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The Coconut Innovation framework: An innovation framework focusing on resources

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Abstract

This paper proposes a new innovation framework – the coconut innovation framework – using empirical data from WANIC Coconut Spirits developed in East Timor, the Philippines, and Laos, as well as drawing from theoretical work highlighted in a literature review. This innovation framework is a practical framework used to increase the probabilities of success of innovation by integrating the resources of developing countries and industrialised countries, creating new businesses, and expanding resources. This framework is composed of three phases. The first is the discovery of resources. After taking stock of your company's existing resources and discovering new resources, you can generate initial ideas to create a new business. The second phase is the integration of resources. By maintaining your company's identity and integrating the resources that you discovered in the first phase, you can design your new business. The third is the expansion of resources. By maintaining your company's identity and expanding the resources which your company and partners have, you can grow your business.

KEYWORDS: innovation, SDL, effectuation, framework

Introduction

As Schumpeter (1934) and Drucker (1985) pointed out, innovation is one of the crucial issues in order for companies and economies to grow sustainably. Although there is much research on innovation type and innovation model (Paul Trott, 2011)(Keeley, 2013), there is less research on packaging the whole process to achieve innovation, and to propose it as a framework. Moreover, there is much less research on proving their concepts of frameworks.

Service Dominant Logic (SDL) is a theory to try to achieve innovation based on the business model proposed by Lusch and Vargo (2014). Under SDL, a company offers new value to their customers by exchanging services repeatedly, which is a process applying a variety of skills and knowledge through a service ecosystem composed of actors that have different

skills and knowledge. The more actors participating in the ecosystem, the stronger the values offered by the company.

The paper published by Vargo and Nambisan (2015) focuses on a new aspect of SDL as a theory for service innovation, and proposes three frameworks. As this paper indicates, SDL can be a much stronger theoretical base to achieve innovation. However, SDL is too abstract for users to create zero to one concepts, and too weak for companies to embed it into their practical activities. Towards these issues, this research can contribute as a framework to bridge the theory and its practice, and to package a design process to generate innovation as well as the tools and methods used in the design process.

Innovations are not only fabricated in industrialised countries but also in developing countries. Reverse Innovation (Govindarajan & Trimble, 2012) is a model used to achieve innovation in developing countries mainly by companies from industrialised countries, transferring them to industrialised countries. Frugal Innovation, in turn, is a model used to achieve innovation in developing countries mainly by local companies with limited resources. However, while these models still work as principles, they remain weak in terms of their practical aspects.

The contribution of this research is to develop an innovation framework to bridge theories and practices overcoming issues which prior works have. For example, this framework aims to develop a service ecosystems by focusing on resources of developing countries and industrialized countries, and integrating them. Thus, the users can achieve innovation utilizing merits which each has. Moreover, this framework aim to develop a repetitive design process in order to expand resources, and package tools and methods for this design process.

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Literature Review

Design Thinking proposed by IDEO, a design consulting firm in the US, is a framework to develop concepts of products or services (Brown, 2008). Design Thinking acquires empathy to customers via fieldwork, and collects data to develop concepts. Also, it generates many ideas through brainstorming, and visualizes and refines the concepts through prototyping. Design Thinking emphasizes diversity, and aims to increase the possibilities to generate innovation by bringing together a variety of specialists to collaborate on a project.

Design Thinking by IDEO was customized for the developing world by IDEO.org which is a subsidiary of IDEO, and published as the HCD Toolkit (IDEO.org., 2015). Most of the tools in this framework are used in the design process of Design Thinking or qualitative research methods, but some of them are customized for usage in the developing world. For example, Holistic Impact Assessment is a tool to indicate the positive and negative effects that solutions may cause considering the social and environmental aspects.

D4S (Diehl & Crul, 2009) by the Design for Sustainability Program at TU Delft IDE and UNEP is a design framework for designing products for emerging markets, new product development, and product service systems. The key feature of D4S is Sustainability. This Sustainability has three meanings – Social, Environmental, and Economic – corresponding

to Sustainability for People, Planet, and Profit. The design process of D4S has four steps: Policy Formulation to define the goals and strategy of projects, Idea Finding, Strict Development, composed of marketing planning, produce design and product development, and Realisation, including manufacturing, distribution and utilisation. Each step contains more detailed sub-steps.

BOP Protocol developed by Simanis and Hart (2008) at Cornell University is a model for Business Co-creation for BOP by multinational companies. The feature of the BOP Protocol is Co-Creation. They advocate change from BOP 1.0, with a model of Selling to the Poor, to BOP 2.0, with a model of Business Co-Venturing, and emphasise Co-Creation as the approach. The BOP protocol has three processes: The Pre Field Process to specify target sites and select a team and local partners, The In Field Process, and Scaling Out. The In Field Process has three sub-processes: Opening up, Building the Ecosystem, Enterprise Creation.

The Market Creation Toolbox (Larsen, Louise, & Flensburg, 2011), developed by BOP Learning Lab at Danish Industry, is a framework to develop business models in developing markets. The key feature of the Market Creation Toolbox is participatory design. The design process of Market Creation Toolbox has seven processes: Rapid Market Assessment, Customer Base and End-Users, Including End Users, Distribution System, Pricing and Financing, Marketing and Communication, and Service and Maintenance.

