Service Design for Social Innovation through Participatory Action Research

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Social innovation has many challenges in practice due to the complexity of stakeholders and ecological systems involved in the framework of value co-creation. First of all, the difficulties often occur during the value co-creation processes of multi-disciplinary stakeholders because of their diverse viewpoints and backgrounds, so a more effective approach is needed to enhance cooperation, communication and ideation. Secondly, social innovation needs long-term stakeholder involvement and continuous improvement to achieve the purpose of adoption and diffusion. It is challenging to build a sustainable mechanism to consistently trigger value co-creation and support transformation for key stakeholders. Today, service design that emphasizes holistic, multi-disciplinary, and integrative characteristics has become an important strategic means for many organizations to drive innovation. Therefore, through participatory action research with a social innovation platform in Taiwan, this study is designed to identify the crucial activities and useful service design tools which could facilitate multi-disciplinary ideation among different stakeholders effectively. Moreover, this study identifies four types of key stakeholders for building a sustainable value co-creation mechanism, and discovers the role positioning and motivators that can drive them to continuously participate in the mechanism from a service design perspective.

*Keywords –*Value Co-Creation, Service Design, Social Innovation.

*Relevance to Design Practice –*This research proposed an effective approach to embed service design in social innovation and created a sustainable value co-creation mechanism for the adoption and diffusion of social innovation.

Introduction

In recent years, the gap between the ideal social environment in people's minds and what can be satisfied in reality has been gradually expanding due to improved knowledge levels and the rapid circulation of information. Subsequently, the term "social innovation" emerged and quickly spread around the world (Mulgan, Tucker, Ali, & Sanders, 2007). Nowadays, more and more organizations tend to devote themselves to social innovation, including the rise of many social enterprises, which strive to find more efficient, effective, and sustainable solutions to address major social issues and challenges (Phills, Deiglmeier, & Miller, 2008). In fact, the complexity of the challenges faced by current society cannot be solved by any single discipline or organization, and social issues often face a lack of resources. Therefore, discussions on social innovation should consider how to introduce and integrate multi-disciplinary talents and resources for "value co-creation" through open innovation (Moulaert & Ailenei, 2005) in order to come up with innovative solutions to effectively deal with social issues.

However, value co-creation also brings potential risks and costs when it takes place in cross-system and multi-disciplinary design processes (Prahalad & Ramaswamy, 2004). Difficulties may arise in the field of social innovation in particular because it involves more complicated stakeholders and ecological systems (Leadbeater, 1997). These challenges often occur during the value co-creation processes of multi-disciplinary stakeholders due

to their diverse viewpoints and backgrounds, as well as to the complexity of their interest relationship network (Akama, 2009). Therefore, *an effective approach* to enhance the efficiency of ideation is crucial for value co-creation in social innovation. In addition, social innovation is different from invention because it focuses not only on the creation of new products or services, but also focuses on adoption and diffusion (Mckeown, 2008). Due to high environmental variability, the implementation of social innovation requires verification, the revision of solutions, and continuous improvement in long-term perspectives. One-time involvement or project-based cooperation obviously cannot determine the final results of social innovation. Consequently, the delivery of social innovation needs *a sustainable mechanism* to constantly trigger value co-creation for key stakeholders and to deal with derivational problems/challenges.

Currently the service economy is evoking heated discussions worldwide, and more and more companies have adopted service-dominant logic to carry out innovation work

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(Lusch & Vargo, 2006); resulting in a rise in service design. Service design emphasizes that organizations should look beyond the old thought concepts of "single entity" or "tangible products", and instead focus on the design strategy of holistic experiences (Bitner, Ostrom, & Morgan, 2008). Meanwhile, the purpose of "service design" is not just to create an integrated, delightful and unforgettable experience for customers, but also to create a feasible, efficient and effective solution for providers (Servicedesign.org, 2008). In order to integrate multiple stakeholders and resources, service design provides practical design activities and visualization tools to effectively carry out value co-creation (Tassi, 2009). Furthermore, service design is not only focused on designing solutions that respond to current problems, but is used to create an environment to assist/empower stakeholders to continuously respond to environmental changes as well (Burn, Cottam, Vanstone, & Winhall, 2006; Sangiorgi, 2011). In other words, service design also deals with the issues related to sustainable development brought on by innovation.

Nowadays, service design has gradually been deemed a catalyst for innovation in national policy, regional development, and business innovation (European Commission, 2009, P. 70; Sangiorgi, 2011). Nevertheless, compared to commercial fields, research regarding how service design is applied to social innovation is relatively deficient, especially when considering how to promote the efficiency and sustainability of value co-creation for stakeholders (Carbonell, Rodríguez-Escudero, & Pujari, 2009; Cook, Bowen, Chase, Dasu, Stewart, & Tansik, 2002). Therefore, through participatory action research with the emerging 5% Design Action social innovation platform in Taiwan (involving 4200 designers and professional volunteers and 150 organizations), this study first explored *crucial activities* and *useful service design tools* for an effective approach to value co-creation in social innovation. This approach would be especially helpful when dealing with three main difficulties in value co-creation: 1) enhancing willingness and defining good questions; 2) finding appropriate solutions; 3) presenting concepts and collecting feedback under limited resource conditions. Second, in order to generate sustainable value co-creation mechanisms needed for

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adoption and diffusion in social innovation, this study, based on service design, determined four types of *key stakeholders*, and then discovered the *role positioning* and *motivators* that could drive the key stakeholders to continuously participate in social innovation. Third, this study proposed a conceptual model for the practical application of service design in social innovation. We hoped this study could help us understand how to systematically use service design in value co-creation of social innovation to enhance efficiency and sustainability in the future.

Literature Review

Due to problems in the global economy and environment challenges, and the inefficiency/inequality of overall social operations, top-down or one-way policy making and service delivery are no longer effective (Bovaird, 2007). Instead, more bottom-up approaches are needed so that multi-disciplinary stakeholders can have open discussions and cooperation in order to form policies and designs which produce social benefits (Needham, 2008). This is the main reason that "social innovation" is being widely discussed now. Social innovation is defined as new solutions for social issues that are more efficient, effective, and sustainable than the existing ones (Phills et al., 2008). Meanwhile, the value generated by social innovation is beneficial to the entire society, instead of being limited to individuals or to a single organization (Bason, 2010). Research (Biggs, Westley, & Carpenter, 2010) has proposed two main phases in the social innovation process: 1) Bricolage: referring to ideation, including the design process of social innovation, and the integration of new ideas with realistic conditions; 2) Contagion: emphasizing the process of adoption and diffusion, as well as continuous improvement and re-innovation after initiating new solutions (See Figure 1). In addition, there are a wide range of stakeholders involved in social innovation, including private/public sector participants, NPO/NGOs, social enterprises, volunteers groups, academic institutions, and relevant supporting organizations, etc. (Tanimoto, 2012).

Social Innovation and Value Co-Creation

Social innovation is the process of "value co-creation" for the long-term benefit of society (Voorberg, Bekkers, & Tummers, 2014). This argument is closely related to the thinking of service-dominant (S-D) logic adopted by many businesses in the current service economy (Vargo & Lusch, 2008a). On the one hand, in order to find innovative and workable solutions for complicated social issues it is necessary for social innovation to undergo analysis and discussion from numerous perspectives drawing on the collective wisdom of multi-disciplinary stakeholders. Moreover, there is often a lack of resources or manpower for social innovation; therefore, the value produced by co-creation becomes necessary and indispensable during the process. That is why social innovation often utilizes new resources through an open environment, and proposes solutions created

The process of social innovation

Bricolage   Contagion

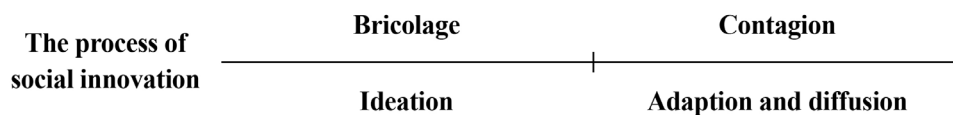Ideation   Adaption and diffusion

Figure 1. The process of social innovation (Biggs et al., 2010).

through the collaboration of stakeholders from many disciplines (Cottam & Leadbeater, 2004). On the other hand, S-D logic is tied to the value-in-use meaning of value, which explains the lack of distinct boundaries between service providers and receivers (Vargo, Maglio, & Akaka, 2008). To fulfill different stakeholders' needs, value should always be co-created. Value co-creation among service systems or stakeholders effectively depends on the resources of others to survive, and this interdependence drives service-for-service exchanges and resource integration. In order to integrate multi-disciplinary stakeholders' resources into a service network, value co-creation emphasizes placing important stakeholders within the service system into an open process, and on the development of plans together using holistic design thinking (Fullerton, 2009; Sanders & Stappers, 2008). In brief, value co-creation is the essence and spirit of a successful innovation process, which is also crucial when we try to design solutions for social issues.

