

# BUSINESS MODEL DESIGN METHODOLOGY FOR INNOVATIVE PRODUCT-SERVICE SYSTEMS: A STRATEGIC AND STRUCTURED APPROACH

Ji Hwan Lee<sup>1</sup>, Dong Ik Shin<sup>1</sup> and Yoo S. Hong<sup>1</sup>, Yong Se Kim<sup>2</sup>

<sup>1</sup>Seoul National University, <sup>2</sup>Sungkyunkwan University

## ABSTRACT

The business model is receiving considerable attention these days as companies achieve great success, or suffer damaging failure, by changing their way of doing business. Most of the literature on this subject has looked to establish the taxonomy, architecture, or constituent elements of business models, with the aim of isolating their key characteristics. However, only a few have dealt with supportive methodologies for business model design. The present study aims to provide a structured methodology for business model design. At the core of the methodology lies a design template with which a current business model can be analyzed or reinvented in a systematic manner. The template consists of a set of predefined building blocks that describes a business model's strategic patterns and/or constituent elements, which building blocks were collected and verified through an investigation into more than one hundred real-world business model cases. In addition to the design template, a framework for new business model design also is provided. With the help of the representational schemes and procedures therein defined, one can design a business model in a more structured way. The framework is illustrated by means of a case study of an apparel company that set out to commercialize its newly designed product-service system concept.

*Keywords: Business model; Business model design; Building blocks; Design template; Design framework; Value creation mechanism; Strategy; Protocol*

## INTRODUCTION

### What is business model?

Market globalization and the rising expectations of customers have drawn companies into fierce competition. Some innovative organizations are meeting this challenge by creating new values from combinations of products and services. Manufacturing industries are delivering their product functions as services, and service industries are packaging their service processes into various product forms in order to make them more easily accessible by more customers [1]. The product-service system (PSS), a novel concept, is a means of delivering better values to customers by way of the integration of products and services [2]. Much interest in the system has been stimulated in both academia and industry, and unsurprisingly, since it can alter the basis of competition by delivering innovative offerings while reflecting environmental advantages [3].

However the PSS concept itself cannot guarantee success in the market. To ensure its successful implementation, a supporting business model should be identified and utilized as well. A business model, simply, is a logical description of how a firm does its business with its product or service. By exploring the six cases of spin-off companies from the Xerox Corporation, Chesbrough and Rosenbloom [4] ascertained the importance of a business model in unlocking the potential values of product or service offerings and connecting technical potential with economic value realization.

Whereas the term business model is widely taught and used, in academia and in practice, complete agreement on its definition remains elusive. One reason for this is the inter-disciplinary nature of the business model. Alt and Zimmermann [5], investigating various business model definitions, pointed out that a firm's decisions on various levels of abstraction are related to the concept of the business model. For example, before commencing business operations, a firm needs to determine its overall mission and strategic goals. Then, on this basis, industry-level plans involving the configuration of value chains through selection of stakeholders and definition of their roles might be addressed. Focusing on a firm's inner operations, various activities and supporting organizational forms need to

be designed in order to effectively capture values from product or service offerings. All of these elements, and on various levels, should be addressed simultaneously in designing a business model. Horizontally, what needs to be addressed for the purposes of creating a business model differs according to various perspectives. For example, a business model is defined as the operational structure of a firm. Zott and Amit [6] provided an operational perspective by defining a business model as a firm's activity structure for implementation of strategic actions. In this context, the major role of the business model is to logically explain the process of value creation via coordination of a firm's business activities. Sometimes, a business model is regarded as a revenue structure or a pricing mechanism of a product or service offering. In this economical perspective, the function of the business model is to provide a method that ensures sustainable profits by means of revenue stream innovation or cost reduction. The business model also can be defined from a strategic perspective. This view regards the business model as a set of strategy-implementation schemes. The aim is to provide a detailed plan for securing competitive advantages over other firms.

### **Why does a Business Model Matter?**

Interviewing hundreds of CEOs of global companies, Pohle and Chapman [7] ascertained that most of them consider business model innovation to be their major priority. And, as some companies from the airline, electronic device and mobile phone industries and others have achieved huge success by changing their business models, the notion of the business model nowadays is receiving considerable attention. The ideas of business model innovation are reflected in emergent management keywords such as 'freeconomics' and 'long-tail' [8], 'open innovation' [9], and 'Web 2.0' [10]. Regardless of the differences of context or in the applicable industries, these keywords' common denominator is the emphasis on reinventing the ways of doing business. Rather than emphasizing rapid technology development, they suggest innovation in the means of getting paid, in partnerships, or in designing new value propositions.

### **Research objective**

Although there is a strong need for business model innovation guidelines, one finds only with difficulty any structured methodologies. Whereas the literature on business models attempts to establish the taxonomy, architecture, or constituent elements, most studies have focused only on the question, "What elements are needed to establish a firm's business model?" And there remains the question, "How is an innovative business model to be designed?"

This study aimed to develop a systematic business model design methodology. A reference model named the 'business model design template' was developed to facilitate the ideation of business model innovation. The template consists of a set of predefined building blocks that represent the strategic patterns or constituent elements of a business model. Those pre-defined building blocks were obtained by investigating more than one hundred real-world PSS business models and their relevant literature. The building blocks in the template were devised in such a way that one can efficiently represent any business model cases. Furthermore, the template, by mixing and matching various building blocks, provides a business model planner with a variety of business model alternatives, which can help to reveal the one, innovative scheme.

In addition to the design template, we devised a structured framework for business model design. Following a series of steps defined according to the required inputs and deliverables, one can design a business model in a more structured way. The framework takes as input the basic product or service ideas and outputs an overall value generated through the proposed business models. In order to support each step, various methodologies, including the business model template, value creation mechanisms, and value classification schemes, are proposed along with the underlying representation schemes.

