

Social Entrepreneurs: Innovating Rural Tourism through Activism of Service Science

Abstract

Purpose -- This study aims to construct an integrated social entrepreneur system in the rural area of Hengshan, Taiwan that could benefit to four stakeholders, tourists, business, community and government. More importantly, two social entrepreneur cases demonstrate a win-win situation of lower structure unemployment rate, bring young human capital back to villages, and innovate rural tourism through activism of service science.

Design/Methodology/Approach -- Qualitative approach was applied to data obtained from 12 research projects spanning three years. Service experience engineering (SEE) methods were employed in the construction of a conduct-service design of social entrepreneurs in an integrated service system. The system aimed to innovate rural tourism through activism of service science.

Findings -- SEE methods explain a series of service design processes that help our research team start up two social entrepreneur projects as service prototypes to offer service innovation based on culture creativity for innovating rural tourism. These two social entrepreneurs in rural tourism offer job opportunities to young people and senior citizens alike. In addition, an integrated service system of interdisciplinary knowledge, multi-stakeholders and local resources fulfill various requirements of stakeholders to promote a village's sustainable rural tourism.

Research Limitations/Implications -- Real action studies are limited in the research of social entrepreneur. This case study is not only providing research insights but also calling for actions to offer a local village the vision of a sustainable rural tourism system. The results provide the perspective of applying service science into practice. Designing service innovation for rural tourism has shaped its vision into a sustainable tourism system.

Originality/Value -- Few studies have shown that social entrepreneurs could innovate rural tourism. The present study shows an action case through the activism of service science.

Keywords: Social entrepreneur, Service science, Service innovation, Service experience engineering, Rural tourism

Paper type: Case study

Introduction

Social entrepreneurship is an innovative that mainly aims to assist people may describe as social entrepreneurship (Yunus, 2010). Germak and Robinson (2014) noted that social entrepreneurship consists of social enterprise, social innovation, social venturing, venture philanthropy, social purpose business. A phenomenon of social entrepreneur involves discovering social issues and addressing entrepreneurial principles to create, develop, and manage social ventures to effect social change (Dees, 1998). Furthermore, social entrepreneur is an individual, group, network, organization, or alliance of organizations that seeks sustainable, large-scale change through pattern-breaking ideas in what and/or how government, nonprofits, and businesses do to address significant social problem (Noruzi et al., 2010). Zahraa et al. (2009) identified that social entrepreneurship can make significant contributions to communities and societies. In the present study, three NGOs, four universities, and a local government collaborated for three years to apply service science in programs for observing, experiencing the existing rural tourism, understanding its problems, designing service innovations, and creating two social entrepreneurs to form a value co-creation system. The system fulfilled the requirements of stakeholders, reduced structural unemployment rate, created social entrepreneurs with young human capital, and continue to work on sustainable rural tourism in Hengshan, Taiwan.

Social entrepreneurs recognize immediate social problems but also seek to understand the broader context of an issue that crosses disciplines, fields, and theories (Alvord et al., 2004). The service science was applied in this study, which is abbreviated from service science, management, engineering, and design (Spohrer and Maglio, 2010), to facilitate social entrepreneurs in addressing case of rural tourism development in Hengshan, Taiwan.. Service science is an interdisciplinary science that emphasizes real actions. Beginning as a "call to action" that focuses on academics, businesses, and governments, service science cited the need for research and education in areas related to service (Chesbrough, 2004, IBM, 2005).The interdisciplinary essence of service science can offer methods, models, and solutions for social entrepreneurs. The social entrepreneur innovation of rural tourism in Hengshan in the present study relies on perspectives of systemic view and value co-creation, which are the essences of service science. Real actions of service innovation through activism of service science can demonstrate the importance of value co-creation among stakeholders to move forward for sustainable rural tourism. Therefore, the purpose of this study is to identify the problems in Hengshan, conducted analysis from different perspectives of stakeholders, and fulfilled the requirements

of stakeholders with two social entrepreneur start-ups. Sustainable rural tourism can continue to run the integrated system with more social entrepreneurs. Followed by proposed questions:

How can social entrepreneurs lower structural unemployment caused by the shift in industrial structure? How can social entrepreneurs bring entrepreneurship when young people move from village to urban area for job opportunities caused by unbalanced development between urban and rural area? How can social entrepreneurs innovate local tourism toward sustainable development?

Literature Review

Social Entrepreneurs in Rural Tourism

Tourism is an economic sector that requires a significant degree of involvement from the entrepreneurial sector (Lordkipanidze et al., 2005b). Diversification of tourism products and services is necessary to cope with the increased demand for new types of tourism needs, including opportunities for more sustainable tourism (Tomiyama et al., 2004). Tourism studies have focused on economic analysis and benefits occurring in commercial area. However, concerns over the existence of negative impact, such as interruptions to local community or damages to natural landscapes have also been raised (Pizam, 1978, Verbole, 1997, Lee, 2013). The promotion of small-scale tourism is perceived intuitively as a suitable form of economic development for rural areas (Fleischer and Felsenstein, 2000) because it has more creativity and less negative impact. The issue is that entrepreneurs are difficult to survive if support is insufficient (Berryman, 1983) in rural areas. Support from government-controlled resources usually result in service failure because of bureaucratic administration (Acheson, 2006). Thus, support from social stakeholders can be a solution for social entrepreneurs to survive (Zahra et al., 2009) and offer service innovations for sustainable rural tourism.

