You et al. (2019) describe eco-investment as an investment in technologies treating, preventing and controlling environmental pollution generated during the firm's production processes which include sewage expenditure, environmental protection facility expenditures, environmental protection technology expenditures, working environment compensation expenditures, restorative environmental

protection expenditures, preventive expenditures, and special environmental expenses. Multiple other words and phrases have been used by scholars and professionals to describe similar meaning such as green investment and socially responsible investment. The word eco-investment present in the study of environmental regulation impact on Chinese industrial companies' eco-innovation by You et al (2019). The study shows that eco-investment, eco-innovation and eco-planning innovation are influenced by China fiscal system, political promotion system, and environmental regulation. Eco-investment and eco-innovation are used differently and not interchangeably. Eco-investment is more of an input where eco-innovation is the output of the investment (van Leeuwen & Mohnen, 2017). The same researchers categorize eco-investments into three types. *First*, Eco-R&D which means that R&D expenditure aimed at green products or technologies. *Second*, end-of-pipe investment that reduce pollution but do not significantly change the production process. *Lastly*, process integrated investment that aimed at lowering pollution and fundamentally change production process. In their empirical research, they combine the concept of eco-investment with eco-innovation outputs (pollution-reducing and resource saving) to further explain the outcome of the investment. Align with the studies on Chinese industrial companies, van Leeuwen & Mohnen's research found that there is a significant positive contribution of existing or anticipated Environmental Regulation on eco-innovations, directly and indirectly via their positive effect on eco-investments that in turn boost the propensity of introducing environmental innovations.

Resource and Capability

Resource can be categorized into tangible and intangible. Tangible resources of a business are physical assets such as cash, building, raw material, and employee. Intangible resources of a business are assets that does not have physical forms such as intellectual property and technical knowhows. Resources can lie dormant and idle until they are needed and can be defined independently of their use (Grant, 1991). Resources must be utilized and coupled with organization capability. The capability is focus on the way in which resources are used. It represents a distinctive and superior way of deploying, allocating and coordinating resources (Amit & Schoemaker, 1993; Cavusgil et al., 2007; Schreyögg & Kliesch-Eberl, 2007). Organization capabilities are firm specific, emerge gradually over time, tacit, path dependent, influenced by a firm's history and actions of its decision makers and empirically validated through their application to problems face by a firm (Wu et al., 2010). Operational capabilities are often difficult to identify because of its close connectivity with operational practices. Therefore to better identify firm's operational capabilities, this research use definition distinction of emergent five operational capabilities proposed by Wu et al. (2010). Resource based view (RBV) basically show that a firm can enjoy a competitive advantage by acquiring and leveraging a bundle of valuable resources. In the ever-changing market situation, RBV itself cannot explain how valuable resources can be renewed and help the firm to maintain superior cash flows in the future. Therefore, the theory must be coupled with dynamic capability theory to explain how firms's advantages are sustained over time (Ambrosini & Bowman, 2009). The nature of dynamic capabilities is still subjected to debate. Multiple different journal explain dynamic capabilities in multiple different ways (Ellonen et al., 2011; Li & Liu, 2014; Pandza & Holt, 2007; Pavlou & El Sawy, 2011; Protogerou et al., 2012; Verona, 2003; Wang et al., 2015; Wilhelm et al., 2015). In a study of Iranian Consulting Firm, Seyed Kalali & Heidari (2016) found multiple different capabilities that form a dynamic capability: 1) Meta-capabilities which allows a firm to systematically identify and respond to challenges caused by market changes by performing 1a) exploring capabilities in identifying customer needs and competitive dynamics, 1b) Capturing capabilities by which the company able to developed alternatives and find the best solution, and 1c) Changing/transforming capabilities which is required to implement the developed solutions. 2) Changed operational capabilities which comprise of 2a) changed marketing capabilities and 2b) changed technological capabilities. Lastly, 3) Trust-building capabilities which is the ability to exhibit special behaviors which could win the trust of clients. Operational capability is highly connected with dynamic capability. In fact, Wu et al. (2010) operational reconfiguration definition is actually defining dynamic capability.