### **BUSINESS MODEL DESIGN TEMPLATE**

It is noteworthy that the most interesting business models emerge by combining features of other business models [11]. For example, a widely employed revenue model of Internet business, by which content is provided to customers for free in exchange for attention paid to advertisements, comes from the traditional broadcast industry. This free revenue model recently has been applied to various product and service concepts beyond the Internet. In addition to revenue models, various features such as channel configuration, relationship strategy and cost structures also can be combined to establish a firm's new business model.

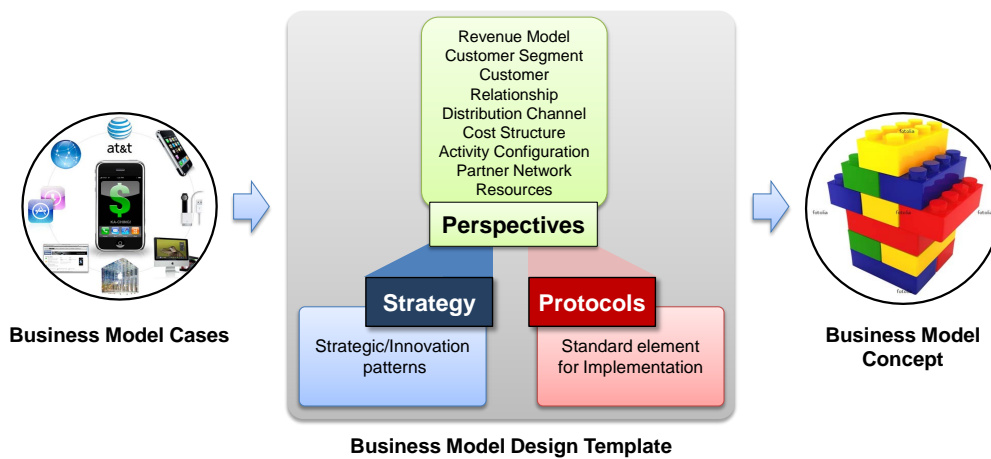


Figure 1. Business model design template

In this sense, we developed a reference model that can be used in the ideation process of the business design. The reference model, referred to as a business model design template, consists of predefined building blocks, each of which represents specific features or ideas that could be applied to create the new business model. Those building blocks were derived from a comprehensive analysis of about one hundred real business model cases across various industry fields. Although there are several top-down approaches that define the overall architecture of the business model and its predefined building blocks, the proposed method is more flexible, since the overall building blocks can be updated as new business models are accumulated to the reference. Also, it is a more practical method for business model creation, since the building blocks used in the proposed method are generic enough to be combined across the boundaries of various industries so that the proven ideas in one business could be transplanted in another, which is often the case in the real world. The overall structure of the design template is illustrated in Figure 1.

For new business model creation, we propose two types of building blocks: *strategies* and *protocols*. A strategy is an upper-level decision that a business model can pursue. It drives the overall logic of the firm and the way it operates according to its specific purpose. On the other hand, a protocol provides a set of standard elements that need to be considered in implementing a business model, in order to ensure that the entire logic of the business is sound and synchronized. In order to provide a clear understanding of the strategies and protocols, we refer to Casadesus-Masanell and Ricart [12]’s distinction between the strategy and tactics of a business model. They define the strategy as ‘the choice of business model through which the firm will compete in market places’. When the upper-level decisions are made, the firm devises the tactics — ‘the residual choices open to a firm by virtue of the strategic choice’ — for implementing a strategy. The same analogy could be applied to the concept of strategies and protocols. Whereas there are similar approaches that incorporate the predefined building blocks or components of the business model, they only address operational aspects. The present study addresses both the strategic and tactical aspects of the business model in a balanced way. Strategies and protocols are classified according to the various perspectives, as illustrated in Figure 1. We used Osterwalder [13]’s framework that decomposes the generic business model into eight viewpoints. Figure 2 represents an overview of the strategies and protocols classified by each perspective.

### Identification of Strategies and Protocols of Each Perspective

This chapter explains the various strategies and protocols of each perspective in detail.

#### **Building blocks from revenue model perspective**

A revenue model perspective focuses on how to make money from a firm’s own products and services. Various sets of strategies and design protocols are collected with respect to this perspective. The strategies depict the possible innovative patterns of revenue stream generation. One such strategic pattern makes other stakeholders besides traditional customers involved in the business. Such stakeholders could pay for products or services by provision of advertisements or taking other strategic

advantages (subsidization, freemium). A firm can make the way it receives money more indirect, such as via receipt of loyalty for using their offering (loyalty) or the sharing of profits with customers (profit sharing). Changed mechanisms of receiving money can form the basis of various strategies. Recently, McGrath [14] identified novel revenue generating patterns of firms that subsidize their offerings in exchange for indirect values such as enhanced public reputation or captured market opportunities (barter and gratis).

A protocol identifies the elements that explain a revenue strategy in an objective manner. Those elements include the unit for which the customer is willing to pay, as well as the pricing mechanism that determines its price.

#### Strategy

Customer Segment	Diversification	Segment Extension	New Product Development	Segment Penetration											
Customer Relationship	Low Cost Access	Free Offering	Financial Advantage	Reward	Membership	Awareness	Education	Community	Lock-in	Interface	Contents	A/S	Life-Cycle Care	Customer Participation	Customization
Distribution Channel	Giving More Experience	Easy Access	Ubiquitous Access	Vertical Strategy	Horizontal Strategy	Adding More Functions	Bundling with Others	Sharing with others	Bundling with Ours	Sharing with Ours	Direct Channel Control				
Revenue Model	Traditional	Profit Sharing	Razor Blade	Subsidiary	Free-Mium	Cross Subsidization	Loyalty	Cocreation	Subscription	Membership	Pay-per-Use	Barter	Gratis		
Cost Structure	Outsourcing	Offshoring	Activity Integration	Affiliate Network	Re-cycle/ Re-use	Simplifying Value Chain	Business Process Re-engineering	Simplifying Product/ Service	Open Innovation	Standardize/ Modularize Component					
Resources	Valueable	Rare	In-imitable	Non-substitutable											
Activity Configuration	Novelty	Lock-In	Complementarities	Efficiency											
Partner Network	Vertical Integration	Solution Network	Internal Network	Quasi-Integration	R&D Network Standardization	Multi-Sided Platform									

