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## Article

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Article

# Open Innovation for Sustainability in the Social Enterprises: An Empirical Evidence

Budi Harsanto <sup>1,\*</sup>, Asep Mulyana <sup>2</sup>, Yudi Ahmad Faisal <sup>3</sup> and Venny Mellandhia Shandy <sup>4</sup>

<sup>1</sup> Faculty of Economics and Business, Universitas Padjadjaran, Bandung 40132, Indonesia

<sup>2</sup> Master in Integrated Microfinance Management Program, Universitas Padjadjaran, Bandung 40132, Indonesia

<sup>3</sup> Center for Management and Business Studies, Universitas Padjadjaran, Bandung 40115, Indonesia

<sup>4</sup> Master in Management Science Program, Universitas Padjadjaran, Bandung 40115, Indonesia

\* Correspondence: budi.harsanto@unpad.ac.id

**Abstract:** Social enterprises are currently receiving significant attention from academics and practitioners because of their hybrid nature to achieve profit while achieving the planned social mission. To achieve their social mission as well as financial sustainability, social enterprises need to have the ability to carry out innovation for sustainability which helps them balance these two goals. In hybrid organizations, such as social enterprises, priorities in financial and social missions may conflict, resulting in managerial tensions and stakeholder pressure, making open innovation (OI) by involving external parties essential. This paper aims to explore OI for sustainability in social enterprises. The research question posed is: what innovation for sustainability practices do social enterprises implement and, how does the mechanism of OI for sustainability work in social enterprises? A multiple case study approach is used by taking four leading social enterprises in the education sector located in West Java, Indonesia. Our findings indicate that sustainability innovation is practiced by social enterprises in the form of providing social benefits such as paying for the education costs of their students and providing social services for the surrounding community. Beyond that, ecological benefits are provided in the form of reducing waste and using unproductive land in a productive manner. Innovation is performed with a different approach from one case to another. All cases studied collaborate with parties external to the organization to be able to implement sustainability innovation. This study contributes to the literature by providing empirical research on sustainability innovation in the context of social enterprises, which is still rarely found in the literature.

**Keywords:** sustainability innovation; open innovation; social enterprises; education; case study



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## 1. Introduction

Innovation for sustainability is the innovation type that aims for either financial, ecological, social, or in combination, benefits simultaneously [1,2]. It is interchangeably also referred to as sustainability innovation or sustainability-oriented innovation (SOI) [3]. Most studies on innovation for sustainability are pure for-profit organizations, and few are conducted on hybrid organizations such as social enterprises. Social enterprises are companies that seek profit to finance social programs and activities [4]. In social enterprises, managerial tensions and stakeholder pressure can be high due to the clash of priorities between financial and social mission [5]. This is why innovation for sustainability, which is inherently complex, becomes more challenging in social enterprises. Open innovation (OI) is the way to overcome the most commonly encountered problems by social enterprises, such as managerial frictions, stakeholder pressure, or financial and social mission dualism.

OI is an emerging concept in the last two decades that Chesbrough first introduced through his book [6]. In the OI concept, firms, in addition to using internal ideas, should also use external ideas when involved in innovation. OI combines ideas and contributions from internal and external sources to be able to reach innovation success. OI is one of the

streams in innovation that receives the most attention, along with the increasing complexity of business and the development of information communication and technology that allows the smoother flow of knowledge both into and out of the firms [7]. As an illustration, as of the writing of this paper in 2022, Chesbrough's 2003 seminal book has acquired over 25,000 citations on Google Scholar.

To gain a deeper understanding of OI in social enterprises, it is necessary to comprehend the innovation practices of social enterprises and to identify the OI partners and their mechanisms. Thus, the following research questions are proposed:

Q1. What innovation for sustainability practices do social enterprises implement?

Q2. How does the mechanism of OI for sustainability in social enterprises work?

To address these research questions, the next section briefly reviews previous literature related to innovation for sustainability in social enterprises. The third section contains a detailed explanation of the methods used in this study. In the fourth and fifth sections, case study findings on the innovation for sustainability practices by social enterprises as well as the identification of external partners and the mechanisms of interaction that occur between external partners, are presented. Finally, the conclusion is presented in the sixth section, along with research limitations and future directions.

## 2. OI for Sustainability in the Social Enterprises

### 2.1. Innovation for Sustainability in the Social Enterprises

Innovation for sustainability is a type of innovation that is directed not only at profit but also toward achieving either social, environmental, or both, advantages. This term is a blend of two well-known words: innovation and sustainability. Innovation has been around for over five centuries, while sustainability has been around for over a century. Both share the fact that the term is now transdisciplinary and is explored from a variety of perspectives. The blend of these two concepts, innovation and sustainability, ultimately creates a new paradigm where this combination gives rise to several concepts used interchangeably, such as sustainable innovation, sustainability-oriented innovation (SOI), environmentally friendly innovation, or sustainability-based innovation [8,9]. This concept integrated the stream of eco-innovation and social innovation [2,10,11]. Formally, innovation for sustainability can be defined as the commercial introduction of a new product or service, product service system, or pure service that leads to either environmental, social, or both, benefits over the previous life cycle [2].