Sustained Competitive Advantage

A study using RBV approach shows that environmentally oriented and innovative company is most likely to develop eco-capability that is positively related to two strategic outcomes: market and financial performance (Gabler et al., 2015). The relationship between resources, capabilities and competitive advantage in strategy formulation can be understand by assessing resources and capabilities' four

characteristics: durability, transparency, transferability and replicability (Grant, 1991). Multiple studies have used resource-based approach to explained how sustainability could influence firms' performance (Arevalo et al., 2011; McWilliams & Siegel, 2011). Sustainability values through eco-investment could guide the company to achieve competitive advantage and improve business performance via enhancing differentiation, building barriers to entry or increasing brand value (McWilliams & Siegel, 2011). According to Barney (1991; 1995), a resource can be source of sustained competitive advantage if and only if it responds to the four attributes he named as valuable, rare, inimitable (imperfectly imitable) and organized (organizationally embedded). If resources and capabilities involved in the strategy are not rare or imitable easily, the strategy is only a source of competitive parity (Figure 2.1), as the resources and capabilities of the organization only allow it to reach an average rate of profit within the industry.

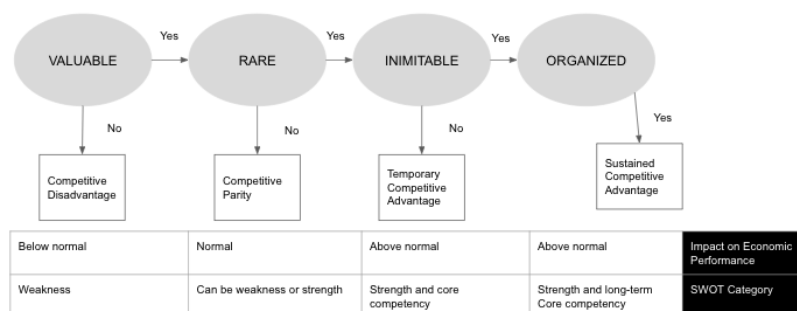


Figure 1. Resource-based Analysis based on VRIO Framework
(Source: Adapted from Resource-based Analysis Barney (1991; 1995))

Competitive Environmental Strategies and Sustainable Value

The management of environment-related costs and risks are part of operational effectiveness that is unavoidable – it is an important task for the success of companies. However, management of environment-related costs and risks does not automatically transformable into sustainability strategies. In order to create such strategies, executives or managers need to identify how companies can be different by making specific choices about the eco-investments (Orsato, 2009). Competitive advantage is obtained by the creation of a unique and valuable position, involving a different set of activities masterfully planned in a form of strategies. Orsato concept of building competitive advantage through sustainability strategies is born from these two frameworks: competitive environmental strategy (CES) – eco-efficiency, beyond compliance leadership, eco-branding and environmental cost leadership – and sustainable value innovation (SVI). Particular conditions favor firms to transform eco-investment into profitable business opportunities before eventually transform it into sources of competitive advantage. CES involves particular sets of proactive decision and action with sustainability goals beyond compliance behaviour. Eco-Efficiency is an instrument for sustainability analysis which indicate an empirical relation in economic activities between environmental cost/value and environmental impact (Huppes & Ishikawa, 2005). The efficiency can be achieved by process optimization, substitution and/or reduction of material used in a product (Orsato, 2009). Ehrenfeld (2005) summarizes that eco-efficiency calculation can be applied to choose among alternative processes and products, evaluate performance of a company or other organization entity and evaluate the performance of a country, region or other macro entity. He believed that increase in eco-efficiency should not be offset by larger increases in total output in order to have positive change toward sustainability. Beyond Compliance Leadership is a strategy to build positive reputation by increasing stakeholder dialogue and engagement and reputational risk is maintained by adopting safer industrial process and reducing the use of substantial resources. According to Orsato (2009), the rationale of complying to green standards is to maintain minimum reputational risk and build positive reputation. Other benefit of participating in voluntary environmental program are perceived regulatory approval or endorsement, increase ability to respond to market pressures with environmental information, additional access to technical information or advice from the program, differentiate a company from the competition and increase revenue from either customer growth or ability to demand higher price – green premium (Fletcher, 2006). Eco-branding is more than using eco-oriented marketing strategies to promote the product.

