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# Building Innovation Capability for the Sustainability of Rancabuaya Village Craft Weavers

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**ABSTRACT**

The research studies how innovation capability can be nurtured within community of artisans through design tool development. Innovation capability has generated widespread interest both academically and practically. However previous works have mostly been performed at profit organizations with few discussed at community level, especially in artisans' community who are struggling to create innovative product and have lost their competitiveness in the market. The research focusing on a unique case, Rancabuaya Village, Tangerang, Indonesia. The research used qualitative exploratory study design with single case study. Data collection methods used in the study were in-depth interviews, literature study and documentation. Innovation capability is key for long term sustainability and need to be nurtured in community sectors. To accelerate the innovation capability building process in informal setting, the study proposes a design tool to facilitate idea generation for new product development in community of artisans. The design tool is developed with design thinking process: empathize, define, ideation, prototyping and testing. The design tools as the study result are the bamboo and rattan idea book, a book consisting of a mood board and a compilation of different weaving patterns from each component of a weaving object. The book aims to foster the idea management and creativity within a community of artisans, two determinants that are found to be essential for building innovation capability. This research contributes on two main ways: first, it provides an understanding that nurturing innovation capability in community artisans setting necessitates strategic management initiatives such as: a product development strategy, an idea sharing system, and a collaborative culture, this has not been profoundly explored by the present literature; and second, it employs design thinking as an analytical framework that provides a human-centered approach to the process of building innovation capability and ensures that the tool developed is rooted in the needs of the artisan community.

## 1. INTRODUCTION

Rapid technological changes and globalization have changed the business landscape to become highly complex and rapidly changing, making innovation increasingly important for company survival and success [1]. Innovation is essential for company's sustainability because it brings the creation of new or improved products and process that can bring cost advantage or increase product differentiation [2].

Although every company recognizes the importance of innovation, there is a gap between what the business wants and what it can do, this gap leads to the failure of innovation initiatives or difficulties in maintaining their performance. As a result, it is critical for company to develop organizational capabilities for maintaining and creating long-term innovation, which has been referred to as innovation capability (IC) in the literature. Iddris [2] defines innovation capability (IC) as the firms' ability to generate innovation through constant learning, knowledge transformation, and exploitation of internal and external resources available to the company. IC refers to the "ability to continuously transform knowledge and ideas into new products, processes, and systems for the benefit of the firm and its stakeholders" [3].

From the definition it has been highlighted that IC is about firms' capability to transform knowledge and ideas into new products, processes, and systems by continuously learning to exploit its internal and external resources. Nurturing IC become important because at the basic core firms do not compete on new products, but rather on their capability to develop new innovative solutions that answer certain market needs. Building innovation capability is not an easy task because it usually requires a decision-making process that pushes the firm's ability toward innovation and fosters an innovation culture among employees and within the organization as a whole [4].

There are many benefits of having IC. First, with IC firms have the first mover advantage on both product and process innovation, and this has great effect on firms' financial performance [5]. Second, with IC Firms become more adaptive and responsive to rapidly changing environments as they develop the capacity to generate and discover radical new ideas and concepts, experiment with solutions for potential opportunity patterns, and change them into marketable and effective innovation [6]. Third, IC creates sustained competitive advantage for the company on the long run [7]. Fourth, IC enables firms to initiate and implement a wide

range of innovation projects with varying levels of complexity, speed, and degree of innovation [8].

Innovation capability is not only associated with firm success, but that it can also bring about sustainable transformation of industries and societies [9]. Innovation capability may produce innovations that contribute to sustainability by developing new or improve products and process that bring ecological improvements and benefits to certain societies.

Despite the abundance of innovation reviews, there are very limited research of innovation capability in the context of small business specially in community of artisans. There is a need for such research because innovation capability has been discovered to be a multi - dimensional construct that bring competitive advantage to both small and large businesses [10]. The fundamental unit for developing innovation capability is not a creative individual or even a team, but rather a creative community with a purpose.

A community of artisans is a group of people who are skilled in making certain handicrafts. Handicrafts maintain and preserve artistic and cultural traditions. They represent the community's identities and manifest locality beauty. They also represent the local wisdom and knowledge from the local community, which can be handed down to the next generations [11]. The scope of community of artisans is related to a specific region, for example community of batik artisans in Girilayu, Karanganyar Regency, Central Java, Indonesia. The scope can range from a village to a regency. Community of artisans are categorized as business in informal sector. OECD [12] defines informal sectors as, "units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned".