These innovation frameworks have inherent issues related to structured methods, as pointed out by Radjou, Prabhu, & Ahuja in *Jugard Innovation* (2012). It is impossible to flexibly adapt them to situations with extremely high uncertainty, which the developing world contains, because they are frameworks based on a linear process. In the case of linear processes, if some premises for value proposition developed in the early stage of design process have been lost in the implementation stage of the design process, the users cannot adapt to this difficulty. Hence, a framework is needed to be implemented which reflects high uncertainty in the developing countries.

Although Design Thinking by IDEO focuses on industrial design and interaction design, design firms in Europe are focusing on service, which is called Service Design Thinking (Stickdorn & Schneider, 2012). Service Design Thinking not only involves customers and users in the design process, but also designs service ecosystems that include all the stakeholders.

SDL is a theory which focuses on service as the basis of an economy in which an actor applies their skills and knowledge for the benefit of other actors. Lusch and Vargo focus on achieving value creation through relationships with partners, which is called the service ecosystem. SDL distinguishes between operand resources which require specialized competences in order to offer values and operant resources which can serve other resources in order to create values; the latter is regarded as a source of competitiveness. Based on SDL, resource integration in the service ecosystem can create values.

Sarasvathy likewise seeks the source of innovation in resources (2008). Sarasvathy tried to find a behavioural logic among expert entrepreneurs through a think-aloud verbal protocol. As a result of tests, she found 5 principles. The 1st starts from means and creates something new. The 2nd decides an affordable loss, and starts projects. The 3rd emphasizes commitment from all stakeholders. The 4th uses contingencies. The 5th focuses on the aspects that they can control in an unpredictable future. She calls this logic Effectuation. Based on Effectuation, by increasing a number of usable resources including partners, the purpose of projects will be converged, and then achieve innovation.

The innovation framework proposed in this paper uses SDL as a theoretical background, inherits the iteration process which SDL does not consider and the more detailed classification of resources from Effectuation, and develops the whole design process. In

addition, the framework adopts fieldwork, prototyping and testing in the context of Design Thinking and Service Design Thinking, and partnership in the context of Effectuation as a tool to expand resources.

Case Study – WANIC

The fruit wine fermented from coco water inside a coconut using the coconut shell as a container is called Fresh WANIC. This 7% alcohol beverage retains the flavour of coco water with exhilaration and briskness and freshness (Figure 1). The 7% alcohol content is the same as an average wine, but it is much easier to drink in spite of the alcohol content. In this paper, WANIC describes the product and Wanic the project.



Figure 1. Fresh WANIC

The Wanic project began with fieldwork conducted in East Timor in 2010. The birth of the project dates back to a product design contest held in 2010. The concept of the contest was challenging because participants were asked to conduct fieldwork in East Timor, and design a product to solve the issues of the local people.

The organizers of the contest selected each team member. Our team was composed of a variety of members from different backgrounds, such as a product designer who had experience of designing medical devices, a graduate student who majored in social entrepreneurship and a policy secretary with a medical licence. The author specializes in service design and participated in this contest with a strong interest in social innovation as well as a philosophy that we should offer not money and material goods but knowledge in order to solve issues in the developing world.

We identified coconuts as the resource through our fieldwork in East Timor. In East Timor, the land was devastated by the war for independence that lasted 25 years, and the infrastructure has not been repaired. There are limited resources as they do not have sufficient technology and human resources to use those technologies. However, we found a resource during the fieldwork – a large amount of unsold coconuts that were piled in a truck parked in a street near the coast.

Coconut is a resource which can be used to create a variety of products. For example, the solid endosperm known as Coco meat can be used to produce coconut milk or coconut oil. The soft fibre area of the coconut shell known as the coconut husk can be used for bags or baskets, and the hard hull area can be processed as a medium for hydroponic cultivation called Coco peat after being crushed and heated. A coconut trades for less than 1 USD but can be used as a resource to generate high value added products.

In addition to this resource, we found an issue that the local people lack a cash income. Except for oil, the main industry in East Timor is agriculture, which means that the local people have less opportunity to earn cash. They require the necessary cash in order to invest in education, clothing, food and housing. The creation of new industries is a national issue in East Timor. We conceived the concept of Fresh WANIC by combining the issue of low cash income and coconut as an abundant resource, employing the philosophy, identity, skill and knowledge of each member.

When we designed the customer experience of WANIC, we started to define our customer. The customers of Fresh WANIC are the local people in East Timor who want to increase their cash income. Their issue is shortage of cash income, and we designed the WANIC Toolkit and the recipe for Fresh WANIC, a coconut wine made from coco water, in order to solve this issue.

We targeted wealthy people in industrialized countries as the clients' customers. We supposed that they would not have any interest in Fresh WANIC made from coco water not only because coconut and coco water are so popular and cheap, but they are also accustomed to drinking Tuba, which is made from coconut sap at very low price. On the other hand, we supposed that they have a special interest in Fresh WANIC because coconut is not only a symbol of exoticism for industrialized countries, but also coco water and coconut oil have had a positive impression on their skins or health.