#### Protocol

Customer Segment	B2B	B2C	B2G	Local	Regional	National	International	General	Multi	Niche					
Customer Relationship	Customer Acquisition	Customer Retention	Transactional	Relationship Based											
Distribution Channel	Direct Channel	Indirect Channel	Channel Sharing	Internal Device	Mobile Channel	Online Channel (Internet)	Value Added Reseller	Delivery	Bundling						
Revenue Model	Product	Service	Use	Result	Knowledge	Fix	Differential	Market	Bargaining						
Cost Structure	Activity Drivers	Industry Drivers	Resource Drivers	Positioning Drivers	Activity Cost	Resource Cost									
Resources	Humans	Equipment	Network Infra	Channel	Finance	partnership	Alliance	Customer Base	Reputation	Technology	Information	Contents			
Activity Configuration	Administrative	Product/Technology Dev	Procurement	Logistics	Operations	Sales & Marketing	Servicing	Customer Management	Channel Configuration						
Partner Network	Administration	Suppliers	Complementor	Competitor	Consultant	Buyers	Distributors								

Figure 2. Basic building blocks for business model: strategies and protocols with respect to perspectives

#### Building blocks from cost structure perspective

The cost structure perspective is that from which the cost of a business model is reduced. A popular strategy is to outsource activities or put infrastructures on more economic bases (outsourcing, offshoring). Other types of strategies can be established by rearranging activities. Cost reduction also can be accomplished through configuring products or services more simply, eliminating unnecessary functions, or recycling components or products. Changing a partnership can also contribute to cost reduction. Making an alliance with other companies to operate a business together certainly can reduce operations costs. The recent ‘open business model’ by which innovative ideas are found outside the firm can reduce the otherwise steep cost of intensive internal ‘R&D’ [9].

A set of protocols is provided for explicit representation of the cost structure. In each protocol, cost sources and drivers are described. Most of the cost sources can be categorized into operating cost or resource acquisition cost. Cost drivers that increase costs might come from the characteristics of activities, industry, the current position or the types of resources [15].

#### Building blocks from customer segment perspective

The customer-segment perspective focuses on how customers are chosen. Ansoff [16] provides a basic strategy for identifying appropriate customers for product/service offerings. A segment can be characterized by the combination of two aspects: newness of product/service offering and newness of customers.

A protocol, on the other hand, describes and categorizes the customer in an objective manner. Morris et al. [17] provides customer classification schemes. These classify customers according to type of

customer (B2B, B2C, and B2G), geographic dispersion (local, regional, national, and international) and market characteristics (general, multi, and niche).

### ***Building blocks from distribution channel perspective***

A distribution channel perspective is concerned with how to deliver the product or service offerings to the customers. For the purpose of innovating this product or service delivery, various types of strategies are considered. One possible strategy is reconfiguring the distribution channel or contact point into a more customer-oriented one by providing a new experience or function (giving more experience). Restructuring a value chain by vertical or horizontal integration could improve the efficiency of the delivery process. Improving accessibility to a distribution channel is another type of strategy. Improved IT technology can allow customers to access a channel anytime or anywhere (easy access, ubiquitous channel). Insight [18] found out that many firms nowadays innovate their business models by using the well-established channels of other industries to create a complementary effect (sharing with others, sharing with ours). Bundling products or services with other types of products or services within a channel also can enhance the effectiveness of the channel.

Distribution channel protocols are used to depict the overall structure of the channel. The structure of the channel differs according to whether a firm can control its channel directly or not (direct, indirect, sharing). In addition to the physical aspect, intangible structures implemented on the Internet or a mobile also are defined as protocols (mobile, online, internal devices). Protocols also describe the value added activity that is carried on throughout the channel in order to provide enhanced value to the customer (reseller, delivery, bundling). Finally, protocols capture the contact points throughout the customer lifecycle, which points include awareness, purchase, use, and disposal. They describe when and how the customer accesses to its channel.

### ***Building blocks from customer relationship perspective***

From the perspective of the customer relationship, various strategies and protocols are considered in order to secure a larger customer base and to maintain a close relationship with those customers. The most popular strategy is the provision of economic incentives to customers. A discount or subsidy can be offered to a new customer in acquiring him/her (low cost, discount) or in maintaining already-established relationships (membership discount, reward). Providing better information on product or service offerings can lead to better relationships. In addition to traditional promotions or product advertising (awareness), many companies are now providing consulting, education services or communities for better knowledge acquisition with regard to how offerings can effectively be used (education, community). Other types of strategies are concerned with raising the cost of switching. Standardizing offerings (standardization), providing a better interface with other products or services (interfaces) or having massive contents (contents) serve to maintain the relationship with customers by making them reluctant to try a competitor's offerings. A more direct type of strategy is to extend the relationship. Many companies are now providing a total life cycle around their offerings, thereby generating value by extending their relationships with their customers (A/S, life-cycle care). As of recently, many customers are participating in the process of the creation of offerings or of offerings' contents. Configuring the business model so that a customer can be more involved in the value creation process has the potential to lead to closer, better relationships (participation). In order to describe the relationship strategy in more detail, protocols such as concerning the objectives of relationships or the types of transactions for offerings are defined as well.

