International Journal of Business and Society, Vol. 25 No. 3, 2024, 1200-1219

INVESTIGATING THE RELATIONSHIP BETWEEN MARKET COMPETITION, TECHNOLOGY ADOPTION, AND SUSTAINABILITY PRACTICES IN VALUE CO-CREATION AND SOCIAL ENTREPRENEURSHIP INITIATIVES IN INDONESIA

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ABSTRACT

This quantitative study examines the complex relationship between value co-creation, market competition, technology adoption, sustainability practices, and social entrepreneurship initiatives in Indonesian ventures. Structural Equation Modeling-Partial Least Squares (SEM-PLS) on 325 initiatives yields remarkable findings. The results suggest that market competition drives value co-creation and social entrepreneurship initiatives. Social entrepreneurship initiative ventures face severe social and environmental issues when the market competition heats up, and they become better at cooperative value co-creation. Technology adoption is boosting value creation and social entrepreneurship effectiveness. This study emphasizes technology's role in efficiency and innovation. Sustainable practices are essential to value co-creation and social enterprise. Sustainability enhances the possibility that an activity will create value and have long-term environmental and social impacts. Social entrepreneurship initiatives benefited from value-creation collaboration. Value-creating projects address social and environmental challenges more proactively and effectively, demonstrating teamwork to promote good change. Investors, lawmakers, and social entrepreneurs who aim to strengthen Indonesia's social entrepreneurship initiative landscape by generating long-term profit and social impact might use the results.

Keywords: Market Competition, Social Entrepreneurship Initiative, Sustainability Practices, Technology Adoption, Value Co-Creation.

Received: 24th January 2024
Accepted: 30th May 2024
https://doi.org/10.33736/ijbs.8576.2024

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1. INTRODUCTION

Initiatives focused on social entrepreneurship can solve urgent environmental and social challenges while promoting economic growth, making them effective change agents. However, social entrepreneurship is a complicated and multidimensional topic, with many factors influencing it. The definition and core of social entrepreneurship is one of its most important features (Sabeti, 2011). Despite its increasing popularity, no consensus definition of social entrepreneurship (Ozkazanc-Pan & Clark Muntean, 2018). Scholars, scientists, and politicians have distinct ideas about social entrepreneurship, which might differ significantly between nations and areas (Gintere & Licite-Kurbe, 2022). Understanding and researching the area of social entrepreneurship may be difficult due to the absence of a consensus definition. Impacting sustainable development is a critical component of social entrepreneurship (Saputra et al., 2021). By addressing unmet needs, working with various stakeholders, and creating innovative business models, social entrepreneurship may significantly contribute to driving sustainable development (Agarwal & Mulunga, 2022). However, there is a dearth of cohesive theoretical frameworks in the literature on social entrepreneurship, and the benefits of social entrepreneurship are not well supported by empirical data (Agarwal & Mulunga, 2022). Another critical consideration is social entrepreneurship's ability to create social change (Samineni, 2018). Though they must be measured, successful social enterprises can benefit society and make valuable contributions. This is because social entrepreneurship has a variety of effects, not all of which are favorable, and evaluation of these effects from several angles is required (Hashim & Lawal, 2017). Lastly, social innovation and disruptive thinking are also included in social entrepreneurship. It entails launching fresh concepts and institutions for societal issues (Andersson & Ford, 2015). Instead of gradually restoring an unfair equilibrium, social entrepreneurship seeks to create a brand-new, more just one (Talmage, 2021). According to the Global Entrepreneurship Monitor (GEM) 2021, Indonesia has a high Total Early-Stage Entrepreneurial Activity (TEA) rate of 24.3%, yet many social enterprises struggle to secure market share due to their dual objectives (GEM), 2021).

Given the broad socioeconomic difficulties and the country's lively entrepreneurial spirit, social entrepreneurship in Indonesia has made noteworthy contributions in several fields (Iskandar et al., 2023). By applying social entrepreneurship and value creation, these projects seek to optimize social and environmental impact and profitability (Troise et al., 2022; Yani et al., 2020). Within the digital industry, social entrepreneurship is centred around launching new enterprises and repurposing established ones through innovative digital technologies (Amankwah-Amoah et al., 2021; Wulandari et al., 2020). This breaks down the barriers between customers and businesses and promotes the expansion of the sharing economy (Muafi et al., 2021). A comprehensive approach to encourage entrepreneurship in Islamic institutions is the "University Waqf" concept, developed in the education sector. Creating Muslim entrepreneurs via scholarships, research, community empowerment, and social activities has helped the Muslim communities in Indonesia flourish (Hussin & Rashid, 2017). Social entrepreneurship has been crucial in the agriculture sector in promoting food security. Sheep excrement, for instance, is used by farmers on Kisar Island as an organic fertilizer for crops, which benefits the community socioeconomically (Ririmase et al., 2022).

