


## Article

# Value Creation Mechanism of Social Enterprises in Manufacturing Industry: Empirical Evidence from Korea

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Received: 9 November 2017; Accepted: 21 December 2017; Published: 25 December 2017

**Abstract:** A variety of social enterprises (SEs) have recently emerged in many different countries in an effort to resolve diverse social problems. However, the value creation mechanism of SEs has not yet been disclosed. The purpose of this study is to reveal the value creation mechanism of SEs in manufacturing industry. To do so, we verify the role of social entrepreneurship and examine the effects of product innovation attributes and social capital on social value creation and financial performance by using structural equation modelling. Then, we conduct interviews with six experts in SE fields. According to the results of empirical study, the social entrepreneurship works as an antecedent of product innovation and social capital in SEs and the degrees of products' simplicity, usability and standardization positively affect the social value creation of SEs. In addition, the social value creation works as a complete mediator between the product innovation of SEs and their financial performance. The interviews suggest policy implications for successful social value creation and sustainability of SEs. This research contributes towards further studies on innovation of SEs and provides social entrepreneurs with guidelines in planning their innovation strategy or developing their products.

**Keywords:** social enterprise; value creation; product innovation; social capital; social value

## 1. Introduction

Governments, non-profit organizations and for-profit companies have been making significant efforts to alleviate social problems such as unemployment, poverty and lack of education among people suffering from extreme poverty. However, there is still much work to be done [1–4]. As a result, a variety of social enterprises (SEs) have recently emerged in many different countries in an effort to resolve such problems and to secure the sustainability of society [5].

Many different definitions of SEs exist. According to Perrini and Vurro [6], a SE is an organization tasked with finding innovative solutions to social issues. Alter [7] defined a SE as a business that creates social benefits through financial management, innovative methods and decision-making processes similar to those of normal companies. There are several common elements of these definitions, as follows. First, the ultimate goal of a SE is to create social benefits and resolve social problems rather than maximize profits. Second, it creates and spearheads social innovation by using resources and engaging in business activities just as a regular company would. Finally, it also tries to maximize profits to survive in a given market. In other words, a SE is an innovative hybrid organization pursuing both social values and economic profit.

There are many kinds of SEs innovating to resolve different social problems. Some SEs improve social issues or create social values by product innovation. Examples include the ‘re-motion design’, which provides affordable artificial knee joints for impoverished, disabled people in developing countries and Vestergaard Frandsen, which has created a portable water purifier for low-income people in water-scarce countries. This study especially focuses on the product innovation that SEs create, because SEs’ products and services tend to bear distinctive marks of innovation, from the perspective of creating both economic profits and social value.

The prior studies on SEs mainly focused on social entrepreneurship, performance analysis and public policy. For example, Weerawardena and Mort [8] revealed key factors affecting social entrepreneurship. Bull [9] developed a balanced score card to analyze the performance of SEs. Kerlin [10] compared concepts and activities of SEs across seven regions and countries to provide practical implications for the development of such enterprises. However, although one of SEs’ main characteristics is to create social values through innovative products, the value creation mechanism of SEs has not yet been uncovered. To address this gap, the purpose of this study is to reveal the value creation mechanism of SEs in manufacturing industry. Specifically, this study addresses the following questions: Does entrepreneurial orientation of social entrepreneurs affect product innovation implementation and social capital utilization to create social values? Do product innovation or social capital of SEs positively affect their social value creation or financial performance? Does the social value creation of SEs directly contribute to financial performance?

To do so, we verify the role of social entrepreneurship and examine the effects of product innovation attributes and social capital on social value creation and financial performance by using structural equation modelling (SEM). Then we conduct interviews with six experts in SE fields. This study employs survey data on Korean SEs in manufacturing industry. Because the Korean government has been nurturing SEs to alleviate social problems and create social benefits since 2007, data from Korean SEs is suitable to study on value creation mechanism of SEs. According to the results of empirical study, social entrepreneurship works as an antecedent of product innovation attributes and social capital in SEs and the degrees of product simplicity, usability and standardization positively affect the social value creation of SEs. In addition, the social value creation works as a complete mediator between the product innovation of SEs and their financial performance. The interviews suggest policy implications for successful social value creation and sustainability of SEs. This research contributes towards further studies on innovation of SEs and provides social entrepreneurs with guidelines in planning their innovation strategy or developing their products.

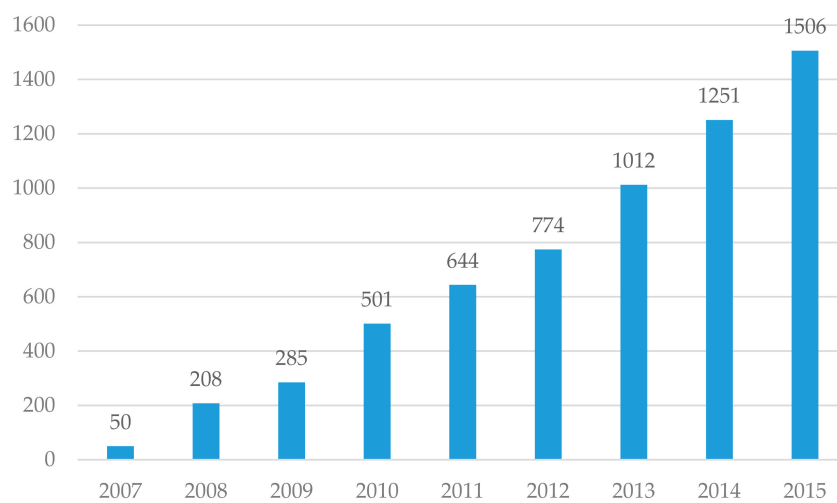
## 2. Korean Social Enterprises

The Korean government has enacted legislation to secure sustainable and stable jobs and to create more diverse social benefits by SEs. The legislation was published on 3 January 2007 and it came into effect on 1 July 2007. The legislation defines a SE in Korea as an enterprise that pursues social purposes, such as providing social services or creating jobs for vulnerable people, through business activities. Korean SEs should be approved by the committee for SEs promotion, under the auspices of the Ministry of Employment and Labor (MEL). The accredited SEs can receive diverse government supports.

Government supports for promoting SEs are also codified in legislation. First, consultation or information for the management of SEs can be supported by government institutions, or by private organizations appointed by the government. Second, central or local governments provide financial supports for equipment costs or establishment expenses. Third, products or services made by SEs are purchased preferentially by public agencies. Finally, the employment insurance, industrial accident insurance, health insurance and pensions as well as tax benefits are also supported by the government.