Community of artisans globally face challenges due to a variety of global conditions and competitions [13]. They are lack of innovation, which has resulted in them producing the same product over and over again and as a result they loss their competitiveness in the market [14]. The needs for handcrafts in the local economy have been decreasing due to lockdowns that have occurred in many countries, and consumer priorities are shifting toward health products. The Pandemic has had a negative impact on global craft communities; therefore, research into building innovation capability among artisans' communities is needed for their long-term survival. Furthermore, it is necessary to implement a sustainable program to assist these artisans while also protecting the national and cultural heritage represented by their crafts.

IC is about being able to apply knowledge to exploit internal and external resources, as well as learning from the process on a continuous basis. With IC, community artisans can boost their competitiveness in the global market by introducing new innovative products with distinct identities that embody local beauty, wisdom, and knowledge.

Innovation capability should be encouraged in community sectors in informal settings outside of the traditional business sectors. General firms require a tool to improve their innovation capability, and the community of artisans requires it even more due to their various background. A tool aids the process of developing innovation capability can be extremely beneficial to them. The tool can assist them in learning more about product development and exposing them to contemporary designs and global trends while preserving their ethnic beauty. A tool that encourages them to use their inner creativity to create new products.

To build innovation capability in community of artisans, the structure of this paper is as follows. First, the design thinking analytical framework is described and conceptualization of IC dimensions. Then, the methodological of developing the tool is described. After this, the results of the study, which is the tool are elaborated, and the strategic management initiatives recommendations are described. Some future research directions are suggested based on the findings. Finally, some of the study's considerations and limitations are presented.

## 2. LITERATURE REVIEW

We connect strategic management literature with design thinking in this paper. We propose that by connecting the two paradigms, the process of building innovation capability for sustainability can be accelerated and made more tangible through tool development. We pursue this topic because there is a gap in how the design thinking approach can be applied to strategic management.

### 2.1 Design thinking

Design thinking (DT) has been regarded as an effective methodology for fostering innovation and economic growth. According to many authors, design thinking can make a valuable contribution to innovation and management. Design thinking is defined as the fundamental methodology to "build up" ideas as the result of creative processes [15]. It is identified that there are two phases of knowledge development through design thinking that both operate in theoretical and practical domains [16]: (1) the analytical phase focuses on seeking and discovering understanding, while (2) the synthetic phase is a series of experimentation to invent and make something new. The transition from theoretical to practical occurs as designers draw insights from what they have sensed and learned in the world of practice, transform them into abstract ideas of theories, then translate those theories back into the domain of practice in the form of tangible solutions.

There are different models of design thinking. The paper adopt the Stanford design thinking [17, 18]. As it has been adopted to social context by previous researches [19]. This research has social context as well which the community of artisans. The first stage is "empathize", which is the ability to put oneself in the shoes of others and receive their point of view, with the goal of understanding and analyzing the problem. In this stage, teams of members interact with potential users to engage with their understanding of their problems, habits, feelings, and needs. The second stage is "define". The team now needed to define the problems that they wanted to focus on based on the results of the empathize stage. The third stage is "ideation". The team starts to develop problem-solving solutions ideas and proposals using various techniques like brainstorming to enhance creativity. After ideation, the next phase is "prototype" in which some of the ideas are prototyped through a series of modelling phases. The last step is to "test" the prototype in a real situation with real user. The aim of test stage is to evaluate the prototype. The DT process is not linear but goes back and forth, iterated through cycles of feedback, to correct and refine the solutions.

### 2.2 Relationship between design thinking dan innovation capability

DT can play an important role in innovation capability

building by helping firms to translate vision and strategy into real tangible actions that produce innovation. DT support innovation capability on strategic and functional levels [20]. DT framework enhance firms' ability to innovate by increasing firm's ability to absorb external knowledge and dynamically integrating the external and internal knowledge for the purpose of learning. We investigated the DT framework in depth and discovered that DT and IC are most closely related during the ideation stage, in which firms should be able to transform knowledge gained from the empathize stage into ideas and prototype them into real tangible solutions.

### 2.3 Factors affecting innovation capability development in formal sector

It has been noted that DT can be very beneficial for IC development. Now, factors that affecting IC development from previous research are elaborated. According to Laforet [21] IC have several characteristics that refers to set of ability to produce innovations, and it is an internal capability that need continuous improvement. It is suggested by Helfat and Lieberman [22] what is important in building IC is the match between what the market requires and organization's existing resources and capabilities. Aside from the match between existing resources and capabilities with market needs, IC depends on the firm's knowledge and its ability to deploy it. Hence mapping existing knowledge, skill and experience, and how they utilize them to meet market demand are key in capability building.