Innovation for sustainability is composed of three major dimensions, the first of which is the level of integration in its implementation [1]. It is a matter of whether the innovation is carried out as a stand-alone or integrated, or to some extent somewhere in between. This is an internal company dimension in which the sustainable attitude will be thought out and communicated for each unit, department, function, product, or process. Second, it is about the updates contained in innovation, whether they affect technical updates or, more strategically, the socio-technological component. The value of technological effects can be increased by examining the impact of innovation on larger elements such as consumer behavior or how socially significant changes occur in society. The third relates to the perspective of the scope of the innovation, which can be either insular or systemic. Insular is the first step. Companies that plan ahead to innovate for sustainability will see how far they can go towards solving sustainability problems by taking broader systemic factors into account.

In social enterprises, innovation for sustainability coexists harmoniously while also facing a number of difficulties. The alignment stems from the idea that in social enterprises, profits are used to fulfill social needs and create social value [12], which, together with the environment, are two of the three issues in innovation for sustainability. The difficulty is in the creative process because of the dual missions that these social firms bring. This is where OI is expected to be able to help resolve these issues.

## 2.2. Thematic Areas of OI

Thematic areas were identified in existing OI research in which one of them is OI in small and medium-sized enterprises [13]. Innovation processes of SMEs were identified more than a decade ago [14]. In most studies, SMEs were excluded from mainstream OI literature [15]. The literature often used a claim that an innovation process in SMEs is hindered by internal and external factors including their smallness, lack of managerial capacity and skills, less awareness of and access to external knowledge and finance, and fewer technological assets [13,14,16,17]. However, some studies started to support the potential of OI for SMEs. For instance, Lee et al. (2010) argued that many Korean SMEs are involved in innovation activities [14]. Hervas-Oliver et al. (2021) argue that SMEs may also pursue process or, simultaneously, product and process innovation [18]. Accordingly, SMEs innovate differently, developing distinct internal and external activities [18]. Furthermore, prior authors argued that innovation also occurs in peripheral regions and small towns where diversity is multidimensional, evidenced from case studies in small towns in Switzerland [19]. Studies on SMEs on OI in an emerging economies context, such as South East Asian, have rarely been discussed in the literature. As innovation for sustainability is a combination of social innovation and eco-innovation, OI includes open social innovation and open eco-innovation. In this research, we integrate the two and use the term OI for sustainability, which covers OI both for social and eco-innovation.

## 2.3. OI in the Social Enterprises

OI is an innovation process characterized by knowledge flows that are managed intentionally to cross organizational boundaries in a way that is more open than traditional models [20]. This innovation was developed based on the observations of several large innovative companies, and there are some deviations that occur in traditional practices [6,21]. Prior authors revealed that OI builds on the general model of vertically integrated industrial R&D [22].

There are three antecedents that help in the formation of OI ideas. First, scholars have understood that since the 1970s, the source of innovative ideas has often come from outside the company [23]. Second, OI builds on the advantages of the innovation framework developed by [24] in which he pays special attention to the challenges that companies face in taking returns from their innovative efforts. Third, the emerging interest in the role of business models [23] is because in the 1990s, companies used the Internet to develop new value chains and revenue models. Furthermore, sources of innovation may be derived from social contexts such as cultural ideas [25].

OI is often proposed as a key strategic approach for organizations to contribute to sustainable development [2,26,27]. However, the development of this innovation is complex. This is because this type of innovation needs to fulfill the requirements of environmental and social innovation at the same time. In addition, the development of OI can also be influenced by several factors, such as technological advances [28] and government regulations [29]. From this explanation, sustainability innovation is a very interesting topic to discuss. Companies are required to be creative to be able to implement these innovations so that several problems can be resolved, such as poverty alleviation, environmental degradation, and moral injustice.

## 2.4. Roles of External Partners in OI

Rauter et al. (2019) argued that, in addition to well-known partners for innovation process, such as universities and customers, non-government organizations (NGOs) and intermediaries may be beneficial for OI in a firm [30]. Previous studies have demonstrated that synergies and collaborations of firms with customers, universities and suppliers, and new product development to be beneficial for achieving firm performance.

From this study point of view, the analysis we provided in this paper is very specific to Indonesian social enterprise contexts, giving a uniqueness of social enterprise practices in promoting sustainability in the internal activities and surrounding environments. This

may add to existing literature that rarely discuss OI in social enterprises as indicated by Bigliardi et al. (2021) [13]. The present study is very specific to Indonesian social enterprises contexts, particularly enterprises managed by traditional Islamic boarding schools known as pesantren. This institution commonly developed unit businesses as social enterprises to finance their operations. In developing the innovation processes of this business, pesantren commonly developed synergy and collaboration with students, public institutions, private entities, parents of their students, universities, and included local and foreign NGOs. As will be explained in Section 4, the finding of our paper may extend nine thematic areas as explained by Bigliardi et al. (2021), particularly OI in small and medium-sized enterprises (SMEs) as well as in social enterprises as well as may add information on external partners that contribute to OI in social enterprises.