Furthermore, a study suggested an Integrated Agricultural Land Crowdfunding Model (ILCM) that uses Islamic financing tools to assist East Javan farmers in overcoming cash flow issues and accelerating the innovation of social entrepreneurship (Thaker et al., 2020). Another essential

factor in Indonesia's prosperity has been micro-entrepreneurship. Micro-entrepreneurship is more common in larger urban households with higher financial and social capital levels and primary or secondary educated individuals. On the other hand, lower-quality formal institutions and infrastructure promote entrepreneurship, whereas corruption at the DPRD and local government level lowers the number of participants (Vial, 2011). The United Nations Industrial Development Organization (UNIDO) emphasizes that sustainable business practices can enhance competitiveness and resilience (UNIDO), 2023). However, a study by the Indonesian Ministry of Environment and Forestry in 2021 revealed that only 30% of social enterprises have comprehensive sustainability strategies in place, often due to insufficient knowledge and financial constraints.

Academic research has demonstrated that a student's interest in entrepreneurship is influenced by various characteristics, including personality, culture and family support, social environment, motivation, and academic accomplishment (Del Rosa, 2020). Research on the association between entrepreneurial orientation and SME performance in the small and medium enterprise (SME) sector indicated that social networks and innovation mediate the relationship (Nofiani et al., 2021). Indonesia's vibrant social entrepreneurship field employs innovative business methods to tackle environmental and social concerns. These programs frequently operate in a competitive market and provide obstacles because of their limited funding and requirements for financial sustainability (Javed et al., 2019; Satar et al., 2023). In order to maximize these projects' effectiveness, scope, and influence while guaranteeing long-term benefits, sustainable practices and technology must be adopted (Calvo et al., 2020). Intellectual capital and cultural intelligence substantially influence the expansion of social entrepreneurship in Indonesia. These elements support the objectives of social entrepreneurship by assisting university students, who frequently participate in these efforts, in finding solutions to social problems (Yacub et al., 2022).

Technology adoption is also a significant barrier, with 45% of SMEs in Indonesia citing digital literacy and access to technology as significant challenges (British Council, 2018). In social entrepreneurship, technology is crucial. For instance, entrepreneurship and innovation libraries have embraced prototyping technology to assist start-ups in creating and refining prototype solutions (Ambrose Ng'ang'a & Nyang'au, 2022; Hausberg & Korreck, 2020). Prototyping technologies' perceived utility is heavily influenced by prior experience, societal impact, brand image, and system quality (Phiri, 2020). Social entrepreneurship in Indonesia integrates sustainability, particularly within Micro, Small, and Medium-Sized Enterprises (MSMEs). These enterprises have effectively implemented sustainable HR practices, improving social entrepreneurship and sustainable business performance. Key outcomes include enhanced employee involvement and more efficient hiring processes. The relationship between sustainability and social entrepreneurship is further demonstrated by the positive impact of micro, small, and medium enterprises (MSMEs) engaging in social entrepreneurship on sustainable practices and the wider community (Iskandar et al., 2023). With an emphasis on creating ecosystems that support the rapidly expanding entrepreneurship in diverse places, social entrepreneurship in Indonesia has changed in terms of strategy. This entails, among other things, reforming training programs and strategic human resource planning (Margiono & Feranita, 2021). This technological lag hinders innovation and operational efficiency. Furthermore, sustainability practices are essential but often lacking; only 30% of social enterprises have comprehensive sustainability strategies due to insufficient knowledge and financial constraints (Platform Usaha Sosial, 2022).

The relationship between market competition, technology adoption, and sustainability practices in Indonesian social entrepreneurship needs examination due to the convergence of these critical aspects. Indonesia faces many socioeconomic challenges, including poverty, limited healthcare and education access, environmental degradation, and income inequality. The need for creative solutions to these issues makes social entrepreneurship more crucial than ever (Yacub et al., 2022). The world has begun recognizing social entrepreneurship as a potent tool for addressing environmental and social problems (Agarwal & Mulunga, 2022). Indonesia is a leader in this trend because of the country's many problems and the need to develop long-term, sustainable solutions (Iskandar et al., 2022). Global priorities include sustainable development, and social entrepreneurship is well-positioned to be essential to reaching the Sustainable Development Goals (SDGs). In order to optimize this effect, it is critical to comprehend how (Bukowski & Kreissl, 2022; Mutmainna et al., 2023), in the Indonesian context, market competition, technology uptake, and sustainability practices interact. The literature on how market competition, technology adoption, and sustainability practices interact within Indonesia's social entrepreneurship is limited despite individual aspects being studied. A better understanding of these relationships would benefit researchers, practitioners, and policymakers.