Innovation capability dimensions were discovered after a thorough literature review. IC is made up of seven key concepts: knowledge management, organizational learning, organizational culture, leadership, collaboration, creativity, idea management, and innovation strategy [13, 23, 24]. The research further will concentrate on creativity and idea management. The research is attempting to build innovation capability from the perspective of the design discipline, so creativity and idea management is the most relatable construct.

Creativity has been identified as an important factor that contributes to innovation. Previous research has found that individual creativity has a positive influence on a company's ability to innovate [25]. Because innovation is centered on human activity, increasing employee competence in creativity could be critical to the successful generation of innovations.

Another key construct for innovation capability is Idea management, which is the ability of a company to convert ideas into new and improved products, services, or ways of doing things [26]. Idea management is about the structures and systems required for successful innovation. This includes idea generation, development and implementation of innovations, as well as the organization of the organization's work tasks [27]. Idea generation comes from the combination and reorganization of information and existing concept to resolve challenges or improve performance [28]. Idea management is also about the availability of certain method and techniques that facilitate idea sharing.

Idea management has been identified as a significant contributor to the development of innovation capability. Creating ideas from bottom up within a company has the potential to boost innovation capability.

Gerlach and Brem [29] elaborate there are six phase of idea management:

1. Preparation phase: the stage at which managers decide on the focus of problems in a specific field.
2. Idea generation phase: Creativity is essential during this phase. It is defined by the ideator's knowledge, creativity, skills, and motivation. The idea generation phase produces different types of ideas in different categorizations.
3. Improvement phase: During this phase, the suggested ideas can be enhanced through idea discussion group. In addition, the ideator itself can enhance the idea by gathering additional information.
4. Evaluation phase: ideas selected based on various selection criteria chosen by the organization. The criteria should be based on the economy's feasibility as well as internal resources and capability.
5. Implementation phase: During this phase, an idea is put into action, and for it to be successful, clear responsibilities and teamwork are required.
6. Deployment phase: During this phase, the implemented idea must be promoted to clients or business partners, or to employees if the idea is for internal improvement.

### 2.4 Idea management tool development

There is a limited research tool development on idea management, and as a result, firms approach innovation in the same way, with no distinction between radical and incremental innovation. According to the research, problem analysis and requirement setting are critical in idea management. There are several principles of idea management system [30] including: collaborative exchange of new product ideas are encouraged, ideas are collected in a single repository, rapid generation of new product ideas are facilitated, interactive and engaging, different ideas are refined and reused.

### 2.5 Factors affecting innovation capability development in informal sector

The research goes further by reviewing factors that influence IC development in informal sectors. Co-creation is key in encouraging innovation capability in the context of social setting. Co-creation is defined as the collaborative process of creating and developing innovation while also empowering the community [31].

In addition to co-creation, local atmosphere and local culture can be used as a source of innovation [32]. Community can develop their innovation capability by leveraging local resources and mechanisms in specific ways while remaining true to their local identity.

Tranggono et al. [33] emphasize the role of local champion with productive character on community development and empowerment. Local champion is someone who has a leadership spirit and capable to mobilize numerous people to initiates a community's change process. O'Brien [34] highlights that IC in an informal setting is influenced by tacit knowledge acquired through on-the-job learning, the traditional apprenticeship system, and indigenous knowledge systems. Businesses in informal sectors build their innovation capability by "Learning by Doing", "Learning by Using", "Learning by Interacting", "Learning by Searching", "Learning by Producing" and "Learning by Imitating". It can be concluded that culture, human resources capacity to learn, collaboration, local leaders and openness are important factors to be considered when developing IC in informal settings.

### 2.6 Measuring innovation capability in formal sector

Saunila [24] asserts that IC development is important to be measured. They proposed that performance measurement can facilitate innovation capability development and enhance company's performance. Measuring innovation capability is very complex and challenging because it is very intangible and a continuous and gradual process.

It has been noted that IC measurement is very much related to industrial context whether it is a manufacturing or service industry and also very related to company size. Current measures of innovation capability can be categorized into two: input measures and output measures. Input measures assess how innovation activities are organized and how resources are distributed to them. The funds and resources used in R&D activities, customer involvement, inter-functional interaction, and team climate are examples of input measurements. Output measures assess the impact of innovation capability. The frequency of new product launches and the number of patents are examples of output measurements.