We designed a prototype service ecosystem for Fresh WANIC with such a kind of customer experience. In an ecosystem in the natural world, a variety of actors have connections with one another, making up a system where each depends on another to survive. The service ecosystem is a system which is composed of a variety of actors and where each actor provides a different service in order to offer new value to the customer.

The main actors in the service ecosystem of Fresh WANIC are Fresh WANIC makers, WANIC Toolkit makers and coco firms. WANIC Toolkit makers produce WANIC Toolkits and sell them to Fresh WANIC makers. Fresh WANIC makers buy coconut from coco firms, produce Fresh WANIC using the WANIC toolkit and the recipe, and sell them to restaurants, bars and hotels where there are people from industrialized countries (Figure 2).

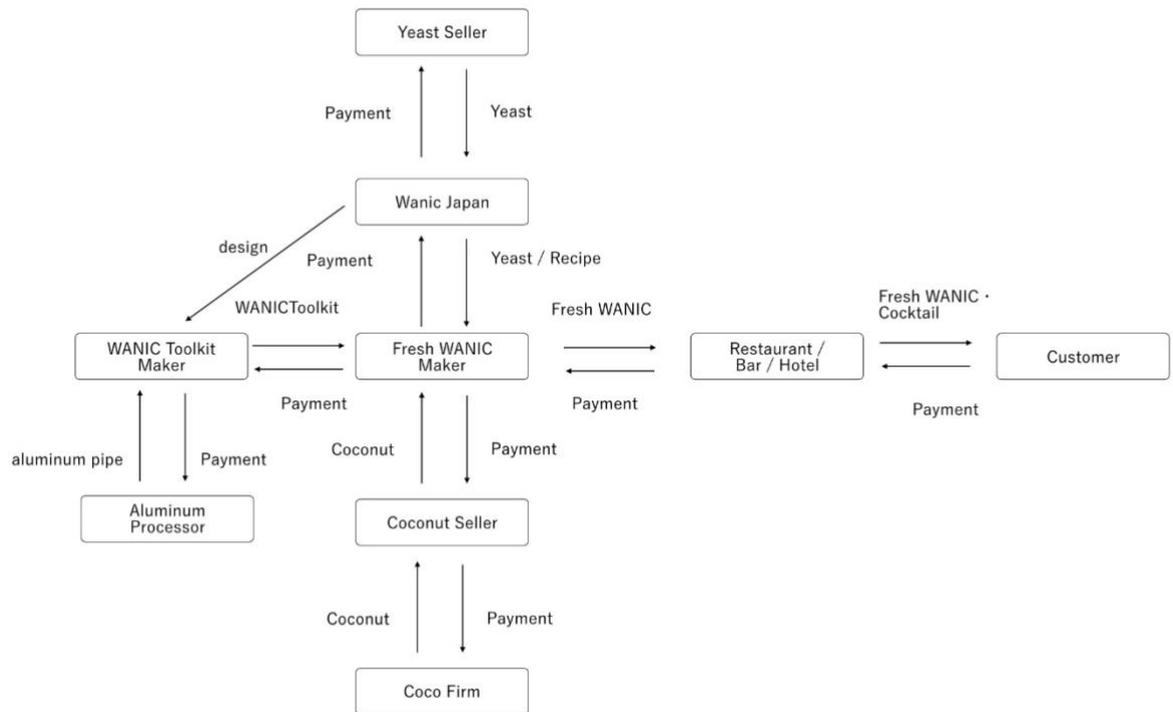


Figure 2. Service ecosystem of Fresh WANIC

Our team Wanic Japan designed a business model for this service ecosystem with the purpose to increase the cash income of the local people. We adopted a model to acquire revenue by publishing the blueprint of the toolkit free for the WANIC Toolkit makers, and selling high quality yeast, which the local people find difficult to obtain.

After designing the prototype of the concept, customer experience, service ecosystem and the business model of the new product in the process above, we tested them on our customers, acquired feedback from them, and revised these prototypes.

The most difficult part during prototyping and testing was the quality of Fresh WANIC. Tuba made from coco sap has a sour and unstable taste that can hardly be described as delicious. Even if Fresh WANIC is the world's first wine made from coconut water, the quality is not so unstable that we cannot deliver excellent customer experience. After we found a new partner, LAODI, a rum producer, we refined the production process with thorough quality management and developed a new product, WANIC Coconut Spirits.

WANIC Coconut Spirits is a new spirit made from coco water. You can taste the slight sweetness and flavour of coconut in the throat. This 42% hard spirit can be sold in Japan (Figure 3).

After developing coconut spirits, we changed our customers from the people FROM industrialized countries to the people IN industrialized countries. The products are shipped from Vientiane where our partner LAODI has a distillery to Tokyo. We aim to develop a partnership with restaurants and bars around Tokyo, and to deliver WANIC via these channels.