Value co-creation not only brings new resources to organizations, but also brings potential risks and costs as well. Firstly, value co-creation is established on a foundation of multiple networks and it is difficult to build a relationship of trust (Prahalad & Ramaswamy, 2004), making social innovation that already has complex stakeholder interactions and nonlinear path development even more challenging. Moreover, imported value co-creation would also create a highly dynamic cooperation model (Manzini, 2007) which is open to the participation of stakeholders with diverse knowledge and from diverse professions, and might even attract "non-stakeholders" who did not originally belong to this field (OECD, 2003; Yang, Wu, Ho, & Sung, 2014). It would be difficult for the participants of value co-creation to have the same understanding of certain social issues and reach a consensus. Therefore, in order to maintain the efficiency and quality of value co-creation in social innovation, an effective approach is required to enhance multi-disciplinary cooperation, communication and ideation (Roser & Samson, 2009; Steen, Manschot, & Koning, 2011).

In addition, case-by-case engagement in social innovation is not enough from a long-term perspective. Social innovation is different from invention as it focuses not only on the creation of new products or services, but also seeks to achieve diffusion and adoption, so as to satisfy social demands and create value (Mckeown, 2008; Mulgan et al., 2007). Furthermore, social innovation needs to undergo trials and continuous improvements, and may also face the challenge of "secondary effects" on the transformation of the thinking and behavior of the stakeholders (Manzini, 2007). Mulgan et al. (2007) proposed four barriers to the adoption and diffusion of social innovation, including: 1) efficiency: even for the most attractive plan, people may be afraid of the inconvenience or inefficiency brought by the changes;

2) interests: social innovation may lead to the rearrangement of existing interest relationships, thus the stakeholders may hesitate as they must abandon past vested interests; 3) minds: any social system is related to inherent values and behavior models, and people tend to be comfortable with old ideas and practices; 4) relationships: the stability of social systems comes from intricate network relationships, especially the influence of interpersonal relationships, and most people tend to adhere to old relationships. Hence, for the eventual adoption and diffusion of social innovation, it is important to discover how to construct a sustainable mechanism which can continuously trigger or support multi-disciplinary stakeholders' involvement in value co-creation and can assist the transformation of mindsets and behavior (Freeman, 2006; McKeown, 2008; Mulgan et al., 2007).

Service Design and Value Co-Creation in Social Innovation

In relation to the challenge of value co-creation in social innovation, we found possible breakthrough opportunities using the perspective of service design. At present, the output value of the service industry accounts for more than two thirds of global gross domestic product (GDP). It is clear that the service industry is spurring the rise of service design. Traditionally, service design has been viewed as a specific stage in the new service development process. In fact, however, service design can be treated as an overall strategic approach to assist service providers in the development of explicit and visible design solutions (Mager & Sung, 2011). It adopts a broader approach, involving an understanding of users, service providers and social practices, and then translating this understanding into the development of opportunities for service interaction and mutual experience (Holmlid & Evenson, 2008). The purpose of service design is not only to create an integrated, delightful, and unforgettable experience for customers, but also to create a feasible, efficient, and effective solution for enterprises (Moritz, 2005). Nowadays, service design has gradually been applied to many social issues and challenges (European Commission, 2009; Sangiorgi, 2011), and an increasing number of studies (Bradwell & Marr, 2008; Cottam & Leadbeater, 2004; Parker & Heapy, 2006; Tanigawa & Tanaka, 2006) have discussed the application of service design in public service innovation, such as in the British NHS Medical System, American Kaiser Permanente, and the Japanese Emergent Medical System.

The intrinsic cores of service design and social innovation already have a high degree of correlation. First of all, service is the application of competences by one entity for the benefit of another (Vargo & Lusch, 2004), and it essentially encompasses the concepts of social participation and interaction (Franz et

al., 2012). Likewise, design is action-oriented in itself, which refers to the process of improving the current status and solving problems. Thus, from the perspective of service, the relevance and feasibility of social innovation through design is obvious. On the other hand, design-led logic often triggers bottom-up social innovation (Manzini, 2014), which is different from innovation driven by upper social management, as social innovation is instead facilitated by a group of multi-disciplinary social actors or creative communities with high heterogeneity. Although not all stakeholders have professional design backgrounds, they can adopt the thinking and methods of design in order to participate in social innovation projects (Burns et al., 2006; Manzini, 2009).

The application of service design in social innovation has taken place not only because of a common emphasis in value co-creation (Blomkvist, Holmlid, & Segelström, 2010), but service design also provides systematic design activities and useful tools for value co-creation. Numerous research studies (Blomkvist et al., 2011; Brown, 2008; Holmlid, 2007; Ramaswamy, 1996) have explained the key role of design in value co-creation, including providing visualized solutions, using images to clarify the abstract, adopting a set of modeling techniques for service experiences, engaging potential users and stakeholders, providing specific tools and methods to others, and conceptualizing and specifying services. In addition, professional designers can play two key roles in the value co-creation process (Manzini, 2014), including: 1) designing with creative communities, which means that the designers need to guide different members to share new ideas and possible solutions to promote multi-disciplinary cooperation and sharing, and 2) designing for creative communities, which indicates that the designers can create visible solutions, to allow stakeholders to see, experience, and evaluate the feasibility of new solutions in-depth. In order to integrate tangible and intangible contact points, service design provides systematic design activities and useful tools to effectively carry out value co-creation (Tassi, 2009). These include the creation of stakeholder maps, service blueprints, and customer journey maps. These activities and tools are used to facilitate multi-disciplinary cooperation, communication and ideation by designers, and are helpful for the effective advancement of value co-creation in social innovation.

Building a mechanism for value co-creation is considered by many to be necessary for the long-term adoption and diffusion of social innovation. This viewpoint, which is highly related to the sustainability of innovation, has been one of the main topics of discussion in service design recently, and is also the main reason the concept of "transformative service design" has been proposed. Transformative service design emphasizes that value co-creation should re-define the values and thinking model of organizations from the perspective of sustainability, and should not focus solely on designing solutions that respond to current problems. Instead it should be used to create a mechanism which can assist and empower stakeholders to continuously respond to environmental changes as well (Burn et al., 2006; Sangiorgi, 2011). In order to build a mechanism which supports sustainability, it is crucial to identify the key stakeholders, and their new role positioning

and the motivators that could drive them to join this type of long-term relationship (Sangiorgi, 2011). Past studies (Burns et al., 2006; Sangiorgi, 2011) generalized the key success factors for transformative service design, which include: 1) the designers should redefine the problems in the project with the key stakeholders; 2) multi-disciplinary co-creation output should be used to solve complex and difficult problems; 3) participatory design should be used to include the professional knowledge/ domain know-how of stakeholders, customers, and front line staff; 4) innovation capabilities should be constructed within organizations in order to reduce dependency and to enable organizations to develop the capacity to deal with variable environments; 5) the design should focus on the purpose of the intervention, and a holistic perspective should be used to observe changes in the behavior of organizations and stakeholders; 6) projects should initiate comprehensive change for medium and long-term transformation opportunities in the future, and develop vision and support within participating organizations.