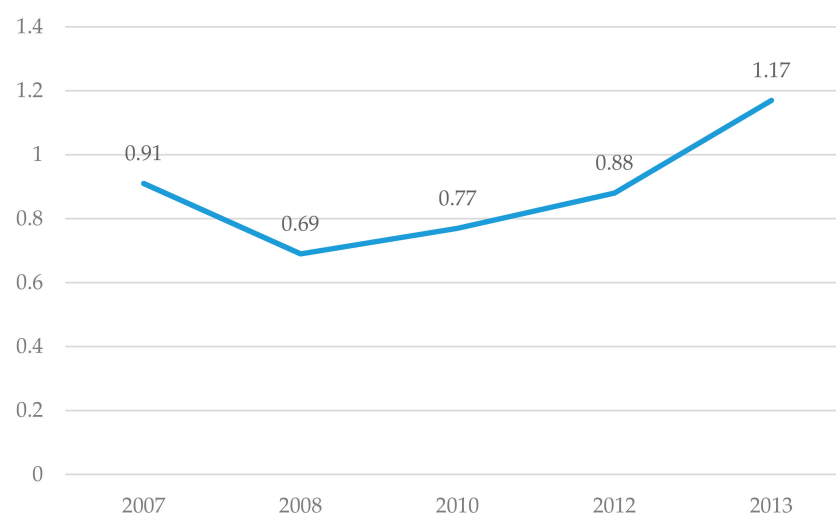
On account of these diverse government supports, Korean SEs have been growing rapidly. As Figure 1 shows, the number of accredited SEs has increased about 30-fold, from 50 in 2007 to 1506 in 2015 [11]. The number of vulnerable people hired by SEs increased from 1403 in 2007 to 15,815 in

2014. Meanwhile, the number of vulnerable customers who bought either the products or services of SEs also increased from 17,166 in 2007 to 2,400,706 in 2011 [11].



**Figure 1.** Number of accredited social enterprises in Korea (Source: MEL [11]).

However, the competitiveness and sustainability of each SE still remains in question. Although the average sales of Korean SEs has increased slightly from 0.91 billion Korean won in 2007 to 1.1 billion Korean won in 2013 (refer to the Figure 2), they are still considerably smaller than the average sales of for-profit small enterprises in Korea [11]. According to the Small Medium Business Administration, the average sales of small manufacturing enterprises in 2013 was 3.2 billion Korean won. In addition, the average number of paid employees per SE in Korea decreased from 50.8 in 2007 to 23.3 in 2013 [11]. According to the report analyzing the performance of Korean SEs, the total operating profits of SEs was in a deficit position in 2011 [12]. Nonetheless, Korean SEs have survived on account of non-operating income, such as that from government supports [13]. Thus, many Korean SEs would be in dire straits, if the government were to halt subsidies and tax benefits. This status shows that the research on value creation mechanism of SEs is necessary for growth and sustainability of SEs.



**Figure 2.** Average sales of Korean social enterprises (Unit: Billion Korean Won) (Source: MEL [11]).

### 3. Literature Review and Hypotheses Development

#### 3.1. Entrepreneurial Orientation of Social Entrepreneurs

Entrepreneurship has been recognized as one of the key driving forces for success in business as well as in the social sector. The definitions of social entrepreneurship in prior studies are diverse. Liu, et al. [14] (p. 269) define the social entrepreneurship as ‘the act of recognizing and pursuing opportunities to solve social problems through the creativity of the typical entrepreneurial process.’ Dees and Anderson [15] remark that the social entrepreneurship is related to the innovative activities for social value creation and Thompson [16] insists that it is related to the business skill in non-profit organizations. The common elements of these definitions is that social entrepreneurship is an underlying factor for social value creation [17,18]. This is like the commercial entrepreneurship in for-profit companies which affects business activities for the maximization of firm performance.

Entrepreneurship builds an organizational process to explore business opportunities and to seize them through innovation [19]. Hitt, et al. [20] insists that the entrepreneurship anticipates changes of markets and develops products to meets the potential customers’ needs. Similarly, social entrepreneurship is deeply involved in the activities and process for social value creation and survive of SEs. Social entrepreneurship starts with discovering entrepreneurial opportunities which arise from market failure [17]. In other words, social entrepreneurship has emerged because commercial enterprises cannot meet all social needs. Thus, social entrepreneurs seek innovative ways to overcome market failures and to create both social and economic values. Since SEs are hybrid organizations between commercial and non-profit organizations, social entrepreneurs have limitations to use the capital market that is fully utilized by commercial companies [17]. Thus, one of the important role of social entrepreneurs is to mobilize resources from external organizations.

Prior studies insist that entrepreneurial orientation which forms the basis of entrepreneurship reflects a company’s strategic posture such as innovativeness, proactiveness and risk-taking [21–23]. Lumpkin and Dess [22] remark that entrepreneurial orientation affects a company’s decision-making activities such as exploration and exploitation new opportunities in the markets. Thus, entrepreneurial orientation of a social entrepreneur can promote product innovation and active utilization of social capital for following reasons. First, because the innovativeness of an entrepreneur reflects a company’s tendency to develop new products or services [22], a social entrepreneur with strong entrepreneurial orientation tends to emphasize product innovation to create social values. In addition, since the risk-taking attribute of an entrepreneur reflects a company’s willingness to take uncertainty or failure in business [24], a social entrepreneur with higher degree of entrepreneurial orientation tends to invest more actively in developing new technologies or products to create social values. The proactiveness attribute of an entrepreneur may affect social capital utilization of SEs. Because the proactiveness reflects a company’s tendency to anticipate and prepare for future demands or changes of business environments [22], a social entrepreneur with strong entrepreneurial orientation tends to actively accumulate and use social capital. Especially, since creating social value or solving social problems is difficult for one SE alone, cooperation with local communities, for-profit companies and diverse stakeholders is essential [25]. In other words, social entrepreneurs with strong entrepreneurial orientation can mobilize resources through relational networks to overcome lack of resources for social value creation. Consequently, we propose the following hypotheses.

**Hypothesis 1 (H1).** *A social entrepreneur with higher degree of entrepreneurial orientation implements product innovation more actively.*

**Hypothesis 2 (H2).** *A social entrepreneur with higher degree of entrepreneurial orientation accumulates and uses social capital more actively.*

### 3.2. Product Innovation Attributes in Low-End Markets

To determine the product innovation attributes of SEs, we first reviewed prior studies on product innovation in low-end markets, which constitute the targets of most SEs. Many researchers have identified certain patterns in product innovation and have found the characteristics of each innovation pattern [26–29]. Such categorization and analysis of product innovation helps business managers in planning strategies for their product innovation [30]. Although there is not much literature on product innovation in low-end markets, some of it tries to explain product innovation with notions of disruptive technology, architectural innovations or frugal innovation [31–33]. For example, Lettice and Parekh [25] adopted concepts of disruptive technology and architectural innovation in order to explain the product innovation generated by SEs.

Christensen [27] was the first to mention the notion of disruptive technology, which provides simpler and more modest versions of existing products. Although these simplified products are usually inferior compared to the existing ones in terms of performance, disruptive innovation offers different values such as low prices, product simplicity and convenience. Christenson also explained how enormous leading companies can be defeated by new emerging ones because of disruptive technology [27,34]. In focusing on satisfying their main customers and providing new and advanced features, leading companies sometimes make unnecessarily complicated products which overshoot customers' needs and expectations. Emerging companies using disruptive technology initially serve only niche markets. As time passes, however, they absorb most of the customers in the market, apart from the most-demanding customers. For this reason, Hart and Christensen [31] argued that it is important to develop products which focus on affordability and acceptability in low-end markets. In many cases of SEs' product innovation, products are developed from outside mainstream thinking because most of SEs' target customers are in the low end of the market. Thus, SEs need to transcend the boundaries or limitations of traditional product development in order to satisfy the demands imposed by these niche customers. In other words, SEs can meet the demands for affordability and acceptability in low-end markets which are their main target markets by improving the simplicity and usability of the product compared to existing products offered by for-profit companies [25,35,36].