Historical data suggest that ecological differentiation tends to be restricted to relatively small market niches. Eco-differentiation needs to present lower environmental impacts than similar products while satisfying all other requirements such as quality, convenience and aesthetics. One of the ways of making this eco-differentiation is through eco-labeling. Eco-labels are certification given to a company as a proof that the product already meet the standards while Green Clubs, such as B Corp and ISO 14001, are certification given to a company as a proof of process standard compliance (Orsato, 2009). Environmental Cost Leadership is about developing products that present both reduced cost and environmental impacts by deploying innovative designs, alternative materials or marketing the products in different manner (Orsato, 2009). Henri et al (2014) claim that environmental cost reflect two aspects 1) executional which aimed at managing, controlling and optimizing costs for a given environmental strategy 2) structural which based on their influence on the firm’s cost structure in terms of product design, raw material and operational design. Their research found that there is a positive and significant association between financial performance and 1) tracking of environmental cost 2) implementation of environmental initiatives. The tracking of environmental cost indirectly influences financial performance through the implementation of environmental initiatives. *Sustainable Value Innovation* strategy concept is explained by Orsato (2009) by dissecting multiple automobile company cases. He explained that in order for a company to achieve sustainable value innovation, the organization have to bypass competition altogether via blue ocean strategies – redefining the value proposition for customers, create value innovation, and offering differentiated products or services at low prices. He believes by presenting a unique value proposition, companies can reduce both economic costs and environmental impacts, while generating value for both customers and society as a whole. This case study research has three main research stages. The *first* stage is to understand relationship between research variable RES (resource) and CAP (capability). *Second* stage is to integrate understanding of the two variables into (1) competitive advantage analysis using VRIO framework and (2) sustainability strategies should there be any eco-investment made by the company that leads into the execution of any sustainability strategies proposed by Orsato. *Third* stage is to understand eco-investment involvement in the first and second research stage. The proposed conceptual model (Figure 2.2) for this research implies that resources and capabilities are affecting each other. When there is eco-investment involve in the business, resources and capabilities can be utilized into the creation of sustainability strategies. The two types of sustainability strategies are 1) competitive environmental strategies which can be achieved from delivery of eco-efficiency, beyond compliance leadership, eco-branding and environmental cost leadership and 2) sustainable value innovation. The model proposed that sustained competitive advantage can be achieved through the application of both type of sustainability strategies.

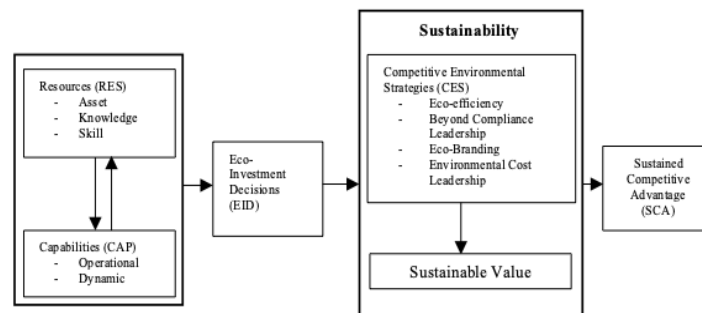


Figure 2. Proposed conceptual model integrating theory

3. Research Method

Exploratory case study approach is the most appropriate research method as it allows researcher to (1) cover contextual conditions that are relevant to the phenomenon under study; (2) investigate ongoing occurrence when the boundaries between phenomenon and contexts are not clear; (3) discover the answer to “how”, “what” and “why” questions; and (4) observe and find potential causal relationship among the variables without manipulating the behaviour of those involved in the study (Yin, 2003). In this research, the case is the organization strategy to transform eco-investment into sustainable competitive advantage. This study investigates MYCL (PT Miko Bahtara Nusantara), an Indonesian eco-oriented startup that is incorporated in 2015. The company is a B Corporation certified. The certification and the years of existence become

selection criteria for this single case study in addition to the company willingness to co-operate during the research process. Selecting B Corporation certified company guaranteed that the company has at least one type of eco-investment as B Corporation voluntary self-audit itself, is a form of eco-investment. Data in the case studies are obtained from video-call interviews, telephone interviews, questionnaires, annual reports, company internal documents (with permissions) and online information. The author conducted semi-structured interviews since she already has particular ideas about the variable of the research. Interviews was conducted with MYCL CEO (150 minutes), COO (160 minutes) and CSO (230 minutes). A questionnaire on employee job satisfaction was given to the participant to further strengthen findings from interview data. In order to address reliability the author used case study protocol to present how the entire case study was conducted, case study database, and undisclosed the name of the organization as the subject of this research. The author also provide detail description of the content domain, giving definition of the target participant and criteria of interview participant, conduct source triangulation and data triangulation (Yin, 1994). Collected data is analysed following the data analysis process steps proposed by Bazeley (2013). The data analysis process can be categorized and ordered into eight steps. *First*, reading, reflecting and connecting data gathered from interviews, surveys and other secondary documents. Author should record analytic thoughts as they arise to provide sharp enlightening insight or what it is called by Miles & Huberman (1994) as 'little conceptual epiphanies'. *Second*, coding the information according to the principle. According to Bazeley (2013), "Coding provides a means of purposefully managing, locating, identifying, sifting, sorting, and quarrying data. It is not a mechanistic, data reduction process, but rather one designed to stimulate and facilitate analysis.". This research does not use NVivo program to process the data. The author processes the data manually through structured record keeping and organized data mapping. Code enables the author to easily group and re-group findings without missing any information from the data gathering process. *Third*, naming, organizing and refining codes. Naming or labeling reflects the kind of codes the author create and it impacts on subsequent accessibility of evidence needed to support an argument (Bazeley, 2013). This research data processing is limited in flexibility to merge, split, rearrange and recode coded material as the author process the data manually without any qualitative data processing program. *Fourth*, describing, evolving and theorizing concepts. Providing description in qualitative research is important because of the following roles it performs (Bazeley, 2013). *Fifth*, conduct comparative analyses. This step guides the author to refine the analyses further such as by finding similarities and differences and considering opposite and extremes. This step is especially useful in determining sustainable competitive advantage built from eco-investment and those that are not. *Sixth*, develop relational analysis. In this step, patterns are identified through cross-cases analysis, pattern analysis and proximity analyses. As suggested by (Bazeley, 2013), visualizing patterned relationship will be conducted by construction of maps, plots and models. *Seventh*, develop explanatory model or theory and coherent understanding. Coherence through description: rich description and interpretive description. *Last*, disclose issues of quality and significance. This last step of analyzing the data is important to determine the degree of research sophistication.

