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# Fostering Digital Innovation and Sustainable SMEs: The Complementary Roles of Offline and Online Social Capital

Muafi Muafi [1], Suhartini Suhartini [1], Nuradli Ridzwan Shah Bin Mohd Dali[2], Hanifah Abdul Hamid [2]

[1] Management Department, Universitas Islam Indonesia
[2] Universitas Sains Islam Malaysia
*muafi@uii.ac.id*

**Abstract.** The rise of digital technologies and online social networks is reshaping business environments, necessitating new innovation and sustainability strategies for small and medium enterprises (SMEs). This study examines the influence of offline (conventional) and online social capital on digital innovation and overall business sustainability among SMEs participating in an Indonesian state-owned enterprise incubation program. Survey data from 258 fashion SMEs were analyzed using structural equation modeling. The results indicate that both offline and online social capital have significant positive impacts on digital innovation and business sustainability measures spanning economic, social, and environmental performance. The findings highlight the complementary value of cultivating both conventional and digital social networks to drive innovation and sustainability in SMEs undergoing digital transformation. Implications for theory and practice around leveraging social capital are discussed.

**Keywords:** MSMEs, business sustainability, offline and online social capital, digital innovation

# 1. Introduction

Micro Small Medium Enterprises (MSMEs) are empowered by the Indonesian government to be able to continue to develop progressively and independently. They face new challenges and risks of collapse due to volatile, hostile business environments. The toughest challenge today is to master the digital aspect, in addition to capital, knowledge, and technology (Caputo et al., 2022; Benhayoun et al., 2020). While MSMEs have a basic understanding of digital tools and the potential benefits of digitization, many are still reluctant to fully embrace digital practices (Bestari, 2023). This reluctance stems from various factors such as limited literacy in digital technologies, so they often struggle to make the transition from manual to digital operations (Bestari, 2023; Noor, 2023). Therefore, SOEs in Indonesia have a significant role to overcome these problems by including MSMEs in business incubator programs (Diamantopoulou et al., 2018), especially for business digitalization. Business incubator is a business support process that has the objective to accelerate the development of new and existing business to provide resources and services needed by the community (Al Mubaroki & Busler, 2011a; 2011b; Diamantopoulou et al., 2018), and it also includes technological incubation (Al Mubaroki et al., 2014; Al-Mubaroki & Busler, 2011a; 2011b).

Various studies have asserted the significant role of business incubators. In 1979, Stanford University was able to transfer technology through the commercialization of new technologies (Al-Mubaroki & Busler, 2011b). Ghasemizad et al. (2011) added that business and technology incubators significantly contribute to improve the efficiency and effectiveness of MSMEs business process. It is expected that MSMEs that join the incubator can be financially and non-financially independent, as it enables them to develop social capital (Deyanova et al., 2022; Escobar et al., 2022) and digital innovation (Hamburg, 2020; Nambisan et al., 2017) through social network. This can be formed by physical meeting (offline social capital) or through social media (online social capital) (Johan et al., 2022; He et al., 2020; Lee & Hallak, 2020; Kasavana et al., 2010; Fisher & Reuber, 2011). Within this digital era, MSMEs is also required to strengthen their online presence through platforms such as Facebook, LinkedIn, or Twitter.

Several studies have proven that social capital can lead to positive outcomes for organization, as it significantly improves company growth and performance (Ambarwati et al., 2023; Johan et al., 2022; He et al., 2020). In addition to increasing growth, social capital can also be used to explore new business opportunities (Anderson & Miller, 2003), have easy access to loan lines (Honig, 1998), search for potential employee talent (Bosma et al., 2004), and collaborate with other companies (BarNir & Smith, 2002). Several studies also emphasize the importance of social capital for enhancing organizational innovation (Leenders & Dolfsma, 2015; Cartoni, 2013), especially in digital innovation (Hamburg, 2020; Nambisan et al., 2017) and sustainable firm performance (Liao & Wu, 2010).