In sum, social innovation has many challenges in practice due to the complexity of the mix of stakeholders and ecological systems involved in creating a framework of value co-creation. First of all, difficulties often occur during the ideation processes of multi-disciplinary stakeholders because of their diverse viewpoints and backgrounds, so an effective approach is needed to enhance communication and cooperation. Secondly, social innovation needs long-term stakeholder involvement and continuous improvement to achieve the purpose of adoption and diffusion. It is challenging in practice to build a sustainable mechanism to consistently trigger value co-creation and support transformation among key stakeholders. On the other hand, through service design we found possibilities for enhancing the effectiveness and sustainability of value co-creation in social innovation. The reason for this is that service design provides many systematic design activities and useful tools that can be used to facilitate multi-disciplinary cooperation between designers, and these activities and tools can be helpful for the effective advancement of value co-creation in social innovation. Moreover, service design can not only be used to create a mechanism to assist/ empower stakeholders to continuously co-create and respond to environmental changes, but it also emphasizes the importance of identifying key stakeholders and their new role positioning and the motivators that can drive them to join a long-term relationship of value co-creation. However, relevant research on how to apply service design to enhance value co-creation in social innovation remains relatively limited (Carbonell et al., 2009; Cook et al., 2002). Therefore, the purpose of this study is to discover how to systematically use service design to support value co-creation in social innovation to order to enhance efficiency and sustainability. The two main questions are: 1) How can we find an effective approach to solution creation in social innovation by applying the activities and useful tools of service design? 2) How can we build a sustainable value co-creation mechanism which will encourage the adoption and diffusion of social innovation from a service design perspective? The conceptual research framework is shown in Figure 2.
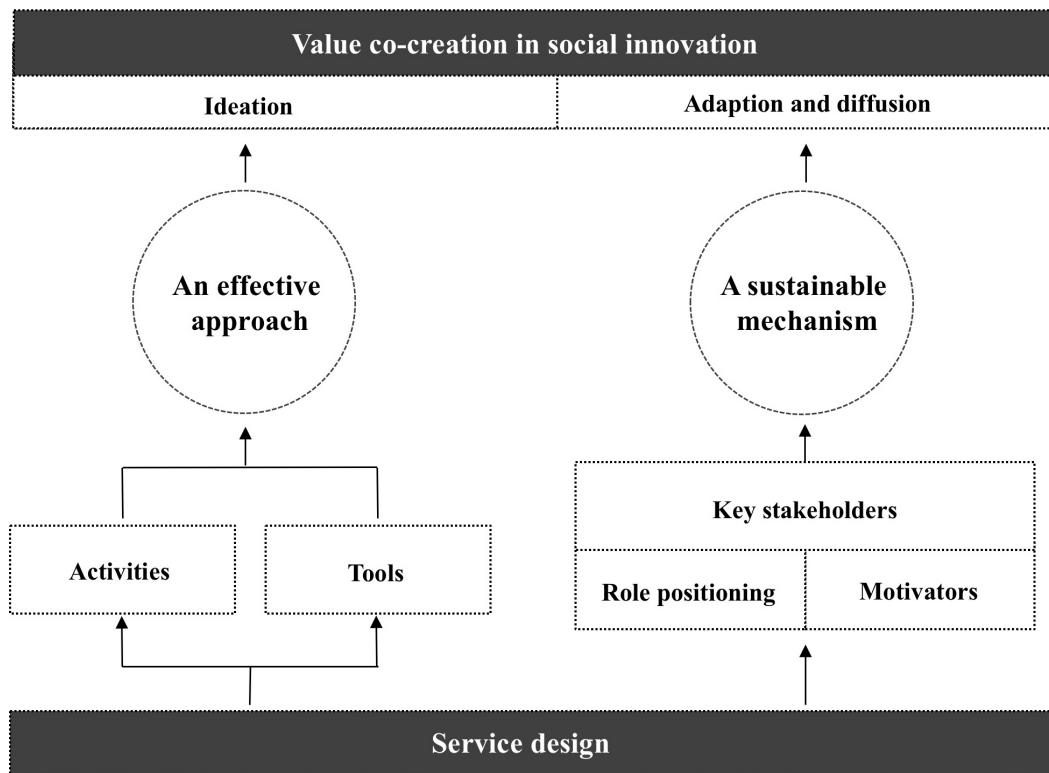
Figure 2. A conceptual research framework.

Methodology

Because there are few mature theoretical frameworks or clear relationships between the variables, this research adopted participatory action research as its main methodology. Action research is designed to shorten the gap between theory and practice through the combination of "action" and "research" (Elliott, 1991). The practitioners carried out research according to the actual problems which they encountered in real work situations; they formulated possible approaches to solve these problems, and then they put these approaches into effect, and carried out evaluations, obtained feedback, and made modifications. In addition, action research improves the rationality and feasibility of the research results in practice and facilitates profound discussion and understanding through cooperation between key stakeholders and practitioners (Altrichter, Posch, & Somekh, 1993; Kemmis & McTaggart, 1988; Mills, 2000). Participatory action research, as used in this study, emphasizes changing problems and current status through the actual participation of the researchers in order to master the context of problems and the changing process of stakeholders' mentality and behavior (Fsls-Borda & Mora-Osejo, 2003; Selener, 1997). To address the purposes of this study, the participatory action research was conducted with the emerging 5% Design Action social innovation platform in Taiwan.

In accordance with the idea that "social innovation requires not only design thinking, but also actual design actions", the author led the team Dreamvok to construct the "5% Design Action Social Innovation Platform" (see Figure 3) in the spring of 2013. The consequent three-year experience journey provides

the core of the participatory action research conducted in this paper. The 5% Design Action set up its base in Taiwan, and recruited cross-industry designers and other professionals to use some of their spare time (5%) to contribute their expertise and the design abilities which they had originally developed in corporate innovation, to address key social issues and challenges. With "service design" as its core focus, value co-creation was carried out with relevant NGOs/NPOs, and organizations in the public sector and private sectors (more than 150 organizations) involved in social issues with the aim of seeking possible innovation solutions together. Since its establishment, 5% Design Action has recruited more than 4200 designers and professional volunteers who have devoted themselves to social innovation in collaboration with multi-disciplinary stakeholders. The social issues involved came from four parts of society: education, health, the environment, and the economy.

Figure 3. 5% Design Action social innovation platform.

Because there is a lack of practical cases for reference on how service design is used in social innovation, 5% Design Action could only establish preliminary assumptions through the hands-on experience of initial team members in the beginning. Modifications of the assumptions and new action plans were made after every case was completed. This research invested in four 5% Design Action social innovation projects from 2013 to 2014, including: 1) Design for Cancer Screening & Prevention; 2) Design for Friendly Restaurant; 3) Co-create Innovative Experiences in Sustainable Agriculture; 4) Educational Service Innovation for Children & Teenagers (see Table 1). The data collection and analysis included: 1) documentation: the planning briefings, project plans, contact letters, internal meeting records, review meeting records, research reports, and research diaries of the four projects; 2) participatory observation: the data content related to direct observations and records; 3) physical artifacts: the prototype products, animations, posters, documentary films, and photos of the designs; 4) in-depth interviews: this research adopted a semi-structural questionnaire form to interview the key figures in the project process, including the project managers, designer representatives, and external cooperation organizations (see Figure 4).

Effective Approach to Enhance Value Co-Creation in Social Innovation

As a result of three years of participatory action research on the four 5% Design Action social innovation projects, the findings reveal that "crucial activities" and "useful tools" of service design are an effective approach which could facilitate multi-disciplinary ideation for value co-creation in social innovation. Moreover, this approach can be especially helpful for dealing with the three main difficulties involved in value co-creation: 1) enhancing willingness and defining good questions; 2) finding appropriate solutions; 3) presenting concepts and collecting feedback in conditions of limited resources.

Table 1. Four social innovation projects for the phase one participatory action research.

	Design for Cancer Screening & Prevention	*Design for Friendly Restaurant*	*Co-create Innovative Experiences in Sustainable Agriculture*	*Educational Service Innovation for Children & Teenagers*
Time	Feb. 2013 – Jul. 2013	Jul. 2013 – Dec. 2013	Jan. 2014 – Jun. 2014	Jul. 2014 – Dec. 2014
Category	Health	Economic	Environment	Education
Designers	80	60	60	50
NGO/NPO/Public Sectors	13	19	12	15
Private Sectors	2	3	5	2

Figure 4. Data collection under a participatory action research approach: (a) internal meeting, (b) participatory observation, (c) annual exhibition of design prototypes, and (d) in-depth interview with key participants.