4. Results and Discussion

Financial Capital (Asset): Cash and cash equivalents are the most important asset especially for a new venture. As an early stage start-up, MYCL is in need of more financial capital to keep their engine going. The success of bringing their product from laboratory and pilot scale production to commercial scale production is heavily depended on financial support. Eco-oriented startup such as MYCL required asset-heavy investments and the product development may take a while since core products of the company are based on biotechnological research and innovation. Consequently, liquid capital become MYCL valuable, rare, inimitable and organized resource. During the interview sessions, the three founders shared that there might be a couple local business that also works on non-animal leather alternatives, however, they are significantly smaller in size and in capital therefore they are not a comparable competitors to MYCL. Businesses that need asset-heavy investments raise concern for potential investors (Nigam et al., 2021), especially for those that rely on quick return of investment (ROI). This type of startup might not be attractive if assessed by its historical financial performance. Accounting information is useful for investor but should not be used solely because there are many other variables that may attributed to startup success such as quality of the founder and management team, the attractiveness of the industry and product differentiation (Fuertes-Callén et al., 2020). The success of sustainable business format can be supported if capitalists can help mitigate financial risk through co-investment and balance financial return with social and environmental returns (Bocken, 2015). VCs that have sustainability values understand how to balance

financial return with social and environmental return. Unlike other VCs in general, sustainable venture capitalists usually assess startups' business model innovation, ability to collaborate and business case (Bocken, 2015). VCs usually are actively looking for high-potential ventures that fit their portfolio profile. A company can be contacted first by VCs or the company can choose to be more pro-active by listing all of the potential VCs and contacted them systematically. MYCL has been in contact with multiple local and international VCs. On the other hand, incubators and accelerators usually require companies to voluntarily apply for their program instead of contacting them to apply. In the 2018, MYCL received 6 figures USD from an early-stage startup accelerator, 500 Startups. The amount was used to continue MYLEA development and piloting projects. Compare to VCs, Corporate venture funds (CVF) usually connects startups value with the CVF's parent company's agenda. The agenda can be about completing the company's CSR program or obtaining financial gain in the form of stock ownership or integration. MYCL has been in contact with multiple multinational corporation that have the CVF program. Although indication might exist, there is no clear evidence from the interview result that connects eco-investment directly with the decision of CVF to make investment in MYCL. On March 8th 2019, MYCL work with Pala to start a Kickstarter campaign. Kickstarter is a crowdfunding platform based in the United States of America. Multiple researches have studied this financing program and its effectiveness in funding entrepreneurial projects. Crowdfunding can be an effective financing program since backers of the campaign are not solely motivated by financial gain. They selected projects based on their intention to support causes they care for that are delivered with the project (Belleflamme et al., 2012; Gerber & Hui, 2013). MYCL and Pala are both based in Indonesia where there is only so limited institution or organization that incline to financially support environmental sustainability projects, therefore, crowdfunding was being considered (Butticè et al., 2019). The funds collected from backers were enough to finance the application of MYLEA material on watch strap, journal, card holder and pouch. The presence of 123 backers also become an evidence of early product acceptance. In attempts to secure more funding, MYCL has also joined multiple grant awards and special-intention accelerator programs such as, respectively, DBS Foundation Grant Program and Third Derivative. The climate tech accelerator is a joint venture of RMI and New Energy Nexus as a form of syndicate of investors which is positively affect venture capitalist financing decision (Nigam et al., 2021). Unlike general incubator and accelerator companies, eco-investment might actually have some direct effects on the program acceptance. MYCL has gained exposure and earned new connection by joining multiple financing programs. The company has built network and reputation that further strengthen the company's relational capital which further attract new investors. The relationship between relational capital and investors attractiveness is mutualistic. The two variables reinforce each other. A study of Spanish companies shows that company's eco-investment decision in starting eco-innovative projects and company's internal management of eco-innovation is highly influenced by financial resources (Scarpellini et al., 2018). MYCL would face significant challenges to increase its MYLEA production from 2,000 sqft produced in lab to 25,000 sqft without successful Series A fundraising. This scale-up is an important factor of the company success since without this scale-up, the company cannot fulfil orders from brand partners and cannot provide products in consistent quality within reasonable price.