In the case of rural tourism, it is not difficult to appreciate why the market may fail with respect to many small-scale social entrepreneurs. For example, 99% of all tourism-related establishments in the rural areas in the USA qualify as small businesses. In New Zealand, the tourism industry is estimated to be composed of between 135,000 and 180,000 small- and medium- sized entrepreneurs. In Israel, almost all rural tourism business are classified as small and family based (Hall et al., 2005). Other than the problem of small-scale, these businesses often are located in remote areas, started with low-capital base, and function with low-level skills and little experience (Imedashvili et al., 2013). Although these ventures might be viable business concerns, from the perspective of credit institution, they are of the wrong size (too small), wrong vintage (too new), and in the wrong location (too remote) (Fleischer and Felsenstein, 2000). The problems existing in rural tourism of Taiwan as well (He, 2004). In view of the long term development, competent and prosperous stakeholders launched into larger-scale, more professional tourism projects result in greater probabilities of success (Cánovesa et al., 2002). Rural tourism has long been considered a means of achieving economic and social development and regeneration. More specifically, it has been widely promoted as an effective source of income and employment, particularly in peripheral rural areas where traditional agrarian industries have declined (Sharpley, 2002). Service innovation of rural tourism is also important that requires quality and professionalism which in turn requires training for rural tourism entrepreneurs (Gannon, 1994). For example, a case of family-based farm in Sweden has presented its success as an innovative entrepreneur in rural tourism.(Lordkipanidze et al., 2005a).

Lifestyle, non-economic motives have been recognized as significant stimuli for tourism entrepreneurship and growth of the small-business sector (Ateljevic and Doorne, 2000) which can be defined as social entrepreneur. Dacin and Dacin (2011), analyzed 37 definitions of social entrepreneurs, find that a common denominator defines social entrepreneurs as “the primary mission of the social entrepreneur being one of creating social value by providing solutions to social problems.” Unlike traditional corporate businesses, social entrepreneurship ventures focus on maximizing gains in social satisfaction, rather than maximizing profit gains (Baron, 2007). Social entrepreneurs becomes a social endeavor when it transforms social capital in ways that affects society positively (Alvord et al., 2004). At the heart of social entrepreneurship is the innovation of novel social capital to create a more community-based agency for obtaining assets in individual lives (Leadbeater, 1997). While social entrepreneurs have conducted several initiatives, only those businesses that have overcome sustainability problems are able to branch out and reach the larger society as a whole (versus a small community or group of people) (Alvord et al., 2004). Involvement and collaboration between private corporations and government agencies allow for increased monetary gain to carry out initiatives, increase stronger accountability on both ends, and increase connections with communities, individuals, or agencies. For example, private or nonprofit organizations have tackled unemployment issues in communities in Australia (Cook et al., 2003). In Taiwan, rural tourism has a positive impact on industrial development, community incomes and the standard of living in rural areas (Gannon, 1994). However, one important issue that government, community associations, and individual firms should reach consensus on is the means of determining kind of projects to promote, fund and operate (Hong, 2011). Above mentioned studies have analyzed the different dimensions of rural

tourism and social entrepreneurs, but none had action involvement. Thus, we propose an integrated service system through the activism of service science to conduct action research in a village for its sustainable rural tourism.

Service Innovation through Service Science, Management, Engineering, and Design

Social entrepreneurship is an innovation process in the economy that can occur at different institutional contexts (Santos, 2012). Current social entrepreneurs encourage social advocates and activists to step up as innovative social services (Drayton, 2002), namely, service innovation. The term “service innovation” has been defined as the service process from idea to specification (Zeithaml et al., 1990, Martin and Horne, 1993). This definition of service innovation was formed from a narrow view of being concerned with the “idea generation” portion of the new service development process (Edvardsson et al., 2000) to the entire process of service development (Sundbo, 1998). The concept of service innovation has been raised by IBM as the goal of service science, which is the study of service systems that aims to create a basis for systematic service innovation (Spohrer and Maglio, 2008). Service science integrates diverse fields with an interdisciplinary approach to study the service phenomena occurring in human society, and develops service systems toward a better society. Such approach requires collaboration among different disciplines, government, academe, and enterprises to achieve service innovation (Peng et al., 2012). At the heart of service science is the transfer and sharing of resources within and among service systems for value co-creation. Four categories of resources have been noted and examined, namely, (1) resources with rights (e.g., people and organizations), (2) resources as property (e.g., intellectual property), (3) physical entities (e.g., technology), and (4) socially constructed entities (e.g., shared information) (Maglio and Spohrer, 2008). Maglio and Spohrer (2008) explain that “entities within service systems exchange competence along at least four dimensions: information sharing, work-sharing, risk-sharing, and goods-sharing.” They suggest that the key to understanding the exchange of resources within service systems can be found in the distribution of competences, such as knowledge and skills, among service systems and in understanding the value propositions that connect such systems.