Various problems are brought up by the intricate structure of social entrepreneurship in Indonesia and its significant contribution to solving environmental and social problems (Bukowski & Kreissl, 2022). The following are the main concerns this study seeks to solve. While studies have been conducted on the many components of social entrepreneurship, such as market competitiveness, technology adoption, and sustainability practices, a dearth of research thoroughly looks at how these components interact in Indonesia's social entrepreneurship context (Scillitoe et al., 2018). In Indonesia, social companies want the most significant possible influence on the environment and society (Iskandar et al., 2021). They might not wholly maximize their plans and pass up chances for increased efficacy if they do not understand how market competitiveness, technological adoption, and sustainability practices interact. An ambitious goal of many social entrepreneurship projects is to expand both domestically and internationally. Achieving scalability while guaranteeing long-term sustainability depends on the interaction of market rivalry, technology uptake, and sustainability policies (Satar et al., 2024). This research will explore the relationship between market competition, technology adoption, and sustainability practices in Indonesian social entrepreneurship, aiming to enhance understanding of this dynamic field and provide stakeholders with insights for more sustainable solutions to socioeconomic challenges. It addresses the lack of nuanced understanding of how these factors interact within the value co-creation process. By filling these theoretical gaps with empirical data and analysis, the study will aid strategic decision-making for Indonesian social entrepreneurs, offering practical insights to improve their effectiveness and impact.

2. LITERATURE REVIEW

2.1. Grand Theory

Indonesia's social entrepreneurship ecosystem, driven by its competitive economy, effectively addresses societal and environmental issues. Research into this ecosystem, especially the interplay of technology, market competition, and sustainable practices, is crucial in understanding how various factors influence social entrepreneurship in Indonesia. The concept of an "Ecosystem of Social Entrepreneurship". According to this concept, social entrepreneurship is interconnected with a broader network of individuals and groups, such as investors, politicians, social entrepreneurs, and the communities they assist (Pache & Santos, 2013). Social entrepreneurship depends on supportive networks, legal structures, and collaborative efforts within the community. This study explores how these elements foster sustainable value creation within Indonesian social entrepreneurship.

2.2. Market Competition and Value Co-Creation in Social Entrepreneurship Initiative

It has long been acknowledged that market rivalry significantly determines how healthy organizations—including social enterprises—perform and succeed (Fernández-Laviada et al., 2020). Competitive settings promote creativity, boost productivity, and compel businesses to adjust to shifting conditions (Sari & Kusumawati, 2022). Competitive forces in the context of social entrepreneurship initiatives can result in improved resource allocation, increased efficiency, and more notable social and environmental consequences (Hausberg & Korreck, 2020). Social enterprises may need to be resourceful in delivering social benefits while producing money due to limited resources and the requirement for financial viability in a competitive environment. According to a study by Gupta et al. (2023), social companies may be more likely to maximize their resource allocation in a competitive market setting, boosting their social effect.

2.3. Technology Adoption in Value Co-creation in Social Entrepreneurship Initiative

Technology adoption is essential to boosting social entrepreneurship programs' efficacy and reach (Youssef et al., 2021). Technology integration can improve operational efficiency, greater scalability, and the capacity to monitor and quantify social effects in Indonesia's social entrepreneurship context (Iskandar et al., 2022; Iskandar et al., 2023). Innovation and technology adoption are closely related in the field of social entrepreneurship. Technological innovation can give rise to fresh and more efficient ways to address environmental and social problems (Ambrose Ng'ang'a & Nyang'au, 2022; Margiono & Feranita, 2021). According to Pache and Santos (2013), social entrepreneurs in Indonesia are increasingly utilizing technology to create creative solutions that enhance the calibre and scope of their initiatives.

2.4. Sustainability Practices in Value Co-creation in Social Entrepreneurship Initiative

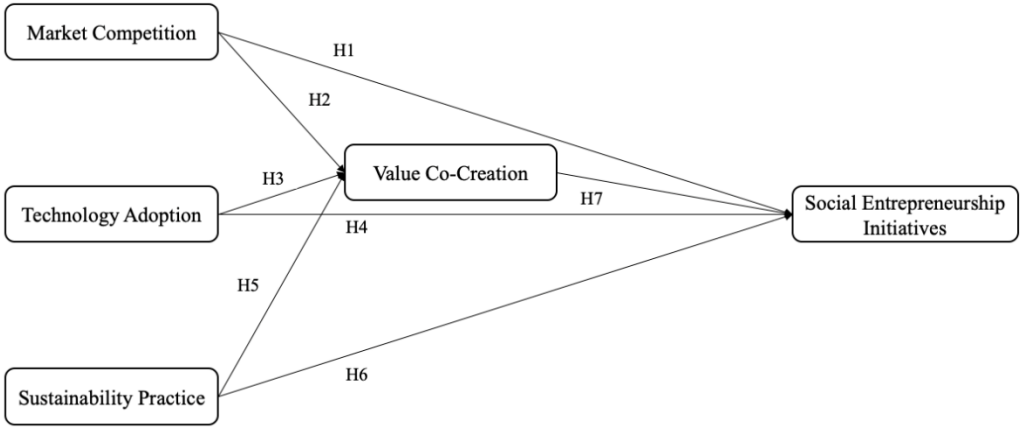
Sustainability practices are inherent to the identity of social entrepreneurship. Social entrepreneurs in Indonesia are often driven by a commitment to addressing the root causes of societal problems (Iskandar & Kaltum, 2021). Sustainability practices include economic viability, environmental responsibility, and social equity (Javed et al., 2019). Social entrepreneurship initiatives in