Human Capital (Knowledge and Skill): is the second most important asset in a startup after cash and cash equivalents. MYCL founders and team possession of scientific thinking and research skill is valuable, rare, inimitable and organized. Despite of the presence of other companies that are working on mycelium-based leather, the technology development of each mycelium-based leather is different. The development of the technology really relies on the knowledge and skill of the team that is shown to be improved by the team motivation and commitment to sustainability. As a new venture, there are not much information related to the business performance that can be used to assess the business potential. As the result, most investors usually assess the founder(s) of the venture to see the business potential. Founder(s)' knowledge and skill become two important selling point in securing funding. This research found that angel investors are interested in MYCL's environmental values and commitments which were born from the co-founders own values and motivations. Not only that environment values and commitments contribute to the success of acquiring funds, founder's level of motivation, education and experience is related positively to venture performance (Peña, 2002). Structural Capital (Knowledge): Intellectual properties such as patents and trademarks is a legally protected form of structural capital which refers to the organizational knowledge embedded in business process and procedures (Nigam et al., 2021). MYCL's two WIPO patent contribute to the development of competitive advantage since it is valuable, rare, inimitable and organized. The patents are resulted from research collaboration with LIPI, an Indonesian R&D centre. This collaboration between firms and R&D centre demonstrate process efficiency (Scarpellini et al., 2017). MYCL made eco-

investments for conducting research and resulted in patented eco-innovative products. Company's structural capital directly affects the likelihood to receive investment especially from those investors that assess the company not only from financial performance. Operational Capability: Based on the interview, the author found operational capabilities that may support MYCL to achieve sustainable competitive advantage in the future. The capabilities are explained in six taxonomy of emergent operational capabilities. Improvement: MYCL methodically collect production information and successfully identify 200 variables that contribute to production defects and inefficiency. The company used the information to make improvement to its production process systematically. Innovation: MYCL continuously have product development project with brand partner to explore application of MYLEA materials; MYCL continuous R&D provide the company with various mycelium based bio-tech products that are currently still in development (thus not mentioned in this paper); MYCL continuous trials in search of MYLEA raw materials which is sourced from agricultural waste. Customization: MYCL production record was initially manually recorded on a piece of paper. The company is in the process to transfer the activity to an internally developed computerized dashboard. Initially the production record was manually recorded in order to understand what are the important parameters to be collected and recorded. Cooperation: MYCL maintains positive work culture where employees are welcome to share their aspiration and suggestion related to performance improvements; MYCL maintain close communication with the local mushroom farmers, local production workers who are living nearby the factory, raw material suppliers and brand partners. Responsiveness: R&D team research multiple different raw materials so MYLEA can be produced based on the seasonal availability of the raw material; Product application of MYLEA is adjusted to the consumer trends. Reconfiguration: MYCL was initially not focused on the development of MYLEA. The company first started with the development of BIOBO until the founders realize that the market is more readily available for mycelium-based leather; MYCL make some HR management adjustment as a response to the pandemic situation where workers are recommended to work from home when possible. The company incentivize the worker to check in and check out by transferring their lunch benefit in the form of money. The company also already utilizes an HRM software and apps. Dynamic Capability: *Based* on the interview with the three cofounders, strategic resilience has been shown throughout the establishment of the business. MYCL has been continuously making changes without triggered by crisis and has been taking action before it is a final necessity (Koronis & Ponis, 2018). Those changes include pivoting product focus from BIOBO to MYLEA and adoption of B2B2C marketing strategy in its launch stage of business life cycle. People resilience in terms of the ability of employee and co-founders to remain loyal and operational (Koronis & Ponis, 2018) also proven to be existed in the business. In addition, another dynamic capability that is fundamental in MYCL success is technological capability. MYCL co-founder's innovation capacity can be assessed from their journey developing MYLEA. The company was not initially focused on the development of this product. This product is a derivative product of BIOBO but the founding team successfully identify market demand in non-animal leather and bring their idea of creating mycelium-based leather into a concrete product. MYCL co-founders' journey from establishing mushroom growing kit to become high tech biotechnology company that produce mycelium-based leather is an evidence of eco-innovation that is born from co-founder attitude and commitment towards environment and their technological capability. MYCL's technology capability, strategic and people resilience are valuable, rare, inimitable and organized.