Figure 3. WANIC Coconut Spirits 2015

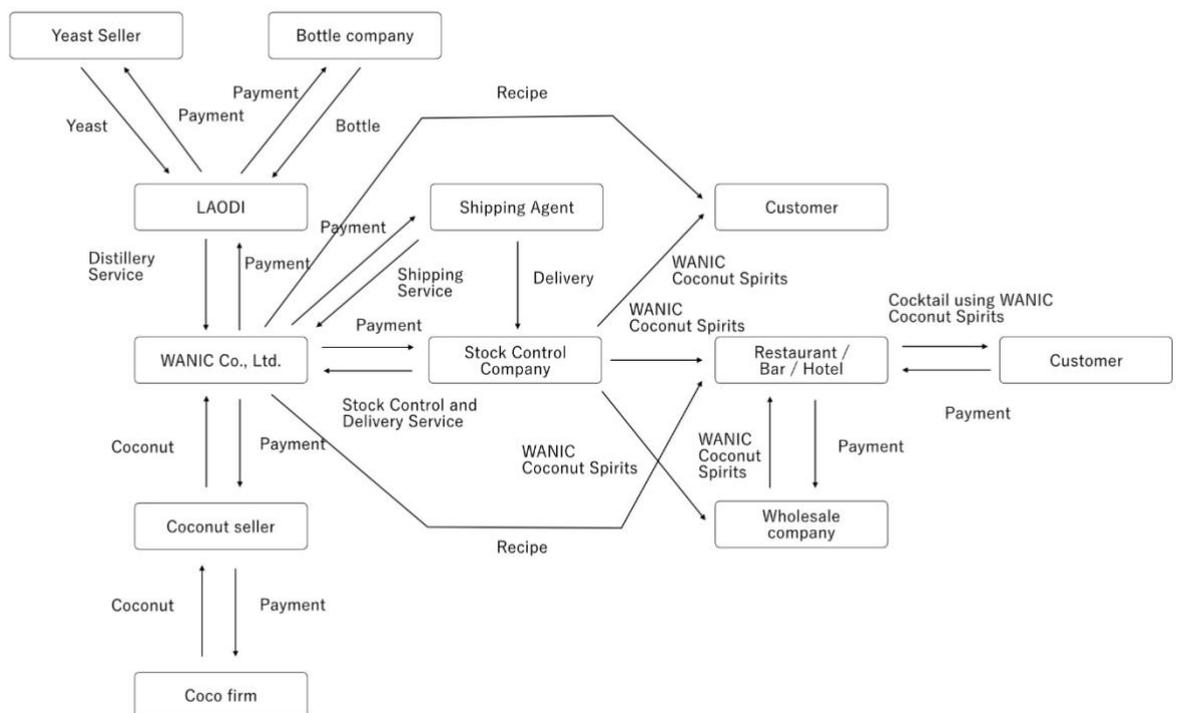


Figure 4. A service ecosystem of WANIC Coconut Spirits in Laos

After developing WANIC Coconut Spirits, we updated our service ecosystem (Figure 4). This service ecosystem comprises the main actors such as Wanic Co., Ltd., coco firms and

LAODI. Wanic Co., Ltd. purchases coconut from coco firms, and extracts the coco water from the coconuts, ferments Fresh WANIC at the LAODI facility, and distils WANIC Coconut Spirits. We aim to reduce the production cost by using the same bottle as the one LAODI buys from a company in Thailand.

WANIC Coconut Spirits 2015 was launched in September 2016. We redesigned our website as a touch point with our customers and to embed the ecommerce function. The first lot of 100 bottles was distilled in 2015. When we have sold all 100 bottles, we will move to the next step for the construction of our own distillery in the Philippines.

The main actors of the service ecosystem of WANIC Coconut Spirits in the Philippines, one of the largest coconut producing countries (Figure 5), are WANIC Co., Ltd., coco firms, coconut oil processors and coco peat processors. WANIC Co., Ltd. buys the coconuts after the coconut oil processors have removed the solid endosperm from the coconut, ferments Fresh WANIC from coco water extracted from the coconuts, and distils WANIC Coconut Spirits. Also, WANIC Co., Ltd. sells the coconut shells to coco peat processors, and coco peat processors crush and heat them in order to produce a medium for hydroponic cultivation. Each actor in the service ecosystem provides a different service and aims to co-create value for the whole ecosystem.