Indonesia strive to achieve the triple bottom line - economic, social, and environmental sustainability (Agyapong et al., 2017). Measuring sustainability in social entrepreneurship is multifaceted and challenging. It involves assessing environmental practices, social impacts, and economic viability (Agarwal & Mulunga, 2022). Researchers and practitioners often use various frameworks and indicators to evaluate the sustainability of social initiatives (Tunn et al., 2020). These measures are critical to understanding and improving the long-term impact of social entrepreneurship in Indonesia.

2.5. Research Gap

There is a complicated relationship between technological adoption, market competition, and sustainable practices. According to research, market rivalry can encourage the uptake of cutting-edge technologies, enhancing their efficacy and efficiency in achieving positive social and environmental effects (Iskandar et al., 2022). Although extensive research has been conducted on social entrepreneurship, market competitiveness, technology adoption, and sustainability practices individually, little has explored their interrelation within Indonesia's social entrepreneurship context. Understanding how these factors interact is crucial for designing effective strategies that aid social enterprises in navigating the competitive market, leveraging technology for innovation, and promoting sustainability.

Figure 1: Conceptual and Hypothesis



3. METHODOLOGY

3.1. Research Methods

This study utilized a survey method to address seven research objectives, collecting data through questionnaires distributed to social entrepreneurs across all Indonesian provinces. The questionnaire was developed in collaboration with entrepreneurship experts from three Indonesian universities, including the author's mentors and peers, and underwent three revisions before

finalization. Data collection occurred online and offline from July 28 to August 30, 2023. Offline surveys were conducted in West Java, Central Java, and DKI Jakarta with the help of ten of the author's students serving as enumerators. In more remote provinces, questionnaires were distributed online via Google Forms and social media platforms like WhatsApp, Instagram, and Telegram to ensure broader and cost-effective reach. Of the 400 questionnaires distributed, 325 were returned completed.

3.2. Data Analysis

The data analytic techniques used were structural equation modelling for impact magnitude, factor loading, correlation, multicollinearity assumptions, and variable validity and reliability. The questionnaire's assessed results can be put into practice. Value creation and social entrepreneurship are the dependent factors, whereas market competition, technology adoption, and sustainability practices are the independent variables being studied in an expanding corpus of scientific research (Margiono & Feranita, 2021; Neumeyer et al., 2019). The questionnaire for data collection focused on several variables and used a non-probabilistic random sampling technique to select samples from Indonesian social enterprises. The study recommends using the SEM-PLS approach to adequately address missing data and increase the number of indicators by five to ten times. This study used a random sampling method and followed these guidelines with twenty-three indicators, leading to a minimum sample size of 230. Compliance with Hair's standards is evident as 325 out of 400 questionnaires were returned. Table 2 shows the validity and reliability of the measured variables. As confirmed by previous research, comparable data patterns often result from SEM techniques (Sarstedt et al., 2017).

Table 1: Research Questionnaire

Variable	Items	Code	LF	Outer VIF
Market Competition (MCP)	CA = 846, CR = 0.896, AVE = 0.684.			
	1. I feel competition in the market where my Business operates	MCP.1	0.795	1.584
	2. I assess the level of competition in my market	MCP.2	0.868	2.414
	3. I feel that market competition has affected my business performance	MCP.3	0.872	2.498
	4. I have adopted specific strategies in the face of competition in the marketplace	MCP.4	0.769	1.730
Technology Adoption (TED)	CA = 0.810, CR = 0.887, AVE = 0.724.			
	1. I have adopted technology in my business operations	TED.1	0.872	2.291
	2. I consider the adoption of technology has improved the efficiency of my operations	TED.2	0.857	1.982
	3. I see that technology adoption helps me innovate my products or services	TED.3	0.824	2.625
Sustainability Practices (SSP)	CA = 0,907, CR = 0,935, AVE = 0,782.			
	1. I have adopted sustainable practices in my business operations	SSP.1	0.885	2.126
	2. I measure the environmental impact of my operations	SSP.2	0.860	2.015