In this discussion, eco-investment can be defined as the firm's investment to address environmental issues such as by preventing, controlling or reducing negative environmental impact. Whereas eco-innovation is the concrete manifestation of the investments in the form of products or processes, therefore, not all eco-investment results in eco-innovation. MYCL has been making many eco-investment decisions during its existence. *First*, the company invest in money and time to have an impact measurement assessment. One of the impact measurement done by MYCL is greenhouse gas (GHG) emission evaluation. The Decorum Group GHG emission report shows that MYCL is estimated to produce 34.20 tons of CO₂ equivalent excluding indirect emission that falls into category scope 3. In total of direct emission (Scope 1) and indirect emission that falls into category scope 2, electricity contributes most of the emission (88.02%) followed by claimed fuels for company cars (10.45%), LPG (0.97%) and refrigerants (0.56%). Scope 3 emissions such as waste, wastewater and business travel contribute to 7,190.97 tons CO₂-e, 95.46% of it comes from business travel, 4.54% from wastewater and 0.01% from waste. The result from this report help the company to understand environmental impact resulted from its business operation. In addition to GHG assessment, the company also conducted study on its product impact to show how replacing cow leather with mycelium based leather make positive impact to the environment, for instance, MYLEA landyard

wallet saves 1.8 kg of CO₂ and 30,978 litres of water. While the products and the process of developing the products are forms of eco-innovations, the study is not. The study is a form of eco-investment due to the fact utilization of resources and capabilities to conduct this study only produce data or information that can be used to measure environmental impact and further support the product, but do not produce a set of process or product that improve the environment – which is the definition of eco-innovation. In the eye of potential investors, employees and customers, the study shows how serious MYCL living its commitments and values. *Second*, the firm continuously making attempt to reduce waste generated from its production process and some of this attempt actually become a base of innovation. For instance, the company sell their waste as compost to the nearby farmers consortium and work with third party, Plastavfall, to process its waste from the growth medium into liquid and solid fertilizer. This collaboration with Plastavfall also shows some relational capital at downstream level. The more partnership and collaboration MYCL have, the more people are aware of the brand. In addition, BIOBO products are currently made using growth medium waste from the production of MYLEA. The company is adopting circular economy concept in their production process. In the long run, if the company manage to survive and optimize their production, it can reach eco-efficiency and eventually achieve environmental cost leadership. *Third*, the company join multiple social- and environment-related certification program such as B Corporation Certification and WRI's SBTi to further improve their sustainability approach. This is count as investment since getting this type of certification usually time-consuming and cost a certain amount of money for the application fee. MYCL apply B Corporation Certified logo in most of their presentation decks. This decision has increase the attractiveness of the company in the eyes of potential investors and partners as it shows the company effort to live in their values and reach the committed environmental goals. *Fourth*, and most importantly, their eco-innovation products MYLEA and BIOBO were born from multiple eco-investment decisions. MYCL founders continuously study the potential of mycelium applications and continuously look for a more productive production process. In their attempt to do so, the team found multiple mycelium applications. The author current findings show that multiple eco-investment decisions will lead a company to create more eco-innovations given enough financial and human capital. More patents and valuable know-hows will be generated with more eco-investments. Survey on 14 employees shows that employees are proud to work in a company that have environmental values and commitments. Company's values and commitments make them feel happy with the job, motivated to participated in growing the business, and more belonged in the company. Leaders such as the founders' vision in starting this eco-oriented start up effect employee attitude and eco-investments made such as by conducting impact assessment and undergone B corp certification, became visible form of their vision. Based on the study of Mexico's hospitality industry, sustainability related projects or transformation requires leaders to have genuine commitment and orientation to sustainability to influence employees' attitudes and behavior. Most importantly to motivate the team so they can stay committed into realization of the company sustainability goals (Gutiérrez-Martínez & Duhamel, 2019). Therefore, eco-investment decision here is playing a role as a concrete form of leadership commitment to sustainability that further motivate employees to perform their best. Motivated workforce projects positive attitude and as the result they become more resilience.