### ***Building blocks from partner network perspective***

As of today, the traditional concept of the value chain has evolved into a more complex network that consists of various stakeholders performing its specialized activities [19]. If a business model is to be operated more efficiently or effectively, various types of stakeholders need to be involved. The partner network perspective focuses on the relationship among other partners or stakeholders. There are various types of strategic networks among stakeholders. The strategic forms of the partner network are collected as a strategy. Those kinds of networks can be formed at the overall value chain level. One can assign many activities to other stakeholders to secure the advantage of ensured efficiency (solution network). On the other hand, the opposite case in which all activities are performed in-house by integration also is a possible strategy (vertical integration). Specific activities in the value chain can be performed by alliances with other companies together or other organizations within the firm (quasi

integration, internal network). Performing R&D activities with other stakeholders in order to establish standards is another type of strategy (standardization).

In describing a partner network more explicitly, each building block of the protocols represents a specific type of stakeholder involved in the business model. We used Gemunden et al. [20]'s classification scheme for possible stakeholders in the value network.

### ***Building blocks from activity configuration perspective***

Open communication among firms and the imperative to reduce transaction costs enable and oblige them, respectively, to focus on specific activities. Nowadays, individual firms do not usually manage all of their activities through entire value chains [21]. In this sense, the activity configuration perspective provides a possible set of activities that a firm can choose in establishing its business model.

The protocols of this perspective provide a set of generic activities in which a firm chooses to specialize. A firm's overall activities are well organized by the value chains concept [22]. In order to generate values, a firm should specialize in developing products or services, channel configurations, logistics or marketing activities. In order to carry out these primary activities, a firm should focus on supportive activities such as business administration or customer management. Various types of business models become possible by combining the specific activities in which a firm would specialize. Strategies identify the strategic types of activity configuration for a firm. According to Zott and Amit [6], there are four major categories of dominant value-creation drivers of a firm's activity system. These drivers are named novelty, lock-in, complementarities and efficiency. The value of novelty-centered activity configuration comes from adoption of innovative activities or their structures. Lock-in centered configuration aims to keep other stakeholders attracted to the business model. Efficiency-centered configuration aims to enhance the cost structures of activities. Finally, in the strategic objectives of complementarities there are bundling activities within a system in order to generate more value.

### ***Building blocks from resources perspective***

As is the case with activities, a firm needs various resources to operate their business model. Protocols provide a set of resources that can be used by a firm. Tangible resources such as human resources, special equipment, network infrastructure, channels, or financial assets are obtained directly through the firm's activities. Intangible assets such as technologies, information or contents are used as resources. On the other hand, the relationships with other stakeholders represent precious resources for the firm. In this sense, a partner network or the firm's established customer base or reputation is identified as the firm's resources.

In a strategy sense, a firm can use its resources as a source of competitive advantage. Barney [23] provides a well-established framework for strategic analysis of such resources. When resources used to operate the business model are valuable (meaning, they enable a firm to outperform competitors), rare, inimitable, or non-substitutable, they enhance the firm's overall values. We use these four types of strategic positioning of a firm's resources as the keywords indicating the resource perspectives.

## **BUSINESS MODEL DESIGN FRAMEWORK**

In this paper, a five-step procedure for designing a new business model is proposed. With the help of supportive methodologies and procedures defined in each step, one can design a business model in a structured way. In Figure 3, an overview of the framework is represented, with a description of each step and the supporting tools therein. Although the framework represents a general sequence of design steps, it does not need to be strictly followed. A business model planner can iterate each step back and forth until he/she finds the best solution for a new business model. The following section explains each step in a more detailed way.

### **Step 1: Identifying Product or Service Elements**

The first step is selecting the basic product/service elements to commercialize through the business model. When the product or service elements are derived from their established business portfolios, the design process often aims to reinvent the established business model. Or, when a firm develops a novel product/service concept based on new technologies, it is required that it find a new business

model that can realize the potential values. In both cases, the proposed framework provides supportive procedures for business model design.

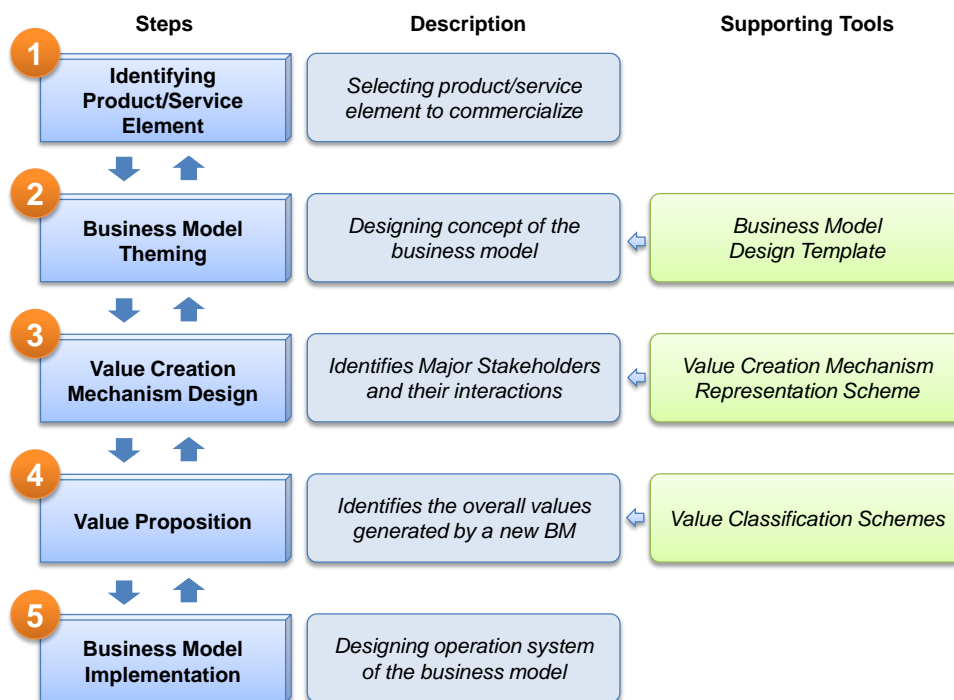


Figure 3. Classification schemes of strategies and protocols

### Step\_2: Business Model Theming

In the second step, the concept of the business model is designed. The business model design template is a core part of the business model concept. By combining the various strategies and protocols of the eight perspectives from the design template, a business model planner can generate various ideas that support the new product/service ideas. We name this concept of the design process business model ‘theming’

### Step\_3: Value Creation Mechanism Design

The third step shows the logic of the business model’s value creations by identifying value exchanges between stakeholders. The value creation mechanism visualizes such logic in the form of the network illustrated in Figure 4. In the representation schemes, the node corresponds to major stakeholders or product/service elements involved in the business model, and the arc corresponds to the flow of resources such as money, information, product/services, reputations, and others. Based on this network, we can easily describe what kinds of stakeholders are involved and how they interact with each other. While this concept is similar to that of ‘customer value chain analysis’ [24] or the ‘value network’ framework [25], our methodology focuses on the business model rather than visualizing the entire value chains of the firm.