### 2.7 Measuring innovation capability in informal sector

There is a number of research discusses measuring IC in informal context. Charmes et al. [35] state that in an informal setting, factors that should be measured in IC are the originality of the design, the sources of knowledge, the involvement of collaborators, the ability to learn, innovation inhibitors, local government involvement, the ability to do networking, the ability to manage knowledge, and innovation methods. Scranton [36] asserts factors measures IC in African informal sector are enterprise background, skill of the workforce, internal effort to learn, the presence of trade industry association, proximity to collaboration partner, breadth and depth of collaboration.

After reviewing the literature on IC both in formal and informal sectors and their dimensions, it is discovered that research on IC is divided into two major streams: IC as a process and IC as an outcome. Research focusing on IC as process tends to focus researching the IC determinants [13, 23, 25-27, 37], while research focusing on IC as an output tends to focus on developing scale to measure IC impact on company's performance [24, 34, 35, 38, 39].

The two research streams are interdependent because determinant factors define the performance measurement of innovation capabilities. Aside from these two big research streams, there is growing research streams that focus on idea management system [30, 40, 41], researching how to create system that facilitates idea sharing and idea selection.

### 2.8 Research gap

Aside from the two research streams, there are very limited research of how innovation capability is built in the context of small business specially in community of artisans and How design thinking analytical framework can accelerate the process of building IC in informal setting through tool development. Tool that can help the idea management and encourage creativity. Two factors that are significant in innovation capability building.

Based on the explanation above, hence the research questions are raised:

1. What kind of design tool that can be created to serve as an innovation guide for an artisan community?
2. How can the design tool facilitate cross functionality ideas sharing between artisans in a community?

The study findings hope to help community of artisans to build their innovation capability gradually and independently using the guide. This research contributes to design tool development that can facilitate the process of building innovation capability. Thus, it can be used as an example for other artisans' community who wish to improve their innovation capability.

## 3. METHOD

The research used qualitative exploratory study design with single case study. The research is exploratory in nature because the research questions of building innovation capability with tool development have not been thoroughly investigated previously. The exploratory case study approach is the best research method because it allows researchers to (1) cover contextual conditions that are relevant to the phenomenon under study; (2) investigate ongoing occurrences when the boundaries between phenomenon and contexts are unclear; (3) discover the answer to "how," "what," and "why" questions; and (4) observe and find potential causal relationships among the variables without manipulating the behavior of those involved [42]. In order to generate insightful knowledge, a single case study must be unique [43]. A case is unique when it occurs in a unique context that allows people to gain insights that are not available in other contexts [44]. The single unique case in the study is community of artisans in Rancabuaya Village.

As a method to develop a design tool for nurturing innovation capability among artisans, we follow the six step design thinking phase: empathize, define, ideate, prototyping and testing [17]. Through design thinking, abstract thinking can be transformed into practical and tangible solution [45].

1. **The first stage is empathized**. It took place in January – February 2020 prior to Covid 19. Authors able to do live interview and observation. In the beginning, it was critical to comprehend the problem situation by getting to know the participants; their needs and desires, inspirations, challenges, concerns, and identities; and to establish trust with them. Interviews, observation, mood boards, discussion with image cards, drawing, and photographing were all part of the process.
2. **The second stage is defined.** After mapping all the community problems, we cluster them and choose the problems that related with creativity and idea management.
3. **The third stage is ideated.** At this point, we are researching different types of design tools available on the market that can foster creativity, such as color palettes, post-its, sketch books, and so on. As creativity and ideas are something personal, the features are analyzed from functional to emotional. Following the collection of data from the community and the market, all of this information is synthesized into design criteria. The tool should be small and compact, and it should document all types of weaving that the artisans have. As a result, we propose the design tool in the form of a concept book. We propose that the design tool, by taking the form of a book, can represent the meaning that the tool will enlighten the

artisans and provide new knowledge to them, much like books do for their readers. Aside from the metaphorical meaning, the book is also small and portable, making it ideal for idea sharing among different artisans in the community. The book concept is also validated by the community's head to ensure that it will work well within the community.

4. **The fourth stage is prototyping**. The book is prototyped with real functional material, to see how the idea is realized with real material and structure.
5. **The final stage is testing.** The prototype is used by the artisans to generate new ideas for product development. We make sure that the book can be used intuitively by the artisans who come from different education background and have different level of craft skills. The disadvantage of this study is that the lock down occurs during the prototyping and testing stage due to the increasing number of COVID 19 in Indonesia, so the book cannot be tested in person but only via video call.

The design thinking process in developing the design tool is not linear, but iterative, with feedback cycles to correct and refine the solutions. The complete development process is illustrated in Figure 1.