Eco-innovation: As concrete manifestation of eco-investments, MYCL eco-innovations has been supporting the company to obtain funds from grants and a crowdfunding project. This eco-innovation cannot bear without eco-investment and more eco-investment decision must be made as eco-innovation matures. As written in the previous section, not all eco-investment transforms to become eco-innovation. In certain condition, eco-innovation can come from the idea of the founders or people who work in the company without eco-investment. MYCL case study shows that human capital promote eco-innovation. Three out of five founders have architectural background that provides the company with knowledge of construction and material physical properties. Arekha, the last co-founder who joined the team, improve the founding team capability by providing knowledge and skill in microbiology, biotechnology and environmental engineering. Eco-innovation also supported by operational and adaptive capability of the company. Creativity, curiosity and deep research skill when combined with technological capability help the company to produce new eco-innovation. MYCL continuously conducting research to perfect its mycelium leather production while in parallel conducting trials for MYLEA product application. The company has successfully apply MYLEA to multiple different products such as wallets and shoes. Transformation of eco-investment decision into competitive advantages: Implementation of sustainability strategies as proposed by Orsato (2009) are classified into two approaches. The *first* one is the competitive environmental strategy (CES) which is the company strategic capability. In this case study, MYCL indicate the use of eco-branding and beyond compliance leadership strategy whereas the evidence of other two CES

application, eco-efficiency and environmental cost leadership is not quite obvious – most likely because the company is still in the early stage of business life cycle. The *second* approach, sustained value innovation, is about making the product with low environment impact more affordable for more customers. The presence of SVI strategy in MYCL can only be view as early indications or potential but not as evidence of implementation of the strategy. Eco-branding strategy executions are seen in two approaches. First, media coverages – MYCL has been covered in multiple local and foreign media especially about its innovativeness and its environmental values. For instance, on 22 Janury 2020, BBC published “Explore Mycotech-The sustainable ‘leather’ experts” and on 22 November 2019, Channel NewsAsia produced short interview video “Venturepreneur Ep 3: Remaking Leather”. Second, eco-labelling – MYCL received approval from PeTA to use its Vegan Logo on MYLEA products. This proven to increase piloting evaluation price (conducted with affiliated brand partners) of the end-product using MYLEA as raw material. MYCL consistently appear in media both local and foreign media. They have decided to be more focus on the foreign market as the customers are already well educated about environmental issues. Customers in foreign market also have higher purchasing power due to developed environmental value and commitments therefore they are more likely to be able and willing to absorb the green premium associated with eco-oriented products. Early indication of SVI approach can be seen in the company strategy to set B2B pricing strategy. Parallel with the development of production capacity, the company reach out to major brands for potential partnership. MYCL can obtain sustainable competitive advantages, if it can successfully secure order from the B2B partners, scale up production effectively and offer the products at affordable price. Depends on the competitive environment of the business, sustained competitive advantages may not be achieved directly by implementing competitive environmental strategies. In a business environment that is highly adaptive and competitive, a company might only gain temporary competitive advantage by implementing competitive environmental strategy because the company successfully grab the first mover advantages. In the context of asset heavy biotechnology based eco-oriented startup such MYCL, the first mover advantages are obtained because of several reasons: 1) Steep technology learning curve gap between the predecessor and the potential followers. 2) limited investment options. 3) Uneducated market that might be loyal to the first brand that catches their attention. In this environment, eco-oriented startups can obtain sustained competitive advantage by developing sustained value innovation. In other words, the company should continuously find a way to offer the products attractively and in affordable price to ensure market dominance.

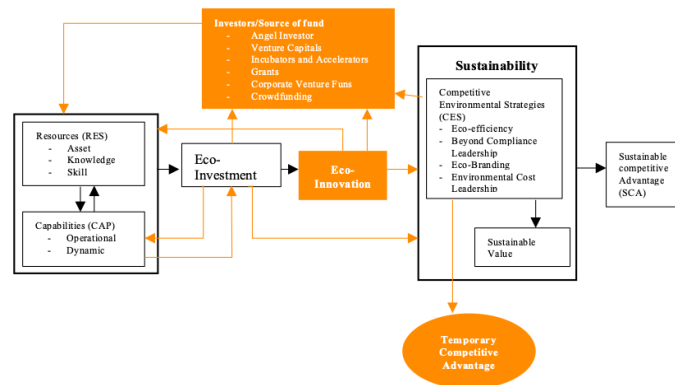


Figure 3. Adjusted framework

In this exploratory single case study research, the author found three important additional variables (shown in orange) that involve in the process of turning MYCL’s eco-investments to sustainable competitive advantages (Figure 3). The three variables are investors/source of fund, eco-innovation and temporary competitive advantage. *Investors/Source of fund* become an important variable to add because the business is still in the early stage of business life-cycle. As a young business, MYCL needs more financial capital to test and to realized their ideas. The business goal for the next four years would be to achieve early growth and to sustained it. There are six types of investors involved in this study, they are angel investors/source of fund, venture capitals, incubators and accelerators, grants, corporate venture funds, and crowdfunding. Each one of them have different characteristics and investment goals. *Eco-investment* is another variable