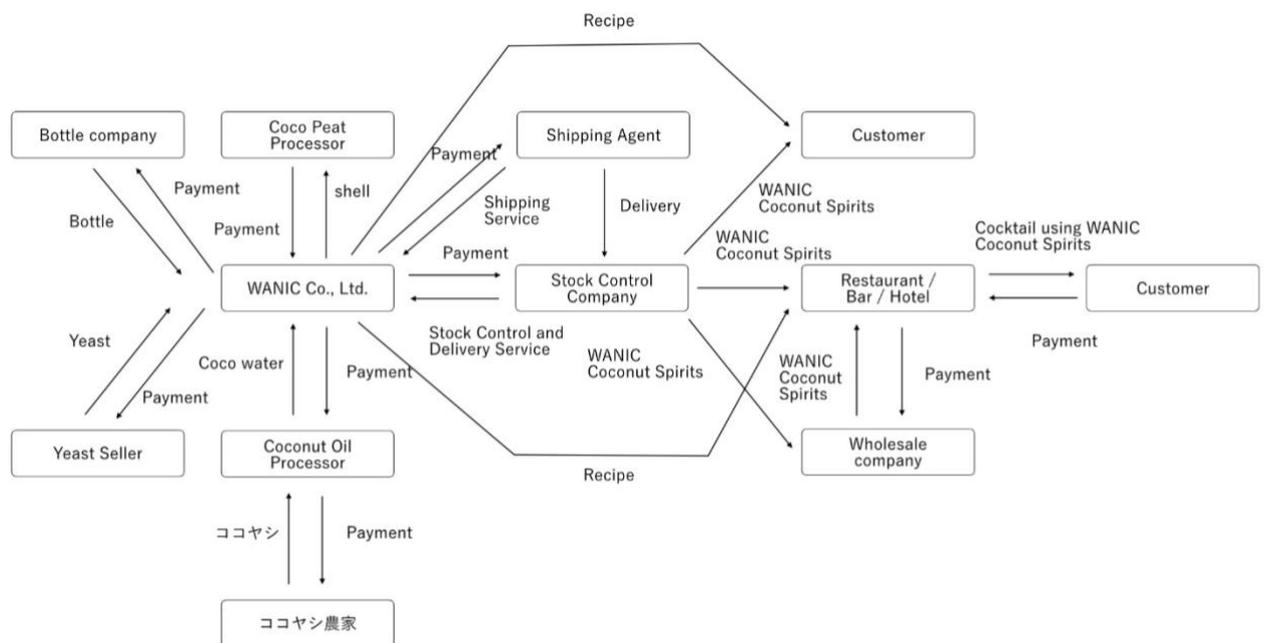


Figure 5. A service ecosystem of WANIC Coconut Spirits in the Philippines

Unfortunately, there are no existing coconut industries in East Timor and Laos. Hence, it takes more time to develop this kind of service ecosystem. However, there are existing coconut industries in the Philippines, the second largest producer of coconut products in the world. If we establish partnerships with the local companies in the coconut industries, we could develop this kind of ecosystem.

We entered several spirits contests in order to expand resources for promotion. WANIC was awarded the Gold medal at the San Francisco World Spirits Challenge (SFWSC) 2017, which is the largest spirits competition in the US. WANIC achieved a score of 92, and was Highly Recommend at the Ultimate Spirits Challenge in New York, topping the miscellaneous spirits section. Their tasting note reads “The softly pungent clear spirit is subtly sweet on the nose with some coconut notes. Dry on the palate, the flavor develops into smooth fresh coconut flavor with a hint of nuttiness on the finish. Overall it is opulent, mild, and pleasant”. WANIC was awarded a Bronze medal at the International Wine & Spirits Competition (IWSC), which is an old and respected wine and spirits contest in London. We

posted several articles to our website using these new resources, and created several ads with them for the ad network.

The Coconut Innovation Framework

The author proposes an innovation framework based on the background theories in the literature review, and the case studies.

Coconut Innovation is an innovation that a company creates new industries with a variety of resources. First, it takes stock of its own, its partners' and local resources, and discovers new resources via fieldwork. Then, it integrates them, and offers products with new value to their customers. Also, it refines the products, makes them more attractive and increases value by expanding resources through fieldwork, prototyping, testing and partnership.

The theory to create Coconut Innovation draws on the coconut innovation process that is made up of 3 phases, 4 design targets and 4 design tools (Figure 6).

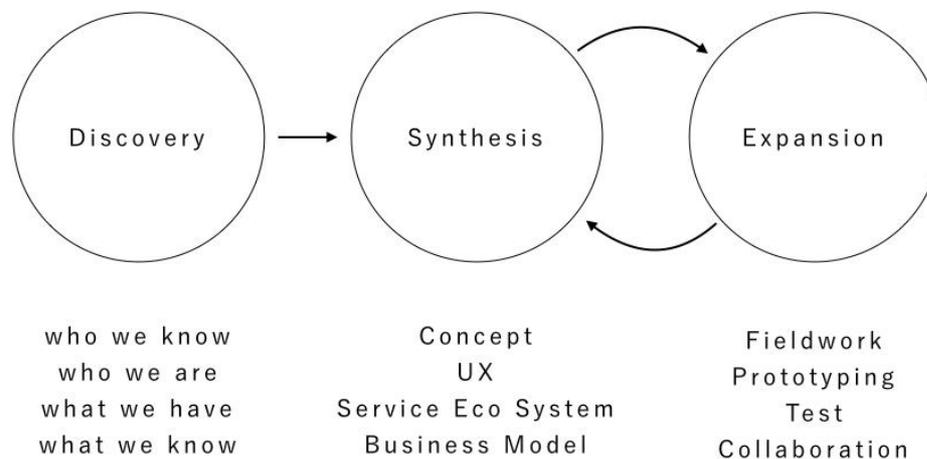


Figure 6. Coconut Innovation Process

The 1st phase is the discovery of resources. The goal of this phase is to discover resources to design new products to generate Coconut Innovation. The products to generate Coconut Innovation are not created by the inspiration of geniuses. They can be designed by taking stock of current resources, discovering new resources, analysing them step by step, and integrating them. The quality of products strongly depends on the resources which can be integrated. Therefore, it is necessary to discover appropriate resources based on appropriate methods.

The 2nd phase is the integration of resources. The goal of this phase is to establish the initial values of 4 design targets to generate Coconut Innovation. Your team has already taken stock of the current resources, and discovered new resources. By integrating all of them as resources and identifying design opportunities, you design the initial values of the concept, customer experience, service ecosystem and business model of new products, which offer new value to customers' issues.