Service science is an emerging discipline concerned with the evolution, interaction, and reciprocal co-creation of value among service systems (Vargo and Akaka, 2009). Service science can foster the capability of systemic service innovation for industrial upgrading. Industrial value is created by reengineering business processes and application of new technology based on a service-oriented value co-creation proposition. Value co-creation can be achieved through interdisciplinary collaboration among stakeholders in an integrated system. The present research aims to apply service design to deploy service innovations through the activism of service science. Hence, we collaborated with stakeholders, tourists, community, business and government (Byrda et al., 2009), of Hengshan village to move forward to a sustainable rural tourism system. Service innovation can be designed to satisfy the actual needs of stakeholders based on the perspective of service science.

Motivation Scenario- Background of Case

Hengshan is located in Hsinchu County where NeWan village is one of the well-known tourist destinations in Hsinchu. With its nature landscape and creative culture development, most of tourists come to NeWan for peaceful scenery, various local food and comic museum. The village is located 26 kilometers from downtown Hsinchu and nearby the end of Freeway 68 in Hsinchu, Taiwan. Tourists can travel by local train from Hsinchu, as well as connect to the high speed rail for international tourists (Fig. 2). During weekends and holiday period, NeWan attracts many domestic visitors. On the other hand, weekdays in Hengshan can only attract few visitors. Furthermore, other small villages in Hengshan can be as quiet as every day.

The social problems have beset the tourism development of Hengshan and other villages. Mainly, these villages are located in remote area where have rather limited sources in natural landscape, small scale tourist site and agriculture. Consequently, the young population has begun moving to urban areas because of the loss of job opportunities in villages. For example, the employment population were dropped from 1,005,000 to 543,000, 46% off, during the period of 1993 to 2007 in rural area (Hung, 2010). In addition, other challenges exist in the sustainable, healthy, and diversified rural tourism in Hengshan. The local train does not really connect the value of every station, local industries, manufactures, cannot find their competitive advantages, sunset industries cannot attract new immigrant, and young generations are flowing out.

The solution to these problems are service innovation created by an integrated, interdisciplinary, intergenerational, and feasible system for value co-creation proposition of service science. Therefore, this study explored the application of service design by using service science methodology and integrated resources from stakeholders of local universities, communities, government, and NGOs. Together, these factors form a value co-creation service system such that the service innovation can transform Hengshan into a sustainable system. This considerable effort required

the alliance of two NGOs and four universities. These groups initiated a series of practical projects to explore opportunities and to innovate rural tourism in Hengshan through the activism service science. A new stage emerged when local communities and the government joined the alliance to develop rural tourism in the area. Service science was applied to social development, beginning from the identification of problems of existing rural tourism, discovery of opportunities of service innovations, proposal for real action programs, and providing encouragement to social entrepreneurs to transform Hengshan into a paradigm of sustainable rural tourism.

According to the objective of our research team in 2012, we expected that people required a rural place with natural landscape for residence and leisure, such as Saanen village in Switzerland and Hengshan village in Taiwan. The Saanen village is part of the Inventory of Swiss Heritage Sites and has a beautiful landscape. The district covers agricultural collectives or farming villages. As of 2010, Saanen had an unemployment rate of 1.8% (Wikipedia, 2014), which can be a benchmark for a village. The reconciliation of ecosystem and economic development was achieved through the sustainable policy of Saanen which can serve as a template for Hengshan village in Taiwan. The Hakka ethnic cultural heritage and beautiful landscape await tourists who wish to experience these unique culture and leisure lifestyle in Hengshan. However, the economically self-sufficient mechanism requires more support and resources to construct its sustainable rural tourism system. Value co-creation systems can be built to fulfill the value propositions of different stakeholders. Our research team envisioned that Hengshan as achieving a high quality of life and leisure environment similar to that of Saanen village. Initiated by the Service Science Society of Taiwan (s3tw) in 2012, a series of action projects for service innovation in Hengshan village was conducted by an alliance of four universities, the community, and the government. The aim was to establish a sustainable tourism system in Hengshan village through the collaboration of stakeholders and interdisciplinary interactions. Our bottom-up strategy of rural tourism development began from the approach of action research and implemented through the methods of service experience engineering.

Methodology

Service Experience Engineering (SEE)

Service experience engineering (SEE) is a means of activism of service science. For example, several integrated service systems have been constructed through SEE to offer service innovation on the discipline of service science (Peng et al., 2012, Lin et al., 2013, Peng and Hsieh, 2014). The current research applied an experimental design to determine the service of rural tourism through perspectives of social entrepreneurs and service science by using SEE methods. SEE is a potentially useful and easy to implement technique for improving the development of new services. The method concludes with a number of practical steps to ensure continuous improvements in new services (Hsiao and Yang, 2010). SEE is conducted through a two-stage process of designing social entrepreneurial services for rural tourism that satisfy the requirements of stakeholders, such as villagers, local organizations, governments, and tourists involved in projects of this study, with regard to value co-creation of service science. The first stage is service experience inquiry, which contains three sub-processes, including contextual inquiry, working model, and service requirements discovery. This stage obtains insights into the needs of stakeholders. The second stage is service design, which comprises three sub-processes, including quality function deployment (QFD), service blueprint, and service resource model, for improving rural tourism service systems (Lin et al., 2013, Peng et al., 2013, Peng et al., 2012, Peng and Hsieh, 2014). The service-oriented contents of value co-creation systems can be performed through these two stages (Fig. 1).