The architectural innovation enables innovators to have different applications by using and reconfiguring existing technologies [37]. An architectural innovation can be created with relatively minor changes but bring about significant outcomes for low-end markets. Hellström [38] insists that the notion of architectural innovation can be extended into eco-innovation and be expanded further into social innovation. Because of the lack of technology competencies or financial resources, SEs may be better suited to reconfigure the existing systems in new ways instead of developing completely new systems or technologies in developing new products.

Prahalad [35] states that there is still a large and underserved low-end market and that individuals within that market cannot easily use the products or services offered by the mainstream market due to a harsh environment or a lack of financial resources. Therefore, new product innovation is required to meet the unique needs of low-end markets. Zeschky, Widenmayer and Gassmann [33] studied frugal innovation, a new form of product innovation in emerging countries. Many for-profit companies previously tried to sell outdated products in developing countries since these products were no longer competitive in developed countries [35]. However, given the fact that the products were originally developed for people in developed countries, there are still limitations such as environmental and maintenance costs. Therefore, companies need the frugal innovation, which involves modifying products using limited local resources. Frugal innovation has three distinct attributes: product localization is necessary to make it applicable to a local market; it is initiated by overcoming a limitation of resources and environmental conditions in developing new products; it is accompanied by lowering the cost of products, since most target customers are quite poor. Therefore, with the perspective of frugal innovation, SEs need to focus on standardizing their products to lower the maintenance cost of their main customers and to overcome limited local resources in the low-end market [25,35,36].

As previously discussed, in meeting the needs of the low-end market, product innovation by SEs usually needs to focus on product simplification, improved product usability, the reconfiguration of existing technologies and standardized products or components. Table 1 summarizes product innovation attributes in low-end markets based on prior studies and they can be applied to SEs due to the similarity of target market.

**Table 1.** Product innovation attributes in low-end markets.

Innovation	Attributes	Authors
Disruptive innovation	Simplifying products for improvement of affordability and accessibility	Hart and Christensen [31]
Architectural innovation	Reconfiguring existing technologies for saving organizations' resources	Lettice and Parekh [25]
Frugal innovation	Standardizing products or components for reducing customers' maintenance cost	Zeschky, Widenmayer and Gassmann [33]

Many prior researches have studied the relationship the product innovation and firm performance. Product innovation of SEs can positively contribute to a company's financial performance and non-financial performance for the following reasons. First, companies with high innovation competitiveness can achieve better firm performance by satisfying new customers' needs and actively responding to rapidly changing market conditions [39]. SEs with high competitiveness in product innovation attributes such as product simplicity, usability and standardization that are discussed above can create better firm performance by catching the new needs of the underprivileged and developing related products. Second, innovative products enhance firm performance by contributing to the superiority and the differentiation of products [40,41]. Product innovation of SEs can also secure differentiation advantage in the market through providing new social values and this can contribute to the company's financial performance. Third, in case of frugal innovation, new product development is highly relevant to the company's existing resources and previous experience and thus additional investments such as financial and human resources for product development are not much necessary [33]. These attributes improve a company's speed in time-to-market and shorten time to gain profits through new products [42,43]. Product innovation of SEs can also have positive impacts on improving profitability by reducing investment costs and contributing to fast product launch by focusing on product simplicity, usability and standardization rather than on developing new technologies that require huge investment costs.

Since the performance of a SE is mainly measured by non-financial performance such as social value creation and financial performance such as sales amount and operating income, we propose the following hypotheses regarding the relationship between the attributes of product innovation and firm performance in SEs.

**Hypothesis 3 (H3).** *The attributes of product innovation in low-end markets such as product simplicity, usability and standardization positively affect the social value creations of SEs.*

**Hypothesis 4 (H4).** *The attributes of product innovation in low-end markets such as product simplicity, usability and standardization positively affect the financial performance of SEs.*

### 3.3. Social Capital of Social Enterprises

There are some differences between the innovation undertaken by SEs and that by for-profit companies. Innovation by SEs emerges when they try to meet the unmet needs of individuals within the low-end market, or in solving societal problems; the innovation of for-profit companies, on the other hand, is driven by the existing mainstream market or the development of advanced technologies [25].



Bessant and Tidd [44] (p. 299) also insist that innovation by SEs is ‘generating value rather than wealth’ and that ‘Wealth creation may be part of the process but it is not an end in itself.’ In this context, Hall and Vredenburg [45] ascertain that the type of innovation undertaken by SEs is more vague and complicated than traditional innovation in the mainstream market. This is because SEs need to consider different types of market conditions and to satisfy a more diverse body of stakeholders. Hall and Vredenburg [45] also insist that the innovation undertaken by SEs bears greater uncertainty, which is ultimately absorbed into markets or communities. With respect to product innovation, they state that SEs should consider non-technical issues (such as public perceptions or social reactions), as well as technical problems.

Social capital is defined by institutional norms and relational networks of social bonds and behavior [46–50]. Social capital enhances trust in the organization or community and acts as a bridge between internal norms and morality [48]. Social capital of SEs contributes to making relationship with various partners for social value creation and the sustainability of SEs [51,52]. In other words, social capital helps social entrepreneurs to create social values through cooperation with employees, NGOs, central government, local government and target users [53–56]. Because SEs mobilize resources through relational assets with external organizations and the relational assets create social value that exceeds transaction costs, social capital can have a positive impact on the social value creation and financial performance of SEs. Relational assets strengthen organizational competency and enhance cooperation in the community or region [57].

The relational networks in social capital are also one of the most important factors in value creation through product innovation. Many studies have also addressed the importance of information and knowledge sharing between organizations in improving corporate innovation capabilities [58–62]. In addition, Kogut [63] and Gulati [64] asserted that corporations secure diverse resource portfolios and improve their innovation capabilities by effectively combining and exploiting partners’ resources. The relational networks also contribute to reducing costs, uncertainties and risks in developing new technologies or exploiting new markets [65–67].

Spear [68] says that networks with external organizations often hold a critical role in the entrepreneurial activities of SEs. Being part of a network with external organizations usually helps a SE promote its presence in the market, or to solve some legal or technical issue by providing pro bono advice or funding. Chell [69] remarks that SEs need to overcome their business-resource limitations, as well as any stress that comes with reconciling social benefits with financial profits. Johnstone and Lionais [70] reveal that successful social entrepreneurs usually build suitable relational networks with external organizations in order to overcome difficulties that arise in the course of entrepreneurial activities and to achieve innovation. For these reasons, SEs need to cooperate actively with external stakeholders to create social values effectively and efficiently.