	3. I have taken steps to reduce my environmental impact	SSP.3	0.927	2.794
	4. I am involved in sustainability programs or initiatives	SSP.4	0.863	1.689
Value Co-Creation (VCC)	CA = 0.869, CR = 0.906, AVE = 0.658.			
	1. I believe that I have successfully co-created value with my customers or business partners	VCC.1	0.753	2.750
	2. I measure the extent to which the customer or business partner is involved in the value-creation process together	VCC.2	0.850	2.709
	3. I have a specific method for identifying new opportunities for shared value creation	VCC.3	0.853	2.811
	4. I support communication and collaboration with customers or business partners in creating shared value	VCC.4	0.759	2.481
	5. I measure how much my customers or business partners feel involved in the value creation process together.	VCC.5	0.835	2.106
Social Entrepreneurship Initiative (SEI)	CA = 0.898, CR = 0.920, AVE = 0.623.			
	1. I have goals that include social or environmental aspects	SEI.1	0.816	2.020
	2. I have a specific strategy to achieve the desired social or environmental impact	SEI.2	0.764	1.515
	3. I measure my social enterprise's positive impact on society or the environment.	SEI.3	0.851	1.672
	4. I am involved in specific social initiatives or sustainability programs	SEI.4	0.751	2.089
	5. I have local community involvement in my business operations or activities	SEI.5	0.770	2.858
	6. I involve employees or customers in social or environmental initiatives	SEI.6	0.841	1.737
	7. I have partnerships with nonprofit or government organizations in support of my social or environmental goals	SEI.7	0.724	2.331

Source: Primary data results (2023)

The validity and reliability requirements are presented in Table 2, which indicates that a total of 28 questionnaires were submitted for this study. The validity of the questionnaire was evaluated by determining its convergent validity by utilizing the partial least squares method. Convergent validity assesses the extent to which an index effectively accounts for a specific dimension. A tool's average variance extracted (AVE) is considered to have convergent validity when its value is more significant than 0.5 (Sarstedt et al., 2021). The table displays the factor loadings for each item, all exceeding 0.70 (3). The composite construct reliabilities and AVE values are over the thresholds of 0.70 and 0.50, respectively. In addition, the outside VIF values are less than 3.00. These findings suggest that the factors associated with market rivalry, technology adoption, sustainability practices, value co-creation, and social entrepreneurship demonstrate reliable and valid values for SEM-PLS analysis.

Table 2: Discriminant Validity Research

	MCP	TED	SSP	VCC	SES
Market Competition	1				
Technology Adoption	2.006	1			
Sustainability Practice	2.019	2.832	1		
Value Co-Creation	1.783	1.982	2.643	1	
Social Entrepreneurship Initiative	2.134	2.872	1.784	2.019	1

Source: Primary data results (2023)

Statistical analysis and the Heterotrait-Monotrait Coefficient (HTMT) can evaluate the study instrument's discriminant validity. It is important to note that Hair et al. (2019) suggested using the HTMT ratio as a more accurate metric for assessing discriminant validity in PLS-SEM research. In order to ensure the instrument's validity, it is crucial to keep the HTMT ratio below 0.90. In Table 2, each latent variable, such as market competition, technology adoption, sustainability practice, value co-creation, and social entrepreneurship initiatives, has an HTMT ratio value below 0.90. This suggests that the research tool employed to evaluate the model is valid. The objective of the structural or internal assessment is to determine the degree to which the conceptual model effectively predicts the variability in the independent variables.

4. RESULTS AND DISCUSSION

4.1. SEM-PLS Methodology Requirements

According to Hair et al. (2019), researchers using the PLS-SEM methodology must rigorously check for missing data and outliers that could affect the study's goals. In this study, 400 questionnaires were distributed, targeting social entrepreneurs in Indonesia, but only 325 were fully completed and relevant, as 75 did not meet the specific criteria. The final sample size was established at 325, though the minimum required was 280, calculated by multiplying 28 indicators by 10 to ensure data quality and reflect Indonesia's diverse demographics.

Table 3: Profile of Respondents by Category

Gender	N (325)	Percentage
Male	192	58%
Female	133	42%
Education	N (325)	Percentage
Bachelor's	194	59%
Master's	74	23%
PhD	57	18%
Business Experience	N (325)	Percentage
< 5 years	112	34%
6 – 10 years	83	25%
11 – 15 years	54	16%
16 – 20 years	45	14%
> 20 years	31	10%
Business Income	N (325)	Percentage

< 100 million	98	30%
100 – 200 million	102	31%
1 - 2 million	92	28%
> 3 million	33	11%
Province Geographical	N (325)	Percentage
West Java	72	22%
Central Java	66	20%
DKI Jakarta	52	16%
Others Province (Survey Online)	135	42%

Source: Primary data results (2023)

The recommendation of Hair et al. (2019) states that if the VIF value is less than 3,000, the following criterion should be to ensure that every variable that constructs the construct avoids multicollinearity.