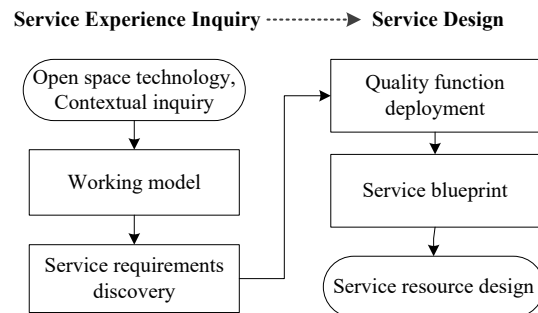


Figure 1: SEE methods

1. *Service Experience Inquiry*: The first stage of service experience inquiry applies qualitative research methods to explore the perceived requirements of stakeholders in rural tourism. Activities, such as open space technology (OST) forum and contextual inquiry, were held to propose the action programs of our research alliance, comprising members from the academe, government, communities, and industries.

OST is an approach of purpose-driven leadership focused on a specific and important purpose or task, and includes hosting meetings, conferences, corporate-style retreats, symposiums, and community summit events (Open-space-technology, 2008). A contextual inquiry is a user-centered design for an ethnographic research method. A contextual inquiry interview is structured as a one-on-one interaction, in which researchers observe participants going through their normal activities and discussing their actions in rural tourism.

A working model represents actual or proposed conditions for experiencing rural tourism services. Five models are commonly applied in working model. These models are as follows:

- 1) The Flow Model is used to understand ways that stakeholders interact with intangible services in the operating process.
- 2) The Sequence Model depicts the process of stakeholder experiences of service systems.
- 3) The Artifact Model identifies stakeholder intentions in the services of auxiliary artifacts.
- 4) The Cultural Model detects the perception regarding the needs of stakeholders in the services.
- 5) The Physical Model determines the layout or environmental influences to stakeholders.

Trial systems are essential because they allow stakeholders to experience and determine whether the services of rural tourism can satisfy their needs. Problems can be discovered and solved during this process.

Service requirements discovery are then used to develop every possible service opportunity. Brain-storming is performed frequently to create new ideas. A cause and effect chart is constructed to integrate comprehensive insights into the value of stakeholders in large data, as well as creative ideas to capture validated items and service requirements of service design for the next stage of research (Lin et al., 2013, Peng et al., 2013, Peng et al., 2012).

The present research started with creative thinking and open discussions from two OST forums, which were attended by over 360 people from the academe, government, community, and industries. Five action programs were generated from the first forum in March 2012, whereas three action programs were generated from the second forum in October 2012. Eight action programs were led by eight leaders to facilitate the vision of sustainable tourism system in Hengshan.

Hengshan was our research field of service innovation for a sustainable rural tourism system. The stakeholders were all targets of service innovation in transportation, tourism, and cultural and creativity services based on the trend of raising citizen involvement and interest in public issues. The launching of service innovation activities was deemed to attract participation of major stakeholders for sustainable tourism.

OST is an initiating model that aims to come up with a consensus through equal participation and total dialogue. Consensus in action programs was implemented through service design and creative operational models that offered service innovation for rural tourism. The process of service innovation involves service requirement inquiry, service opportunities and deployment, service design, service blueprint, and service resource design. The activities of the process require professionals from different disciplines. The project management of the process arouses challenges to the capability of systemic integration. Thus, these professionals and challenges give rise to opportunities for social entrepreneurs to transform and revitalize rural tourism.



Figure 2: a) Location of Hengshan, b) aims of the OST: Opening a new life in urban and rural areas in Hsinchu, c) forum participants: members from universities, communities, government, and businesses.

2. *Service Design*: The second stage of the service design is conducted after the first stage of service experience inquiry. Researchers list and analyze service contents through QFD, followed by back-up systems of service blueprint and service resource design to identify service contents for value co-creation systems. The details of service design are as follows:
 - 1) *Quality Function Deployment (QFD)*: QFD reveals the relationship among service requirements, functions, and threshold, which facilitates communication during the service design period. The prototype of services is constructed as a foundation to reveal the actual needs of stakeholders. The prototype is improved gradually to complete real services.
 - 2) *Service Blueprint*: Service blueprint offers a systematic view for service providers which can lead to the kind of experimentation and management necessary for service innovation and development (Shostack, 1982). A mutual involvement design process helps service providers and receivers to experience and adjust service contents to actual requirements of stakeholders in the service systems. A service blueprint is a technique used for service contacts. This method highlights processes within the rural tourism services, and divides such processes into different components. These components are separated by end users, on-stage, back-stage, and support processes to clarify the responsibilities and designated resources for the different interfaces of the services. Service providers should also offer specific functions to satisfy stakeholder requirements in QFD.
 - 3) *Service Resource Design*: A design that presents services in QFD and fulfills the service blueprint. Resources from community organizations, local government, local universities, and social associations are used to back up the operating function of the service design (Lin et al., 2013, Peng et al., 2013, Peng et al., 2012, Peng and Hsieh, 2014).

In summary, SEE was used to construct rural tourism services that offered solutions for Hengshan village. SEE aimed primarily at understanding the perceived needs from the perspectives of stakeholders and service science.