In order to develop the value creation mechanism in a more structured way, we defined sub-procedures. Figure 4 describes each procedure for devising a value creation mechanism. In the beginning, the basic network that represents a firm’s current business model is identified. Current customers and partners are identified as nodes, and flows of resources between stakeholders are identified as arcs (steps 1 and 2 in Figure 4). The current network of the business model is then modified according to the new business model concept. The selected set of strategies and protocols provides good guidance on what nodes or arcs to modify. In the modification, new stakeholders or product/service elements are added as new nodes or by replacing existing ones (steps 3 and 4). Then, new paths of flows are added as new arcs to the network (step 5). These new flows also affect existing flows by changing their resources, directions or relative strengths. These changes are identified in the last step (step 6).

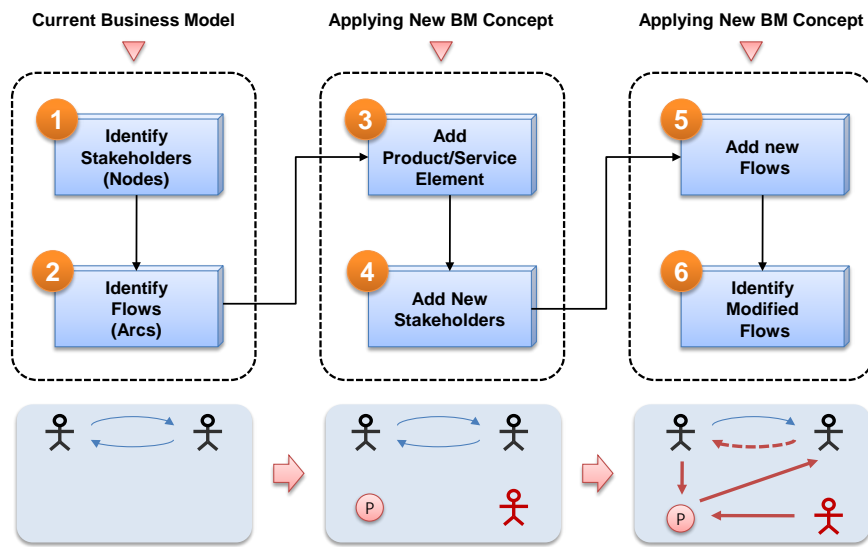


Figure 4. Procedures for designing value creation mechanism

#### Step 4: Business Model Value Proposition

The fourth step is the value proposition. The value proposition identifies the overall values generated by new business models. Figure 5 represents the three-step procedure for identifying its overall values. The first step is to identify each stakeholder's benefits. By depicting the value creation mechanism's flows of resources related to each stakeholder, we can easily list the possible benefits of each stakeholder. The next step is mapping those possible benefits into more generalized types of value. We use the value classification schemes named 'e-3 value' as a reference for identifying those value types [26]. This classification scheme, which has three major categories — economic, ecologic and experience — was developed to explain the values pursued by the various stakeholders, such as the end customer, the company and the overall society. In the final step, named the value proposition, the generalized values are described in more detail.

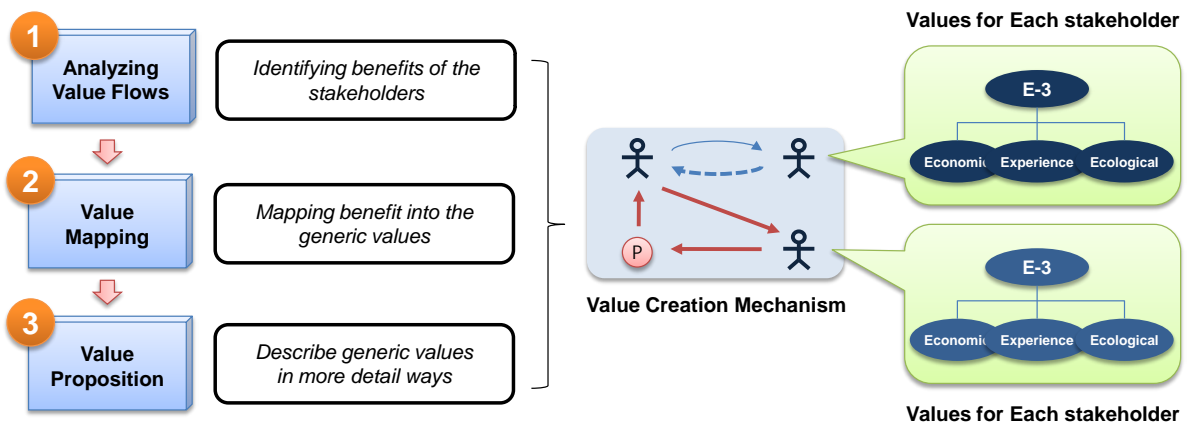


Figure 5. Procedures for identifying value proposition

#### Step 5: Business Model Implementation

In this step, the operational system of the business models is designed. The detailed activities for fulfilling the value proposition of the business model are organized according to the business model theme. Zott and Amit [6] define the activities of the business model as the engagement of the human, physical and capital resources of any party to fulfill overall objectives. Since those activity-level designs largely depend on the specific context or environment of the focal firms, the planner's experience or knowledge of their activities is required.