Table 4: Inner VIF Model

Variable	Value co-Creation	Social Entrepreneurship	Statements
Market Competition	2.019	2.432	Multicollinearity-free
Technology Adoption	2.712	1.794	Multicollinearity-free
Sustainability Practice	1.787	1.983	Multicollinearity-free
Value co-Creation		2.192	Multicollinearity-free

Source: Primary data results (2023)

The data presented in Table 4 demonstrates that each construct produced has an inner VIF value of less than 3.000. This supports the assertion made by Hair et al. (2019) that the multicollinearity assumption criteria in this study are met. Examining the GoF in the research model will also consider it a recommended criterion. Based on the research conducted by (Hair et al., 2019; Sarstedt et al., 2021), the Smart-PLS website provides appropriate criteria for assessing the adequacy of a model. Evaluating model fit is essential for establishing the overall effectiveness of the structural, inner, and outer models. The NFI (Numerical Fit Index) value should be approximately 0.9 or above, the Theta RMS (Root Mean Square) value should be less than 0.02, and the SRMR (Standardized Root Mean Square) value should be less than 0.02, 0.10, or 0.08. The examination reveals that the model's NFI value of 0.817 demonstrates a strong fit; however, its SRMR value of 0.073 falls below the recommended level of 0.10. This research model satisfies the Goodness of Fit assumptions, as indicated by the research findings.

4.2. Inner Model of Structural Organization

The coefficient of determination (R-square) is used to quantify how much other factors influence the dependent variable. An R^2 value of 0.67 or higher for the structural model dependent latent variable suggests that the influencing independent variables positively affect the dependent variable under influence (Hair et al., 2019; Sarstedt et al., 2021). According to the results, the range of 0.19–0.33 is considered weak, and the range of 0.33-0.67 is considered intermediate. On the other hand, Hair et al. (2019) claim that the model created for the investigation is appropriate for comprehending the occurrence if the Q2 value is less than 0.05. Similar to the social entrepreneurship coefficient of 0.625, the value co-creation R^2 value of 0.692 indicates that it is in

a favourable position. The study's two endogenous variables, social entrepreneurship and value co-creation, exhibit Q2 values higher than 0.05 (0.062, 0.057). The study's endogenous factors—value co-creation and social entrepreneurship—can be predicted adequately by the exogenous variables of market competitiveness, technological adoption, and sustainability practices.

4.3. Investigational Theory

Verifying the hypothesis with bootstrapping techniques is the final step in the inner model analysis procedure. Experts use five thousand subsamples to verify data stability and assess the structural model's utility (Hair et al., 2019; Sarstedt et al., 2017). This denotes an accepted degree of significance in management and economics research.

Table 5: Hypothesis Results

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic	p-Values	Results
Market Competition -> Social Entrepreneurship Initiative	0.432	0.411	0.148	2.921	0.002	Accepted
Market Competition -> Value Co-Creation	0.346	0.348	0.147	2.369	0.004	Accepted
Technology Adoption -> Value Co-Creation	0.211	0.179	0.093	2.272	0.003	Accepted
Technology Adoption -> Social Entrepreneurship Initiative	0.683	0.676	0.101	6.761	0.000	Accepted
Sustainability Practice -> Value Co-Creation	0.449	0.416	0.179	2.517	0.001	Accepted
Sustainability Practice -> Social Entrepreneurship Initiative	0.731	0.717	0.115	6.375	0.000	Accepted
Value Co-Creation -> Social Entrepreneurship Initiative	0.405	0.456	0.135	3.001	0.000	Accepted

Source: Primary data results (2023)

First, market competition and social entrepreneurship initiatives have a positive connection (H1 accepted). This hypothesis has a t-statistic value of 2.921 and a p-value of 0.002 below the 0.05 significance threshold. This significant positive correlation implies that social entrepreneurship projects in competitive environments are likely more proactive and effective in addressing environmental and social issues. Market competition and value co-creation are positively correlated (H2 accepted). This hypothesis has a t-statistic value of 2.369 and a p-value of 0.004, both below the 0.05 significance level. This significant positive relationship indicates that increased market competition enhances the ability of social entrepreneurship to create value, supporting the idea that competition promotes creativity and teamwork in social entrepreneurship.

Moreover, Technology adoption and value co-creation are positively correlated (H3 accepted). This hypothesis has a t-statistic value of 2.272 and a p-value of 0.003 below the 0.05 significance

threshold. This indicates a significant positive correlation between the adoption of technology and enhanced value co-creation in social entrepreneurship, suggesting that new technologies facilitate improved collaboration and value creation. Technology adoption and social entrepreneurship initiatives are positively correlated (H4 accepted), with this hypothesis having a t-statistic value of 0.000 and a t-statistic of 6.761. This strong positive relationship indicates that social entrepreneurship efforts using technology are generally more active and impactful in addressing social and environmental issues.