Results

Service Experience Inquiry

Contextual Inquiry of Stakeholders

A research alliance from four universities held 12 academic projects from 2012 to 2014 was formed to model rural tourism in Hengshan based on the discussion in the OST forums. The alliance aimed to identify the problems and action plans for a sustainable tourism system for Hengshan. By discussing when, where, what, who, why, and how stakeholders (government, community, business and tourists) are concerned with rural tourism development in Hengshan village, we categorized stakeholder value propositions, experiences, and requirements of rural tourism in Hengshan village (Table 1). The contextual inquiry of stakeholders was concluded from two OST forums that many old style of promotions and tourism development in Hengshan village were outdated. Thus, service innovation of tourism is essential for the regeneration of Hengshan village. In addition, stakeholders possess all the new requirements to change the systems and transform it into a more innovative one toward a better society given their value propositions. For example, the transportation service, local culture identity and human capital are the main concerns of Hengshan development.

Working Model

After the contextual inquiry, the model sketch makes the data and relationships of stakeholders tangible. For example, a cultural model in the working model will assist in understanding stakeholder relationships and interactions in rural tourism. Traditional service content has been found in cultural models, which can realize the service gaps and move forward with sustainable tourism. Moreover, new and creative ideas were brought up for the development of service innovation for the Hengshan society at the next research step.

Table 1 displays the working model of rural tourism in Hengshan. This model is based on the results of our 12 projects over the course of three years. The cultural model identified the perceptions on the current needs of four main stakeholders, namely, tourist, community, business and government, in the rural tourism services. Tourist needs are natural landscape, travel experiences, and hospitality for leisure purpose. Community needs are tourism industry, community interactions, public transportation, traditional education, and traditional culture for the purpose of quality of life. Business's concerns are about revenue and cost for making profit. Government cares for a political system for compliance. However, current needs cannot promise the development of Hengshan village. Service gaps resulted in the emergence of new needs of stakeholders to assist Hengshan village in moving from its current service systems to a sustainable rural tourism.

Service Opportunities and Requirements Deployment

New needs of stakeholders were deployed by a systemic diagram of service innovation for rural tourism in Hengshan is built by using a cause and effect analysis chart to depict the factors for sustainable tourism, all stakeholder data, experiences, and requirements. Figure 4 shows the details of the service requirements. New needs of tourist include low carbon tourism and hospitality, tourism rail, organic food, as well as cultural and creativity. For the Community, new needs include senior citizen re-employment, life after retirement, healthy community, characteristic education system and culture inheritance. Businesses require social entrepreneur opportunity, human capital, cooperate social responsibility and long term profit. Government concerns about economic development, tax revenue and natural landscape protection. These new needs were discovered by research teams in the series of 12 projects conducted over the course of three years. To design service innovation that echo sustainable tourism system for better living standards, two social enterprises have been developed as service prototypes to improve the integrated service systems.

Insert Table 1 here.

From the OST forums in 2012, the 12 academic projects comprised implemented actual projects for the activism of service science. The eight action programs were downgraded to three programs because of the input of human resources and operational resources in three years. Three action programs involved transportation service, tourism, and cultural and creativity systems. Two social entrepreneurs have been tapped to offer service innovation programs for rural tourism since 2014.

Service Design

QFD

QFD was used to construct the service design for Hengshan's sustainable tourism after the first stage of service experience inquiry. QFD revealed the dimensions of service requirements, functions, threshold, and comparisons to traditional systems. The process provided our research team with a systematic scenario that we used to identify the essential maps of rural tourism in Hengshan village. Figure 3 shows that stakeholders have 16 service requirements, including four tourist requirements, five community requirements, four business requirements, and three government requirements. These requirements were listed in the QFD to obtain suggestions for integrated service contents. These services performed better than the traditional system. Nine service functions were chosen for developing sustainable tourism with unique service thresholds and competitive advantages. Each combination of service user and provider requirement is considered in turn by QFD team. Team members and leaders of each project joined together to identify whether the interrelationships of QFD elements are significant (Lowe, 2000). Service functions were integrated as positive correlation signs at the top of the QFD. Correlations of service requirements and service functions are indicated by the numbers in the middle of the matrix. Number 9 indicates the strongest correlation. This study found that service demand and supply should be fulfilled when the numbers of the strongest correlations exceeded 50% on both rows and columns in Figure 3, such that service design can be applied to integrated service systems with good quality. The semantic context of the analysis is the delivery of the right service to address the real needs of stakeholders in service systems.

Based on Figure 3, the service opportunities of new requirement from each stakeholder, this study summarized that Hengshan village can be improved by services from entrepreneurs, creativity factory, transportation, tourism, and cultural and creativity systems. The service thresholds were built mainly from the characteristics of youth and creativity, stable human resources, transportation services, natural landscape, and Hakka culture and creativity. The requirements of the community can be fulfilled by services from the creativity factory, community platform, and transportation, cultural, and creativity systems. Service thresholds were built mainly from the characteristics of stable human resources, local support, train and bus services, and Hakka culture and creativity. Government requirements can be fulfilled by services from entrepreneur resources, creativity factory, local government platform, transportation, tourism, as well as cultural and creativity systems. The service thresholds were built mainly from the characteristics of youth and creativity, stable human resource, local support, resource allocation, train and bus service, natural landscape, and cultural and creativity systems. Compared with traditional systems, our integrated service systems have certain advantages, except for the requirements of organic food, long term profit, and natural landscape protection.