Enhancing Willingness and Defining Good Questions

Every successful value co-creation process begins by addressing the issue of high willingness and the challenge of defining good questions. Due to a tendency to exploit existing benefits and network relations, sometimes those seeking to address new issues avoid problems or avoid dealing with issues which may generate a negative response. As a result many core problems can remain hidden or marginalized, and, in the long run, a negative atmosphere or belief can develop, as well as the belief that these problems cannot be solved, or that other stakeholders will (or should) provide solutions (Mulgan et al., 2007). The situations above will result in stakeholders having a low willingness to participate in value co-creation. Moreover, we also found that due to inadequate resources, many social work organizations have insufficient professional support, and may be limited in their thinking because of departmentalization. Thus, it is difficult for them to see the whole scope of problems, which makes defining good questions difficult.

To deal with these difficulties, this study pointed out three crucial activities of service design for value co-creation, including: 1) empowering design responsibilities: service design emphasizes that the main stakeholders related to issues should be placed in an open innovation process for comprehensive planning. Such a design mindset allows stakeholders to have the opportunity to become "designers" of social issues, and enhances their willingness to participate in value co-creation; 2) recruiting inter-disciplinary members: the open recruitment of external designers and related professionals could provide more insights from different perspectives and help original main stakeholders of social issues to see the whole picture and enhance their creative thinking. This could help co-creation members define (or re-define) the questions and even find the value beyond the questions; 3) adapting holistic design thinking: service design emphasizes that organizations should look beyond the old thinking model of "single entity" or "tangible products", and instead focus on the design strategy of holistic experience. Based on this, the thinking dimension of the overall design process is more fine-tuned and complete, which helps co-creation members to understand the demands of service providers and receivers systematically.

Moreover, service design provides several useful tools. The three most frequently used tools, which are also highly rated by the members of the four projects, are as follows: 1) stakeholders' map: this tool checks the profiles of the internal and external stakeholders involved in the issues, defines their connections, and provides project members with a basis for the overall thinking framework; 2) customer journey map: based on the timeline of customer behavior, this tool checks the tangible and intangible touchpoints corresponding to customer behavior as well as feelings. This tool can allow the project members to see the overall journey of customer experience; when members have different opinions, the users' experience can be used as the bridge/language for multi-disciplinary communication; 3) service blueprint: based on the customer journey map, this tool further checks the front stage, back stage, and support system of each

service provider corresponding to customer behavior. Thus, all the stakeholders could easily understand their respective roles under the framework of the overall experience.

Taking the "Design for Friendly Restaurant" project as an example, the purpose of this case was to create a restaurant that could provide a physically friendly and psychologically enjoyable experience for every customer, especially the disabled. When defining and recruiting design teams, besides recruiting owners, marketing personnel, and first line service personnel from three famous chain restaurants in Taipei, product, visual, and spatial designers were recruited according to demand. Other participants included social workers from relevant disability foundations and representatives of users with different disabilities. During the process, everyone was the designer for a friendly restaurant and had opportunities to co-create solutions together. Consequently most people who participated in the project had high willingness and were very engaged. In addition, through holistic design thinking in the process, design was not limited to just dining scenarios in the restaurant. To find the most appropriate solution, the design teams also considered the service gaps in the before and after stages of dining. Through the service design process, the design teams not only fulfilled the needs of different users but satisfied dining operation considerations as well. Furthermore, by drawing the stakeholders map, customer journey map, and service blueprint, the multi-disciplinary design teams could easily visualize and organize the ideas or data based on systematic frameworks. Many participants expressed that these approaches greatly improved the efficiency and effectiveness of value co-creation (see Figure 5).

Finding Appropriate Solutions

In 5% Design Action, appropriate external designers/professionals are introduced through the open innovative approach, which solves the problem of the original core stakeholders' deficiency in resources and labor. However, it greatly increases the difficulty of the value co-creation process, as the external participants are unfamiliar with the issues dealt with in the past. In addition, because most participants have full-time jobs and they only have limited time for co-creation, the average executive periods for the four social innovation projects are set at about six months. Therefore, how to allow participants to quickly understand the problems, gain consensus, and propose innovative solutions in the short time period is very crucial.

To handle this difficulty, this study proposed two crucial activities for service design for value co-creation, including: 1) preparing inspiring references: including sorting out the user/stakeholders' needs and collecting global multi-disciplinary benchmark cases; then, summarizing and presenting the materials through an easily understood and visualized interface for discussion; 2) facilitating co-creation: we found that the teams with higher-quality project results also had relatively higher satisfaction with the facilitators, and the overall work atmosphere was more active and joyful; 3) diving into the issue: in order to allow participating members to have an in-depth experience of the

Figure 5. Design for the friendly restaurant project:
(a) empowering design responsibilities to key stakeholders, (b) actual experience of the holistic dining journey,
(c) co-creation with disabled people, (d) the cards used to represent key touchpoints in the customer journey map.

issues, we arranged for the design teams to have a longer period of observation and participation in the relevant sites/facilities to learn from first-line personnel and users. They also had discussion and design workshops at the actual sites to establish the most important foundation for innovative design—empathy.

In terms of the use of tools, in response to the former difficulties, three highly acclaimed service design tools including stakeholder maps, customer journey maps, and service blueprints were also extensively used here. In addition, we proposed two other useful tools as well, including: 1) image boards: a tool commonly used in general design fields. They can be cut and pasted according to themes, can be used to summarize and analyze multi-disciplinary design materials, or to present data logic or design concepts by combining images and text. This tool is often used with a mixture of stakeholder maps, customer journey maps, or service blueprints; thus, the data can present different meanings under different frameworks; 2) user research methods: this includes many useful tools and methods to gain information from users and related stakeholders, e.g., context mapping, shadowing, persona, and so on. Different user research methods or tools should be flexibly selected for use according to different projects and the knowledge gaps of a project team

Taking the "Co-create Innovative Experiences in Sustainable Agriculture" project as an example, the goal of this case was to help small scale farmers, regional selling platforms, and food processing companies to adapt organic farming in order to develop new business models for agriculture. In addition, we also wanted to attract more young people to join agriculture based on new ideas and models. Before the project started, the

facilitators for the design teams first conducted research about current challenges in organic farming, including market status, new technology development, and best practice cases around the world to serve as creative stimulants in the workshop. Through this prior research the facilitators developed clearer pictures of the issues when they set the initial hypothesis and viewpoints of the design, and it helped to enhance the quality of facilitation. During the process, we let design teams learn how to be farmers by entering farmland and experiencing the process of harvesting, selling, and cooking the food. The theme "from farm to table" was set as the framework for image boards, which were used at the farm, market, and factory along with multiple user research methods. The design teams used many pictures and drawings to demonstrate key touchpoints and interactions among stakeholders, which created an inspiring environment for value co-creation. Finally, the design teams successfully proposed 12 innovative and deliverable solutions for agricultural development, many of which are now in the process of commercialization (see Figure 6).

Presenting Concepts and Collecting Feedback with Limited Resources

With limited resources and time for projects, it was necessary to rapidly carry out design prototyping and verification work. The tight schedule and low budget were two of the main challenges for value co-creation in social innovation. As a result of our hands-on experience in the four projects, we found that the obstacles which the original stakeholders experienced in the course of communicating ideas was not because of an inability to generate

Figure 6. Co-create innovative experiences in a sustainable agriculture project: (a) the image board used in the field study, (b) the design teams entering the farmland and experiencing the process of harvesting, (c) selling organic crop with farmers, (d) the design teams using many pictures and drawings to demonstrate key touchpoints and interactions among stakeholders.

good social innovation ideas, but rather because they lacked a concrete and sentient presentation interface. By combining service design with the assistance of external designers, design prototyping became relatively easy and feasible. As a result, the stakeholders' understanding of social innovation plans increased, and more feedback could be collected through cost-effective prototyping. This reduced the risk of problems developing in large-scale implementation.

We discovered that an emphasis on "rapid prototyping" in service design was a crucial activity for value co-creation. Rapid prototyping emphasizes quickly proposing design assumptions, creating prototypes, and entering the market for verification. With the limited time and resources available, the cases could execute designs and verifications multiple times, increasing design quality and feasibility. Rapid prototyping can also aid the demonstration and interaction of concepts, and use simple and visualized interfaces to reduce costs and help stakeholders evaluate if the concepts are feasible and to make possible modifications.