Furthermore, a favourable correlation between sustainable practices and value co-creation is positively correlated (H5 accepted), with a t-statistic of 2.517 and a p-value of 0.001, both below the 0.05 significance level. This significant positive correlation indicates that a solid commitment to sustainability in social entrepreneurship activities leads to more significant value creation. Sustainability practices and social entrepreneurship initiatives are strongly correlated (H6 accepted), with a significant p-value of 0.000 and a t-statistic of 6.375. This strong positive relationship highlights the critical role of sustainability in social entrepreneurship, showing that sustainability-focused projects are generally more active and impactful in addressing environmental and social issues. There is a strong positive correlation between value co-creation and social entrepreneurship initiatives (H7 accepted), evidenced by a highly significant p-value of 0.000 and a t-statistic of 3.001. This confirms that value-creating social entrepreneurship projects are generally more active and influential in achieving environmental and social goals.

4.4. Discussion

The hypothesis suggests a positive link between market competition and social entrepreneurship initiatives (H1 accepted). This finding indicates a robust, statistically significant positive relationship between the level of market competition and the effectiveness of social entrepreneurship projects. This result is consistent with the theory proposed by Zahra and Wright (2016) that competitive markets require social enterprises to be more proactive and agile, which could lead to more impactful and sustainable solutions to social and environmental issues. These findings indicate that increased market competition can stimulate social entrepreneurship, creating conditions under which these enterprises flourish and significantly address societal challenges. This underscores the importance of considering market dynamics in planning and executing social entrepreneurship initiatives, as competition levels significantly affect their success and impact.

The hypothesis suggests a positive link between market competition and value co-creation (H2 accepted). This suggests a statistically significant positive correlation between the intensity of market competition and the ability of social entrepreneurial ventures to co-create value. The theory aligning with these findings is advanced by Porter and Kramer (2011), who argue that the competitive context compels social entrepreneurs to innovate and collaborate more extensively, enhancing their value-creation processes. The insights suggest that market competitiveness is both a challenge and an opportunity for social entrepreneurs to improve their value co-creation capabilities.

The hypothesis suggests a positive link between technology adoption and value co-creation (H3 accepted). The research conducted by Vargo Lusch (2016), in their service-dominant logic framework, emphasizes how technology facilitates resource integration and knowledge sharing among partners, enhancing value co-creation. They argue that technology facilitates more efficient

and expansive networks, enabling access to a broader range of resources and capabilities. Similarly, Yoo et al. (2012) discuss the role of digital technology in reshaping the business landscape, allowing firms to co-create value through platforms that extend beyond traditional organizational boundaries. Adopting these technologies leads to new forms of production and innovation where users and producers create value collaboratively. These pieces of research collectively suggest that technology supports operational efficiencies and significantly enhances collaborative capabilities, which is crucial for value co-creation in social entrepreneurship.

The hypothesis suggests a positive link between technology adoption and social entrepreneurship initiatives (H4 accepted). This finding resonates with the work of Nambisan (2017), who argues that technology provides vital tools for social entrepreneurs to scale their solutions, reach broader audiences, and enhance their operations. Mobile applications, cloud computing, and social media platforms enable social entrepreneurs to enhance their outreach and stakeholder engagement, thus driving a more significant impact. Further, research by Di Domenico et al. (2020) discusses how information and communication technologies (ICTs) enable social enterprises to create value through more effective coordination of distributed networks of social actors. Connectivity is essential for mobilizing resources, sharing knowledge, and enabling collaborations crucial to social venture success. Recent research emphasizes the transformative role of technologies like blockchain and artificial intelligence in social entrepreneurship.

The hypothesis suggests a positive link between sustainability practices and value co-creation (H5 accepted). According to research by Wagner & Lutz (2017)), sustainable practices contribute to corporate social responsibility (CSR) and environmental management, which are crucial for co-creating value with stakeholders. These practices help firms engage more effectively with the community, suppliers, and consumers, fostering a shared commitment to long-term success. Further, the study by Visser and Crane (2012) emphasizes how sustainability can drive innovation in product development, operational efficiencies, and supply chain management. By integrating sustainable practices, companies can unlock new economically viable and environmentally sound forms of value that align with the principles of social entrepreneurship. These studies collectively suggest that sustainability is not just an ethical or regulatory requirement but a strategic component that enhances the value co-creation capabilities of social enterprises, ultimately contributing to their success and impact.

The hypothesis suggests a positive link between sustainability practices and social entrepreneurship initiatives (H6 accepted). Research by Pandey et al. (2023) expands on this by examining how integrating sustainability into business models enhances competitive advantage and stakeholder engagement in social enterprises. Their findings suggest that sustainability-driven innovation is critical for creating scalable solutions to global challenges. These studies emphasize that sustainable practices boost reputations and trust among stakeholders, which is essential for securing funding and support and integral to successful social entrepreneurship. This integrative approach ensures that enterprises thrive economically and contribute significantly to environmental preservation and social well-being.