In particular, it is more important to accumulate social capital with external stakeholders in manufacturing industry due to its complex supply chain. Krause, et al. [71] uncovered that close relationship with suppliers and accumulation of social capital with core suppliers contribute to improving buying firm performance. The accumulation of social capital with suppliers can improve buying firm performance for following reasons. First, inter-firm social capital promotes knowledge sharing and consequently contributes to value creation [72–74]. Knowledge sharing such as production schedules or technology development roadmaps can ensure that components are delivered in a timely manner from suppliers and can help to reduce costs and improve quality by improvement of suppliers’ competence [75,76]. Second, inter-firm social capital accumulation improves firm performance efficiently through consistency of cognitive capital which is embodied in shared goals and visions [77,78]. If goals and visions among companies are aligned, efficient interactions and collaborations are promoted, while misinterpretation and conflict are reduced, resulting in improved productivity and performance of companies [79,80]. Consequently, social capital accumulation of SEs in manufacturing industry can positively affect social value creation and improve financial performance.

**Hypothesis 5 (H5).** *The social capital of SEs positively affects the social value creations of SEs.*

**Hypothesis 6 (H6).** *The social capital of SEs positively affects the financial performance of SEs.*

### 3.4. Social Value Creation and Financial Performance

Although there are some previous studies on methodology and measurement indicators for analyzing the performance of SEs, it is still difficult to compare the performance of SEs. Because the scope of the SEs is very wide, it is difficult to evaluate the performance uniformly. Some prior studies provide only a conceptual framework for the performance of SEs but do not disclose specific indicators and measurement tools [81]. On the other hand, other previous researches develop the measurement methods that are too specific for some fields and are difficult to apply to SEs in other fields. For example, Bellucci, et al. [82] studied the performance of Fairtrade stores in Italy but the measurement indicators tailored to the value chain of Fairtrade are difficult to apply to other SEs. Crucke and Decramer [83] also argue that it is not easy to develop performance measurement models that are appropriate for all types of SEs, because the performances of SEs are different with respect to the firm size, purpose, activity and stakeholders. Despite the diversity of performance measurement of SEs, prior studies have reached the consensus that the performance of SEs is multidimensional. In other words, non-financial performance such as social value as well as financial performance such as sales revenue or operating profits should be measured for the performance of SEs [81,84].

The social value creation is an ultimate goal of SEs. According to the prior studies, the main difference between for-profit companies and SEs is that the former pursues the maximization of financial performance, while the latter focuses on the social value creation [14]. This difference causes false assumption that financial performance is less critical than social value creation in SEs [14]. Many prior studies point out this erroneous assumption. The emphasizing financial performance may negatively impact on the legitimate status of SEs due to the conflicting priorities even though it is important to reduce financial dependency on external subsidies [85–87]. Dacin, et al. [88] insists that creating social value does not diminish the importance or necessity of financial performance in SEs. In fact, Liu, Eng and Takeda [14] present that SEs must develop strategies and implementation plans to secure a certain level of financial performance to sustainably create social value. Therefore, social entrepreneurs necessarily build their business model that links between social value creation and economic profits.

Consequently, we propose a following hypothesis regarding a relationship between social value creation of SEs and their financial performance.

**Hypothesis 7 (H7).** *The social value creation of SEs has a positive relationship with financial performance of SEs.*

The social entrepreneurship, attributes of product innovation, social capital of SEs and their effects on social value creation and firm performance, which our study focuses on, are summarized based on the seven hypotheses given. These relationships and hypotheses among all relevant variables are condensed in Figure 3.



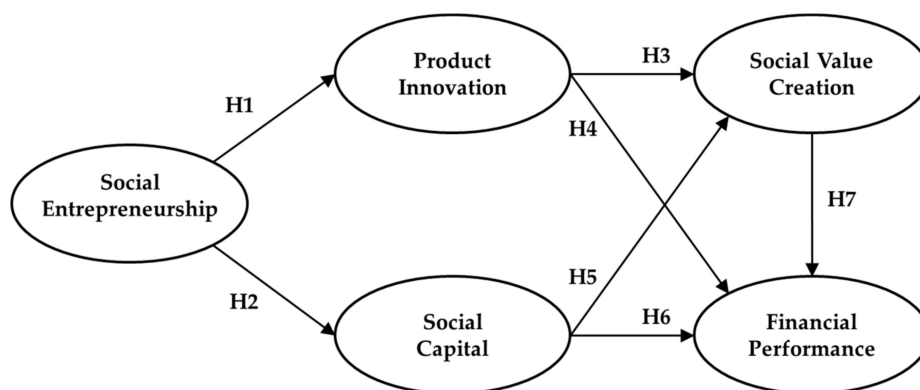


Figure 3. Research model.

#### 4. Research Methodology

We employed a mixed methodology in conducting the research, first conducting an empirical study to verify the hypotheses. We then conducted in-depth interviews with social entrepreneurs and experts in SEs to supplement the results of empirical study and to draw implications for successful social value creation and sustainability of SEs.

According to Creswell [89], three types of mixed methods have been suggested. The first type is convergent designs, in which qualitative and quantitative data are collected at the same time and then the results are compared with each other. This method allows researchers to compare and contrast the results of research with two different perspectives to better explain the research topic. The second type is explanatory sequential designs, in which quantitative data is collected and analyzed in the first stage and then, qualitative research is conducted in the next stage. This method has the advantage to support the results of quantitative analysis or fill gaps of quantitative analysis through the qualitative research. The third type is exploratory sequential designs, in which qualitative research is conducted in the first stage and quantitative research is implemented in the next stage. In this type, the qualitative research contributes to theory building and the quantitative research provides an initial test of the insights of qualitative research. This study adopts the explanatory sequential designs in order to verify the hypotheses in the first stage and supplement the deficiencies of quantitative research through qualitative research in the next stage.

##### 4.1. Empirical Study

###### 4.1.1. Data for Empirical Study

In order to obtain contact information of SEs in manufacturing industry for the survey, we first contacted seven public institutes and one consulting firm that have relationships with Korean SEs. Next, we identified 121 SEs in manufacturing industry from the lists we received. To collect survey data, we called representatives of 121 SEs to briefly explain the purpose of the study and request participation. We then e-mailed and phoned representatives from each enterprise to provide the questionnaire and to request a response. If nobody was available to respond, we allowed a foundation member or a manager to do it. The questionnaire was developed as an Internet-based survey. An email with the survey URL was sent to CEOs or managers. The survey was conducted from 6 March to 15 April 2014. We received total 68 responses and found that 59 responses were valid for result analysis. The total response rate was 56.2% and the valid response rate was 48.8%. The rest of responses were determined to be untrustworthy by detecting common methods bias (CMB).

#### 4.1.2. Statistical Analysis Method

We verified the effects of product innovation and social capital on social value creation and financial performance in SEs by using survey data and structural equation modelling (SEM). In conducting SEM, we selected partial least squares (PLS) for data analysis, because PLS is a suitable tool to verify research models in an early stage of theoretical development. It also has several advantages. First, PLS is quite reliable in validating latent variable scores measured by one or more questions [90]. Second, a relatively small sample size can be analyzed by PLS [91]. Finally, PLS makes verifying complex models with several latent variables [92].

#### 4.1.3. Measurement Indicators

Many scholars have measured social entrepreneurship with three components of entrepreneurial orientation: innovativeness, risk-taking and proactiveness [93–95]. Innovativeness of social entrepreneurship is a core element of social entrepreneurship. Innovativeness is defined as creating products with new methods or ideas, or promoting changes in organizations or businesses [22,96]. Risk-taking is a characteristic of operations of an organization. It is associated with the willingness to accept perceived risk by criteria such as time, human resources and financial resources in the process of creating or implementing new ideas or creative alternatives [97]. Proactiveness means to break the existing institutional norms or ideas and to try new business, programs, services, or policies [22,96]. These attributes are required when social entrepreneurs create social and economic value by business skills. In this study, social entrepreneurship is measured by three questions related to each attribute.