The 3rd phase is the expansion of resources. The goal of this phase is to update the 4 design targets, concept, customer experience, service ecosystem and business model, which have been designed after phase 2. Just after phase 2, these 4 design targets only have their initial values. By expanding the resources, you can update them, and then revise the value

proposition to the customers. You can use the 4 design tools to update these 4 design targets.

The 1st tool is partnership. Partnership has two functions. The 1st is to expand resources that can be used in the value proposing process based on the services that the partners can offer. The 2nd is to converge the directions of the new products as the relationships among the partners can work as constraints.

The 2nd tool is fieldwork. Not only in the 1st phase but also in the 3rd phase, you can use fieldwork. In the 3rd phase, you have already discovered design opportunities, so the purpose here is different. This is because you discover new resources, which can be used in the value proposing process, and you find contexts where customers feel much more valuable when the customer uses the new products.

The 3rd tool is prototyping which has two areas. The 1st is to visualize concept and customer experience. By having the concept experienced by the customers, you can decrease uncertainty. The 2nd is to design media to deliver the new product to the customers. Via media, you make the customers aware of the products and develop a relationship with the customers.

The 4th tool is testing. It is not necessary to design a variety of prototypes with the 3rd tool because the values can be created when the customers use the prototypes. The resources obtained during the value co-creation process will function as new resources when teams or partners receive feedback, and then these resources will be used for the next prototypes.

With these 3 phases, you take stock of the current resources and discover new resources, and then integrate them. Next, you design prototypes of the 4 design targets as initial values of the innovation process. Then, you will converge the purpose and generate new business by iterating resource integration and discovery with partners and customers. This is the whole Coconut Innovation process.

Discovery of Resources

The 1st phase of the Coconut Innovation process is the discovery of resources. This phase is composed of 3 steps: taking stock of resources, discovery of resources and organization. Following these three steps, you can establish the initial values of the products to create new business.

Taking stock of Resources

You start by taking stock of your company's and current partners' resources. The resources here are distinguished in 4 sections.

a. Who we are

Who we are means what is your philosophy and identity. First, you start to write down your identity and philosophy at the management level or team level. The philosophy and identity written here can function as a constraint condition to proceed your project, and work as conditions to compose the brand of the product that you are designing.

b. Who we know

Who we know means partners as operant resources. Partners here stand for companies, customers, experts and channels that will commit to your project in some way. After bringing together the current partners, you can organize operant resources and operand resources that the partners have.

c. What we know

What we know means the skills or knowledge as operant resources. You will start to write down your company's skills and knowledge as well as each member's skills and knowledge.

d. What we have

What we have means the operand resources including those your partners have. You can include materials, machine tools, products and real properties in these resources. Also, it is important to decide an affordable budget for your projects.

The resources which you list are the initial values for the project. By keeping the initial value on philosophy and identity of your team or company, you can maintain the brand. However, you should expand the other resources to grow your project. By expanding resources, you can not only increase the quality of the value that you offer, but also converge the goal of the project.

Discovery of Resources

You can use one of the tools, fieldwork, in order to discover resources. Fieldwork here includes three methods, desktop research, observation and interviews. The resources which you want to discover are diverse, and the objectives of fieldwork are also different. Here we will introduce 4 primary objectives of fieldwork, and resources that you should discover.

a. Discovery of the research agenda

The 1st objective is the discovery of research agendas. The meaning of research agendas are the issues which are listed in particular as research targets for fieldwork among so many phenomena. Discovery of this resource is conducted mainly via desktop research.

b. Discovery of design opportunities

The 2nd objective is the discovery of design opportunities. Design opportunities mean those that offer new values by designing products. You can discover design opportunities by investigating the targets selected by research agendas. Discovery of this resource is conducted mainly via observation and interview.

c. Discovery of operand resources that can be used for the value proposing process.

The 3rd objective is the discovery of operand resources which can be used for the value proposing process. By integrating the resources, you can offer new values to design opportunities. The resources here that you can integrate are the operand resources which your company and partners have as well as the operand resources related to design opportunities which you can discover in the fieldwork. Discovery of this resource is conducted mainly through observation.

d. Discovery of operand resources that can be used for the value proposing process.

The 4th objective is the discovery of operand resources which can be used for the value proposing process. New operand resources especially are needed when the issues that should be solved are apparent after discovering the design opportunities. As new operand resources have not existed in the current network of your company, you have to discover new partners through fieldwork. Discovery of this resource is conducted through observation and interviews.

Organization of Resources

At the 3rd step, you should organize the resources that you can use after discovering the new resources. By comparing the resources which you brought together in the 1st step, you should confirm how the resources were expanded. When you organize all the resources, you will integrate the resources, and then develop new concepts to offer a new value proposition in order to create new business.

When you organize the resources, you will put the new resources, which you discovered except for philosophy and identity, into tables by comparing operand resources and operand resources of your company and partners.

e. What we should do

What we can do means that the list of ideas of new value proposing with the constraint condition of the operant resources and operand resources, which your company and partner have, while maintaining your philosophy and identity. These ideas are totally different from free ideas that you generate through brainstorming without any constraint conditions. The ideas are generated through inheriting your company's philosophy and identity, and integrating usable resources which you have, so they are logical and inevitable ideas. As long as you can list items for "what we should do", you can move to phase 2.