The three service design tools: the stakeholders' map, customer journey map, and service blueprint, remain the main methods selected by each project team to do rapid prototyping. Here, we proposed another three useful tools for value co-creation in social innovation, including: 1) a story board: using story boards the design concepts are clearly presented under the framework of a timeline, helping participants to quickly understand the context of the design, rather like watching a movie trailer. Value propositions for key stakeholders and relevant touchpoints could also be explained though the story board. 2) products and service prototype: during the four projects, the workshop prepared a large

material desk with various materials (items with different shapes and sizes such as Legos, paper, and cans) that could be used by the design team members to quickly and conveniently create the products and service prototypes; 3) desktop walkthroughs: this tool helped to shrink the overall scenarios with figures and scenes to fit on tables. The design teams also held rehearsals following scripts and timelines, which is similar to role play.

Taking the "Design for Cancer Screening & Prevention" project as an example, the purpose of the project was to improve people's willingness to undergo early cancer screening. The Taiwanese government spends US$1.83 billion on cancer-related treatment a year, which accounts for 27% of the total budget of the National Health Insurance system. To increase the cure rate and reduce the cost of cancer treatment, Taiwan has begun the provision of free-of-charge screenings for oral cancer, breast cancer, colorectal cancer, and cervical cancer, but the number of people who have made use of these opportunities has been low. After three months of investigation, the design teams used customer journey maps and story boards to illustrate the current conditions at cancer screening sites organized by 12 communities in Taipei. The intangible service processes could be visualized, so that service gaps could be defined easily. In addition, the design team also did rapid prototyping to hold discussions with medical experts by using concrete product prototypes, story boards, or desktop walkthroughs. Finally, 10 concrete and innovative solutions were proposed, and two design concepts have already been successfully implemented (see Figure 7). The findings regarding the effective approaches for value co-creation in social innovation are displayed in Table 2.
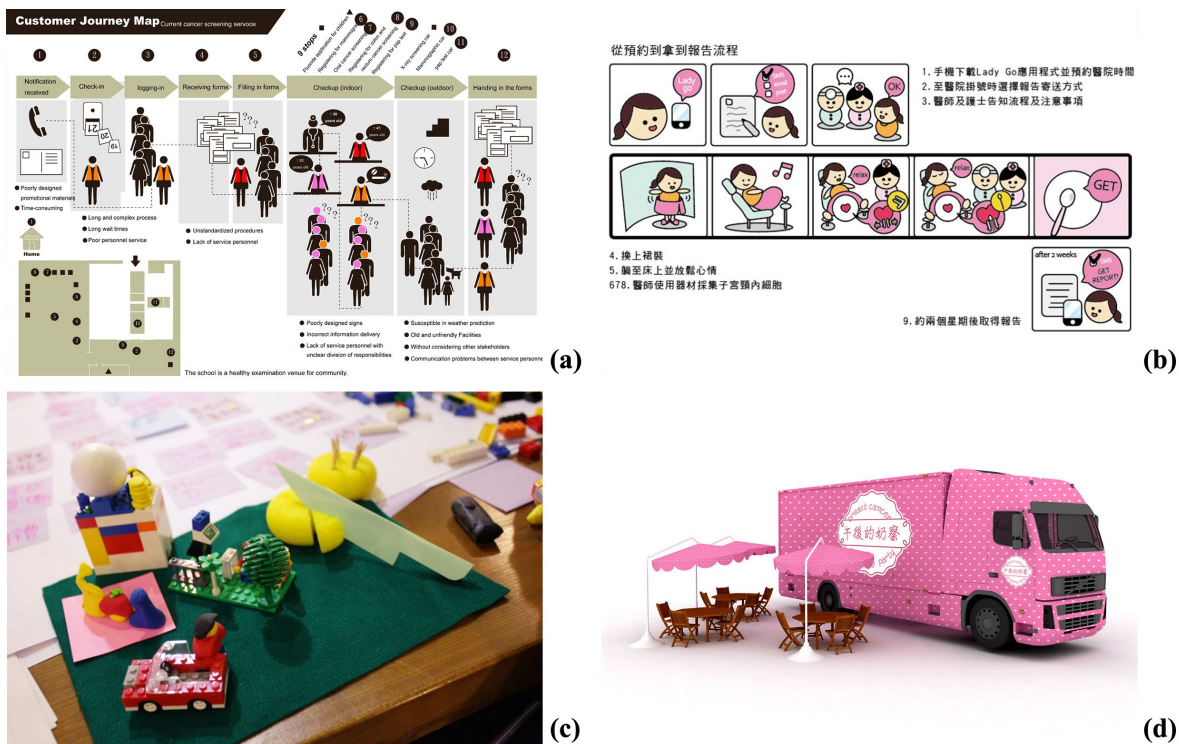
Figure 7. Design for the cancer screening & prevention project:
(a) the customer journey used to illustrate current cancer screening services, (b) the story board used to show the new cervical cancer service design, (c) the rapid prototyping in the workshop, (d) new breast cancer screening service-afternoon tea check.

Table 2. The findings about the effective approach for value co-creation in social innovation.

Challenges	Crucial Activities	Useful Tools
Enhancing willingness and defining good questions	• Empowering design responsibilities • Recruiting inter-disciplinary members • Adapting holistic design thinking	• Stakeholders map [a] • Customer journey map [b] • Service blueprint [c]
Finding appropriate solutions	• Preparing inspiring references • Facilitating co-creation • Diving into the issue	• Image board • User research methods
Presenting concepts and collecting feedback with limited resources	• Rapid prototyping	• Story board • Products and service prototype • Desktop walkthroughs

Note: [a,b,c] Stakeholders map, customer journey map and service blueprint are continuously used in the three phases of the value co-creation process.

The Sustainable Mechanism for Value Co-Creation in Social Innovation

The adoption and diffusion of social innovation requires verification, the revision of solutions, and continuous improvement from long-term perspectives. That is why a mechanism to constantly trigger or support stakeholders' participation in value co-creation is crucial. Since the establishment of 5% Design Action, besides constantly launching new social innovative services and products, the whole participatory action research process has actually become a process for creating a mechanism for sustainable value co-creation. From the perspective of service design directed towards sustainability, this study determined four types of key stakeholders from all participants in the 5% Design

Action platform: 1) designers (referring to designers and other professionals); 2) NPO/NGO and public sector participants; 3) private sectors participants; 4) co-creation platform owners. Furthermore, we also discovered the kinds of role positioning and motivators that could attract those key stakeholders to keep participating in the value co-creation mechanism in social innovation.

Designers

One of the four key categories of stakeholders for the sustainable value co-creation mechanism is the designer category, including professional designers and other professionals with design thinking that are willing to be involved in projects. Through

the research of the four social innovation projects, we found the most appropriate role positioning of designers to be: challenging current conditions, strengthening users' demands, and leading multi-disciplinary discussion. As a result of their participation, not only was the problem with the lack of resources and manpower in social innovation resolved, but designers, with their outsider perspective, could more easily escape old thinking logic and limitations. Secondly, the designers created products and services based on users' needs, which was helpful for finding a solution that satisfied both providers and receivers in the value co-creation process. Third, by using service design methods and tools, designers could combine their expertise/skills to help precipitate multi-disciplinary discussions and make the value co-creation process more efficient.

This study also discovered which motivators would encourage designers to participate in long-term perspective social innovation: 1) expansion of specialties: for designers who have worked in the industry for a long time, participating in social innovation could strengthen professional skills, help them obtain new knowledge/insights about social issues, and increase their practical multi-disciplinary communication and integration experience; 2) establishment of relationship networks as a result of the multi-disciplinary interpersonal connections established while implementing social innovation projects. These new connections might also bring new business opportunities in the future; 3) opportunity for self-actualization: most "professional volunteers" had certain ideals in their hearts, and they joined in social innovation to satisfy their hindered self-actualization which could not be satisfied in the workplace or in real life.