## CASE STUDY — DESIGNING A NEW BUSINESS MODEL FOR CLOTHES RECYCLING BINS

In order to explain the overall framework more explicitly, we present a case study in business model design regarding clothes recycling. In the case of the existing recycling system operated by public services, many people are unwilling to donate their used clothes because it is poorly designed and located in unfavorable areas. In order to improve this situation, a new concept of recycling named ‘TakeIN’ were proposed by Cho et al. [26]. This new concept can provide a clothes donator with a more positive experience, since it has improved aesthetics with additional functions aiding the clothes-packing activities of the user. In contrast to the traditional system as managed by a public agency, we aimed to develop a new business model that can be operated by apparel companies. Using the methodologies followed in the steps, we can design a new business model more efficiently. The product/service elements for commercialization through the business model are determined in the first step of the framework. Since we have already identified the concept of commercialization, we can proceed to the next step.

### Identifying Product and Service Elements and Business Model Theming (Steps 1 & 2)

In this step, we develop the overall concept of the business model. This concept should be aligned with the strategic objectives of the firm. By reinventing its business model, the firm wants to achieve the two strategic goals. The first is to enhance its reputation on its participation in socially admirable activity. Furthermore, it also wants to enhance economical benefits by enticing more customers to buy clothes. Using the business model design template, we can identify the set of strategies and protocols for achieving those strategic goals. The best combination is determined through iterative trials for identifying appropriate strategies/protocol elements. Figure 6 represents the selected strategy and protocols. Initially, the company aims to target their existing customers, who buy clothes in the local stores. In the distribution channel perspectives, it decides to install new clothes recycling bins in their local branch stores. By sharing the channel of the donation with the existing distribution channel, they can secure more opportunities to sell their clothes. In order to make customers participate in the business model, a strategy that provides financial rewards or coupons to customers who are willing to donate clothes is pursued.

Strategy														
Customer Segment	Diversification	Segment Extension	New Product Development	Segment Penetration										
Customer Relationship	Low Cost Access	Free Offering	Financial Advantage	Reward	Membership	Awareness	Education	Community	Lock-in	Interface	Contents	A/S	Life-Cycle Care	Customer Participation
Distribution Channel	Giving More Experience	Easy Access	Ubiquitous Access	Vertical Strategy	Horizontal Strategy	Adding More Functions	Bundling with Others	Sharing with others	Sharing with Ours	Bundling with Ours	Sharing with Ours	Direct Channel Control		
Revenue Model	Traditional	Profit Sharing	Razor Blade	Subsidiary	Free-Mium	Cross Subsidization	Loyalty	Cocreation	Subscription	Membership	Pay-per-Use	Barter	Gratis	
Cost Structure	Outsourcing	Offshoring	Activity Integration	Affiliate Network	Re-cycle/ Re-use	Simplifying Value Chain	Business Process Re-engineering	Simplifying Product/ Service	Open Innovation	Standardize/ Modularize Component				
Resources	Valuable	Rare	In-imitable	Non-substitutable										
Activity Configuration	Novelty	Lock-in	Complementarities	Efficiency										
Partner Network	Vertical Integration	Solution Network	Internal Network	Quasi-Integration	R&D Network Standardization	Multi-Sided Platform								
Protocol														
Customer Segment	B2B	B2C	B2G	Local	Regional	National	International	General	Multi	Niche				
Customer Relationship	Customer Acquisition	Customer Retention	Transactional	Relationship Based										
Distribution Channel	Direct Channel	Indirect Channel	Channel Sharing	Internal Device	Mobile Channel	Online Channel (Internet)	Value Added Reseller	Delivery	Bundling					
Revenue Model	Product	Service	Use	Result	Knowledge	Fix	Differential	Market	Bargaining					
Cost Structure	Activity Drivers	Industry Drivers	Resource Drivers	Positioning Drivers	Activity Cost	Resource Cost								
Resources	Humans	Equipment	Network Infra	Channel	Finance	partnership	Alliance	Customer Base	Reputation	Technology	Information	Contents		
Activity Configuration	Administrative	Product/Technology Dev	Procurement	Logistics	Operations	Sales & Marketing	Servicing	Customer Management	Channel Configuration					
Partner Network	Administration	Suppliers	Complementor	Competitor	Consultant	Buyers	Distributors							

Figure 6. Business model concept of the TakeIN: combination of strategies and protocols

Although the firm sacrifices a portion of its current profit by providing rewards or coupons to its customers, it expects long-term values such as enhanced reputation or higher customer loyalty. This idea can be itemized as a barter model strategy in the revenue model perspective. On the cost side, a firm should improve its cost structure. In order to reduce the overall cost, the firm makes the decision to pursue the affiliate network model, which operates its business model with those of competitors

together. According to this strategy, a company needs to change its partnership network to a scheme of quasi-integration. On the operational side, the company should undertake logistics-related activities for storing and transferring the used clothes. Moreover, marketing activities that inform customers of its novel concept also are needed. Finally, as regards the firm's core capability, it should use its established channel and the reputation of its apparel brand to organize its activities more effectively.

### Identifying Value Creation Mechanism (Step 3)

The next step is to design the value creation mechanisms of the business model. Figure 7 describes the overall design process. The left side of the figure shows the mechanism of the current business model. In this simple structure, a company produces the clothes and provides it to the customers through the exchange of money. This simple value mechanism is changed according to the change in the business model concept.

First, new product/service elements, i.e., TakeIN, are added to the current network. New stakeholders such as clothes beneficiaries who benefit from the customers' donations, together with other companies that operate this recycling system are added. Notice that these stakeholders identified in the mechanisms are just part of the overall stakeholders. In a real situation, various stakeholders such as distributors and outsourced manufacturers also are involved in the business model of the apparel company. However, we re-strict our focus to the TakeIN system and the relevant stakeholders who can obtain values directly.