Integration of Resources

The 2nd phase of the Coconut Innovation Process is the integration of resources. The goal of the 2nd phase is to establish the initial values of 4 design targets by integrating resources which you brought together and discovered in the 1st phase. These 4 design targets are concept, customer experience, service ecosystem and business model. You can design them simultaneously, but it is much easier to design in this order because customer experience premises concept, service ecosystem premises customer experience, and business model premises service ecosystem. Thus, the author introduces them in this order.

Concept Design

In the case of the design concept of new products to create new business, you should consider it from two viewpoints.

a. Customers' Issues.

The 1st viewpoint is customers' issues. The issues target customers' pains, frustrations and so on. At the initial value of concept, the image of the customer might be vague. However, when you refine the concept, the image of the customer will gradually become more concrete while you expand resources by the participation of potential customers in the design process.

b. Value Proposition by Company

The 2nd viewpoint is value proposition by company. In the SDL theory, value cannot be created only by companies. Only when the customers receive the value proposed by the company, and experience them, will the value be created. This is the standpoint that values can be recognized phenomenologically. Based on this viewpoint, companies are just actors to propose values, and values can only be created with the experiences of customers. Thus, values are co-created by customers and companies.

Customer Experience Design

After designing the initial value of the concept of new products, you have to refine the concept, and design the customer experience of the product. The tools to design attractive customer experiences are Persona and Story.

a. Persona

Persona is the model of the customers who will use the products, and are described in the document (Cooper, 2008). By defining the Personas, you can design concrete customer experiences. Namely, you can design stories of what kind of experience you will offer and how customers with specific attributes will react.

b. Story

In the case of most of the design methods, you will describe the story for customers when you design the story. However, in the case of the Coconut Innovation Framework, you will describe stories with two viewpoints: that of the customers and of the companies. By describing from both sides, you can completely extract a variety of elements, which are

needed when companies offer values, customers receive them, and the value is co-created. The elements will be used to design service ecosystems.

Service Ecosystem Design

After designing the initial values on customer experience of new products, you will design the service ecosystem in order to deliver customer experience based on the elements listed when you designed customer experiences. The service ecosystem should be designed at 3 levels: micro, meso and macro.

a. Micro System

The micro system is one where a small number of actors exchange services. For example, you should design a system composed of relationships among companies that offer values and customers who pay for the offering.

b. Meso System

Meso system is a group of a variety of actors composed of specific approaches to solve issues. Although multiple micro systems make a meso system, the meso system has an influence on each micro system.

c. Macro System

The macro system is a stable system made up of multiple meso systems. As a meso system has influence on micro systems, a macro system has influence on meso systems.

When you create a new macro system, you will design the culture and society that you want to generate through new products. They must be deeply connected to your team's philosophy and identity. Simultaneously, existing macro systems may have an influence on your team's identity and philosophy.

Business Model Design

After designing the initial values of a service ecosystem to offer new products, you will design a business model in the final step of this phase. You have already designed the relationship among the actors when you designed a service ecosystem. Based on this relationship, you design a business model about how and where you will generate revenue and profits with 4 steps.

a. Cost

After implementing prototypes of new products with your partners, you make a list of the necessary costs.

b. Revenue Model

After designing a service ecosystem and listing the total cost, you have to confirm your revenue model. Through the model, you will be able to predict how much profit you can earn after you launch your products.

c. Market size

You can estimate market size even if you develop a product in a new category. You need to confirm market size and the future potentiality of your business by specifying compelling data to help the management level of your company to judge the final decision for launching the new business.

d. Business Planning

Based on cost and revenue models, you design business plans over multiple years. As it is apt to be short of budget during the first and second years, you should plan them on a monthly basis. If you design several patterns of business plans based on the best and worst cases, you can grasp each break-even point according to the speed of expanding your business, and

then you can confirm how long you can spend to collect the initial cost or how much money you need to invest

This phase generates the initial values of concept, customer experience, service ecosystem and business model of new products with constraints of your company or team's philosophy and identity by integrating the resources that you discovered in the 2nd phase. You remember that these are just the initial values of the 4 design targets. The goal is to generate new business, and you have to expand your resources and update your means towards the goal.

Expansion of Resources

The final phase of the Coconut Innovation process is the expansion of resources. This phase will have continued until the project ends after you have integrated the resources and established the initial values of the new products. During this phase, you will launch the products. You will update the values of the products by expanding resources after the release.

This phase uses 4 design tools, partnership, fieldwork, prototyping and testing in order to expand your resources. You can use them simultaneously or separately. For example, you will frequently offer prototypes to your customers as well as partners during a fieldwork and conduct testing of the prototypes in order to expand resources.