NPO/NGO and Public Sectors

The second key category of stakeholders for the sustainable value co-creation mechanism were participants from the NPO/NGO and public sector. Their role positioning could be: introducing the current status of issues, guiding the direction of innovation, and delivering the results of social innovation. First of all, most NPO/NGO and public sector participants have been dealing with certain social issues for many years, and are more knowledgeable about current problems and needs than designers are. For the sustainable value co-creation mechanism, their participation guided the design team to quickly understand current issues, and sped up multi-disciplinary discussion. In addition, because of their in-depth understanding of the issues, it was easier for them to help the teams establish goals, identify service gaps, and propose possible directions of value co-creation in the limited time frame. We found the viewpoints/considerations from NPO/NGO and public sector participants would be complementary to the creative thinking of designers.

Furthermore, this study identified the motivators that could promote the long-term participation of NPO/NGO and public sector participants in social innovation, including: 1) injection of innovation and transformation energy: through the participation of external designers and other professionals, most NGO/NPO and public sector leaders pointed out that they have gained many

insights and much inspiration. Through long-term participation, many NGO/NPO and public sector participants became familiar with service design thinking approaches, and applied the methods and tools in their organizations. This was helpful for the enhancement and transformation of the organizations' own capacity for innovation; 2) establishment of a relationship network: similar to general enterprises, most NGO/NPO and public sector participants were eager for change, but they were also afraid of change. Due to value co-creation with external designers and other stakeholders, NGO/NPO and public sector participants made new friends/strong partners who could face challenges and make a difference together, especially under conditions where resources are very limited. For instance, United Way in Taiwan joined the 5% Design Action project "Educational Service Innovation for Children & Teenagers", and connected with many good designers and new educational services partners from other NGO/NPOs. In addition, because they went through the design process together, United Way was able to quickly form a new team for delivering new educational services next year (see Figure 8).

Figure 8. The educational service innovation for the children & teenagers project with United Way.

Private Sectors

The third key stakeholder for the sustainable value co-creation mechanism were participants from the private sector. Their role positioning could be providing human resources and supporting funds for the implementation and diffusion of social innovation. Compared to most NPO/NGO and public sector participants or individual designers, private sector participants (especially big branding companies) usually have more multi-disciplinary talents, and could provide larger scale and more stable investments as well. Moreover, the involvement of companies could speed up the delivery process of social innovation, especially when the solutions were highly related to their core competences. For instance, three chain restaurants in Taipei joined the "Design for Friendly Restaurant" project, and sent their managers and staff to participate in the design teams. During the value co-creation, the three companies devoted their restaurants as living labs to test the design prototype which was titled U-Call (a wireless and interactive service ring with universal design). At the end of 2016, the three companies will adopt U-Call to help staff provide friendly services to disabled people (see Figure 9).

Figure 9. The testing of U-Call in the restaurant.

We also determined the motivators that could attract private sector participants to maintain long-term participation in value co-creation of social innovation, including: 1) the training of human resources: the enterprises' employees' substantive participation in social innovation projects could effectively make up for an insufficiency of education and training within the organizations. Most private sectors' participants in the research indicated that their multi-disciplinary communication/ integration abilities were effectively improved after the projects, and they were more familiar with using service design methods; 2) injection of innovation energy: in contrast to the expectations and demands of NGO/NPO and public sector participants regarding innovation, what the private sectors need are innovation inspirations for their products and services. This study found that private sector participants could learn a lot from the key users and stakeholders of social issues projects, and could gain insights for future products and service development from them; 3) improving resource synergy: currently, more and more businesses have reserved funds for carrying out corporate social responsibilities, and encourage their employees to be involved in activities for public good. However, because of the global recession, these companies are seeking an effective way to improve resource synergy. Through participating in 5% Design Action, they could not only fulfill social responsibility requirements and strengthen positive perceptions of their brands, they could also undergo personnel training and prepare themselves for future innovation.

Owners of Co-Creation Mechanism

The fourth key group of stakeholders for the sustainable value co-creation mechanism are the owners (or initiators). For the sustainable value co-creation mechanism the owners play the role

of producers and coordinators during the social innovation process. Many participants said that a main reason for joining the ranks valuing co-creation was the operation team behind 5% Design Action. The strong convictions of the operation team triggered desirable and constructive imaginative ideas for the participants, especially in this difficult time with serious social problems. This is in line with the concept of "social entrepreneurship" proposed by Bornstein (2004), and refers to a group of people who have the ability to organize, initiate, and manage relevant solutions for social issues via social entrepreneurship in order to make changes in society. Furthermore, Biggs et al. (2010) argued that social entrepreneurs would speed up innovation and transformation in an overall ecological system.

The study also identified the motivators that could attract the owners of co-creation mechanisms to keep running co-creation mechanisms for social innovation from a long-term perspective, including: 1) sustainable business models: in addition to the high self-actualization possessed by the owners of co-creation mechanisms in social innovation, they are also seeking a sustainable business model. The owners would occasionally be more active and aggressive than other key stakeholders who participate in social innovation because they have to earn their living when devoting themselves to social innovation; 2) co-creation effectiveness: in addition, the effectiveness of social innovation is another important motivator, producing stakeholder satisfaction, participation willingness, the implementation of effective innovation, and the creation of external reputation and internal identity; 3) team and individual growth: in addition to a growth in professional knowledge, capability and human relationships, we also found it was very crucial for co-creation mechanism owners to continuously refresh and transform themselves in the dynamic and complex environment in which they were immersed. While this could be motivational for the owners, it could also be challenging for them. Because the different needs, expectations, and conflicts from multi-disciplinary stakeholders always produce a great deal of pressure, sometimes it is necessary for the owners to have appropriate mental and physical rest. The findings for the sustainable value co-creation mechanism in social innovation are summarized in Table 3.

Conclusions

Social innovation is crucial to regional development and for enhancing the quality of human life. Although value co-creation is the essence and necessary means for social innovation, it also creates new challenges that bring potential risks and costs. These new challenges include coming up with more effective approaches to enhance multi-disciplinary ideation among different stakeholders, and a sustainable value co-creation mechanism for the long-term adoption and diffusion of social innovation. Service design has become one of the main innovation methods applied by many companies to respond to the service and experience economy. Service design is often applied to multi-disciplinary co-operation in the business world because it not only provides many systematically designed activities and useful tools, but it is also

Table 3. The sustainable value co-creation mechanism in social innovation.

Key Stakeholders	Role Positioning	Motivators
Designers	• Challenging current conditions • Strengthening users' demands • Leading multi-disciplinary discussion	• Expansion of specialty • Establishment of relationship network • Opportunity for self-actualization
NGO/NPO and public sectors	• Introducing the current status of issues • Guiding the direction of innovation • Delivering the results	• Injection of innovation and transformation energy • Establishment of relationship networks
Private sectors	• Providing human resources • Supporting funds	• Training of human resources • Injection of innovation energy • Improving resource synergy
Owners of Co-Creation Mechanism	• Producers • Coordinators	• Sustainable business model • Co-creation effectiveness • Team and individual growth

used to create an environment to help stakeholders continuously co-create and respond to environmental changes. In other words, service design can be used to overcome the challenges of value co-creation in social innovation. However, relevant research remains relatively deficient (Biggs et al., 2010; Franz et al., 2012; Freeman, 2006; McKeown, 2008; Murray, Caulier-Grice, & Mulgan, 2010; Scott, 1991; Westley et al., 2006).