The next step is to restructure the flows of resources. New such flows are identified according to changes in the stakeholders and elements in the value creation mechanism. A company should provide rewards points to customers through the TakeIN system in ex-change for the customers' used clothes. A customer who benefits by these rewards points strengthens the flow of money by buying more clothes in the store. Or, the used clothes go to the beneficiary, enhancing the positive reputation of the apparel company.

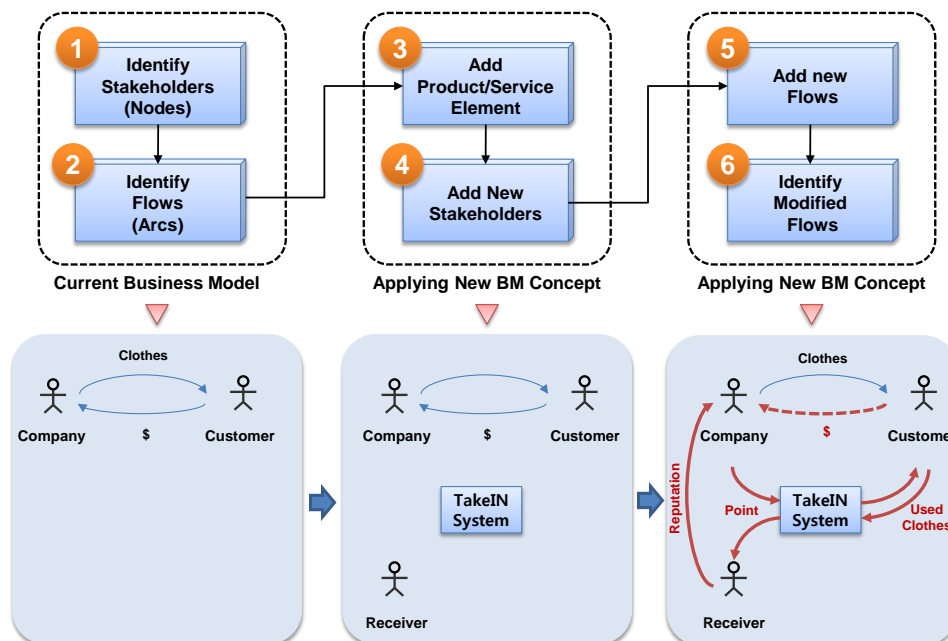


Figure 7. Value creation mechanism design of the TakeIN system

### Value Proposition and Business Model Implementation (Steps 4 & 5)

When the value creations mechanisms are designed, we can identify each stakeholder's obtained values. In this case, major stakeholders in the business model are customers who donate their used clothes and the company who operates the TakeIN system. By analyzing the paths of the flows in the value creation mechanism, we can find two possible benefits for customers. In Figure 8, the value proposition of the customer is derived according to the three-step procedure. Possible benefits such as participating in donation activities and financial rewards received from the company are mapped into experience value and economic value, respectively. Those generic values are explained by detailed sentences in the final step. The company's cases are analyzed in Figure 9. In the first step, two kinds

of benefits are identified: the reputation conferred by society for helping the clothes beneficiary, and the enhanced money flow from the customer. Those benefits also are mapped into the experience and economic values, respectively, in the second step, and then they are explained by detailed sentences in the final step.

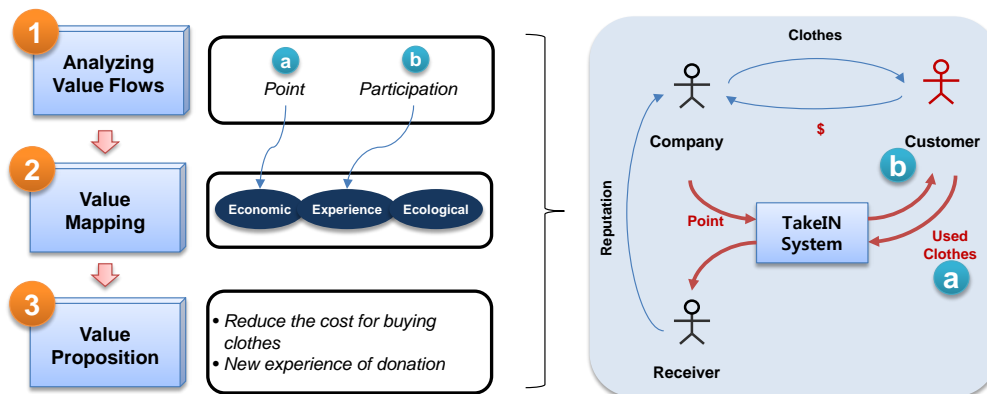


Figure 8. Value proposition for the customer in the TakeIN system

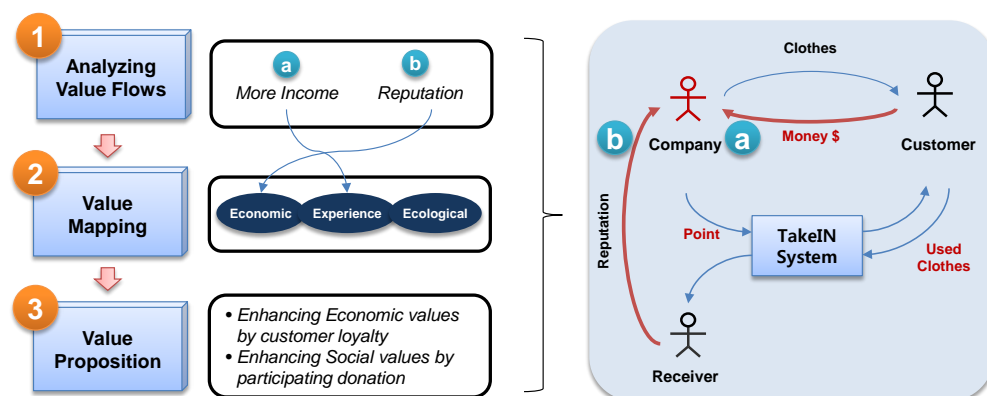


Figure 9. Value proposition for the company in the TakeIN system

## CONCLUSIONS AND FUTURE WORK

Designing a good business model is a ‘must’ for surviving in competitive environments. A firm, by doing its business differently, finds new ways of innovating revenue streams and reducing costs. Whereas the term business model is widely used both in academia and in practice, there is no structured methodology that supports business model design.