The hypothesis is that a positive link exists between value co-creation and social entrepreneurship initiatives (H7 accepted). In the academic literature, this relationship has been explored by researchers like Vincent et al. (2023), who discuss the dynamics of value co-creation in social enterprises. They argue that social entrepreneurs leverage resources from multiple stakeholders to

create socially and environmentally impactful solutions. This involves engaging communities, customers, and even competitors in a way that aligns their interests with the goals of the social enterprise, enhancing both the reach and effectiveness of their initiatives. Bansal et al. (2019) expand on this, suggesting that the core of social entrepreneurship lies in the novel assembly of resources to address social needs in ways that are not just sustainable but also scalable and impactful. This entails developing business models to foster collaboration and co-create value with all stakeholders. The importance of incorporating value co-creation strategies in social entrepreneurship is highlighted through case studies of businesses that have merged social goals with commercial strategies, benefiting both themselves and their communities. These strategies enable enterprises to enhance their societal impact and ensure operational sustainability.

4.5. Theoretical Implication

The theoretical implications of our research on social entrepreneurship are that we have to dig deeper into how the findings fit with and extend existing theories in this field. Our research offers a conceptual framework of social entrepreneurship by providing empirical evidence that illustrates the dynamic interactions between social entrepreneurial initiatives, value creation, market competition, technology adoption, and sustainability practices. In particular, we explain the mechanisms through which social entrepreneurship initiatives adapt to changing market conditions, technological advancements, and the increasing demand for sustainable practices. This contributes to the theoretical underpinnings by highlighting how social enterprises navigate complex economic and social landscapes, challenging conventional static views of business strategy in the social sector.

Moreover, our research bridges the gap between disciplines, integrating insights from innovation, entrepreneurship, technology, and sustainability to offer a more comprehensive understanding of the multidimensional nature of social entrepreneurship. By connecting these various theoretical perspectives, we propose a multidisciplinary approach to studying social enterprises, which can facilitate a more robust and holistic model of social entrepreneurship that reflects its inherent complexity and responsiveness to environmental change.

We also suggest pathways for future research, encouraging researchers to explore the cause-and-effect relationships and long-term impacts of these social entrepreneurship dynamics. Methodologically, we recommend using longitudinal studies to track the development of social entrepreneurship initiatives in response to external pressures and opportunities. This will validate our findings and refine theoretical models regarding adaptability and resilience in social entrepreneurship.

4.6. Implications

For different stakeholders, the findings have practical implications:

1. For Social Entrepreneurs: These observations can help Indonesian social entrepreneurs refine their approaches. Employing sustainable methods and technologies can lead to better social and environmental impact and more efficient revenue production.
2. For Policymakers: These results can be used by policymakers to develop policies that support adopting new technologies, stimulate sustainable practices, and establish a level

playing field that encourages creativity and cooperation among social entrepreneurship projects.

3. Regarding Investors: By acknowledging the significance of these factors in the effectiveness and durability of social entrepreneurial endeavours, investors, particularly impact investors, can arrive at more knowledgeable investment choices.

4.7. Limitations

It is critical to recognize this study's limitations:

1. Sample Size: Although sizable, the 325 social entrepreneurship projects in the sample may not accurately reflect Indonesia's social entrepreneurship range. An in-depth understanding of the link under investigation might be possible with a larger sample.
2. Data Collection Methods: Since self-reported data were used in the study, subjectivity or response bias may have been introduced. Incorporating survey data with extra sources of information, like case studies or interviews, could improve the research.
3. This study employed a cross-sectional design, which gives an overview of the connection at a particular moment. How these interactions change over time can be seen with a longitudinal approach.
4. Results specific to the Indonesian context: It is possible that the conclusions drawn from this study will not apply to other areas or cultural circumstances. More extensive cross-cultural studies could investigate how generalizable these results are.

5. CONCLUSION

The present study concludes by providing insights into the intricate connections among market competition, technological adoption, sustainability practices, value co-creation, and social entrepreneurship initiation in Indonesian social entrepreneurship efforts. The field of social entrepreneurship in Indonesia stands to benefit significantly from these connections. Competition in the market has shown to be a stimulant for creativity and teamwork, which powers value creation and social entrepreneurship projects. Technology adoption has become a vital force behind social entrepreneurship, facilitating expanded operations, increased impact, and increased efficiency. This study highlights how technology can revolutionize Indonesian social entrepreneurship. It is emphasized that a critical component of value creation and social entrepreneurship is a commitment to sustainable practices. This conversation places a strong emphasis on value creation collaboration and the critical role that it plays in the accomplishment of social entrepreneurship projects. Value-creating initiatives are, by nature, more active and significant; they exemplify the spirit of teamwork in promoting constructive change.

ACKNOWLEDGEMENT

We thank our family and colleagues for their support, encouragement, and assistance during this research process.

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