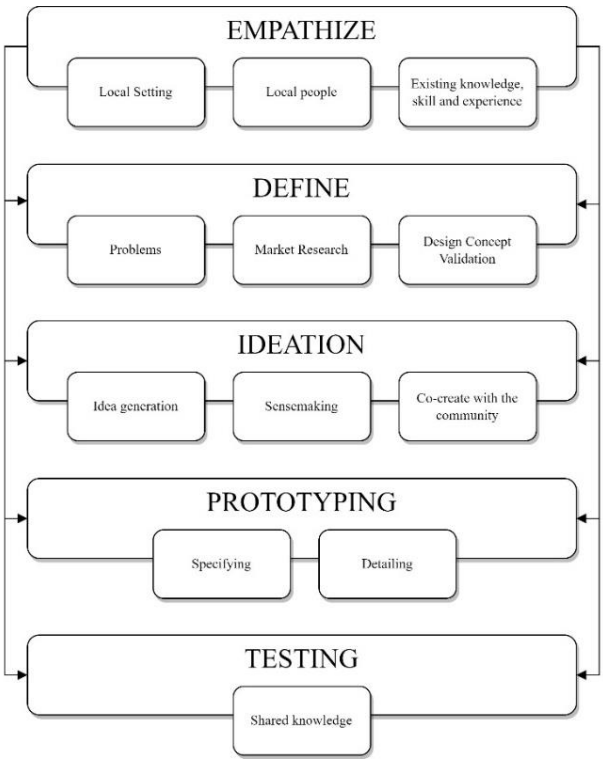


**Figure 1.** Design tool development process

## 4. RESULT AND DISCUSSION

### 4.1 Community artisans background

The study will concentrate on artisans in the village of Rancabuaya, Banten, Indonesia, who are currently struggling to successfully introduce their products/services in an economically diverse and competitive market. The problem is getting bigger when they have lost majority of their order due to pandemic situation. The community of artisans are bamboo and rattan weavers. They make basket for ceremonial purposes see Figure 2.

**Figure 2.** Rancabuaya village craft weaver's product

This community was founded by a man named Mr. R, who was inspired to start his own business and decided to resign from the factory where he worked to pursue a career as an entrepreneur. Mr. Rofi shared his knowledge with other residents of Rancabuaya village, and gradually a community of weaver was formed in 2013, with the help of PSI (Professional Synergy Indonesia), a non-governmental organization that has contributed to education and agriculture development in Rancabuaya. Aside from Mr. R there is Mr. F, before he was Mr. R's apprentice, now he already has his own community of weavers who are mostly local housewives who work for him in part time. On the empathize stage it is founded that:

1. **Different level of artisanal skills**

Two head of weaver's community Mr R and Mr. F have different level of crafts skill, but both can weave bamboo and rattan material. Mr R has more experience when comes to developing the technique and the wicker product compared to Mr. F. Mr. R are willing to accept new product that he never made before, while Mr. F tend to make the same product over and over. There is a lack of knowledge sharing among artisans because, in some cases, they become competitors. The different level of ability, skill, and knowledge make it hard for Mr. R and Mr. F to do knowledge sharing.

2. **Designed by client**

All design inquiry is made by client. The artisans make the product. There are certain times client ask for new design, but the artisans don't have any product design to offer.

3. **Home accessories**

All products are accessories for home like vase, basket and hamper. All products are handmade.

4. **Business to Business**

All orders come from small medium enterprises in Jakarta. Their customer are flower merchant, catering, and event organizer.

5. **Seasonal**

The order is usually at its peak during festivals such as Ramadhan, Christmas, and Chinese New Year, and it usually slows down in the middle of the year. So the artisans always work overtime during peak season and have free time during May to October.

6. **Work in group**

During peak season, Mr. R. and Mr. F work in a group with

5 – 6 local housewives who have been taught to weave by them. However, if the order is small, both work independently. They purchased the bamboo and rattan materials from a local merchant in the village, as both materials are widely available in the village.

### 7. Banten Cultural Heritage

Rancabuaya is under Panongan subdistrict located in Tangerang Regency and is known as a bamboo woven craft center, particularly for bamboo hats, from the 1800s to the 1900s. Bamboo material that grows abundantly in Panongan Subdistrict and is used as a woven raw material by the surrounding community. Bamboo is explored and weaved into a variety of functional products using the skills of craftsmen. Since the 1980s, the bamboo hat has suffered a setback due to declining exports, changing fashion and competition from global market and an economic crisis that has affected the world's import-export trade. Craftsmen face an obstacle in the form of a lack of product innovation to meet market demands. Hence there are few artisans left.