Most prior studies on innovation of for-profit companies measure the product innovation through the degree of product differentiation, new product introduction rates, or new product success rates [98,99]. However, since the target market and the purpose of innovation in SEs are different from those in for-profit companies, the measurement indicators for product innovation of SEs need to be modified. We developed the measurement indicators based on the attributes of product innovation in low-end markets found through literature review. The indicators measure how much a SE focuses on simplicity, usability and standardization to improve the affordability or accessibility of products when developing new products.

According to previous studies, social capital was measured based on the scale, intensity and diversity of the relationship network. Batjargal [100] measured the size of the relationship network through number of contacts between entrepreneurs and stakeholders. The size of the relationship network is able to limited to specific domains, such as managers in other companies or government officials [101]. Davidsson and Honig [102] measured social capital by investigating strong ties and weak ties. The intensity of the relationship is usually measured through interaction frequency or emotional intimacy. Finally, social capital can be measured through the heterogeneity in the entrepreneurs' personal network. Renzulli, et al. [103] measured diversity of the relationship network through demographic diversity, contacts with other industries and scope of international cooperation. In this study, social capital of SEs was measured by the respondents' subjective evaluation on the questions about the size, intensity and diversity of the relationship network.

The measurement indicators for social value creation were modified based on the extant literature. Liu, Eng and Takeda [14] assessed the social value creation of SEs through the respondents' subjective evaluation on comparison with the set goal in advance. They used a total of five indicators: bidding for public service contract, bidding government grants for enterprise activities, serves more beneficiaries in the community, provide more social service (different types), expand social service to different locations. We also measured the social value creation of SEs through the respondents' subjective evaluation with respect to the achievement of social value through product development, improvement in affordability of products and increase in the beneficiary. In this study, the indicators are adjusted in order to fit the product innovation of SEs in manufacturing industry. In addition, social value creation was measured based on the performance over the past 12 months with reference to prior researches [104–106].

To measure financial performance of companies, many researchers look at growth and profitability [107]. Baker and Sinkula [98] and Murat Ar and Baki [108] used three measurement indicators: change in sales revenue, market share and profits relative to large competitors. Wolff and Pett [107] used return and growth perspectives to assess financial performance, measuring return on total assets (ROA) and total sales growth compared to competitors. This study uses market share, sales revenue and operating profit compared to initial targets to measure financial performance in terms of market impact, growth and profitability. This study used subjective ratings for measuring financial performance. The subjective ratings are useful when the numerical data is difficult to obtain and the respondents are reluctant to share them [109–112].

A pilot test was conducted to increase the validity of the responses. The several participants in the pilot test pointed out that definitions and brief descriptions of the terms used in the survey are necessary because the definitions of terms recognized by respondents may be different. In accordance with the advice of participants, we have added definitions and brief descriptions of the terms which may be slightly vague. Table 2 presents measurement indicators for each latent variable. We used a seven-point Likert scale for measuring all indicators. One means “strongly disagree” and seven stands for “strongly agree”. We attached the questionnaire to Appendix A.

**Table 2.** Measurement indicators for each latent variable.

Latent Variable	Indicator	Definition	Reference
Social entrepreneurship	SE1	Degree of innovativeness	Helm and Andersson [93]
	SE2	Degree of proactiveness	Sullivan Mort, Weerawardena and Carnegie [94]
	SE3	Degree of risk-taking	Giraud Voss, Voss and Moorman [95]
Product innovation	PI1	Degree of simplicity of product	Hart and Christensen [31]
	PI2	Degree of usability of product	Henderson and Clark [37]
	PI3	Degree of standardization	Zeschky, Widenmayer and Gassmann [33]
Social capital	SC1	Size of relationship networks	Batjargal [100]
	SC2	Diversity of relationship networks	Renzulli, Aldrich and Moody [103]
	SC3	Intensity of relationship networks	Davidsson and Honig [102]
Social value creation	SVC1	Achievements of social value through product development	Liu, Eng and Takeda [14]
	SVC2	Improvement in affordability of products	Crucke and Decramer [83]
	SVC3	Increase in the beneficiary	
Financial performance	FP1	Market impact	Baker and Sinkula [98]
	FP2	Growth	Wolff and Pett [107]
	FP3	Profitability	Murat Ar and Baki [108]

#### 4.2. Qualitative Study

In order to reinforce and supplement the empirical study, we interviewed six experts from SEs field: two social entrepreneurs, one consultant for SEs and three researchers from non-profit organizations supporting SEs. At this stage, we tried to see how SEs in manufacturing industry implement product innovations such as product simplicity, usability and standardization and why social capital of SEs cannot significantly affect their social value creation or financial performance. The interviews were conducted between May and June 2014 and each interview took approximately two hours. Table 3 provides information about the interviewees and their affiliations.

**Table 3.** Information of interviewees and affiliations.

Name	Position	Affiliation	Location
Kim, Jung-hyun	CEO	Delight	Seoul
Kim, Nam-wook	Manager	Delight	Seoul
Kim, Hae-jin	Senior consultant	KMCCA	Daejeon
Moon, Jin-soo	Research manager	Hope institute	Seoul
Bae, Min-hae	Researcher	Hope institute	Seoul
Lee, Jae-heung	Researcher	Hope institute	Seoul

Delight was founded in 2009 to produce hearing aids at low prices for poor, hearing impaired people in Korea. Although Delight has a relatively short history compared to successful overseas SEs, it was featured several times in Korean media as one of the most promising SEs in the country. We investigated secondary sources such as press releases and online information and conducted an in-depth interview with a representative and manager of the company.

Hope institute is a policy research organization in Seoul, Korea. Their mission is to foster civic leadership based on sustainable values and to conduct policy research on important social issues. In order to achieve the mission, they analyze social phenomenon, form consensus and suggest of solutions on social issues. In addition, they hold seminars and conferences to reflect citizens' opinions and to enlarge their perspectives. We interviewed the research manager and two researchers who are studying the social economic field in order to draw policy implications for SEs. KMCCA (Korea Management Consulting Company Association) is a consulting corporation for management of corporation and start-up and supports consulting on the management and start-up of SEs in Daejeon city. We interviewed the senior consultant to learn about the attributes and management tendency of social entrepreneurs.

The questions were open-ended and semi-structured [113]; thus, the questions differed slightly for each organization. The interviewees were asked the following questions:

- (1) What is the mission of your organization?
- (2) How do SEs in manufacturing industry approach to solve social problems or to create social value?
- (3) What are the main difficulties that SEs face in product development and social value creation? And how can SEs overcome these difficulties?
- (4) What should Korean SEs do to increase their competitiveness and to secure their sustainability?
- (5) Do Korean SEs actively cooperate with other organizations to create social value? If not, what are the difficulties of the cooperation?