The existing study on social capital often focuses on the concept without distinguishing the online or offline sides of the capital (Ambarwati et al., 2023; Johan et al., 2022; He et al., 2020). In addition, the previous studies tend to link social capital with company performance, but rather neglects its potential to be integrated with digital innovation (Hamburg, 2020; Nambisan et al., 2017) and sustainable performance which considers three aspects, namely financial, social, and environmental performance (Liao & Wu, 2010). By context, the study that connects social capital to MSMEs digital innovation are still lacking despite the growing attention to business digitization (Lee & Hallak, 2020; Kasavana et al., 2010; Fisher & Reuber, 2011).

This study is carried out to fill the theoretical gap of integrating online and offline social capital, digital innovation, and sustainable performance, which has been relatively overlooked. By exploring these interconnected dimensions, this study seeks to contribute to a deeper understanding of how social capital influences digital innovation and sustainable performance within the MSMEs context. Furthermore, considering the importance to optimize MSMEs online presence through social media (Lee & Hallak, 2020; Kasavana et al., 2010; Fisher & Reuber, 2011), this study aims to fill the practical gap by investigating how leveraging social capital can enhance digital innovation and sustainable

performance for SOE-assisted MSMEs in West Java Province, Indonesia. Through this exploration, this study provides valuable insights and practical recommendations for policymakers, business organizations, and MSMEs to effectively navigate the challenges and opportunities presented by digitization and sustainability imperatives.

# 2. Literature Review

## 2.1. Social Capital (Offline and Online) and Digital Innovation

The concept of social capital is still relatively new, yet it has been widely used in various fields and can be integrated into various multidisciplinary fields (Ha, 2010; Liu et al., 2014). Bourdieu (1992) defines "social capital as a number of resources which come from the network of relationships owned by individuals or organizations through social institutions". Portes (1998) added that social capital is the ability of business people to optimize members to strengthen membership in social networks and other social structures. Lee & Hallak (2020) explain that social capital can develop through various accumulations of resources and social networks. Fukuyama (2002) explained that social capital has three main sources: social norms, networks, and trust. Lately, Lee & Hallak (2020) asserted that entrepreneurs increasingly manage their networks not only through physical contact but have also utilized online networking platforms such as Facebook, LinkedIn, and Twitter.

In relation to innovation, it turns out that innovation also requires high social capital support from the community. To innovate, companies need to divide their social networks into four levels as recommended by Leenders & Dolfsma (2015), namely internal network, cross-company, inter-company, and external networks. Companies can get significant benefits from utilizing these networks as it can lead to the emergence of new innovations or the development of old product innovations. This is reinforced by Muller & Perres (2018) that social network structures can better enhance market innovation through three principles, namely cohesion, connectedness, and conciseness.

Wang et al. (2017) found that social media sites offer a new way to understand how social capital can be formed. This virtual social network can be a mechanism that complements formal channels related to technology transfer through Web 2.0 reinforcement (Cartoni et al., 2017). In addition, it can also act as informal structures to generate knowledge and disseminate innovations that can be further developed. Cartoni et al. (2017) provided evidence that social capital through social networks in non-formal activities can increasingly make a very significant contribution when companies carry out innovation diffusion and knowledge exploration. Johan et al. (2022) reinforced the finding that external networks can drive innovation and sustainable business growth for companies. The relationship of complementary social capital can help accelerate corporate innovation (Shi et al., 2020), especially digital innovation (Shah et al., 2023; Hamburg, 2020). Additionally, Shah et al. (2023) proved that digital capability (DC), digital orientation (DO), and digital transformation (DT) have a significant impact on improving digital innovation and company performance. Therefore, it is expected that there is a significant positive correlation between digital innovation and company performance. This indicates that digital innovation has a positive impact and is related to company performance.