After gaining a thorough understanding of the weavers' problem, the next stage is the define stage, in which we focus on issues related to creativity and idea management, in which artisans' inability to develop new weaving products. We expand on the issue by noting that both artisans do not document their various weaving pattern. They simply followed the orders that were given to them. We see this as a gap that needs to be filled because Mr. R, the more skilled weaver, has more weaving technique variations, which can serve as a starting point for new product development. We decide to compile all of Mr. R's weavings and learn how each one is named. We also learned about the basic components of basket and how to create pattern weaving variations from a single product.

After defining the problem, the next stage is ideation. Before generating any ideas, we believe that the first step in developing innovation capability is to establish a clear product development direction. Because artisans will naturally develop capability if they have a clear goal in mind. In the event of a pandemic, we propose that artisans create smaller baskets, as there is a growing trend among urban people in Jakarta during pandemic covid-19 to sell hampers with health supplements as gifts to friends and family [46].

Before generating any ideas, we research various design tools on the market (see Figure 3) and conclude that the tool should have certain criteria, which are it should be handy, portable, durable, and adaptable to different design projects.


**Figure 3.** Design tools in the market

After researching various design tools, we sketched out several ideas and discussed the book's content with the head of the artisans' community. We used as many visual materials as possible and encouraged the artisans to express themselves in whatever way they felt most comfortable. We decide that the book has four parts that represent the weaving product components which are top part, body part, bottom part and color. There are two books one for rattan and the other one for bamboo. We decide to give the name of idea book. Then we start to prototype the book. The feedback we received from artisans about the book was that they like the book idea, but they ask to add product code inside the weaving guidebook. This is necessary to facilitate idea sharing and to ensure that each artisan understands which product is being developed. We revised again the prototype adding the product code feature and add several pictures inside as moodboard to spark artisans' creativity. The book employs a binder system, which we use to make it easier for artisans to add more pages. The whole design thinking process can be seen in Figure 4.

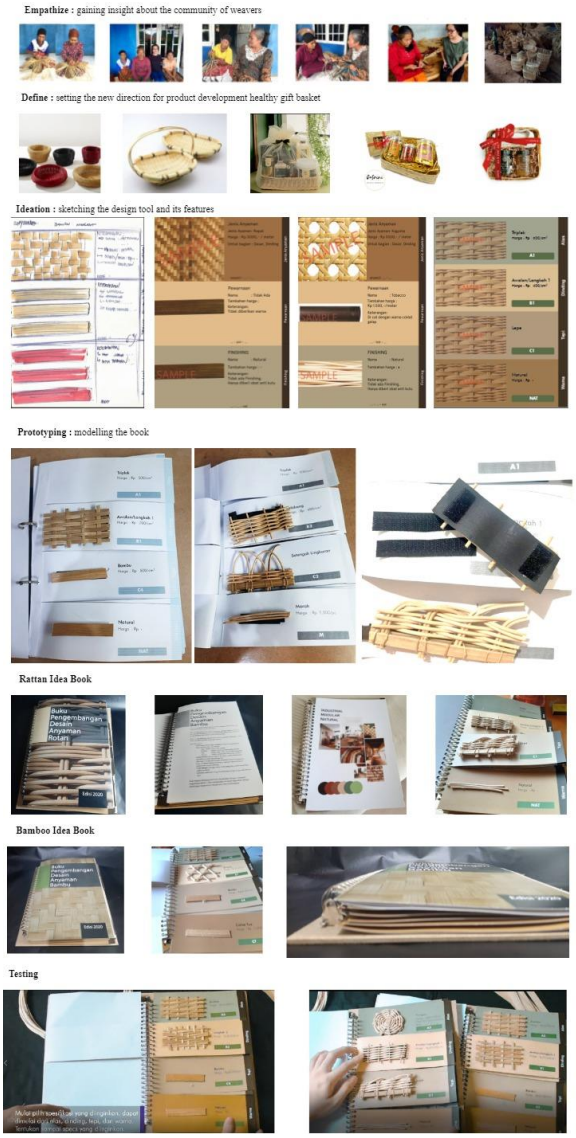


**Figure 4.** Design thinking process

The book is used when artisans want to do product development by mix and matching the existing weaving pattern. The step to use the idea book as follows:

### 4.2 Preparation phase

**1. Choose the material**

Artisans select which material they want to develop bamboo or rattan

**Idea generation phase**

**2. See the moodboard**

Artisans can observe several product images from the moodboard, we hope the given image will spark their creativity (see Figure 5).