In line with the methodology of Sekaran [114], we hold face-to-face meeting with interviewees; this is the best option when addressing a controversial topic. All interview contents were analyzed from three perspectives: data reduction, display and verification [113]. Two researchers coded and grouped the text by theme [115–117]. Next, another researcher checked for and compared discrepancies. Finally, all the researchers discussed the conflicting parts and made minor adjustments, until they were consistent [115,118,119].

## 5. Results

### 5.1. Results of Empirical Study

Assessments of PLS path model consists of a two-step process: outer model assessment and inner model assessment. Outer model assessment is composed of reliability and validity of reflective constructs and validity of formative constructs. Therefore, before the inner model is assessed, reliability and validity of each construct in the outer model should meet certain criteria [92].

#### 5.1.1. Reliability Assessment of the Research Model

To evaluate reliability in the PLS model, composite reliability value or Cronbach's  $\alpha$  can be a criterion for checking internal consistency reliability. However Cronbach's  $\alpha$  tends to seriously underestimate internal consistency reliability of latent variables in the PLS model [120]. Therefore, we adopted composite reliability values for validation of internal consistency reliability. According to Bernstein and Nunnally [121], the reliability value should be above 0.7 in early stages of research and higher than 0.8 or 0.9 in advanced stages of research. Because this is the first exploratory study on product innovation of SEs, we follow the first criterion. Table 4 shows composite reliability values of each latent variable which meet the criterion suggested by Bernstein and Nunnally [121].

**Table 4.** Results of reliability test.

Latent Variable	Composite Reliability	Indicator	Outer Loading Values				
			SE	PI	SC	SVC	FP
SE	0.866	SE1	0.817				
		SE2	0.874				
		SE3	0.788				
PI	0.801	PI1		0.811			
		PI2		0.754			
		PI3		0.702			
SC	0.782	SC1			0.703		
		SC2			0.718		
		SC3			0.826		
SVC	0.779	SVC1				0.830	
		SVC2				0.767	
FP	0.934	FP1					0.840
		FP2					0.952
		FP3					0.929

For the reliability of indicators, Henseler, Ringle and Sinkovics [92] suggested that absolute standardized outer loadings should be above 0.7 if researchers postulate that each latent variable should explain at least 50% of each indicator's variance. Thus, among the indicators we designed, SVC3 were excluded because their outer loading scores are less than 0.7.

### 5.1.2. Validity Assessment of the Research Model

The assessment of validity in PLS consists of convergent validity and discriminant validity. Convergent validity indicates how well each set of indicators represents the same underlying construct. Discriminate validity states that two different concepts should show sufficient difference. Fornell and Larcker [122] said that average variance extracted (AVE) should be at least 0.5 for convergent validity and the square root of each latent variable's AVE should be higher than the highest correlation coefficients for discriminate validity. Table 5 presents the AVE values and correlation coefficients of each latent variable. The AVE values of all latent variables exceed 0.5 and so we have determined that each latent variable achieved sufficient discrimination validity.

**Table 5.** Results of validity test.

Latent Variable	AVE Value	Discriminant Validity				
		FP	PI	SC	SE	SVC
FP	0.825	0.908				
PI	0.573	0.201	0.757			
SC	0.546	0.177	0.183	0.739		
SE	0.684	0.335	0.498	0.470	0.827	
SVC	0.638	0.402	0.356	0.206	0.241	0.799

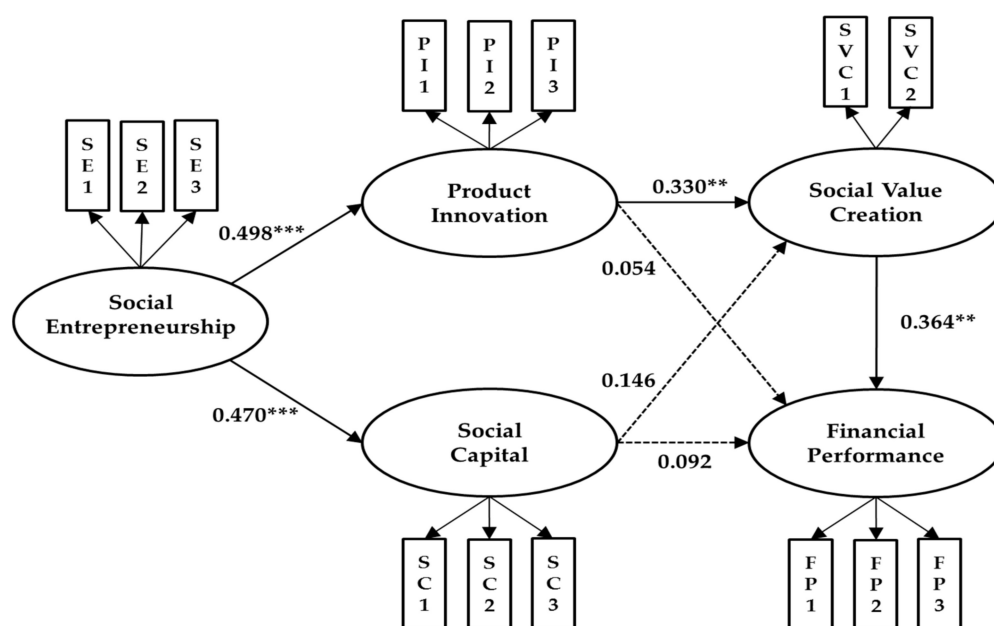
### 5.1.3. Results of Path Model

The PLS model analysis results are shown in Table 6 and Figure 4. Based on path coefficients and measurement of  $p$ -value, we found that the social entrepreneurship positively affects the product innovation attributes and social capital of SEs and the product innovation has a positive relationship with social value creation of SEs. In addition, the social value creation of SEs is positively associated with financial performance of SEs. However, the effects of social capital on social value creation and financial performance of SEs are insignificant. Therefore, Hypotheses 1, 2, 3 and 7 are accepted while Hypotheses 4, 5 and 6 are rejected. The rejection of Hypothesis 4 implies that the social value creation works as a complete mediator between the product innovation and financial performance of SEs. In addition, the rejections of Hypotheses 5 and 6 mean that product innovation attributes of SEs such

as product simplicity, usability and standardization rather than the social capital of SEs have critical influences on social value creation of SEs in the manufacturing industry.

**Table 6.** Results of research model.

Path	Original Sample	Sample Mean	Standard Deviation	T-Statistics	p-Value
SE→PI	0.498	0.510	0.116	4.292	0.000
SE→SC	0.470	0.484	0.113	4.150	0.000
PI→SVC	0.330	0.328	0.166	1.980	0.048
PI→FP	0.054	0.075	0.190	0.284	0.776
SC→SVC	0.146	0.161	0.135	1.084	0.278
SC→FP	0.092	0.091	0.130	0.707	0.480
SVC→FP	0.364	0.360	0.151	2.413	0.016



**Figure 4.** Results of research model. Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ .

## 5.2. Results of Qualitative Study

### 5.2.1. New Product Development and Social Value Creation of SEs

In this section, interviews with social entrepreneurs show how the SEs in the manufacturing industry have implemented product innovations such as product simplicity, usability and standardization.