The proposed method provides a reference model named the ‘business model design template’ to facilitate the design of the new business model. The template defines the basic building blocks of the business model and classifies them according to various perspectives. Two types of building blocks, named strategy and protocol, are collected through the analysis of more than one hundred real business model cases. A strategy depicts a strategic pattern of the business model, and a protocol defines the standard element to consider in implementing a tangible structure. The design template provides two kinds of benefits. First, it enhances the efficiency of the design. The business model planner can generate various design alternatives by simply mixing and matching building blocks in the template. Second, it also facilitates business model analysis. By tagging strategies and protocols, one can represent the business model in a more structured way.

This study also provides a framework for business model design. The framework identifies the required steps along with the representational schemes for translating the basic idea of the product and service elements into the rigorous business model structure. In addition to the conceptual design, the proposed framework also supports design methods for the value creation logic of each stakeholder involved in the business model.

There are, however, further research issues to explore. Firstly, the inter-perspective relationship between building blocks may need to be identified. Strategies or protocols from various individual

perspectives should be aggregated by a certain logic or pattern in order to describe the overall story of the business model. Second, a methodology to evaluate given business model alternatives should be developed. In order to define this, identifying the value structures of various stakeholders and the relationships with them is a must.

## ACKNOWLEDGMENT

This research was supported by the MKE (The Ministry of Knowledge Economy), Korea.

## REFERENCE

- [1] Wise, R. and Baumgartner, P., Go downstream: the new imperative in manufacturing. *Harvard Business Review*, 1999, 77(5), pp133-141.
- [2] Goedkoop, M.j., Halen, C.j.G.v., Riele, H.R.M.t. and Rommens, P.j.M., *Product Service Systems, Ecological and Economic Basics*. (Dutch Ministries of Environment(VROM) and Economic Affairs(EZ), 1999).
- [3] Mont, O.K., Clarifying the concept of product-service system. *Journal of Cleaner Production*, 2002, 10(3), pp237-245.
- [4] Chesbrough, H. and Rosenbloom, R., The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. *Industrial and Corporate Change*, 2002, 11(3), pp529-556.
- [5] Alt, R. and Zimmermann, H., Preface: Introduction to Special Section–Business Models. *Electronic Markets*, 2001, 11(1), pp3-9.
- [6] Zott, C. and Amit, R., *Business Model Design: An Activity System Perspective*. *Long Range Planning*, 2010, 43(2-3), pp216-226.
- [7] Pohle, G. and Chapman, M., IBM's global CEO report 2006: business model innovation matters. *Strategy & Leadership*, 2006, 34(5), pp34-40.
- [8] Anderson, C., Free! Why \$0.00 is the future of business. *Wired Magazine*, 2008, 16, pp25.
- [9] Chesbrough, H., *Open innovation: The new imperative for creating and profiting from technology*. (Harvard Business Press, 2003).
- [10] O'reilly, T., What is web 2.0. Design patterns and business models for the next generation of software, 2005, 30, pp2005.
- [11] Linder, J. and Cantrell, S., *Changing business models: surveying the landscape*. (Accenture Institute for Strategic Change, 2000).
- [12] Casadesus-Masanell, R. and Ricart, J., From strategy to business models and onto tactics. *Long Range Planning*, 2010, 43(2-3), pp195-215.
- [13] Osterwalder, A., *The Business Model Ontology-a proposition in a design science approach*. Thesis (PhD Thesis). Ecole des Hautes Etudes Commerciales, Universite de Lausanne 2004
- [14] McGrath, R., *Business Models: A Discovery Driven Approach*. *Long Range Planning*, 2010, 43(2-3), pp247-261.
- [15] Afuah, A., *Business models: A strategic management approach*. (McGraw-Hill, New York, NY, USA, 2004).
- [16] Ansoff, H., Strategies for diversification. *Harvard Business Review*, 1957, 35(5), pp113-124.
- [17] Morris, M., Schindehutte, M. and Allen, J., The entrepreneur's business model: toward a unified perspective. *Journal of Business Research*, 2005, 58(6), pp726-735.
- [18] Insight, P., Seizing the White Space: Innovative Service Concepts in the United States. *Technology Review*, 2007, 205, pp2007.
- [19] Basole, R. and Rouse, W., Complexity of service value networks: conceptualization and empirical investigation. *IBM Systems Journal*, 2008, 47(1), pp53-70.
- [20] Gemunden, H., Ritter, T. and Heydebreck, P., Network configuration and innovation success: An empirical analysis in German high-tech industries. *International Journal of Research in Marketing*, 1996, 13(5), pp449-462.
- [21] Pohle, G., Korsten, P. and Ramamurthy, S., Component business models: Making specialization real. *IBM Institute for Business Value*. August, 2005, 19.
- [22] Porter, M., *Competitive advantage*. (Free Press New York, 1985).
- [23] Barney, J., Firm resources and sustained competitive advantage. *Journal of management*, 1991, 17(1), pp99-120.
- [24] Donaldson, K., Ishii, K. and Sheppard, S., Customer value chain analysis. *Research in Engineering Design*, 2006, 16(4), pp174-183.
- [25] Allee, V., Reconfiguring the value network. *Journal of Business Strategy*, 2000, 21(4), pp36-39.
- [26] Cho, C.K., Kim, Y.S. and Lee, J.L., Economical, Ecological, and Experience Values for Product-Service Systems. In *Proceedings of International Conference on Design & Emotion*. Chicago, IL, USA.