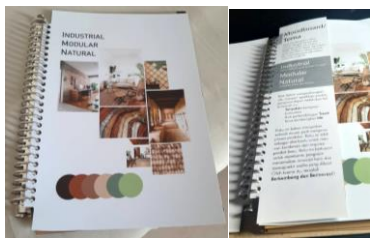


**Figure 5.** Moodboard

**3. Select product**

Artisans can decide what product to create after viewing the moodboard.

**4. Select component**

The book page is divided into four sections based on weaving product components: the bottom, body, top part, and color. Artisans can generate ideas based on the product's details by mixing and matching weaving patterns for each component, including the bottom, body, top part, and color (see Figure 6). Artisans select each component weaving type. For example, to make a rattan basket, the artisans can select a semicircular edge top part, a "piringan" weaving pattern for bottom part, and a "kelabang" weaving pattern for body part.

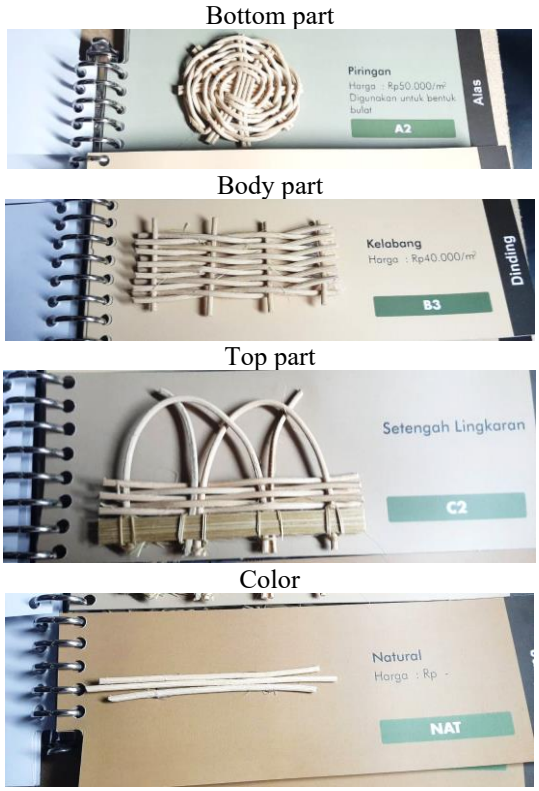


**Figure 6.** The book part

**5. Compare different ideas**

The book contains 20 different weaving patterns, allowing the artisans to create a variety of designs. They can open the binder, take a previously mixed and matched page, and mix and match it again with another page (see Figure 7).


**Figure 7.** The book pages

**Improvement phase**

**6. Ask for constructive feedback**

The artisans can ask other artisans or NGO for idea improvement. We add blank papers on the back of the book for notes taking.

**Evaluation phase**

**7. Internal and external factors evaluation**

Each idea is evaluated based on production lead time, economical and internal resources, and capability. How long it takes to make, how much is it, who is the target market, and is it hard to make? Best ideas are selected.

**Implementation phase**

**8. Prototyping**

Best ideas can be prototyped with different color.

**Deployment phase**

**9. Promote on Social Media**

The NGO has already set up social media account called Rancacraft as marketing channel for the artisans https://www.instagram.com/rancacraft/ and also an account on Indonesian online marketplace https://www.tokopedia.com/rotancraf**.** The new product ideas can be deployed to target market through these channels, to gain the market feedback.

To facilitate idea sharing among artisans using the book, we create three minutes instructional video that explains how to use the idea book (link: https://youtu.be/ZG24MXZzQQM). So, each artisans know to use the book.

For the testing stage, due to increase number of covid 19 in Indonesia, the book cannot be tested in person. We deliver the book to the Mr. R and Mr. F and send the instructional video. Then we ask for their feedback through WhatsApp call. It is founded that the book is very simple and easy to use. They are willing to use the book to create new product development which is small basket for healthy gift.

The study recommends some strategic management initiatives that the community of artisans and NGO should take in order for the design tool to be implemented effectively:

**Product development strategy**

From the process and confirmed by innovation capability researches [3]. It is suggested that setting clear goals in product development strategy is critical for capability conception. The founding stages begin when a group of people organizes specific goals that require the creation of new capabilities. This doesn't necessarily mean a blank slate, in the context of Rancabuaya community of weaver artisans we start from the existing knowledge, skills and experience that they already have and explore these abilities unto new product development direction that haven't been explored before. We propose them to enter the healthy hamper basket gift market, responding the Covid-19 market demand. With having a clear product development strategy, the tool can be used more effectively. The tools also documented the existing weaving pattern to ensure that sustainability of local

Handicraft to next generation. This result support the research [11] who state that handicraft should be preserved in any means for cultural sustainability.