Social entrepreneurs usually start from a tiny idea that can solve social problems or create social values. Junghyun Kim, a former CEO of Delight, founded a SE in 2010 to provide hearing aids to people who are vulnerable with hearing impairments. He said that:

“We started our business after we found that there were many poor people with hearing impairments who could not purchase a hearing aid due to the price. The average price of a hearing aid in Korea is from \$1500 to \$2000. Meanwhile, the Korean government provides a subsidy of \$340 for impoverished people with hearing impairments. As a result, we decided to develop a hearing aid priced at \$340.”

Since SEs should provide products or services to the vulnerable people at affordable prices, applied technologies should contribute to reducing product cost. SEs also try to make simpler and



more modest versions of products for vulnerable people who are their main customer. To accomplish them, SEs focus on standardization of components. Junghyun Kim said that:

“Most hearing aids are customized for each user’s ear shape, leading to high costs. We studied Koreans’ ear shapes in order to create 200 standardized sizes. It then mass produced them using an injection molding technology, dramatically reducing production costs. Making hearing aids consist of five steps: hearing tests, consulting with experts on selecting hearing aids, manufacturing products, customizing products for various ear types and delivering the products. We also notably reduced customers’ costs and time for hearing tests by using doctor notes instead of in-house facilities. Moreover, we have an online system for users to choose a suitable hearing aid. This increases efficiency and convenience for customers. Finally, since we have a door-to-door delivery system, customers need not visit the store, again. Thanks to all of these approaches, Delight became the first company in Korea supplying low price hearing aids within just five days.”

Namwook Kim, a manager of Delight, said that:

“Actually, we tried to do away with stereotypes on current products. Otherwise, it was impossible to develop a totally new product for people at the low-end of markets. If we developed our products in the same way as for-profit companies, we would not have been able to lower prices and improve product usability and accessibility.”

This argument is consistent with Lettice and Parekh [25] claim that destructive or architectural innovation is more appropriate than sustainable or incremental innovation in order to achieve social change. According to senior consultant Haejin Kim, one of the difficulties inherent in operating a SE is concurrently generating both social benefits and economic profits. He said that most SEs experience a conflict or tension between social objectives and economic objectives. Jaeheung Lee, a researcher at the Hope institute, also stated that:

“Actually, SEs are not both for-profit companies and non-profit organizations. So, it is very difficult to be financially independent without any subsidies or funding, in normal situations. The social mission of a SE sometimes conflicts with its business, because most of its target customers do not have enough purchasing power. Therefore, some SEs adopt two pricing models: one is for customers in normal markets and the other is for poor customers in low-end markets.”

These interviews confirm that it is important to improve the simplicity, accessibility and affordability of products in order to create social value by SEs in manufacturing industry, as demonstrated in the empirical study. In addition, the SEs need to innovate business models for overcome disadvantages of their target market.

### 5.2.2. Reinforcing Competitiveness of SEs

In this section, interviews with experts in SEs show how the SEs reinforce their competitiveness and why social capital of SEs cannot significantly affect their social value creation or financial performance. Furthermore, policy implications for enhancing competitiveness of SEs are drawn.

Chan Kim and Mauborgne [123] highlighted the importance of a well-developed relational network with external resources, given the fact that resources are usually insufficient when operations commence. It is important that companies use external resources to be effective and efficient. Most Korean SEs lack resources for business activities such as marketing, supply chain management, production and R&D. Therefore, SEs concentrate on the formation of relational network with external organizations to mobilize external resources. Minhae Bae, a researcher at the Hope institute, said that in order to solve social problems, it is important to establish relationships assets with

various organizations such as for-profit companies, local government and civic groups for product development, distribution channels and promotions. Junghyun Kim also said that:

“We actively collaborate with government agencies and non-profit organizations when we open medical camps on a large scale. They give financial supports and help in promotion activities . . . . We received external investments from Daewon, a large Korean pharmaceutical company, as well as technological support from KAIST, a prominent Korean university in order to develop the next version of our product.”

Figure 5 shows Delight’s mobilization of external resources for enhancing their competitiveness.

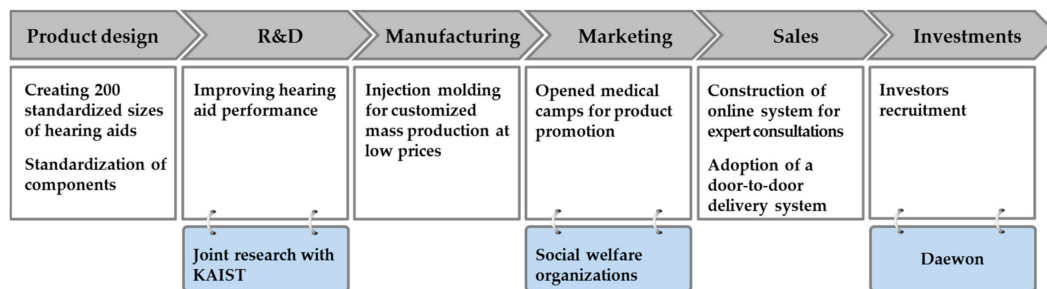


Figure 5. Delight’s mobilization of external resources.

However, most Korean SEs do not actively cooperate with external organizations in technology development, securing distributors and marketing. Lee and Kim [124] report that in developing distribution channels, 10% of Korean SEs collaborate with local government or public agencies and 5% of Korean SEs collaborate with for-profit companies. As for technology development, 8.8% of Korean SEs received supports from central or local governments and 3.9% of Korean SEs received them from public institutions.

Haejin Kim also stated that:

“Most SEs want to make business networks with external organizations (such as for-profit companies or public institutions), in order to secure their distribution channels or technological resources. However, it is difficult for SEs to find suitable partners, given a lack of information about external organizations who want to create relationships with SEs.”

Consequently, most Korean SEs do not receive expert supports (like pro bono work), even when they lack business resources. Haejin Kim insisted that government needs to reduce information asymmetry between SEs and external organizations. These external organizations include for-profit companies that are interested in collaborating with SEs, as a part of their corporate social responsibility strategies. Jinsoo Moon said that:

“Korean government supports such as subsidies and tax reduction benefits were really beneficial for SEs in the early stage of business. Now, the government needs to focus on efficient ways in which SEs can collaborate with other organizations. This approach would contribute to creating a more sustainable ecosystem for SEs.”

Jaheung Lee pointed out that SEs also need to develop their capability to enlarge their relational networks, if they want to grow their enterprises.

“Most SEs depend on central or local government for their business. Only a few SEs try to enlarge their relational networks with external companies or institutions. In addition, only a few SEs create a department that promotes their business to external organizations and develop partnerships.”

Although the interviewed experts have argued that social capital is an important factor for the business of SEs, the empirical study shows that there is no significant relationship between social capital and the social value creation or financial performance of SEs. As for this part, Jinsoo Moon mentioned as follows:

“Although social capital is an important factor for the business of SEs, the quality of resources provided from the relational networks can also affect the social value creation of SEs. In other words, if external organizations do not actively support or cooperate with business of SEs, it may be difficult to create social value even if SEs accumulate the relational assets.”

According to the results of interview, it is important to build relational assets in order for Korean SEs to secure competitiveness and contribute to social value creation more consistently. However, despite the fact that the majority of SEs want to collaborate with external organizations, it is difficult to find suitable partners. In order to build a sustainable social innovation system, the government needs to establish infrastructures for the formation of SEs' social capital. In addition, in order to effective social value creation of SEs, government also needs to prepare an incentive for external organizations formed social capital of SEs.