Therefore the purpose of this study was to discover how to systematically apply service design to value co-creation in social innovation in order to enhance efficiency and sustainability. This was accomplished through a three-year participatory action research study of four 5% Design Action social innovation projects. First, in terms of effective approaches for value co-creation in social innovation, the findings explore seven crucial activities and eight useful tools of service design that would be especially helpful

in dealing with the three main challenges of value co-creation: 1) enhancing willingness and defining good questions; 2) finding appropriate solutions; 3) presenting concepts and collecting feedback under limited resource conditions. Moreover, this study, based on service design, identifies four types of key stakeholders to be included in the sustainable value co-creation mechanisms needed for long-term adoption and diffusion in social innovation efforts. These include: 1) designers; 2) NGO/NPO and public sector participants; 3) private sector participants; 4) co-creation mechanism owners. In addition, the study also discovers the role positioning and motivators that could drive the key stakeholders to continuously participate in value co-creation social innovations. Finally, the conceptual framework for the practical application of service design in social innovation is illustrated in Figure 10.
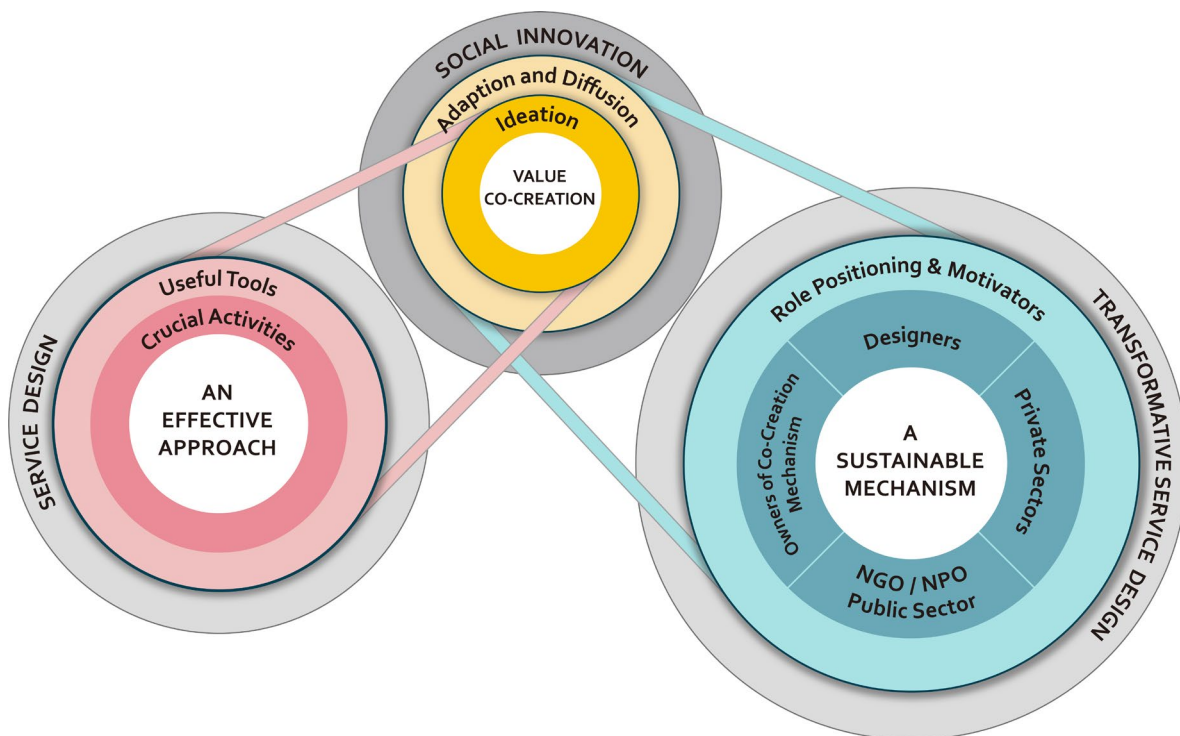

Figure 10. The conceptual model for the practical applications of service design in social innovation.

The results of this study correspond with relevant research. First of all, in the past Kania and Kramer (2011) also proposed the argument of "collective impact", and suggested that large-scale social innovation is not limited to only a single organization; instead, all stakeholders need to cooperate and jointly experience the process of value co-creation in order to effectively implement new solutions. This study took one step further and found an effective approach to undergo value co-creation in practice through the activities and tools of service design. Furthermore, Tanimoto and Doi (2007) put forward the concept of the "social innovation cluster", arguing that the understanding of stakeholders' needs and role positioning would be helpful to construct effective strategies for social innovation development. This research further defined the key stakeholders and how to attract them to join the ranks of value co-creation from long-term perspectives. In addition, although design thinking has been gradually applied to social innovation recently, for example, NPOs, NHS, and Thinkpublic have cooperated to develop "experience-based design"; and the well-known design company, IDEO, has created a set of "human-centered design toolkits" for the development of NPOs and communities. However, relevant research studies (Brown & Wyatt, 2010) also pointed out that most stakeholders remain afraid of failure and change, and design methods cannot be put into practice in most real cases. Consequently, this research emphasized the importance of long-term value co-creation relationships, and how these actions would promote the transformation of stakeholders. Focusing on the argument for a sustainable value co-creation mechanism is consistent with the research of Brown (2015). His study argued how "bridge-building processes" enable stakeholders who acted alone in the past learn how to use external resources and develop more effective innovation activities through multi-disciplinary cooperation.

Suggestions

Nevertheless, as the conclusions for this research were affected by limited research time and resources, the study could only provide phased results. Consequently the data analyzed by this research may not be complete. In addition, the planning and implementation of actual participation in social innovation projects may produce conflicts of interest, so the research data might not be comprehensive. Moreover, this research adopted a participatory action design so data quality was difficult to control in a dynamic environment. Such research methods affect validity and interpretation. The research process also encountered the problem of role confusion between "researcher" and "participants". Finally, being one of the founders of 5% Design Action, the researchers may also lack objective and rational reflection and criticism regarding the analysis of relevant research data.

Future research is obviously required, and some important topics can be listed as follows. First of all, it would be beneficial to replicate the outcomes of this study in different fields of social innovation for longer periods in order to achieve more rigorous testing. Second, much more also needs to be known about

methods for evaluating the performance of different approaches to establishing sustainable mechanisms of value co-creation. Third, advancing the understanding of the business model behind the sustainable value co-creation mechanism for social innovation is required. Related questions are: How can we steadily provide cash flow, human flow, and knowledge flow through the mechanism? What are the key success factors to enhance knowledge sharing and transfer among stakeholders? How can private sector participants be attracted to join the value co-creation mechanism using more detailed designs employing online and offline encounters, and how can we explain the differences between value co-creation in social innovation and related business notions, for example in strategic philanthropy and cause-related marketing? Answering questions such as these in the future would help the further development of this research.

References

1. Akama, Y. (2009, November). Warts-and-all: The real practice of service design, *1st Nordic Conference on Service Design and Service Innovation* (pp. 1-11). Oslo, Norway: The Oslo School of Architecture and Design.

2. Altrichter, H., Posch, P., & Somekh, B. (1993). *Teachers investigate their work: An introduction to the methods of action research.* London, UK: Routledge.

3. Berkes, F., Colding, J., & Folke, C. (2003). *Navigating social-ecological systems: Building resilience for complexity and change.* Cambridge, England: Cambridge University Press.

4. Biggs, R., Westley, F. R., & Carpenter S. R. (2010). Navigating the back loop: Fostering social innovation and transformation in ecosystem management. *Ecology and Society, 15*(2), no. 9. Retrieved September 14, 2015, from http://www.ecologyandsociety.org/vol15/iss2/art9/.

5. Bitner, M. J., Ostrom, A. L., & Morgan, F. N. (2008). Service blueprinting: A practical technique for service innovation. *California Management Review, 50*(3), 66-94.

6. Blomkvist, J., Holmlid, S., & Segelström, F. (2010). Service design research: Yesterday, today, and tomorrow. In M. Stickdorn & J. Schneide (Eds.), *This is service design thinking: Basics, tools, cases* (pp. 308-315). Amsterdam, the Netherlands: BIS Publishers.

7. Bornstein, D. (2004). *How to change the world: Social entrepreneurs and the power of new ideas.* New York, NY: Oxford University Press.

8. Bovaird, T. (2007). Beyond engagement and participation: User and community coproduction of public services. *Public Administration Review, 67*(5), 846-860.

9. Bradwell, P., & Marr, S. (2008). *Making the most of collaboration: An international survey of public service co-design.* London, UK: Demos.

10. Brown, T. (2008). Design thinking. *Harvard Business Review, 86*(6), 84-92.

11. Brown, L. D. (2015). Bridge-building for social transformation. *Stanford Social Innovation Review, 13*(1), 34-39.

12. Brown, T., & Wyatt, J. (2010). Design thinking for social innovation. *Stanford Social Innovation Review, 8*(1), 30-35.

13. Burns, C., Cottam, H., Vanstone, C., & Winhall, J. (2006). *RED paper 02: Transformation design.* London, UK: Design Council.

14. Carbonell, P., Rodríguez-Escudero, A. I., & Pujari, D. (2009). Customer involvement in new service development: An examination of antecedents and outcomes. *Journal of Product Innovation Management, 26*(5), 536-550.

15. Chapin, III, F. S., Kofinas, G. P., & Folke, C. (2009). *Principles of ecosystem stewardship: Resilience-based natural resource management in a changing world.* New York, NY: Springer.