### 3. Methods

#### 3.1. Qualitative Approach Using Case Study

This study uses a qualitative approach using case study methods to gain an in-depth understanding of innovation for sustainability practices carried out by social enterprises, along with the identification of key partners and their mechanisms for interacting in OI. This approach is taken because of the exploratory nature of the study. Prior literature suggest that when a particular area of a field is still lacking research and requires exploration, then the case studies method is recommended to be used [31]. Data collection was conducted through semi-structured interviews with interview guides constructed based on research questions covered in the study, including innovation for sustainability practices, key partners for OI, and the role of and interaction between key partners in OI for sustainability. The study focused on four social enterprises based in West Java Province in Indonesia. West Java Province is the largest province in Indonesia in terms of density and one of the widest in terms of area, thus it has become a barometer in Indonesia for economic activities, including social enterprise activities.

#### 3.2. Samples and Data Analysis

These four social enterprises are founded within educational institutions in the form of Islamic boarding schools or well-known as pesantren. In Indonesia, a social enterprise in the field of education is the most popular practice. These social enterprises were chosen because of their leading characteristics in the region and nationally and are often used as best practices. At each enterprise, we interviewed CEOs and staff of the company who could provide insights into this research topic. The interview was conducted in the second half of 2021 through a combination of online and face-to-face interviews in person accompanied by direct observation of social premises enterprises. Interviews were recorded with the consent of participants and then transcribed for analytical purposes.

The data collected were then analyzed using the principle of thematic analysis by identifying emerging themes from the interview. Thematic analysis is an approach that draws conclusions from themes that repeatedly arise from data sources [32]. The steps taken in the analysis, after the data in the form of transcription were available, were to perform initial coding through the process of reading the data in detail and providing codes for the transcriptions. Next is the search for themes based on the initial codes that were generated, followed by a review of these themes to make sense of them. The last is the naming and defining of each theme in order that the meaning and difference between one theme and another theme are clear, along with the connection between one theme and another theme [32]. This process is aided by Excel spreadsheets and NVivo 12 software.

#### 3.3. Case Study Profiles

##### 3.3.1. Social Enterprise A

Enterprise A is a social enterprise that aims to finance Islamic boarding school (pesantren) activities that have been established since 1932. The school focuses on and is known for its economic development. The school is headquartered in a region in the east

part of West Java Province and has branches located in 63 regions throughout Indonesia. The enterprise has a 43-unit business consisting of four sectors: (a) Financial sector, which in the pesantren is in the form of BMT (Baitul Maal wat Tamwil), which are saving loans using Islamic principles; (b) retail sector, in the form of a minimarket; (c) shrimp pond sector with an area of about 15–20 hectares—this shrimp farm became one of the flagships of this enterprise; and (d) SMEs consist of several SMEs, namely, heavy water ponds, restaurants, bakeries, and refilling drinking water.

During the COVID-19 pandemic, the pesantren financial sector was in a stagnant phase. In fact, the financial sector tends to have to relax. This is due to uncollectible payments. The culinary sector experienced a fairly significant impact, whereas in this sector a decline of up to 50% was experienced. As a result of this decline, some outlets eventually had to be closed. One of the causes of this decline is the unpreparedness of human resources to adapt to technology. This is because the human resources in this pesantren are not ready to deal very quickly with the change in situation. The shrimp pond sector did not experience any problems during the pandemic, thus it can be said that this sector is quite stable. In the retail sector, especially minimarkets, there is an increase in turnover. This is because, during the pandemic, there was panic buying, thus people bought goods in large quantities. It can be concluded that the business conditions run by this enterprise are quite stable.

### 3.3.2. Social Enterprise B

Social enterprise B aims to finance the pesantren founded in 1934. The majority of students who are in this boarding school are students who are economically disadvantaged. Social enterprise B focuses on the agricultural sector. Initially, this pesantren distributed its vegetables to the Village Unit Cooperative (KUD), and then the KUD sold them to the modern market. However, when the KUD went bankrupt, the modern market looked for a vegetable supplier from the KUD, and finally, the pesantren started selling directly to the modern market.

There are several modern markets that cooperate with social enterprise B. In addition to selling to the modern market, this pesantren also sells its vegetable products to other places, such as restaurants. Even though during the pandemic, malls were closed, this did not make social enterprise B experience a decline in demand. The products sold are included in basic needs, thus during the pandemic, the social enterprise B business unit experienced an increase in demand. Consumers even order products directly from social enterprise B.

### 3.3.3. Social Enterprise C

Social enterprise C aims to finance the pesantren founded in 1977. At first, the pesantren establishment only focused on education. Then, in the middle of its establishment, this pesantren began to establish an economic unit to meet the needs of pesantren. The first economic unit to be established in this pesantren was the cooperative. The cooperative was founded around 1980. In 1985, the pesantren established the balai pesantren, which is a form of development of the cooperative. Then, in 1990, the pesantren began to establish business units for travel, laundry, transportation, and others.