Two social entrepreneurs (SEs in Figure 3), namely, the Dashanbei museum and Hakka hopping factory, started in 2014. These ventures emerged from the results of the 12 research projects in this study. Both entrepreneurs moved from intangible service systems to tangible service entities through quasi-experiments of our research projects because the collaborative resources of stakeholders could have targets for long-term cooperation with the self-survival capabilities of entrepreneurs. An integrated service system is then formed concentrically from social entrepreneurs, stakeholders, and to Hengshan's sustainable rural tourism of the village through activism of service science. These

two social entrepreneurs are suitable for Hengshan because they solved the major problem of human resources in the village. Dashanbei museum has been operated by young people to inject new blood to the old place. Hakka hopping factory has recruited un-structural unemployment elder people and young designers working together to provide creative handcrafts and hospitality services for tourists. These two SEs have been running good judged stakeholders because service functions have fulfilled social requirements of all stakeholders (Figure 3). They assist community's employment, (Yunus, 2010), create service innovation for rural tourism purpose (Germak and Robinson, 2014), as well as develop, and manage social ventures from stakeholders to effect village's change (Dees, 1998). They collaborate with other stakeholders that seek sustainable, large-scale change through pattern-breaking ideas of service innovation in Hengshan (Noruzi et al., 2010) (Table 1).

Social Entrepreneur Case One: Dashanbei Museum

The Dashanbei Museum is located on a mountain in Hsinchu County. The structure used to be a primary school, which closed because of migration of villagers to cities. In 2013, with assistance from a local university's social entrepreneur project, this primary school was renovated by the Hakka Affairs Council and operated by two young people. The former primary school was transformed into a cultural museum, and was named as a cultural heritage site by the central government. Based on the foundation of its heritage, this museum currently serves as a platform for incorporating local culture and creative design as well as local agriculture goods.

Social Entrepreneur Case Two: Hakka Hopping Factory

The Hakka Hopping Factory is located at the NeWan tourist site and offers modern Hakka handcrafts. Prior to the establishment of the factory, the structure was a traditional local cultural museum that sold small handcrafts. With assistance from the social entrepreneur project of the local university, this small local cultural museum was able to discover its own strength in creative handcrafting. The factory employs local senior citizens to handcraft Hakka style products. As this strategy addressed local unemployment, visiting tourists can observe the skills and techniques in handcrafting the products. The factory also hired new graduates of design to provide them with the opportunity to showcase their talent and inject new blood to the factory. Hence, the factory serves as an entrepreneurship platform for young designers.

Service Blueprint

Service blueprint (Fig. 4) shows the interactions among four layers of tourists, on stage, back stage, and support process. The service blueprint enabled the research team to test the service concept on paper before final commitments were made. The blueprint facilitated problem solving and creative thinking by identifying potential points of failure and highlighting opportunities to enhance customer perceptions of the service. The current research applied a service blueprint to the two social enterprises, Dashanbei Museum and Hakka Hopping Factory, which were identified as direct service providers at the customer interface. Both cases can only be reached by driving which can be a limitation for non-driving travelers. After identifying this potential issue, a free bus line between two destinations were introduced in summer 2014 with the support of local government. There are twelve mini buses service daily from eight am to five pm. Each mini bus can take twenty passengers. On average, each bus normally takes eighty percent which is about sixteen passengers. As a result, the connected the operation interface and support system with the collaboration of government, universities, NGO and community activates these two rural sites. Service systems of transportation, tourism, as well as cultural and creativity are running on the backstage through the support of the stakeholders.