16. Cook, L. S., Bowen, D. E., Chase, R. B., Dasu, S., Stewart, D. M., & Tansik, D. A. (2002). Human issues in service design. *Journal of Operations Management, 20*(2), 159-174.

17. Cottam, H., & Leadbeater, C. (2004). *RED paper 01: Health: Co-creating services.* London, UK: Design Council.

18. Elliott, J. (1991). *Action research for educational change.* Milton Keynes, UK: Open University Press.

19. European Commission. (2009). *Challenges for EU support to innovation in services.* Luxembourg, Luxembourg: Publications Office of the European Union.

20. Franz, H. W., Hochgerner J., & Howaldt, J. (2012). *Challenging social innovation: Potentials for business, social entrepreneurship, welfare and civil society.* Berlin, Germany: Springer.

21. Freeman, L. C. (2006). *The development of social network analysis: A study in the sociology of science.* Vancouver, Canada: Empirical Press.

22. Fals-Borda O., & Mora-Osejo, L. E. (2003). Context and diffusion of knowledge. *Action Research, 1*(1), 29-37.

23. Fullerton, B. (2009). Co-creation in service design. *Interaction, 16*(2), 6-9.

24. Holmlid, S. (2007). *Interaction design and service design: Expanding a comparison of design disciplines.* Retrieved September 14, 2015, from http://www.ida.liu.se/divisions/hcs/ixs/publications/fulltext/2007/HolmlidNordes.pdf

25. Holmlid, S., & Evenson, S. (2008). Bringing service design to service sciences, management and engineering. In B. Hefley & W. Murphy (Eds.), *Service science, management and engineering education for the 21st century* (pp. 341-345). Norwell, MA: Springer.

26. Kemmis, S., & McTaggart, R. (1988), *The action research planner.* Victoria, Australia: Deakin University Press.

27. Leadbeater, C. (1997). *The rise of the social entrepreneur.* London, UK: Demos.

28. Lusch, R. F., & Vargo, S. L. (2006). The service-dominant logic of marketing: Reactions, reflections, and refinements. *Marketing Theory, 6*(3), 281-288.

29. Kania, J., & Kramer, M. (2011). Collective impact. Stanford *Social Review, 9*(1), 36-41. Retrieved September 14, 2015, from http://ssir.org/images/articles/2011_WI_Feature_Kania.pdf.

30. Kotler, P., & Keller, K. L. (2006). *Marketing management.* Upper Saddle River, NJ: Prentice Hall.

31. Mager, B., & Sung, T. J. (2011). Special issue editorial: Designing for services. *International Journal of Design, 5*(2), 1-3.

32. Manzini, E. (2007). *Design, social innovation and sustainable ways of living: Creative communities and diffused social enterprise in the transition towards a sustainable network society.* Retrieved September 4, 2015, from http://www.producao.ufrj.br/design.isds/docs/Ezio-Manzini-DESIGN.ISDS-v.2.pdf

33. Manzini, E. (2009). New design knowledge. *Design Studies, 30*(1), 4-12.

34. Manzini, E. (2014). Making things happen: Social innovation and design. *Design Issues, 30*(1), 57-66.

35. McKeown, M. (2008). *The truth about innovation.* Upper Saddle River, NJ: Prentice Hall.

36. Mills, G. (2000). *Action research a guide for the teacher researcher.* Upper Saddle River, NJ: Prentice Hall.

37. Moritz, S. (2005). *Service design: Practical access to an evolving field* (Master's thesis). Koln, Germany: Köln International School of Design. Retrieved Feb. 28, 2016, from https://uploads.strikinglycdn.com/files/280585/5847bd6a-e928-4f0f-b677-ed7df26fa1df/Practical%20Access%20to%20Service%20Design.pdf

38. Moulaert, F., & Ailenei, O. (2005). Social economy, third sector and solidarity relations: A conceptual synthesis from history to present. *Urban Studies, 42*(11), 2037-2053.

39. Mulgan, G., Tucker, S., Ali, R., & Sanders, B. (2007). *Social innovation: What it is, why it matters and how it can be accelerated.* Retrieved September 14, 2015, from http://youngfoundation.org/wp-content/uploads/2012/10/Social-Innovation-what-it-is-why-it-matters-how-it-can-be-accelerated-March-2007.pdf

40. Murray, R., Caulier-Grice, J., & Mulgan, G. (2010). *The open book of social innovation.* London, UK: The Young Foundation and Nesta.

41. Needham, C. (2008). Realising the potential of co-production: Negotiating improvements in public services. *Social Policy and Society, 7*(2), 221-231.

42. OECD. (2003). T*he non-profit sector in a changing economy.* Paris, France: OECD.

43. Parker, S., & Heapy, J. (2006). *The journey to the interface. How public service design can connect users to reform.* London, UK: Demos.

44. Phills, J. A., Deiglmeier, K., & Miller, D. T. (2008). Rediscovering social innovation. *Stanford Social Innovation Review, 6*(4), 34-43.

45. Pol, E., & Ville, S. (2009). Social innovation: Buzz word or enduring term?. *The Journal of Socio-Economics, 38*(6), 878-885.

46. Porter, M. E., & Kramer, M. R. (2011). Creating shared value. Harvard Business Review, 89(1), 2-17.

47. Prahalad, C. K., & Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing, 18*(3), 5-14.

48. Ramaswamy, R. (1996). *Design and management of service processes: Keeping customers for life.* Boston, MA: Addison-Wesley.

49. Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses.* New York, NY: Crown Business.

50. Roser, T., & Samson, A. (2009). *Co-creation: New paths to value.* London, UK: Promise/LSE Enterprise.

51. Sanders, E. B. N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign, 4*(1), 5-18.

52. Sangiorgi, D. (2004). *Il Design dei servizi come Design dei Sistemi di Attività. La Teoria dell'Attività applicata alla progettazione dei servizi* [Service design as the design of activity systems. Activity theory applied to the design for services]. Milano, Italy: Politecnico di Milano.

53. Sangiorgi, D. (2011). Transformative services and transformation design. *International Journal of Design 5*(2), 29-40.

54. Scott, J. (1991). *Social network analysis.* London, UK: Sage Publications.

55. Selener, D. (1997). *Participatory action research and social change.* Sydney, Australia: University of Sydney.

56. Servicedesign.org. (2008). *Service design definition.* Retrieved September 14, 2015, from http://www.service-design-network.org/intro/

57. Steen, M., Manschot, M., & De Koning, N. (2011). Benefits of co-design in service design projects. *International Journal of Design, 5*(2). 53-60.

58. Tassi, R. (2009). *Service design tools.* Retrieved September 14, 2015, from http://www.servicedesigntools.org/

59. Tanigawa, K., & Tanaka, K. (2006). Emergency medical service systems in Japan: Past, present, and future. *Resuscitation, 69*(3), 365-370.

60. Tanimoto, K., & Doi, M. (2007). Social innovation cluster in action: A case of San Francisco bay area. *Hitotsubashi Journal of Commerce and Management, 41*(1), 1-17.

61. Tanimoto, K. (2012). The emergent process of social innovation: Multi-stakeholders perspective. *Int. J. Innovation and Regional Development, 4*(3/4), 267-280.

62. Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: Continuing the evolution. *Journal of the Academy of Marketing Science, 36*(1), 1-10.

63. Vargo, S. L., Maglio, P. P., & Akaka, M. A. (2008). On value and value co-creation: A service systems and service logic perspective. *European Management Journal, 26*(3), 145-152.

64. Voorberg, W. H., Bekkers, V. J. J. M., & Tummers, L. G. (2014). *Co-creation in social innovation: A comparative case-study on the influential factors and outcomes of co-creation.* Rotterdam, the Netherlands: Erasmus University Rotterdam. Retrieved from http://hdl.handle.net/1765/51069

65. Westley, F. R., Zimmerman, B., & Patton, M. Q. (2006). *Getting to maybe: How the world is changed.* Toronto, Canada: Vintage Canada.

66. Yang, C. F., Wu, C. S., Ho, S. S., & Sung, T. J. (2014). '5% design action': Cancer screening service innovation in Taiwan. *Touchpoint, 6*(2), 44-49.