The economic unit in this social enterprise is a small unit compared to the education unit. However, in 2018, the social enterprise's thinking began to change and began to form an economic team. This economic unit was formed because this social enterprise requires a unit that can supply the needs of the pesantren. This economic unit has been managed professionally since 2018. However, its change began to be seen in 2019. During the COVID-19 pandemic, many business units owned by social enterprise C experienced obstacles, such as the following two business units, namely, coconut flour factory and fuel business. Until now, the coconut flour factory has not been able to run. This is because there are differences of opinion between the pesantren and the parties invited to cooperate.



For the fuel business, the obstacle experienced is that the business does not yet have its own legal entity.

#### 3.3.4. Social Enterprise D

Social enterprise D aims to finance pesantren founded in 1990. In 1994, social enterprise D established a cooperative. The legality of the cooperative at that time was used for BMT. In 1997, all types of businesses in pesantren were managed by the pesantren cooperative (kopontren). Social enterprise D has five subsidiaries and four business units. These subsidiaries were previously independent business units for the development needs of Islamic boarding schools. This subsidiary in social enterprise D is engaged in training, human resources outsourcing, contractors, catering, laundry, food court, and wedding organizers.

For business units, this pesantren consists of several fields, such as supermarkets, transportation and IT, cottages, as well as business unit development and partnerships. The self-service business unit consists of several sub-units, such as wholesalers, stalls, and frozen food. The cottage unit has 24 cottage rooms. The business unit development and partnership unit are units used to partner with MSME members and actors. This unit consists of procurement of goods, bicycles, bakery, seafood, expeditions, and herbal supplements. The COVID-19 pandemic impacted on various fields [33]. It has also had an impact on the business units in this pesantren. The impact experienced was a decrease in turnover of up to 60%. From the initial turnover of 30–35 million, it decreased to 12–15 million per day. In addition, in the transportation and BMT business units, there are also many payments that are in arrears. However, behind the business units that experienced a decline in turnover, there were still business units that contributed during the pandemic. The business unit is BMT savings and loans. Although its liquidity is reduced, the business is still profitable.

### 4. Innovation for Sustainability Practices in Social Enterprises

The first objective of this study is to analyze innovations for sustainability in social enterprises. More specifically, it is intended to help to understand the practices carried out in order that the social enterprise can finance the mission it has planned. The analysis of the semi-structured interview showed that the innovation for sustainability practices carried out included various forms identified in the initial coding. Furthermore, this initial code is grouped into two streams of innovation for sustainability, which consist of eco-innovation and social innovation [2,10]. Both are interconnected with each other with different emphases. Eco-innovation emphasizes the environmental benefits of innovation other than profit, while social innovation emphasizes social benefits other than profit.

Eco-innovation practices identified include waste handling, productive use of vacant land, technological adaptation for production and marketing efficiency, and certification. The social innovation practices found include providing health facilities for underprivileged communities, encouraging potential prospective students to continue their education by providing scholarships, and involvement in CSR activities through donations to people with disabilities and the visually impaired. Figure 1 shows a map of themes emerging from the analysis.

#### 4.1. Eco-Innovation

Eco-innovation that is commonly practiced is innovation in the form of waste handling. In our analysis, eco-innovation refers to environmentally friendly innovation (e.g., Pichlak and Szromek, 2021). Social enterprise C, for example, has a waste bank to collect waste from all boarding school activities with thousands of students by sorting waste by type. Ownership of this waste bank is not yet common for social enterprises that support boarding schools. In addition to waste banks, social enterprise C also has a special waste handling mechanism for the business units it oversees in the form of health and laundry clinics. For health clinics, the enterprises have their own waste treatment plants to hold various medical waste and work with third parties to dispose of it in medical-specific landfills. For

the laundry business, the company has a mechanism to neutralize waste wasted from washing clothes in order not to damage the surrounding environment. Other forms of waste handling, for example, are practiced by social enterprise B where the company manages the remaining production from its plantation business for animal feed and fertilizer.