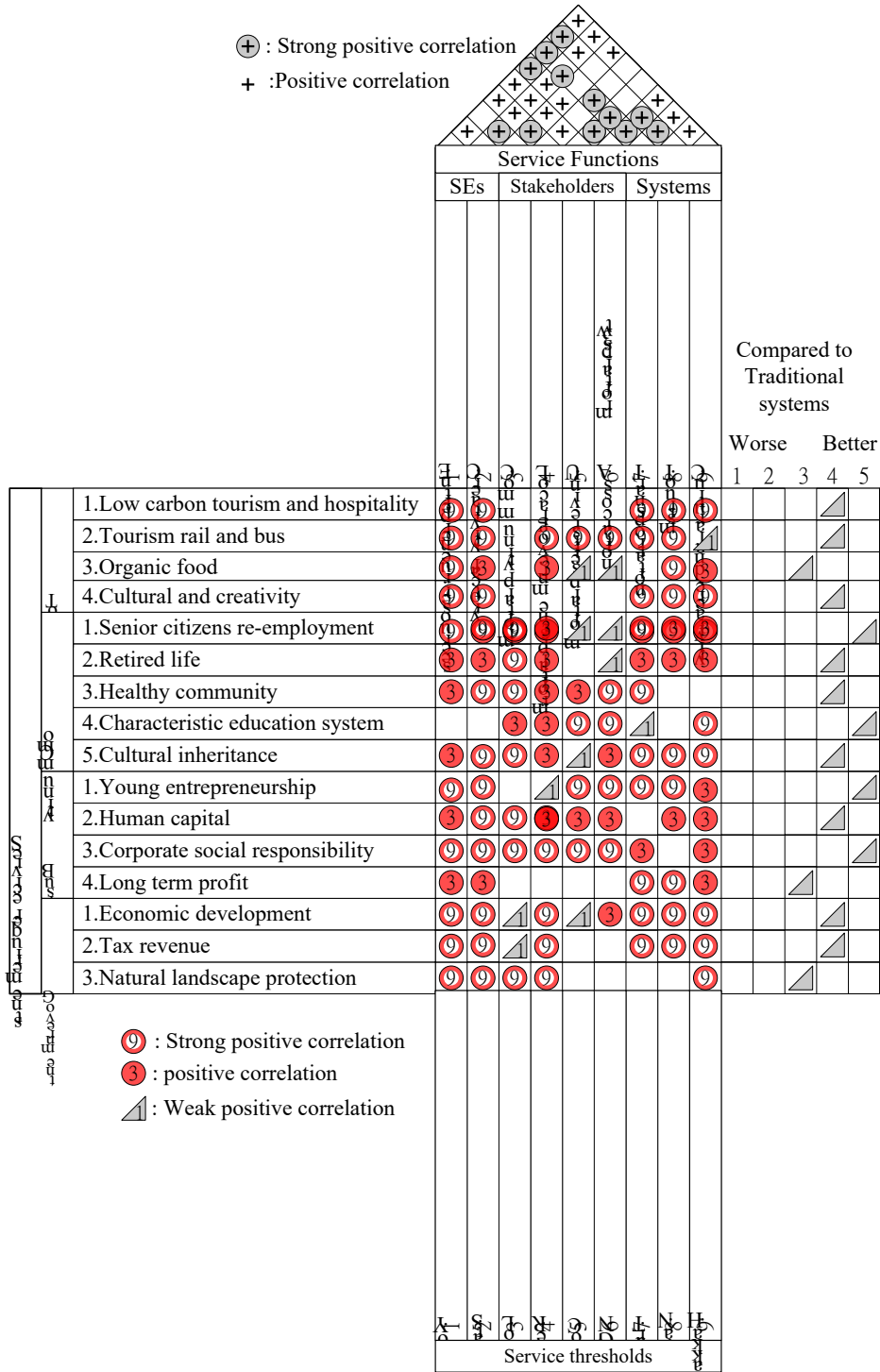


Figure 3: QFD of social entrepreneur in Hengshan

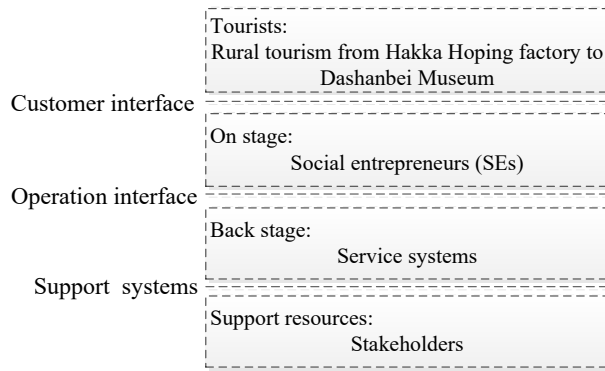


Figure 4: Concept of service blueprint

Service resource design

Corresponding to QFD and service blueprint, service resource design assures that related stakeholders can play their roles by offering their resources for service innovation in the rural tourism system of Hengshan. Two social enterprises and three service systems were strongly supported by four stakeholders of community organizations, local government, local universities, and service science society of Taiwan (s3tw), as shown in Figure 5.

This research was initiated by a research team from four local universities sponsored by s3tw. The research team successfully collaborated with local communities and the local government to offer resources to support the goal of sustainable tourism in Hengshan. We believe the system can fulfill the requirements of stakeholders. An important factor in making Hengshan move forward to an innovative rural tourism system is the alliance of four local universities. These universities offered knowledge and methods to facilitate the activism of service science. Higher education institutions are ubiquitous in Taiwan, and several universities can be found in each city/county. The four local universities encouraged teachers and students to live close to the villages around them to discuss local issues and provide creative solutions. Based on this principle, four universities funded by s3tw collaborated with local communities and governments to design service innovation for sustainable tourism in Hengshan. All stakeholders provided resources for the two social enterprises (Dashanbei Museum and Hakka Hoping Factory) and three service systems (transportation, tourism system, and cultural and creativity) running the innovative rural tourism system.

	1.Community organizations	2.Local governments	3.Local universities	4.Association - s3tw
1.Dashanbei Museum		+	+	+
2.Hakka Hopping Factory	+		+	
3.Transportation		+	+	+
4.Tourism	+	+	+	+
5.Cultural and creativity	+	+	+	+

+ means service resources to support service functions

Figure 5: Sources of service resources

The results echo the case studies of Peng et al. (2012), Lin et al. (2013), and Peng and Hsieh (2014) with claimed that SEE is a method that can explore and satisfy the needs insight of service receives. The contribution of the present study is the application of SEE to social entrepreneurship for a sustainable rural tourism system. Consequently, enlarged the activism of service science to a social level, other than individual level of ICT cases (Peng et al., 2012, Lin et al., 2013, Peng and Hsieh, 2014).