added to adjust the framework since some, but not all, eco-investments are found to produce concrete innovative products. In addition, eco-investment and eco-innovation affect the process of gaining sustainable competitive advantages in different ways. Lastly, *temporary competitive advantages* is added in the framework because the author found that without sustainable value innovation, the company might only reach to secure temporary competitive advantages for example by getting first mover advantages. Referring to Figure 1, sustainable competitive advantages can only be obtained if the resources and capabilities are not only valuable and rare but also must be costly to imitate. As a bio-tech based eco-oriented startup, MYCL may gain first mover advantages in terms of being the first to introduce the innovative idea to investors (since there are not many bio-tech startups in Indonesia) and have the first chance to get funding. Securing funding for a bio-tech company is seem to be challenging. The company experienced that most investors did not eventually invest because as a bio-tech company, MYCL need relatively longer time to mature. The success of the company relies on the success of their continuous research and innovation. This condition further gap for new entrants. By the time new entrants knocking investors for funding, MYCL most likely already show significant progress and as the result more attractive for investors. Furthermore, by being the first company in Southeast Asia that develops and sells mycelium based non-animal leather, MYCL may eventually has a stronger brand value and awareness compare to the new entrant

5. Conclusion and Implications

This case study tries to understand how an eco-oriented startup can potentially obtains sustainable competitive advantages and the role of eco-investment decisions in the process of obtaining the advantages. The author finds that MYCL can have a better competitive position in focus differentiation due to its geographical location that support better environment for mushroom growth and abundance raw material availability compares to its competitors that are mostly located in area with four seasons. This potential path to achievement of competitive advantages does not have any relation with the presence of eco-investment. Eco-investment decisions support eco-oriented startup to obtain sustainable competitive advantages by multiple ways and can be explain in three process stages. The stages are as follows: *First*, since the company is in the early stage of business life-cycle, eco-investments are shown to improve company likelihood to receive funding especially from angel investors, corporate venture funds, grants, and special purpose incubators and accelerators. Eco-investment enable MYCL to get funds from a crowdfunding projects via eco-innovation. Not all eco-investments result in eco-innovation but in general all eco-innovations at some point will involve eco-investments for example the impact assessment of MYCL eco-innovative products. Eco-innovation also supports structural capital by providing patents and other intellectual properties. This structural capital further improves the company attractiveness in the eyes of investors. *Second*, eco-investment decisions improve the quality of human capital by improving employees' job satisfaction and motivation at work. Satisfied and motivated workforce have positive attitude towards change thus improve the adaptive capability of the company. Adaptive capability when coupled with technological capability promotes innovations. This finding is supports Cantele & Zardini (2018) research finding that shows sustainability has a strategic relevance in the survival and development of SMEs. *Third*, eco-investment and eco-innovation enable the company to execute sustainability strategies. In this case of eco-oriented startup, the two competitive environmental strategies that contributes significantly in the existence of the company are eco-branding and beyond compliance leadership. This study finds implication that eco-efficiency and environmental cost leadership can only be executed when the company already move to later stage of business life cycle. By only executing some of the competitive environmental strategies, the company cannot be said to have sustainable competitive advantages. The execution of eco-branding and beyond compliance leadership can only help the company to gain temporary competitive advantages as the result of being the only startup in Southeast Asia that work on mycelium-based products. However, these advantages are not sustainable if the company cannot perform sustainable value innovation, which in simple materials means the ability to offer high quality differentiated eco-products in affordable price. This research brings several implications as follows: For eco-oriented startup founders, to understand the importance of eco-investment in the development of eco-innovation and process of acquiring funding for the business. This study shows that eco-investment makes the company more attractive for investors especially those who have the same sustainability values. For eco-oriented startup, hiring manager and strategist to find talents with genuine interest in sustainability values as this may decide the success of company's strategy execution, sustainability projects and initiatives. The success of the business depends on the price & quality of eco-innovation product, the timing for product launching, and

how far the business is committed to sustainability values. For investors, to consider variables other than historical financial performance to assess eco-oriented startups. Investors should evaluate the company's performance in delivering its sustainability commitments such as by reviewing its environment and social impact, certification and patents extensions, scale up plan, and market potential. The author recommends that the future research should be using multiple case studies to understand eco-oriented startups in general, assessing eco-investment effect on the customers, and considering to conduct quantitative study based on findings in this qualitative exploratory case study.

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