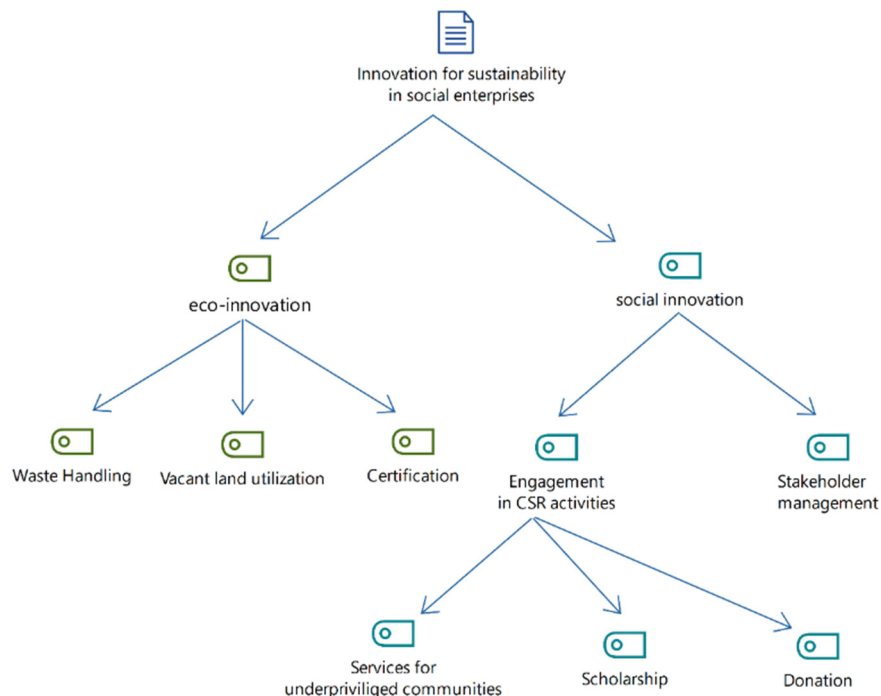


Figure 1. Map of themes.

Another form of eco-innovation that is implemented is innovation to utilize vacant land productively to help maintain food security. This innovation is implemented by social enterprise A. By changing the less productive vacant land on the south coast of West Java, covering an area of 10–20 hectares, this social enterprise has succeeded in cultivating the shrimp pond sector, which has high economic value. This innovation also benefits the coastal region, which is unique in terms of socio-economic circumstances [11]. The innovation carried out by this social enterprise was derecognized by the provincial government as one of the pioneers of innovation in the field of aquaculture in West Java that is able to drive the economy in coastal areas. For the success of this innovation, social enterprise A is often a pilot project for other social enterprises in Indonesia to develop businesses in the field of aquaculture. During the pandemic, this business was also proven to be very resilient and experienced stable business performance.

Another form of eco-innovation is in the form of ownership of certificates to ensure the quality of food products owned by social enterprise B. The enterprise has a British Retail Consortium Global Standards (BRCGS) certificate which is a global standard for the safety of food products that is recognized globally. For domestic guarantees, this social enterprise has a PSAT (Fresh Food of Plant Origin) certificate issued by the Agricultural Quarantine Agency of the Indonesian Ministry of Agriculture, which is a guarantee that the plants produced can be consumed directly or can be processed after processing as necessary. The ownership of these certificates is a form of innovation because it is still not commonly owned by social enterprises in Indonesia [34]. The ownership of these various certificates is mainly driven by the demands of the market, namely, modern supermarkets, which are the main market for those who require these various requirements.

#### 4.2. Social Innovation

Social innovation is an innovation activity carried out with the aim of solving social problems that occur in society. As argued by Yun (2020), culture, in its various forms, has



always been a critical driver of innovation. The analysis of this sub-section focuses on how social problems influence an innovation process. This paper’s stance is the idea that culture including social life may influence OI (Yun (2020)). One form of social innovation can be demonstrated by social enterprise B. The majority of students in social enterprise B come from economically disadvantaged families. Therefore, social enterprise B empowers and teaches students to work on agricultural land.

The students in social enterprise B are taught to cultivate agricultural land. This starts from the process of selecting seeds, planting crops, harvesting, and sorting, until finally, the vegetables that have been cultivated can be sold to the modern market. In addition, the students are also taught how to process online sales, delivery systems, and others. From this activity, the students who graduate from the Islamic boarding school can become more independent to work and cultivate their own agricultural land and are not just unemployed.

Social enterprise A also does the same thing as social enterprise B where social enterprise A also empowers its members, such as cadres and congregations. The cadres and congregations participate in providing innovation to the businesses that they will run. Therefore, the ideas they provide can provide benefits to the business sectors in social enterprise A.

Another form of social innovation is social innovation carried out by social enterprise D. Innovation carried out by social enterprise D is in the form of offering various products at low prices in order that many local residents, students, or members can increase their income economically by reselling products. In addition, the pesantren also cooperates with local government to provide cheap basic necessities. One example is a cheap basic food which costs IDR 100,000. However, for people with disabilities, it is only enough to pay IDR 80,000. The Islamic boarding school has also created a program for the blind living on the streets. There the pesantren provide ready-to-eat food and basic necessities. Data structure units of meaning innovation for sustainability in social enterprises and OI mechanism is shown in Table 1.

**Table 1.** Data structure units of meaning innovation for sustainability in social enterprises.

Innovation for Sustainability in Social Enterprises		
Themes	Sub-Themes	Units of Meaning Structure
Eco-innovation	Waste handling	<i>...from an environmental perspective, there is a recycle for vegetable waste. An example is carrots, carrots that we harvest, the leaves we do not throw away. We usually chop these leaves or cut into pieces to be used as feed for sheep or cattle or used as silage. . . . (SE_B) ... for laundry, in the washing of jeans, there is a certain waste that is wasted, we use some kind of remedy to neutralize it. In the clinic, we also have our own WWTP . . . (SE_C)</i>
	Vacant land utilization	<i>. . . we managed the former iron sand excavation into a shrimp pond. It can be seen that we help the government with land management which ultimately becomes an economic solution for the surrounding community . . . (SE_A)</i>
	Certification	<i>. . . especially now that we are preparing for BRCGS certification, from upstream we have prepared JAP, PSAT, but in the warehouse we have prepared it for now. This certification will guarantee food safety so that consumers do not have to worry anymore... (SE_B) ... we already had halal meat and the slaughter process was covered and aired in the store. The meat has also been halal certified and we attach it... (SE_D)</i>

**Table 1.** Cont.

Social innovation	Engagement in CSR activities	... from the social side, we collaborate with RT, RW, and kelurahan to open cheap basic necessities. Later, we will facilitate these cheap basic necessities. Yesterday we had cooperation with social institutions in the internals to make cheap food packages for the disabled ... (SE_B)
	Stakeholder management	... initially, the members of the cooperative were only 300 people, most of whom came from internal boarding schools. At this time, its members reached 19,000 people and most of them were from this city ... (SE_A) We send vegetables in modern markets outside the traditional market... we involve the surrounding community, market traders, farmers, and others... (SE_B)
OI mechanism		
Actors	Sub-actors	Units of meaning structure
Internal actors	Social enterprises' management	... in 2019, when there were structural changes where there were four deputy leaders among of them has background of economics ... (the management) more professional ... (SE_A) ... the management also received grants from Japan and various medical devices were also upgraded a lot (mid-pandemic). Therefore, people's confidence in coming to the clinic began to grow. This Japanese grant is for its medical device facilities ... (SE_C)
External actors	Religious leaders in the boarding school	... Our current religious leaders, he is indeed an entrepreneur. Our deceased leader was also an entrepreneur ... (SE_A) Since the leadership of one of our leaders, this boarding school has undergone a lot of changes. The first thing to do is to change the name, which means good cooperation ... (SE_B)
	Alumni of the boarding school	... we are working in agriculture ... plus that as much as 80% of this boarding school graduates are farmers ... (SE_B) ... there are alumni who offer help because they already have their own legal entity ... The team had thought of creating a marketplace because there are many alumni who do business everywhere... (SE_C)
	Market/suppliers	... In 1994, we began to be taught how to sort, grading, packing, labeling, giving barcodes, controlling bills, disbursing funds, and so on. From 1994 until now, we still have a good relationship with the modern market and this has been going on for more than 27 years ... (SE_B)
	Government/state-owned enterprises	... one of business units gets help from state owned enterprise engaged in oil and gas business. It used to be running and in terms of sales, it was also not bad ... (SE_C)
	Higher education institutions	... in the end, we together with the central bank and one of well-known management and business school to collaborate to create an online application... (SE_B) ... we are under the supervision of the biggest agricultural higher education in Indonesia. The role of the university to plunge into the cottages provide management guidance and collaborate ... (SE_C).
	Foreign NGOs	... the grant scheme, we put forward a proposal with 70% of medical devices and 30% of buildings with the condition that within 5 years no change is permitted ... (SE_C)

**Table 1.** Cont.

Local NGOs	<p><i>There used to be LP2S and now it is merged into a subsidiary that trains. GSP (formerly called DTSP) is a company, the company's shares are owned by cooperatives, foundations, and the private sector, as well as leaders of pesantren (SE_D).</i></p> <p><i>For innovation, we have cooperation in the development of the application. We also improve the integration system. In the past, the financial system was still manual, and now we are trying to integrate it through collaboration with third party. (SE_D)</i></p>
Private enterprises	<p><i>We send vegetables in modern markets outside the traditional market, such as private modern market of X, Y, Z, etc. (SE_B)</i></p>

Source: Authors' elaboration (2022).

### 5. Open Social Innovation at the Way of the Sustainability of Social Enterprise

The second objective of this study is to understand the mechanism of OI for sustainability in social enterprises. The concept of open social innovation is pertinent since social companies are primarily focused on carrying out social missions to address different social challenges [35–38]. From the internal perspective, traditionally, pesantren (Islamic boarding schools) have a religious leader known as a kyai in Javanese. The role of a kyai is important in this institution. He inspires santri (students) and gives religious and moral guidance. In most cases, his vision, commitment, and leadership also influence the development of the pesantren's business and economy. This is not much different from pure for-profit organizations [17]. Based on our observation, the successful pesantren business units could not be alienated from the kyai's vision and openness to new ideas. Social enterprise D has a young kyai figure. He is very concerned about voicing spiritual-based business. He could be regarded as a kyai who opens the door to innovation to develop his pesantren. Through his leadership, the pesantren was able to develop more than 20 business units consisting of television and radio businesses, hotels, restaurants, elementary to high schools, retail, Sharia cooperatives, and several other sectors. Meanwhile, social enterprise A also has a young kyai figure. Under his leadership, the pesantren expanded its business activities ranging from modern shop/retails, financial institutions, agribusiness, shrimp pond sector, restaurants, health clinics, and other business units. The way that the kyai opens innovation is something that needs to be understood from the spiritual point of view. However, there are some practical perspectives that might be understood on how this innovation occurs in the pesantren. Literature indicates that top management support is an important factor in bringing together multiple stakeholders and enabling open social innovation [39,40].