Discussions

An integrated service system of service science was established through interdisciplinary collaboration among stakeholders. The creation of value began in two OST forums, generated eight action programs, filtrated to three service systems, followed by start-ups of two entrepreneurs, and resulted in a sustainable rural tourism. The efforts have spanned years and still kept going for stakeholders' commitment for Hengshan's development. Consequently, rural tourism system was invigorated through the application of activism of service science. Social enterprises (i.e., Dashanbei Museum and Hakka Hopping Factory) recruited both young people and senior villagers to solve the problems of human resources in its rural tourism system. This research focused on Hengshan Village as a field of service innovation for rural tourism, and achieved the following goals:

- 1) Stakeholders changed their relationships from traditional zero-sum game to value co-creation system.
- 2) Young people fulfilled their dreams of becoming entrepreneurs through local support and resources of stakeholders.
- 3) A community factory could create a business based on the local culture and creativity of the village, thereby lowering the structural unemployment in the locality.
- 4) Public policies of the local government require the support of the academe and young entrepreneurs to raise service quality and effectiveness of programs.
- 5) Resources of the central government create more value through collaborations of local and interdisciplinary professionals.
- 6) Achievements in rural service innovations can enhance local culture heritage, local industries, and international tourism service export.

Real action studies is limited in the research of social entrepreneur. This case study is not only providing research insights but also calling for actions to offer the local village the vision of a sustainable rural tourism system. The results provide the perspective of applying service science activism into practice. Designing service innovation for rural tourism has shaped its vision into a sustainable tourism system. Implications of this study can be shown from the perspectives of society and service. From the perspective of society, local development has relied traditionally on the policies and resources from government. Development of rural areas could be easily caught in a vicious circle because of lesser government resources than urban areas. The vicious circle of rural development comprises decline of economy, increase in unemployment, emigration of human capital, and down turn of development in rural areas. One way of stopping the vicious circle is reverse it through the efforts of NGOs and social entrepreneurs. The present case study encouraged social entrepreneurs to recruit young human capital, decrease un-structured unemployment, and develop a sustainable rural tourism system for the economic development of Hengshan village. From the perspective of service, service science is a means of designing an integrated service system through its interdisciplinary knowledge of service, management, engineering and design. The SEE methods included a series of research processes to apply the theory of service science into practice, specifically for the service innovation of rural tourism in Hengshan. The significance of this study is in the innovative method of applying the activism of service science in the construction of a value co-creation system for main stakeholders collaborated together to attain sustainable rural tourism in Hengshan.

Conclusions

Social entrepreneurship is an art of balancing business purpose and social mission which develops considerable implications to the society in various ways. With the lower entry requirement of business, the role of hospitality and tourism industry plays a significant position to promote social entrepreneurs to pursuit their dreams and also contribute to the society. This study demonstrates the power of integrated service system can benefit to social entrepreneurs in a sustainable rural tourism development through the activism of service science. In addition, the communication channel of multi-stakeholders enhances the collaboration system which creates values to each party.

Using methods of SEE and service design, this study solved problems of rural tourism in Hengshan. Two social entrepreneur cases for the development of rural tourism in Hengshan were analyzed through service science. Service models, methods, and tools of SEE were used in the analysis. Using service experience inquiry, this study developed a service design in the service innovation of rural tourism that turned out to be better than traditional and individual service systems. An approach for capturing services as value co-creative systems was established within this study under principles of service science and methods of SEE. This step systematized the development of service contents that met the requirements of stakeholders. Various methods were proposed to benefit the value propositions of stakeholders in the service design of rural tourism for Hengshan. The value co-creative systems could be achieved through service design, thereby extending the development of sustainable rural tourism.

The development of a sustainable rural tourism requires systemic integration of resources from stakeholders to become a value co-creation system through service innovation. To government, Hengshan village received economic development opportunities and enriched its infrastructure to a better condition; to community, this study brought community members together and rediscovered their second talent in hospitality and tourism industry to business, the opportunity of social entrepreneurs and responsibility of local society enriched the awareness of long term operation and culture preservation; and to tourists . Hengshan village raised the new concept of rural tourism development in an organic way and also enriched tourists' travel experience.

In conclusion, successful social entrepreneurship in rural areas is highly relevant to the different requirements of various stakeholders, and thus, creating an integrated service system of value co-creation is essential. Sustainable rural tourism relies heavily on its capability for service innovation. Systemic SEE methods and service design through activism of service science can raise the innovative value of all stakeholders in a rural tourism system. The contributions of this study are the social entrepreneur startups in rural tourism and the methodology of SEE in the knowledge system of service science. The study also yielded a framework suitable for similar analysis of various rural areas. Rural areas are inherently different, and thus, the opportunities and challenges supplied by one of them cannot be generalized to others. Therefore, more insights into the topic are required to boost rural entrepreneurs in tourism nationwide. Eventually, an integrated service system through activism of service science for rural tourism with respect to social entrepreneur was created. Hence, this study is not an end, as more efforts need to be devoted to maintaining the system and developing its innovative capability for sustainable local development.

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