H1. Offline social capital has a positive impact on digital innovation
H2. Online social capital has a positive impact on digital innovation

## 2.2. Offline and Online Social Capital on Business Sustainability

Liu & Yang (2019) have produced findings that companies can achieve sustainable business performance when they have good relationships with suppliers and can build strong networks. Actually, it would be better if the company could also build relationships with other stakeholders, such as suppliers, customers, and company competitors (Isensee et al., 2020; Li et al., 2019; Gu et al., 2016). Fisher & Reuber (2011) added that the use of Twitter can improve the company's business performance.

Hattam & Greetham (2018) also emphasized that social networks through external channels can increase business sustainability because companies can also exchange knowledge. Caputo et al. (2022) proved that internationalization processes and strategies can play a role in strengthening social networks to support global relational ecosystems with potential customers. Digital platforms can greatly affect the economic performance of SMEs in Italy. Research from Ambarwati et al. (2023) and Aglamaz & Menez (2021) investigated online and offline forms of social capital and the socio-economic groups that benefit most from the digitization of social life. It turns out that social capital generated online has a significantly more diversified role than offline. The results also concluded that there is a very significant gap between generations in the use of social media. The findings also explain that online social capital is preferred by younger generations who have higher education and a class of people who have high social status.

H3. Offline social capital has a positive impact on business sustainability
H4. Online social capital has a positive impact on business sustainability

## 3. Research Method

This study used quantitative methodology to examine the patterns of association between the variables under investigation. The data is collected using survey method by utilizing questionnaires. Furthermore, this study was grounded in theoretical frameworks and prior research (Hair et al., 2010; Yang et al., 2016). The study design adhered to a formal framework and followed established norms (Hair et al., 2010; Tanzeh, 2011). The population of this study was all fashion MSMEs assisted by SOEs in West Java, Indonesia. Fashion MSMEs in West Java were chosen because the research team has observed that SOE-assisted fashion MSMEs require training and mentoring related to business incubation and digitalization. They have realized that if they do not adapt to the changing demands of the digital environment, they will collapse. The sampling technique was selected using the purposive sampling method with the criteria that the MSMEs: (1) have been fostered for at least 3 years; (2) have adopted social media for business use; and (3) are creative MSMEs that focus on fashion. The sample in this study was 258 MSMEs in West Java Province, located in Cirebon and Bandung. These two locations were chosen because they have a large number of fashion MSMEs and are spread to every area in Bandung and Cirebon, in addition to both being known as creative cities.

The MSMEs, assisted by the Ministry of SOEs, participated in the BUMN Bakti program, namely the “TJSL/Tanggung Jawab Sosial Lingkungan” (Social and Environmental Responsibility) program. This is a government program to provide benefits to MSMEs in the fields of economy, social, environment, and law, as well as business governance, with the aim of achieving sustainable development. The entire program must be integrated, directed, measurable, and transparent so that it can be accounted for. The goal is for MSMEs to be more responsible and independent. There are five main priorities focused by the current government, namely: improving governance; utilizing technology; increasing employee involvement; and increasing collaboration focused on the fields of education, environment, and MSME development (https://bumn.go.id/prioritas/prioritas/Bakti%20BUMN, accessed December 10, 2023).

This study used cross-sectional survey data. Although the offline and online social networks of MSMEs have been conducted, this research also replicated some of the well-known and commonly used social capital indicators in the literature as described by Aglamaz and Menez (2021). Structural equation modeling method with AMOS 24 was used in this research because of its ability to integrate components of factor analysis, regression analysis, and route analysis inside the research model. Besides, it allows the analysis of the relationship between observed variables (manifest variables) and latent variables and analyze the relationship between latent variables themselves (Hair et al., 2020). There are 4 variables used in the study, namely: offline social capital (X1), online social capital (X2), digital

innovation (Y1), and business sustainability (Y2), with the detailed indicators presented in Table 1. The scale used in the offline social capital (X1), online social capital (X2), and digital innovation (Y1) is a Likert scale with options: scale 1 (strongly disagree) to scale 5 (strongly agree). