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Sustainable Development of Entrepreneurial Orientation through Social Drivers

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Abstract: Given that social dilemmas such as climate change, unemployment, and public health are growing globally, recognition of social drivers related to sustainable development while generating social impact is of particular interest to professionals and academics. This study aims to highlight the antecedents of sustainable social impact. Thus, we evaluate the association between entrepreneurial orientation and social impact through the mediation effects of social factors named social drivers, including service innovation, social innovation, and social value orientation. The data collection is from the service and non-service industries in Taiwan. A total of 270 samples consisting of employees, managers, SME owners, and CEOs is used. We employed structural equation modeling (SEM) to test the proposed hypotheses. Research findings indicate entrepreneurial orientation is a determining factor of sustainable innovation that not only renders entrepreneurially strategic dispositions of an organization but also significantly contributes to generating drastic social impact. In particular, entrepreneurs are found to be more proactive in solving problematic social issues through their entrepreneurial characteristics. Statistical findings support that all direct effects, besides partial and full mediation, are proved, which reveals the transformative potential of selected social drivers. Altogether, research findings provide exciting insights into entrepreneurship knowledge, innovation, and value assumptions in the social context. We further discuss theoretical and practical implications.

Keywords: entrepreneurial orientation (EO); social innovation (SoIn); service innovation (SeIn); social value orientation (SVO); social impact (SoIm); Taiwan

1. Introduction

The significance of social development is deemed crucial in society at an early stage of sustainable development. The concept of sustainable development refers to building propositions for achieving human development objectives while simultaneously providing natural systems to render the natural resources and ecosystem services on which the economy and society rely [1]. Therefore, understanding social sustainability and social impact initiatives that can exponentially

accelerate the development process in different social domains is especially essential. In this vein, entrepreneurial orientation, rooted in determination for excellence, plays an active role in creating sustainable social impact [1].

During the past decade, there have been several studies intended to reveal the importance of studying social impact (SoIm) and its sustainable effect on society's improvement on a large scale [2–5]. In this regard, entrepreneurs at the individual or organizational levels with their unique characteristics, known as entrepreneurial orientation (EO), cooperate to step up social impact through their innovative products or services in several countries.

According to the Global Entrepreneurship Monitor (GEM), entrepreneurs have exhibited immense effort in their business and society annually [6]. Entrepreneurial orientation (EO) refers to a general stance that includes beliefs and values associated with being innovative, risk-taking, and proactive. These highlighted characters, for the most part, belong to entrepreneurs. In other words, individuals with bold EO may tolerate more risk and may act in a more innovative way [7–10]. EO is a crucial factor necessary to run any large or small business successfully.

Moreover, EO performs as a sustainable resource for strategic decisions [11]. Firms with a high degree of EO can easily facilitate innovation in the environment [7,11]. Therefore, EO is the entrepreneurial background of a firm. The potential capabilities of entrepreneurial orientation (EO) are connected to the essential determinants of entrepreneurial activities [12,13]. Notably, entrepreneurs, in cultural forms, have been recognized for the impactful contributions that they provide to economic, cultural, environmental, and social wellbeing [14,15]. In this regard, past studies attempt to explore the effectiveness of EO within a management, entrepreneurship, and social science context [16,17]. However, there is a lack of empirical evidence supporting the link between EO and social impact. Previous works did not consider the mediating missing links between EO and social impact. A question that arises is whether EO plays a role in how individual and organization's actions impact on surrounding communities. To fill the research gap and to build on existing scientific studies, we structure a new model to theoretically analyze the effectiveness of entrepreneurial orientation in predicting the sustainable development of the companies. The provided research model measures the transformative potential of social drivers while analyzing the mediating effects. It is worth mentioning that despite the importance of defined factors, surprisingly, scientific evidence and methodological research are lacking.

Corporations are progressively launching initiatives with vibrant social directives. Social impact initiatives of businesses show a link between corporate social initiatives and intermediate employee-related outcomes such as motivation, identification with the firm, and employee retention, as one the most critical aspects of human capital management [18]. Thus, the current study looks at sustainable societal impact initiatives through the lenses of social innovation, service innovation, and social values orientation structures, a new research framework to identify the associations among the constructs of interest.

Social innovation (SoIn) provides creative and innovative solutions to cope with social and global dilemmas that require urgent solutions [19]. SoIn deals with cultural and social institutions and the educational system to improve the standards of life [20]. From the micro-level perspective, scholars view social innovations' emphasis as being on the enrichment of capabilities that improve living standards and enhance the production capacity of an organization. However, others following the macro-level viewpoint argue that social innovation refers to a common transformation in society and sustainable progress [21]. Although the concept of social innovation (SoIn) is not new, applying SoIn to date has remained undiscovered. Little attention has been devoted to the role of social innovation as a source of social change. Early research discusses that social innovation (SoIn) is the consequence of exchanging resources and knowledge by other parties mobilized through legitimization actions [22,23]. Notably, social innovation (SoIn) is a transformative force through the interaction between the agents, organizational structure, environment, and social system [24,25].

In 1986, Messick and McClintock [26] discovered a method to assess individual stimulus to cooperate on social dilemmas. Later, scholars use the term social value orientation (SVO) to represent

motivational orientation that reflects individual differences in helping society [26,27]. Despite several arguments on SVO terminology, researchers find no distinct definition of social value orientation (SVO), especially within the entrepreneurship research field. Therefore, choosing SVO as a research construct is the claim to originality of this work.

Service innovation (SeIn) is rooted primarily in traditional new product development focusing on tangible goods. According to Den Hertog and Bilderbeek [28], service innovation (SeIn) includes different dimensions such as a new client or service and updated technological choices.

Taiwan is recognized as a prosperous country, implementing strategies and policies to stimulate an entrepreneurial spirit among other nations in the region [29]. The Global Entrepreneurship Monitor reports that Taiwan is among the countries with the highest growth rate of entrepreneurs [6]. We consider Taiwan a prosperous industrial nation in finding sustainable solutions to the social and environmental experiments of business and capital markets functioning together [30]. Thus, Taiwan can be an acceptable role model, especially for the other countries in developing nations of the region. We select Taiwan for this study to explore the interrelationships among the variables. We identify entrepreneurial orientation (EO) as a critical driver of social impact. Figure 1 indicates other crucial and influential elements, including social innovation (SoIn), service innovation (SeIn), and social value orientation (SVO).
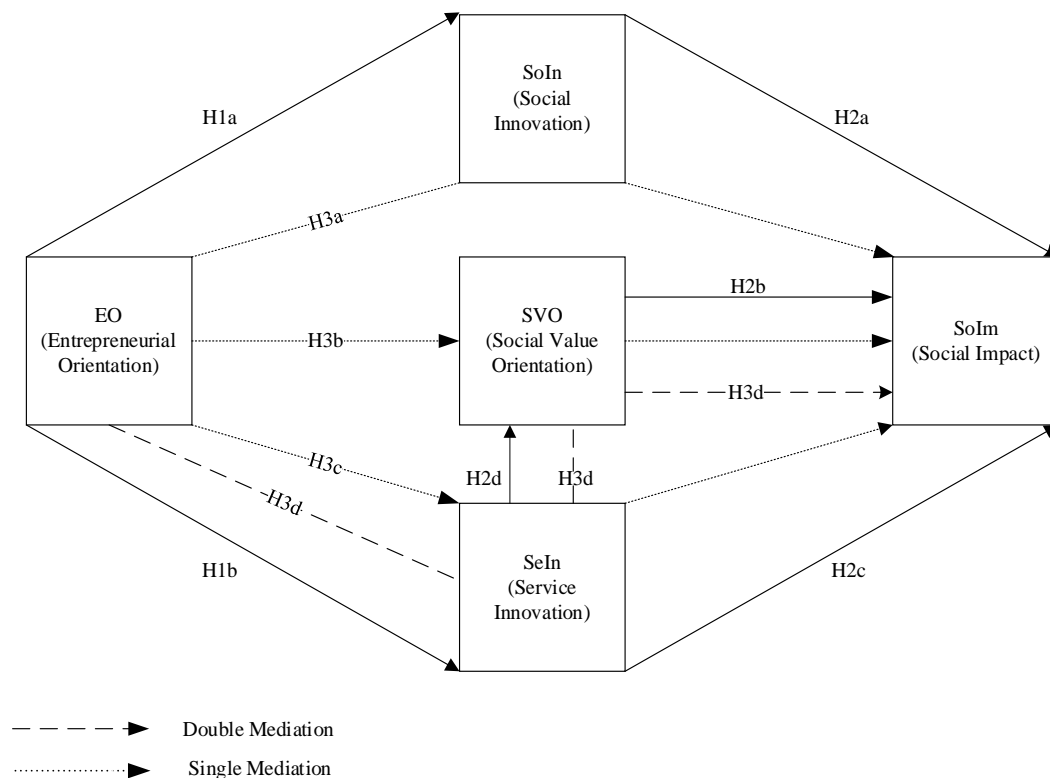

Figure 1. Research framework.

The implications of the study are beneficial to researchers and practitioners, especially in organizations and society aiming to improve strategies and practices or preparing programs related to corporate social sustainability and promoting social innovation to produce considered social benefits. Higher-level managers of private or even public organizations aiming to increase social value orientation will also benefit from the findings by recruiting individuals with a strong EO profile to also boost entrepreneurship at the firm-level. Policymakers may change or provide suitable training and educational courses for employees.

The proposed research model contributes to the theories by exploring the mediating effect of social innovation (SoIn), service innovation (SeIn), and social value orientation (SVO) as a tool for

socio-economic development. Moreover, based on our findings, future research may expand the model to explore other factors to accelerate the process of creating a social impact on society. The findings of this research indicate that social innovation (SoIn), service innovation (SeIn), and social value orientation (SVO) mediate the relationship between EO and social impact (SoIm) in society. Service innovation (SeIn) and social value orientation (SVO) improve entrepreneurial orientation. It is worth mentioning that entrepreneurial orientation (EO) is most effective when it matches the service innovation (SeIn). Overall, our study offers an innovative model into the entrepreneurial orientation literature to discover sustainable social impact. We seek to contribute to the understanding of the entrepreneurial ecosystem that encompasses the quality of human resources concerning the organization, favorable values, and dominant culture to investigate what drives the dynamics of social impact.

The next section will discuss the development of the research hypotheses.

2. Literature Review and Hypotheses Development

This section discusses the research constructs used in this study, including entrepreneurial orientation (EO), social innovation (SoIn), service innovation (SeIn), social value orientation (SVO), and social impact (SoIm). Furthermore, we deliberate on the relationships among the constructs, resulting in the hypothesis building. Previous studies reveal that a successful entrepreneurial process that results in sustainable impact is affected by individual and contextual factors (e.g., human, social, physical, organizational, and technological capital) [31–34]. In other words, interactions between personal backgrounds and social context (e.g., contacts, relationships, and networks) stimulate the entrepreneurial operation, leading to innovation [35,36]. The current study relies on entrepreneurial orientation (EO) literature to study the proposed research framework. Figure 1 shows the research model.

2.1. Entrepreneurial Orientation (EO)

Entrepreneurial orientation (EO) is related to the practices in which managers of the firm are willing to take risks, favor change, implement innovation, and proactively chase new opportunities [10,37,38]. The EO concept implies that significant entrepreneurial dispositions, including innovativeness, autonomy, risk-taking, proactiveness, and competitive aggressiveness, are related to organizational performance [9,39]. Entrepreneurial orientation (EO) is thus an essential indicator of high performing organizations [10]. According to Lumpkin and Dess [13], EO includes a desire to act autonomously, an intention to innovate and take risks, and a willingness to be proactive toward opportunities. Recently, the sustainable growth of organizations has become the primary concern. Assessing sustainable entrepreneurial orientation as a determinant factor is receiving more attention [38,40].

The conceptualization domain of entrepreneurial orientation (EO) is broad. At the same time, several scholars agree on the multi-dimensional notion of it. Another school of thought considers EO as a unidimensional strategic orientation [10] that underlines innovativeness, risk-taking, and proactiveness among the essential characteristics of entrepreneurial companies. It is argued that EO significantly influences an entrepreneur's satisfaction with their activities in society and the growth of the company [41,42].

Contemporary investigations [43–45] deliberate the effectiveness of EO on firms' performance, organizational growth, and social improvement. From the organizational perspective, entrepreneurial orientation (EO) is an embedded organizational philosophy that drives decision-making and behavior towards creating new goods, new methods of production, new markets, or diversification of the business into a new industry [42,46]. A high level of entrepreneurial behaviors positively influences organizational growth [13,41,47,48]. According to Lee and Lim [49], organizations that act independently (autonomy), encourage new ideas (innovativeness), take the initiative (proactiveness), take risks (risk-taking), and aggressively compete in their area posit strong entrepreneurial orientation.

2.2. Social and Service Drivers

Social impact (SoIm) is a significant part of an event linked to entrepreneurship [50]. While existing terminology on social impact (SoIm) suggests different definitions, Moss et al. [50] conceptualize the SoIm construct as a social value. According to social impact theory, SoIm describes how people influence or are influenced by each other during a particular time [51].

Latané and Wolf [51] argue that social impact (SoIm) refers to individuals' thoughts, beliefs, or behavior influenced by the presence or action of another individual. In other words, peoples are affected by several factors engaged in the social environment [4]. Therefore, social innovation (SoIn), social value orientation (SVO), and service innovation (SeIn) all influence social impact. Moreover, consistent with the role of EO that results in creating new ways to develop or improve products and services to revisit user needs and their demands, EO may act as an influential element to generate social impact.

Social innovation (SoIn) is the development and sustainability of ideas and issues ranging in a spectrum from working conditions to education, individual to societal development, monitoring health and environment to climate changes [52]. Alternatively stated, innovative services or activities are stimulated by dealing with social needs to improve the standards of life in diverse areas and promote the development of human resources [53–55]. Scholars describe social innovation (SoIn) as a complex set of processes that link several factors. SoIn links factors such as motives (e.g., social need), outcomes (e.g., activities or services), and areas of change (e.g., organizations) together to let it occurs within networks, at the boundaries of organizations and industries [56]. Regional development is a complicated process, and social innovation (SoIn) acts as the trigger for sustainable development [57].

According to Buchegger and Ornetzeder [21], the main goals of social innovation (SoIn) are categorized into micro (e.g., increasing the production capacity of an organization) and macro (e.g., preparing society for sustainable progress) levels. Despite scholarly interest in social innovation topics, few studies represent its definitions and dimensions. Moreover, researchers find a lack of integration of the existing literature and ambiguity about its scope [58–64]. This study focuses on relevant discussions on social innovation (SoIn) close to the research domain.

Cajaiba-Santana [65] proposes a framework to explain social innovation by introducing new social practices generated from collective, goal-oriented, and intentional actions to cultivate social change. Baturina and Bežovan [63] find modalities for recognition that successfully produce a positive social impact and demonstrate the importance of new efficient solutions. If the firm has entrepreneurial activity and processes, and if entrepreneurs also score highly on entrepreneurial orientation, they may better distribute entrepreneurial culture to society [13]. According to the Bureau of European Policy Advisers (BEPA), social innovation also mobilizes each citizen to become an active part of the innovation process [66]. Taken together, EO manifests itself through promoting a firm's productivity that affects society. Therefore, it is assumed that EO is related to innovations, affecting sustainable social impact.

To define service innovation (SeIn) is problematic, as no common understanding exists about its meaning [67]. Some studies refer to service innovation (SeIn) as the impact of technology [68–70]. Some other previous studies emphasize the intangible nature of service and the contribution of organizational knowledge and non-technological factors [71]. Skålén et al. [72] refer to service innovation (SeIn) to generate new value through integrating practices. Miozzo and Soete [73] provide a more differentiated picture of the services industries, distinguishing between supplier-dominated and information networks. Nowadays, the way an enterprise views the process of innovation has changed [74]. Innovations through the services provided by organizations are another influential factor [75].

According to Wu et al. [76], the accumulation of social capital and entrepreneurial orientation directly affects promoting innovation. A recent study conducted by Arzubiaga et al. [77] addresses the relationship between entrepreneurial orientation (EO) and innovation in SMEs. Another study by Shan et al. [39] points to the positive relationship between entrepreneurial orientation and speed

innovation. Additionally, they stress the effectiveness of innovation on firms' performance. Therefore, relying on the above discussions, we propose the hypotheses H1.

Hypothesis 1 (H1). *EO has a positive association with different innovation drivers.*

Hypothesis 1a (H1a). *EO has a positive association with SoIn.*

Hypothesis 1b (H1b). *EO has a positive association with SeIn.*

2.3. Social Value Orientation (SVO)

Social value orientation (SVO) is also known as social value, motivational orientation, and social motivation [26]. Past studies define that SVO is a goal or motivation that influences the behaviors of actors whose outcomes are interdependent. Social value orientation (SVO) is classified into four categories: individualistic and competitive as pro-self-values and cooperative and altruistic as pro-social values. A handful of research has attempted to link SVO with behavior in social dilemmas [78–81]. Some researchers clarify the purpose of social value orientation, which is measuring the magnitude of the concern of people have for others [82]. Subsequently, SVO corresponds to how much weight a person attaches to the welfare of others [26,62]. The concept aligned with preferences for specific patterns of consequences for the self and others that underscore a three-category typology of (a) cooperation (i.e., maximizing outcomes for the self and others), (b) individualism (i.e., maximizing outcomes for the self with little or no regard for others' outcomes), and (c) competition (i.e., maximizing relative advantage over others' outcomes) [62]. SVO can be a dispositional source of transformation of a given matrix to affect what behavioral decisions are based on. It is proposed that SVO describes the dispositional weights that individuals attach to their own and another person's outcome, playing an influential role in social dilemmas [83]. Following SVO principles, we assume entrepreneurs bring a positive change to society through different values such as customer value, producer's value, and supply chains' value. There is a high possibility that higher EO results in more innovative changes to solve some social issues in society. Given the above arguments, and drawing on social impact theory that explains how individuals affect and are affected in the social environment [51], we propose H2.

Hypothesis 2 (H2). *There is a positive association among the different social drivers.*

Hypothesis 2a (H2a). *SoIn has a positive association with SoIm.*

Hypothesis 2b (H2b). *SVO has a positive association with SoIm.*

Hypothesis 2c (H2c). *SeIn has a positive association with SoIm.*

Hypothesis 2d (H2d). *SeIn has a positive association with SVO.*

2.4. Mediators between Entrepreneurial Orientation (EO) and Social Impact (SoIm)

The literature offers different concepts and definitions of the significant influence of EO on social impact. For example, Kreiser [84] discovers the impact of entrepreneurial orientation (EO) on organizational learning. A research paper by McGee and Peterson [17] studies the impact of entrepreneurial orientation (EO) on venture performance. Cohen et al. [8] examine the association between entrepreneurial orientation and social value creation through social entrepreneurship theories.

We point out that social innovation strives to alleviate social problems. On the other side, firms gain profit with products or services primarily through the support of a different kind of innovation. Social innovation, thus, is an essential tool that favors social conditions.

Extant literature relates to technological change and innovation. Choi and Williams [7] debate technological efficiency's role in linking EO and company performance. Alegre and Chiva [85] explain the mediation role of innovation performance on the relationship between EO and organization performance. Wang and Juan [86] suggest that service innovation mediates the relationship between entrepreneurial orientation and consumer satisfaction.

A group of studies including Van et al. [87], Murphy and Ackermann [82], Pletzer et al. [83], and Yan [88] investigates if SVO's dimensions have a significant effect on the different social aspect of social dilemmas. Wei et al. [89] delineate the moderating notion of SVO on the effect of social influence on decision making. Declerck and Bogaert [90] explain social value orientation as individual differences in the way that individuals evaluate and compare results for themselves and others in situations of interdependence. Consequently, concerning early mentioned works, H3 is presumed.

Hypothesis 3 (H3). *Social and service drivers mediate in the relationship between EO and SoIm.*

Hypothesis 3a (H3a). *SoIn mediates the relationship between EO and SoIm.*

Hypothesis 3b (H3b). *SVO mediates the relationship between EO and SoIm.*

Hypothesis 3c (H3c). *SeIn mediates the relationship between EO and SoIm.*

Hypothesis 3d (H3d). *SeIn and SVO are multiple serial mediators between EO and SoIm.*

3. Methods

This study employs structural equation modeling (SEM) to test the proposed hypotheses. It is agreed that SEM is an appropriate confirmatory (e.g., hypothesis-testing) approach when several complex relationships exist [91,92]. Moreover, both SPSS and AMOS 23 are used to analyze the data. Given that our study consists of a large sample, AMOS as a covariance-based SEM is more suitable when theory testing [91]. Descriptive statistics, the test of reliability and validity of measurements, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) are further discussed in the following sections.

Based on the assumed causal relationships of social and service drivers and their potential social impacts, we validate the measures using structural equation modeling. The following is a mathematical illustration of the analytical process of our research model. Let η be the latent of social impact (SoIm, Unobservable), ξ_1 be entrepreurial orientation (EO), ξ_2 be social innovation (SoIn), ξ_3 be social value orientation (SVO), and ξ_4 be service innovation (SeIn). We hypothesize social impact, y (Observable), satisfies the following relation:

$$y = f\,(\xi_1,\,\xi_2,\,\xi_3,\,\xi_4) + \xi = \eta + \xi \tag{1}$$

where ξ is an error term with $\sum = \text{Cov}(\xi)$, see Figure 1. As all the exogenous variables, $\xi_1,\,\xi_2,\,\xi_3,\,\xi_4$, and ξ_5, are hypothesized to lead to the latent, η, of endogenous variable, y, positively, we assume:

$$\partial\eta/\partial\xi_i > 0\ i = 1,\,2,\,3,\,4.$$

A linear structural equation is used to represent Equation (1):

$$Y = \Gamma\,\xi + \xi \tag{2}$$

where $\xi = [\xi_1,\,\xi_2,\,\xi_3,\,\xi_4]'$ (Figure 1). The endogenous variable, y, is observable, but the exogenous variables, $\xi_1,\,\xi_2,\,\xi_3$, and ξ_4, are unobservable. As such, several, said n_i, of observed items of x_i, $(x_{ij},\,j = 1 \ldots,\,n_i)$ are used to measure ξ_i for each $i = 1, 2, 3$, and 4.

The measurement model for the vector of the exogenous latent variables is:

$$x = \Lambda_x \, \xi + \delta \tag{3}$$

where $x = [x_{1,1}, \; x_{1,2}, \; \ldots, \; x_{1,n1}, \; x_{2,1}, \; x_{2,2}, \; \ldots, \; x_{2,n2}, \; x_{2,1}, \; x_{3,2}, \; \ldots, \; x_{3,n3}, \; x_{4,1}, \; x_{4,2}, \; \ldots, \; x_{4,n4}]'$ and $\xi = [\xi_1, \xi_2, \xi_3, \xi_4]'$.

The parameters are estimated using the maximum likelihood estimation as follows:

$$\text{Max: ML} = \ln|C| - \ln|S| + \text{tr S C}^{-1} - m$$

where

tr = trace (sum of the diagonal elements),

S = covariance matrix of all indices for the latent variables implied by the model,

C = actual covariance matrix of all indices for the latent variables,

ln = natural logarithm and

|| indicates the determinant of a matrix.

We perform exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) on the hypothesized model (Figure 1), which includes linear structural equations (Equations (1) and (2)) and measurements of the exogenous latent variables (Equation (3)). We also perform correlational analysis to obtain a correlation matrix based on all items for each dimension to use as an input of the path analysis. The CFA allows the examination of the rigorousness of our research model in terms of multicollinearity, reliability, and convergent validity of the scales [93]. The multicollinearity is the extent to which the items are strongly associated with each other and represent a single factor, which is a necessary condition for reliability analysis and construct validation ($\sqrt{\text{AVE}}$ > Max r) [94]. The benefit of using the CFA is to confirm and validate factor loadings obtained from EFA to examine statistical significance. Both the reliability test and correlation analysis can be incorporated into the CFA when assessing the multicollinearity of each factor ($\sqrt{\text{AVE}}$ > Max r).

3.1. Demographic Characteristics

Table 1 presents the data related to the respondents' profile, such as gender, age, education, job title, and work experience. As shown, the majority of respondents are female (N = 160, 59.3%), between 45 to 54 years old (N = 105, 38.9%), and a master's degree is the highest academic education achieved (N = 128, 47.4%). Participants are mostly general employees (N = 122, 45.2%). Respondents with more than 22 years of working experience (N = 140, 51.9%) dominated the sample.

Table 1. Demographic characteristics.

Profile	Classifications	Frequency	(%)
Gender	Male	110	40.7
	Female	160	59.3
	Total	270	100
Age	Under 21 years old	6	2.2
	21–34 years old	34	12.6
	35–44 years old	61	22.6
	45–54 years old	105	38.9
	Above 55 years old	64	23.7
	Total	270	100
Education	Junior/Senior High school	26	9.6
	Bachelor	96	35.6
	Master	128	47.4
	PhD	20	7.4
	Total	270	100

Table 1. *Cont.*

Profile	Classifications	Frequency	(%)
Job title	Manager	67	24.8
	Senior manager	18	6.7
	CEO/Vice CEO	16	5.9
	SMEs owner	34	12.6
	Engineer/senior technician	13	4.8
	General employee	122	45.2
	Total	270	100
Work experience	Less or one year	10	3.7
	2–6 years	23	8.5
	7–11 years	22	8.1
	12–16 years	36	13.3
	17–21 years	39	14.4
	Over 22	140	51.9
	Total	270	100

3.2. Data Collection

Data is collected over three months in Taiwan. Following the convenience sampling technique, researchers pass the questionnaires to accessible private sectors via postal mail or email to obtain an appropriate sample size. The purpose of the study relates to entrepreneurial orientation (EO) and social impact (SoIm). Managers, senior managers, CEOs/vice CEOs, SMEs owners, engineers, senior technicians, and employees of private sectors engaged with entrepreneurial activities are participants of this study. Based on the proposed research model, the quantitative SEM method is a suitable approach to test the validity and reliability of the measurement scale. Following sampling principles for SEM [95], we distributed a total of 380 questionnaires. Respondents claim to have work experience in Taiwan. Data collection eventually resulted in 270 (75%) valid and usable data.

3.3. Measurement and Operationalization of the Constructs

This study adopts the measurement scales from existing validated sources with slight modifications to fit the current research context. The instrument used includes demographic and construct item sections. We adopted five items from Lumpkin and Dess [13] to measure entrepreneurial orientation (EO). Five items from Moulart et al. [59,60] are employed to measure social innovation (SoIn). The second mediator, social value orientation (SVO), is assessed using four items, adapting from Messick and McClintock [26]. The third mediator service innovation (SeIn) is measured using four items developed from the overview of the definition of social innovation provided by the European Commission [96]. Finally, social impact (SoIm) is assessed using four items borrowed from [97] study. We first interviewed possible participants to select qualified respondents before distributing the questionnaires. Additionally, when preparing the first draft of the instrument, surveyors' observations were considered. Since research items are from existing English sources, we first translated all construct items from English to Mandarin, and later, back-translated to English to ensure the equivalency of items. While pretesting the research instrument, participants verified the clarity of the questions. Thus, the initial content validity of the questionnaire is confirmed.

4. Results and Findings

4.1. Test of Reliability and Validity

Exploratory factor analysis (EFA) enables researchers to refine measures, evaluating construct validity and also test hypotheses. To get a satisfactory model, we followed a set of general suggestions by Tabachnick and Fidell (2001). Accordingly, the Kaiser–Meyer–Olkin measure of sampling adequacy

(KMO) must be greater than 0.6, communality values must be greater than 0.5, and eigenvalues must be greater than 1 [98].

Table 2 presents the results of factor analysis, instrument validity, and reliability. All factor loadings are above 0.5. The Kaiser–Meyer–Olkin (KMO) Test measures the suitability of the data for factor analysis. Kaiser [99] introduced a measure of sampling adequacy (MSA); later, Kaiser and Rice [100] modified the MSA. The Kaiser–Meyer–Olkin (KMO) statistic varies from 0 to 1 and indicates the predictability of each variable in a set by the other variables without error. The test measures sampling adequacy for each variable in the model and the complete model. KMO for the data in this study is 0.961, which is higher than 0.95, indicating the sample is highly adequate. Thus, the validity of the instrument for this study passed Bartlett's Test of Sphericity. We use the principal component analysis extraction method and Varimax rotation to implement EFA. All factors have an eigenvalue of 1 or higher. As shown in Table 2, the reliability coefficient of each factor and the whole instrument is higher than the acceptable level of ($\alpha \geq 0.7$). In short, the results shown in Table 2 indicate that all factors are valid and reliable. Thus, we can further conduct additional statistical analysis, as discussed in the next subsections.

Table 2. Factor analysis, scale validity, and reliability.

Variables	Items	Mean	SD	% of Variance	Loadings		Cronbach's Alpha
					EFA	CFA	
Entrepreneurial orientation (EO)	EO1	4.58	0.776		0.865	0.881	
	EO 2	4.59	0.719		0.836	0.814	
	EO 3	4.53	0.769	57.723	0.875	0.865	0.838
	EO 4	4.47	0.789		0.781	0.720	
	EO 5	4.23	0.932		0.745	0.650	
Social innovation (SoIn)	SoIn 1	4.25	0.825		0.810	0.800	
	SoIn 2	4.24	0.861		0.825	0.798	
	SoIn 3	4.23	0.856	68.280	0.872	0.862	0.922
	SoIn 4	4.21	0.838		0.838	0.807	
	SoIn 5	4.09	0.881		0.833	0.781	
Social value orientation (SVO)	SVO 1	3.99	0.954		0.804	0.795	
	SVO 2	4.04	0.920	69.270	0.719	0.599	0.802
	SVO 3	3.82	0.917		0.788	0.649	
	SVO 4	4.08	0.909		0.857	0.839	
Service innovation (SeIn)	SeIn 1	4.53	0.709		0.853	0.801	
	SeIn 2	4.44	0.801	78.944	0.919	0.880	0.911
	SeIn 3	4.57	0.781		0.896	0.866	
	SeIn 4	4.46	0.797		0.884	0.853	
Social impact (SoIm)	SoIm 1	4.25	0.788		0.823	0.784	
	SoIm 2	4.11	0.891	70.423	0.848	0.775	0.911
	SoIm 3	4.10	0.873		0.841	0.737	
	SoIm 4	4.34	0.846		0.819	0.790	
Instrument Total	KMO			0.961			0.962
	p-value			0.000			

Note: Item details are as follows: EO1: Autonomy can enhance her active engagement for the job. EO2: Innovativeness can enhance performance in the job. EO3: Initiative can enhance her performance in an innovative event. EO4: Competitive capacity can enhance the performance in the job. EO5: Risk-taking orientation can enhance her willingness in an uncertain environment. SoIn1: Social innovation is the practical development of new products, services, and solutions model, which meets social needs. SoIn2: New solutions portfolio (new product, new service, and new processes) can achieve the capacity of management. SoIn3: Social innovation can advance the quality of life of individuals and communities through a new delivery service. SoIn4: Innovative activities can be diffused through an organization's promotion. SoIn5: Social innovation contributes to improving the workforce of an individual. SVO1: Prosocial personality can enhance the value of society. SVO2: Individualistic personality will influence the organization's outcomes. SVO3: Competitive personality can enhance the organization's outcomes. SVO4: Altruistic personality can enhance the value of society. SeIn1: A good service concept consists of knowledge that can achieve one complete services system. SeIn2: By using a good client interface, firms can enhance their performance and service quality? (For example, customers do not need to come to the bank; they can use it). SeIn3: A good service delivery system can enhance the efficiency of business operations. SeIn4: Technological right choice can enhance the performance of service systems. SoIm1: When managers have high entrepreneurial orientation, they can enhance the value of society. SoIm2: A manager can enhance the value of society through new social collaborations. SoIm3: A new business model can enhance the welfare of society. SoIm4: The manager's intelligence can enhance the value of society.

4.2. Confirmatory Factor Analysis (CFA)

The goodness of fit of the model was evaluated and compared with the suggested criteria by the ratio of chi-square to degrees of freedom (χ^2/df) < 3, goodness-of-fit index (GFI) > 0.8, the root mean square error of approximation (RMSEA) ≤ 0.08, and the comparative fit index (CFI) > 0.9 indices (Brown, 2015). The measurement model of CFA in this model shows the fit index for the structural model, which indicated a good fit (χ^2/df = 1.939; RMSEA = 0.059; CFI = 0.956; GFI = 0.884). Therefore, the results of the model fit for CFA and the proposed model are satisfactory (Table 3).

Table 3. Model fit indices of the measurement model.

Indices	Criteria	Model	CFA
χ^2/df	<3	2.373	1.93
GFI	>0.8	0.86	0.88
CFI	>0.9	0.93	0.95
RMSEA	≤0.08	0.07	0.06

4.3. Composite Reliability, Convergent and Discriminant Validity

In this study, composite reliability (CR) is used to reveal the reliability and internal consistency of the instrument. Similarly, convergent and discriminant validity are employed to test each construct's validity [101]. Thus, scale reliability is assessed in different ways using CR and AVE values that should be, respectively, greater than 0.7 and 0.5 [101]. AVE refers to the average percent of variation explained among the items [102]. We evaluate discriminant validity by comparing the square root of AVE value with the correlation between constructs. Consequently, with AVE > 0.5, MSV < AVE, CR > AVE, √AVE > Max r (maximum interrelated correlation) reliability, and validity of the scale and constructs of the research model is supported. Table 4 summarizes the results of validity and reliability.

Table 4. Test of composite reliability, convergent validity, and discriminant validity.

	CR	AVE	MSV	Max r	EO	SoIn	EO	SeIn	SoIm
SoIn	0.905	0.656	0.578	0.760	**0.810**				
EO	0.892	0.625	0.549	0.741	0.626	**0.791**			
SeIn	0.912	0.723	0.588	0.767	0.760	0.741	**0.850**		
SoIm	0.855	0.596	0.588	0.767	0.756	0.635	0.767	**0.772**	
SVO	0.807	0.516	0.468	0.684	0.664	0.622	0.674	0.684	**0.718**

Note: CR > 0.7; AVE > 0.5; MSV < AVE; √AVE > Max r, √AVE is **boldface diagonal**.

4.4. Test of Hypotheses and Mediations

As explained, to test the proposed model, researchers employ structural equation modeling (SEM). In conclusion, all the direct effects are positively significant. Therefore, the first two hypotheses (H1 and H2) and sub-hypotheses (H1a, H1b, H2a, H2b, H2c, and H2d) are accepted. Table 5 recapitulates the results of hypotheses testing.

Table 6 presents the result of the mediation hypotheses for the research model. The results of mediation analysis, using 3000 re-samplings' bootstrapping, support the mediation hypothesis H3 and all sub-hypotheses (H3a, H3b, H3c, and H3d). Thus, according to H3a, SoIn partially mediates the relationship between EO and SoIm. Following H3b, the partial mediation of SVO on the relationship between EO and SoIm is revealed. Regarding H3c, findings show that SeIn can fully mediate the link between EO and SoIm. Concerning H3d, although the direct effect of the defined path is not significant, double mediation of SeIn and SVO are proved. Finally, SVO is a partial mediator on the association between EO and SoIm.

Table 5. Results of the hypotheses (standardized regression weights).

Hypothesis	Paths	Estimate	Statement of Hypothesis	Results
H1a	EO → SoIn	0.74 ***	EO has positive association with SoIn	Supported
H1b	EO → SeIn	0.86 ***	EO has positive association with SeIn	Supported
H2a	SoIn → SoIm	0.39 ***	SoIn has positive association with SoIm	Supported
H2b	SVO → SoIm	0.32 ***	SVO has positive association with SoIm	Supported
H2c	SeIn → SoIm	0.34 ***	SeIn has positive association with SoIm	Supported
H2d	SeIn → SVO	0.79 ***	SeIn has positive association with SVO	Supported

$* \ p < 0.05, ** \ p < 0.01, *** \ p < 0.001.$

Table 6. Results of the mediation hypotheses (standardized regression weights).

	Paths	Indirect (ab)	Direct (c′)	Total (c)	Mediation
H3a	EO → SoIn → SoIm	0.46 ***	0.25 *	0.71 ***	Partial mediation
H3b	EO → SVO → SoIm	0.44 ***	0.27 *	0.71 ***	Partial mediation
H3c	EO → SeIn → SoIm	0.69 **	NS	0.71 ***	Full mediation
H3d	EO → SeIn → SVO → SoIm	0.71 ***	NS	0.71 ***	Full mediation

$* \ p < 0.05, ** \ p < 0.01, *** \ p < 0.001;$ NS = Not Significant.

5. Discussion

Although extant studies documented the critical role of entrepreneurial orientation (EO) in affecting the performance of organizations and societies, understanding the EO as a fundamental element that can influence and predict social events is not well studied. This paper extends the existing entrepreneurship and innovation theory from the perspective of social factors. The main attempt is to structure a new research framework to investigate the influence of entrepreneurial orientation (EO) on generating social impact by considering social factors such as social innovation, service innovation, and social value. Evidence shows that in EO literature, innovativeness, proactiveness, and risk-taking are among the most important constructs to define firm performance and to let managers make a strategic decision. However, previous studies often assess EO with firm-level performance. This study attempts to relate entrepreneurial orientation (EO) as an antecedent of sustainable social impact. Relying on EO literature that applies not only to firm-level behavior, but also to the process of entrepreneurial development at the societal level of countries, researchers have developed several hypotheses. In conclusion, the findings indicate that the suggested constructs of EO are an influential element that can create social impact. This is primarily through other factors, namely SoIn, SeIn, and SVO, that fully or partially mediate the proposed relationship.

According to the results exhibited in Table 5, H1a is supported, which means that EO has a positive association with SoIn ($\beta = 0.74$, $p < 0.001$). Thus, in Taiwan, entrepreneurial orientation (EO) is shown to have a significant positive influence on social innovativeness (SoIn). We concluded that in Taiwan, social innovation (SoIn) is directly affected by the entrepreneurial characteristics of managers, CEOs, and other individual entrepreneurs. This point highlights the vital role of entrepreneurial characters in creating social innovation. In this regard, our result is consistent with the previous study conducted by Pérez-Luño et al. [36], explaining how entrepreneurial orientation promotes innovation generation in Spain. Moreover, our findings are in line with a new scientific survey that shows entrepreneurial orientation fosters innovation in companies at individual and firm-level [103]. H1b states that EO has a positive association with SeIn. Our findings illustrated in Table 5 claim that there is a positive significant relationship between EO and SeIn ($\beta = 0.86$, $p < 0.001$). Therefore, H1b is also accepted. According to Wang and Juan [86], entrepreneurial orientation (EO) is related to service innovation performance, which stresses the effectiveness of the entrepreneurial orientation (EO) mechanism on consumer response. In addition, the new technology also can promote the development of entrepreneurial activities that eventually may result in economic growth [104].

Given that new technologies are part of innovation, it is highly possible that entrepreneurial orientation (EO) positively affects service innovation.

H2a states that SoIn has a positive association with SoIm. The results of SEM analyses indicate that, for the given model, SoIn positively and significantly influences SoIm (β = 0.39, p < 0.001). H2a is, therefore, accepted. This result is also consistent with prior scholars' findings [65,105] discussing social innovations and their impact on the society and environment. In this regard, our findings corroborate the scientific work of Wittmayer et al. [106] underlining the transformative potentials of social innovation in generating sustainable social impact.

H2b proposes that social value orientation (SVO) has a positive association with social impact (SoIm). Subsequently, statistical analysis reveals a significant positive impact of SVO on social impact (β = 0.32, p < 0.001). Our result confirms the past research findings are addressing the significant role of social value orientation (SVO) in solving social dilemmas [78].

H2c hypothesizes that SeIn has a positive association with SoIm. The statistical results of current path analyses (Table 5) indicate that SeIn significantly and positively influences SoIm (β = 0.34, p < 0.001). Thus, H2c is supported. H2d proposes that SeIn has a positive association with SVO. As the result shows, there is a significant positive relationship between SeIn and SVO (β = 0.79, p < 0.001). H3a hypothesizes that SoIn mediates the relationship between EO and SoIm. The results of the mediation hypotheses reveal that SoIn partially mediates the relationship between EO and SoIm. Our finding is in line with the definition of social innovation, a novel solution to a social problem [107,108]. Existing organizational research explains that EO is one of the fundamental needs representing innovative capability [86,109]. The link between EO and social impact could be more efficient, while social innovation intervenes in the process. Although one stream of research attempts to show the effectiveness of innovation in diverse areas [52,110], few studies have investigated the mediating role of social innovation on the relationship between entrepreneurial orientation and social impact.

H3b proposes that SVO mediates the relationship between EO and SoIm. SVO fully mediates the relationship between EO and SoIm. Thus, H3b also received support. As both direct and indirect effects are found significant, the partial mediation of SVO on the relationship between EO and SoIm is revealed.

H3d states that SeIn and SVO are multiple serial mediators between EO and SoIm. According to statistical results achieved, SeIn and SVO act as multiple serial mediators between EO and SoIn. First, researchers test each mediator as a separate single variable to check if each SeIn and SVO can fully mediate the defined relationship. Although the direct effect of the path is not statistically significant, SeIn and SVO perform as full mediating variables. Therefore, H3d is accepted.

6. Conclusions and Implications

Every country is committed to sustainable development, but it faces many social dilemmas. These social problems include hunger, poverty, water scarcity, crime, drug use, cancer, plague, lack of natural resources, ecosystems, and disasters. The knowledge and skills of entrepreneurs are crucial to address these issues. This study will help to strengthen effective collaboration between government decision-makers and entrepreneurs, and their cross-disciplinary cooperation to find practical solutions to social and environmental problems.

Entrepreneurial orientation is a crucial variable that nurtures individual and organizational growth, which in turn affects the sustainable development of the economy and societies [42,103]. Therefore, based on previous studies and considering a new research framework, this current paper underscores the importance of entrepreneurial orientation concerning social drivers. Entrepreneurial orientation (EO), representing the ability to promote performances through innovative attitude, risk-taking behavior, aggressiveness, autonomy, and competitive energy [9], plays an essential role in predicting the social development of societies if other defined social drivers exist in the system. From another viewpoint, it can be concluded that individuals with specific abilities can positively

influence service innovation. Moreover, a sustainable entrepreneurial climate in firms positively affects service innovation alternatives to enhance the efficiency of business operations or accelerate the recognition of the right technology choices to enable the managers to increase the performance of service systems.

Research findings give a new direction for policymakers to foster entrepreneurship culture and generate sustainable social impact. Managers and decision-makers can use the results to improve the progress of entrepreneurial activities. Entrepreneurial orientation leads to long-term social impact through the effective implementation of social innovation. Therefore, promoting characteristics such as autonomy, innovativeness, initiative, competitive capacity, and risk-taking in the organization in employees can elevate an entrepreneurial ecosystem that creates social impact.

Effective entrepreneurial orientation and innovative methods need to accelerate social innovation. This study drew a way to create sustainable social impact through social innovation, service innovation, and social value. International organizations strive to work for sustainable development goals. From an organizational perspective, in order to generate social impact, companies can consider recruiting managers with a more robust entrepreneurial profile. To enhance positive social impact, providing suitable training and educational courses for employees will provide opportunities for the growth of EO. Practitioners should notice that successful change and innovation processes are expected to occur more frequently when a high level of EO is experienced at an individual and firm-level. The interaction between EO at the personal and organizational levels can better perform as a determinant of sustainable change. From a theoretical perspective, our study expands past research in different ways. EO is found as an essential element for creating long-term social impact. EO plays an essential role in building innovation and competitive advantage that directly and positively influence how individual and organization's actions impact on surrounding communities. We admit that other contextual factors in the form of values exert positive force on this association.

Notably, research findings contribute to entrepreneurial theory and social sustainability literature by considering the effectiveness of social innovation, service innovation, and social value orientation at both individual and firm-level. Notably, defined factors as mediators that have never been studied before are recognized as potential indicators of social impact. As a result, the existence of SoIn, SeIn, and SVO positively and significantly influences the main link between EO and SoIm. Therefore, to stimulate the process of creating social impact, the mentioned variables could be used. Findings also suggest that social innovation is required in society to achieve long-term social impact. While the mediating role of social innovation, service innovation, and social value orientation is revealed, managers are advised to take advantage of these social values. Relevant policy recommendations are proposed to provide a theoretical basis for the government to promote long-term, sustainable social impact and provide practical suggestions for the social development of developing and emerging countries.

This study has some limitations that give directions for future works. First, our results are restricted to Taiwan. Taiwan is among the successful developed countries in Asia. It would be more interesting to conduct a similar study in other countries in or out of the region. Thus, we encourage future research to collect data from other national settings. Thus, the findings of the current study can be a base for future comparison studies. Other factors related to cultural background may also get involved to expand the model. Another possible limitation of the study is the fact that we collect data from companies with a wide variety of disciplines; further research is advised to select a specific industry to provide more specific conclusions.

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