Based on our observation, there are some channels being utilized by pesantren in the process of adaptation and innovation of their business practices. Some of the pesantren employees, particularly those who manage its business activities, are commonly followers who had extensive professional experiences before joining the institution. These types of employees might provide a transfer of knowledge to other staff. In addition, there are also trends that several external partners, such as universities and non-government organizations, have communicated with pesantren and developed various management training and mentoring programs to improve managerial skills. These channels are an effective tool to improve the ability of pesantren business units to adapt to various novelties or innovations, including in the field of technology.

Interested parties, including local governments, have facilitated community empowerment programs in pesantren. The West Java Provincial Government, for instance, initiated an economic empowerment program called One Pesantren One Product (OPOP). OPOP is the flagship program of the innovative governor in raising the motivation of pesantren to be economically empowered. Unlike capital assistance programs through donations from donors who are concerned with pesantren, this program was successful in motivating pesantren to compete for business proposals to obtain financial grants and business assistance programs. The motivation to compete is considered as an effective incentive

for pesantren to carry out various programs that can promote economic activities. This program also stimulates innovation. Furthermore, the involvement of various groups, including academics and business professionals, in the mentoring sessions has been an effective channel to transfer knowledge, including the idea of innovation.

Innovation in pesantren is also related to geographical proximity to sources of innovation. For example, social enterprise D is located right next to one of the universities, which is one of the best campuses in the country. At the beginning of its establishment, students of this public university stayed at the pesantren. Some of these students were attracted to the charismatic figure of the kyai. He is a central figure in the school and known as an Islamic scholar that is concerned with preaching inner spirituality. The existence of university students as santri in the pesantren added to the excitement of the pesantren's business activities. These students had prior knowledge obtained from their respective campuses. Later on, several key figures in this pesantren were students (santri) who studied at that university and stayed at social enterprise D during their university studies. It can be argued that this pesantren innovation model is only possible for pesantren located in urban areas and close to university student activities.

The innovations carried out at pesantren are also inseparable from their santri (students) who come from professional circles. This model occurs at social enterprise A, a village area. Nevertheless, some of their activities occurred in urban areas, including in Jakarta, Indonesia's capital city. Activities in urban areas attracted a lot of worshipers and students who eventually participated in pesantren religious activities. These students who come from professional circles then occupied several strategic positions in the pesantren business unit. This condition results in the transfer of knowledge in order that it is possible for innovation to occur in the pesantren business unit, which is stimulated by the staff background and experience.

In addition, there are also innovations in pesantren through the intervention of local and foreign non-government organizations (NGOs). This occurred at social enterprise B. This school is famous for its ability to take advantage of the geographical environment to develop horticultural and agricultural businesses. Located in a beautiful mountainous area where the community's livelihood is dominated by vegetable farmers, the school is able to develop business units based on the advantages of its geographical area. In addition, the support from the kyai and NGOs to provide various stimulations, especially agricultural tools and technology, has resulted in these pesantren becoming role models at local and national levels. In addition to improving their economic capacity, the school is also developing community empowerment programs through agriculture and local investors who have land but do not have the skills to plant.

We also found that the involvement of markets or customers contributed to pesantren business unit innovation. Markets often leverage the innovation power of the customer base in a systematic way to increase the pesantren's innovation performance. In the case of social enterprise B, for instance, this innovation is very visible. This pesantren is involved in agriculture and agribusiness and offers agriculture training to its students (santri); the institution is also involved in agro-based community initiatives and partnerships. The pesantren stepped out of its traditional mainstream Islamic studies activities and added the implementation of an agricultural production and agribusiness model that imparts to young people the practical skills in agriculture, a demonstration of the will to meet the ever-increasing demand for food, while nurturing the young generation into agriculture. This pesantren provides fresh organic vegetables and dominates some areas. Due to the demand of its markets, particularly customers who are concerned about organic foods, the pesantren developed various organic farming models to serve its markets and to sustain its business. In addition, market-based innovation has another variant which is supply-based innovation. In this variant, the pesantren gains insights from its suppliers in terms of goods and services that might serve market needs. Furthermore, suppliers often advise pesantren business units to engage in current technological advancements. This market-based innovation has many benefits for pesantren, including fresh ideas, shorter

time-to-market, and higher margins in the case of organic foods, all of which can lead to profitable growth and sustainability. The dynamic interactions of these various actors can be seen in Figure 2.