Partnership

The 1st tool is partnership. Through partnership, you can not only expand resources, but also converge the directions of the products by using the relationship with your partners as constraint conditions. If you do not have any partners, you have no guiding power toward any directions, and uncertainty toward any direction has not changed, which leads to an isotropic state. However, with partners, uncertainty toward a direction will have bias. Here, the author introduces 4 types of partnership.

a. Potential Customers

You can expand resources by involving potential customers in the design process because they work for value co-creation.

b. Technical Partners

Technical partners will be needed to transfer your prototype of the products to the launch version. For example, if a company has functions and specifications which your company cannot achieve, or a company has some technology to cut the total cost of the products, you can shorten the whole development time or increase the quality of the products with this kind of company.

c. Design Partners

Design Partners will be needed when you release the product after implementing the launch version of the product. For example, Design Partners are in charge of the design language such as body, packages, logo, customer experience such as interaction UX, and communication for promotion such as the website and application.

d. Channel Partners

Channel Partners will need to deliver your product to the customers when you launch your products. This is because you cannot expect sufficient revenue without delivering your products to customers in appropriate ways even if you can design attractive products for customers.

You can expand your partners when you spontaneously try to discover by yourself or your partners' or when candidates of partners suddenly emerge. In any case, it is important to use any opportunities as springboards to take your business forward.

Fieldwork

The 2nd tool is fieldwork. With fieldwork, you can discover resources which you can use for value proposition. In the 1st phase, the methods used for fieldwork and the kind of resources that you should collect have been mentioned, but in this phase, the main objective is the discovery of operand resources and operant resources that can be used for the value proposing process.

Prototyping

The 3rd tool is prototyping. With prototyping, customers can experience the values proposed by companies. On the other hand, you can confirm whether your company has the skills and knowledge for value proposition in your company by trying to create the state where the customers can experience the values. If your company finds that it has these skills and knowledge, you can then update them via prototyping. Also, prototyping is strongly connected to the 4th tool, testing, and is a prior condition of test.

a. Functional Prototype

b. Design Prototype

c. Contextual Prototype

There are a variety of targets for prototyping. First, you will design 3 prototypes to test concept, customer experience, service ecosystem and business model. Functional Prototype tests functions or the feasibility of the products. Design Prototype tests the appearance of the products. Contextual Prototype tests the context where the products will be used.

d. Media to deliver stories of products

e. Media for the customer experience in store

f. Media to develop a sustainable relationship with customers

In addition, the media to deliver the products to customers will also be targets for prototyping. When you design the media, you will design 3 types of media. Media to deliver stories of products are used in the phase when customers do not recognize and have not experienced the new products visually. Media for customer experience in store are used in the phase when customers recognize the products in store visually within 3 to 7 seconds. Media to develop a sustainable relationship with customers are used to develop a relationship to produce profits continuously by companies and customers who purchase the products.

It is not sufficient to design 6 prototypes to expand resources, but necessary to combine them with the next tool, testing. With testing, you will verify the hypothesis on these prototypes, acquire new knowledge, and implement new prototypes based on the resources.

Test

The 4th tool is Testing. Customers will experience the value offered by companies via testing, participate in the value co-creation process, and give feedback to the companies. On the other hand, the companies can update skills and knowledge related to the value proposition by acquiring feedback from the customers.

a. Concept and Customer Experience

In order to test the hypothesis related to the concept and customer experience, you will offer 3 prototypes, functional, design and contextual prototypes to the customers, users and experts, and obtain feedback. The feedback can be used as resources to refine the concept and customer experience.

b. Service Ecosystem and Business Model

In order to test the hypothesis related to the service ecosystem and business model, you will deliver the new products to your customers, implement the whole process of customer

experience, analyse the phenomenon there, and obtain feedback from customers. As a result, it will turn out that specific skills and knowledge are insufficient, costs are too great, or some processes could be made more efficient. This feedback can be used for resources to refine the service ecosystem and business model.

c. Media

In order to test the hypothesis related to the 3 media to deliver the attractiveness of the products, you will analyse the behaviour of the customers on these media, and obtain feedback. For example, it occurs that there are some issues that page views cannot achieve sufficient quantity, some products in store are not appealing to customers, or engagement on social media are not increased. This feedback can be used as resources to refine each media.

By expanding the resources of your company with these 4 tools, you can update the concept, customer experience, service ecosystem and business model of new products from the initial value. The most important point is to keep the initial value of identity and philosophy of your company during the refinement process. The identity and philosophy which you identified in the 1st phase is the basis of your company's brand. You cannot earn trust from your customer if you frequently change identity and philosophy. You can alter the product range, but should not easily alter the identity and philosophy of the product.

Conclusions

This paper developed a practical innovation framework – the coconut innovation framework – by integrating the resources of developing countries and industrialised countries, creating new businesses, and expanding resources. This framework is composed of the coconut innovation process with three phases, four design targets designed through the process, and four tools used during the process.

Although this framework uses resources in developing countries, the target of application is not limited to developing countries. WANIC as a case study used resources in the developing countries, but this framework can improve probabilities for innovation success by initiating resources around actors, integrating a variety of resources, creating a new business, and finally expanding available resources. In this paper, the author only introduced one empirical case study, due to space and word-count limits. However, one case study about financial web services, which the author has developed in Japan – one of the industrialised countries – initialised resources which only actors in the industrialised countries have, and could be used for empirical data to develop this framework.

The author will continue to work on other projects in order to achieve more innovations focusing on resources using this innovation framework. In parallel, the author will spread this framework via the internet as an open source in order to gain further proof of the concept.

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