**Idea sharing system**

Although artisans lived in community, but idea sharing is not common for them. Hence the tool can act as conversation starter between each artisan. This result corresponds with [47, 48] who suggest the importance of cross functional idea sharing in building innovation capability. Idea sharing is key for co-creation activities. It fosters creativity in informal setting [31]. Through the design thinking analytical framework during empathize stage, we discovered that there are still trust issues within the community, and each artisan does not have high confidence that their knowledge, if shared with others, will benefit the community. They were unsure that their knowledge would contribute to community development. This finding corresponds with Brem and Voigt [49], Wuryaningrat et al. [50] who stated that trust is a key antecedent of knowledge sharing, and further states that building trust is not a simple task; it is assumed that before trust can be built, people must feel fit with the community, and their job must be fit with their knowledge, skill, and ability.

We hope that the tool will serve as a starting point for Mr. R and Mr. F to share ideas and co-create that together they can increase their competitiveness in the market. We believe that once the sharing of ideas is connected, innovation will continue to grow. It is suggested that the NGO representation should act as catalyst encouraging both artisans to start working together and co-create.

For product development the artisans can start from the basic, which is creating design variations among the existing weaving techniques that they have created before. By making product variations, the artisans will have a new product portfolio to offer to the client that meets market demand. Unfortunately, due to the pandemic covid 19 situations, we unable to directly test the tool and create design exercises for artisans.

**Culture of collaboration**

The study also discovered that implementing innovation as culture in the community of artisans is not as simple as flipping a coin. So, we propose that both heads of communities hold a monthly meeting to do group brainstorming to develop new products using the idea book. It requires ongoing design practice and reinforcements with the assistance of the NGO, so it is a collaborative effort, and it needs to be nurtured as a habit. Because there is no local champion in the Rancabuaya weaver community, the NGO serve as a local champion that empower the community. Tranggono et al. [33] have mentioned in their research the importance of local champion in innovation capability development. If the innovative culture starts to establish within the community the collaboration can extent to wider stakeholder like working with university. Collaboration is key in innovation capability development; it gives new perspective and knowledge in the field that is lacked internally.

## 5. CONCLUSION

Based on the study results, it is recommended that to build innovation capability with design tool development, community of artisans need strategic management initiatives such as: a product development strategy, an idea-sharing system, and a culture of collaboration. The process of building innovation capability for sustainability can be accelerated and made more tangible through design tool development.

Furthermore, this research has been able to answer the research questions What kind of design tool that can be created to serve as an innovation guide for an artisan community? The study proposes bamboo and rattan idea book as design tools to nurture innovation capability in community of artisans mentored by NGO. They can support the product development strategy. We provide the mood board feature to assist artisans in creating product development strategies with the assistance of the NGO.

The second research question is How can the design tool facilitate cross functionality ideas sharing between artisans in a community? The idea book can be used to generate ideas when developing new products. With the book, artisans can easily mix and match each component with different weaving patterns. The aim is to spark artisans' creativity and encourage idea sharing among artisans. Aside from that, the book aids in the documentation of all the weaving techniques that have been developed. By using the design tool intensively, creativity and idea management system can be nurtured, so the struggling artisans can start building their innovation capability to gain competitiveness in the market.

The design thinking analytical framework provides a human-centered approach to the process of building innovation capability by empathizing, defining, ideation, prototyping, and testing. The process helps discover what matters to the artisans and the NGO as well as ensuring that the tool developed is rooted in the needs of the artisan community.

Furthermore, the findings suggest that innovation capability can be promoted not only in mainstream major industries and formal settings, as demonstrated by existing literature, but also in community sectors and informal settings. This paper has found that the development of innovation capability in these settings is challenged by the level of trust and confidence within the artisan's community. The overall development process of innovation capability has been undertaken through collaborative design thinking practices, in which researchers always seek feedback from artisans at each stage of the design thinking process.

This study has limitations because it only worked with one community of artisans. Each community has its own set of characteristics and constraints. But we believe that the idea book can be applied to other community of weaver artisans in Panongan Subdistrict. Further research should do research

with other group of artisans. Future research can also enrich the research by conducting a longitudinal study and developing a new product with the tool. Due to the covid 19 lockdown situation, the study was unable to create a design project as exercise with the design tool, because the artisans had limited access to the internet.

Finally, it can be concluded that the research has successfully linked strategic management literature with design thinking practice, and that innovation capability development, which is so abstract and difficult to comprehend, can be made more tangible through the development of a design tool and supported by strategic management initiatives: product development strategy, idea sharing system and culture of collaboration.

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