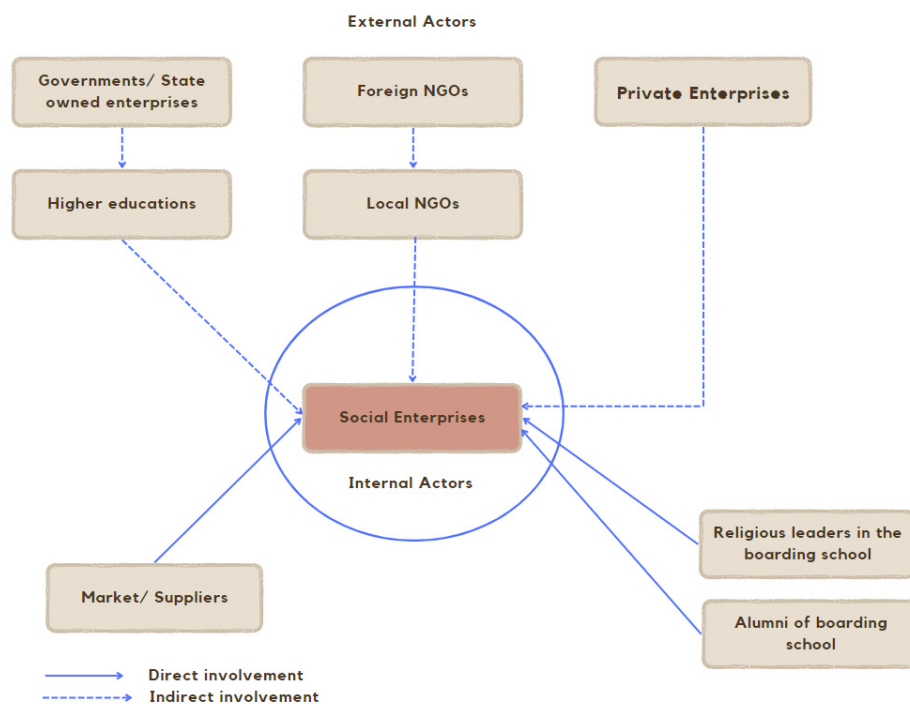


Figure 2. OI mechanism in social enterprises embedded in pesantren. Source: Authors’ elaboration (2022).

Our analysis of the roles of external partners may extend the argument developed in previous studies on this issue. For instance, it was argued that, in addition to well-known partners for the innovation process, such as universities and customers, non-government organizations (NGOs), and intermediaries might be beneficial for OI in a firm [30]. Previous studies have demonstrated that synergies and collaborations of firms with customers, universities, and suppliers, and new product development are beneficial for achieving firm performance [30]. Apart from the parties mentioned, what has not been seen to be done that might be useful in the future is the involvement of citizens or social groups as part of open social innovation [41,42]. The selection of external partners in OI, including social crowds, for social enterprises is an important matter and requires careful consideration [38,43].

Our analysis supports and extends previous studies on the roles of external partners. This study also found that there are additional strategic external partners that contribute to the innovation process in social enterprises as depicted in Figure 2. This may add to the existing literature that rarely discuss OI in social enterprises as indicated by Bigliardi, et al. (2021) [13]. The finding of our paper may also extend the thematic areas of OI by including OI in social enterprises. Furthermore, this study adds information for external partners that contribute to OP in social enterprises. This may be the uniqueness and novelty of this research.

## 6. Conclusions

This study aims to understand OI for sustainability in social enterprises. The results of semi-structured interviews show that the practices carried out are diverse forms that can be grouped into types of eco-innovation and social innovation. Eco-innovation practices include waste management, productive use of vacant land, technology adaptation for production and marketing efficiency, and certification. In addition, other forms of social innovation are empowering students to work on agricultural land, empowering members, and offering various products at low prices. In most cases, top management vision, commitment, and leadership also influence the business and economic development of the

pesantren. Based on our observations, successful pesantren business units cannot be separated from the kyai or religious leader's vision and openness to new ideas. By presenting empirical research on sustainable innovation in the context of social enterprises, which is still a rarity in the literature, this study contributed to the existing body of knowledge.

Empirical research on sustainable innovation in the context of social enterprises is still very limited. Therefore, this study contributes to adding to the literature on sustainable innovation in social enterprises. In addition, this research can also help academics, social enterprise practitioners, and policymakers to better understand OI and how it can be implemented in social enterprises. OI certainly plays an important role in social enterprise. Considering that the approach used is a qualitative approach, future studies can use other approaches, quantitative or mixed methods. Further research can also use other objects of social enterprise outside the field of education in order to enrich the understanding of OI in social enterprises. The scope of research is also limited to the Indonesian context. Further research can use the context of other regions that have different characteristics, thus they can create comparisons and differences later that exist in each of the existing contexts.

This study certainly has its limitations. The social enterprises studied were limited to social enterprises engaged in education. Further research can be done in other fields. Considering that the approach used is a qualitative approach, future studies can use other approaches, namely, quantitative or mixed methods. The scope of research is also limited to the Indonesian context. Further research can be carried out in other contexts which are particularly different in their characteristics from the context of this research.

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