## 6. Discussion

### 6.1. Findings and Implications

This study explored the value creation mechanism of SEs in manufacturing industry. The results of the empirical study find that the social entrepreneurship works as an antecedent of product innovation and social capital in SEs and the degree of SEs' product innovation attributes such as simplicity, usability and standardization of products positively affect the social value creation of SEs. In addition, the social value creation works as a complete mediator between the product innovation of SEs and their financial performance. These results indicate that SEs in the manufacturing industry create social value through product innovation and that the social value created contributes to the financial performance that can secure the sustainability of the SEs. In addition, the product innovation of SEs can increase social value creation by focusing on simplicity, usability and standardization of products. The interviews with experts in the SE field also support the findings of empirical study. Junghyun Kim, founder of Delight recognized that poor, hearing-impaired people could not afford a hearing aid with a government subsidy. The Delight tried to develop a hearing aid improved in affordability and accessibility by securing simplicity, usability and standardization of products. In addition, they also tried to actively accumulate and use social capital for social value creation. They opened medical camps by collaborating with government agencies and nonprofit organizations and mobilized technical supports from the university for new product development.

Although the empirical study revealed that social entrepreneurship has a strongly positive effect on social capital of SEs, the significant effects of social capital on social value creation and financial performance of SEs were not found. This result implies that product innovation attributes of SEs such as product simplicity, usability and standardization rather than the social capital of SEs have critical influences on social value creation of SEs in the manufacturing industry. On the other hand, one of interviewee mentioned that if the external organizations do not actively support or cooperate with business of SEs, it may be difficult to create social value even if SEs accumulate the relational assets.

This study also suggests policy implications for successful social value creation and sustainability of SEs. Until now, Korean government has been focused on increasing the size and total numbers of SEs by providing subsidies and tax benefits. On account of these government supports, Korean SEs have grown rapidly in quantitative terms. The number of accredited SEs has increased about 30-fold, from 50 in 2007 to 1506 in 2015. In the future, the Korean government needs to focus on both improving the competitiveness of individual SEs and fostering a sustainable ecosystem of SEs.

To do so, this study proposes two policies as follow. First, government needs to support product innovation of SEs. For example, if the government allows SEs to use technologies that have not been transferred among technologies developed by public research institutes for free, innovative SEs will be more created. Some SEs misunderstand that product innovation requires a high level of technology, knowledge and investment. However, our study shows how these can be overcome in SEs. According to the results, the degree of products' simplicity, usability and standardization can improve social value creation. Moreover, the product innovation of SEs does not need huge investments and can be a resource-saving innovation [25]. The case of Delight shows that the product innovation of SEs is possible through reconfiguration of existing technologies without developing advanced technologies. Second, government needs to support the accumulation of SEs' social capital. For example, government can establish an online-platform to share information between SEs and external organizations such as for-profit companies, non-profit organizations, universities and public institutes. Currently, many SEs are trying to find external organizations for cooperation but it is difficult to find suitable partner due to the lack of relevant information. It is also not easy for external organizations that want to support SEs for social value creation to seek appropriate SEs. The government's online-platform reduces the information asymmetry and improves institutional-based trust among participants. The institutional-based trust is formed through a trustworthy third party organization and system, which is particularly important for cooperation between organizations that have no previous interaction [125]. In addition to building infrastructures for the social capital accumulation of SEs, the government also needs to draft incentive policies for external organizations that support SEs in order to create the positive effects of social capital on social value creation of SEs. This study has already shown that the social capital accumulation of SEs by itself has limitations to create positive effects on social value creation and financial performance of SEs. Therefore, the government needs to implement incentive policies so that many external organizations can support SEs and actively participate in social value creation.

## 6.2. Contribution and Limitations

We conducted an empirical study on the value creation mechanism of SEs in manufacturing industry and found the role of social entrepreneurship and the effects of product innovation on social value creation and financial performance in SEs. Although there have been some prior studies on product innovation in low-end markets, most studies have used only qualitative research methods (e.g., case studies). This study used both quantitative and qualitative research methods to complement the limitations of existing researches. In addition, the measurement indicators used in this study can contribute to future researches on social innovation or product innovation of non-profit organizations. Finally, this study can provide social entrepreneurs with guidelines in planning their innovation strategy or developing their products.

Although this study found the role of social entrepreneurship and the effects of SEs' product innovation attributes on social value creation and financial performance of SEs, this study has a few limitations which should be considered in future studies. First, we examined only Korean data to analyze the value creation mechanism of SEs. National differences such as political or economic environments can affect the value creation mechanism of SEs. Thus, it is necessary to research value creation mechanisms of SEs in diverse environments. Second, we only investigated SEs in manufacturing industry to focus on their product innovation. Therefore, in future research, it is necessary to analyze the innovation performance and the financial performance considering the characteristics of each industry. Finally, we propose comparative studies on SEs and for-profit companies that are similar size and same industry to compare product innovation paths and determine factors affecting product innovation and firm performance.

## 7. Conclusions

The purpose of this study is to uncover the value creation mechanism of SEs in manufacturing industry. In order to verify how SEs can effectively create social value and how SEs are sustainable despite focusing on social value creation rather than profit maximization, we have addressed several research questions: Does entrepreneurial orientation of social entrepreneurs affect product innovation implementation and social capital utilization to create social values? Do product innovation or social capital of SEs positively affect their social value creation or financial performance? Does the social value creation of SEs directly contribute to financial performance?

The results of this study confirm the following three points. First, social entrepreneurs with higher degree of entrepreneurial orientation implement product innovation and accumulate and use social capital more actively. Second, product innovation attributes such as product simplicity, usability and standardization positively affect the social value creations of SEs. Third, financial performance of SEs is improved only through social value creation and it is not directly affected by product innovation or social capital of SEs. Consequently, social entrepreneurs can achieve sustainable financial performance by creating social value through product innovation such as product simplicity, usability and standardization.

**Acknowledgments:** The authors would like to thank the editors and anonymous reviewers for their constructive comments and helpful suggestions.

**Author Contributions:** Hosung Son designed the research framework, analyzed the data and wrote the paper. Joosung Lee suggested research idea and designed the qualitative study. Yanghon Chung designed the overall conceptual framework of the study and guided the research methodology and writing of the paper.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

Latent Variable	Indicator	Question
Social entrepreneurship	SE1	CEO emphasizes and implements R&D and innovation.
	SE2	CEO conducts active and bold business activities.
	SE3	CEO adopts a new management tool even if there is a risk.
Product innovation	PI1	We focused on simplification of the product when developing new products.
	PI2	We focused on improvement of the product usability when developing new products.
	PI3	We focused on standardization of components or products when developing new products.
Social capital	SC1	We make cooperative relationship with many external organizations.
	SC2	We build a cooperative channel with various external organizations.
	SC3	We continuously and frequently collaborate with external organizations.
Social value creation	SVC1	We created the social value we have aimed at.
	SVC2	We improved affordability of products.
	SVC3	We increased the number of beneficiaries of social benefit.
Financial performance	FP1	We achieved a higher market share than its target.
	FP2	We achieved higher sales than the target.
	FP3	We achieved a higher operating income than its target.

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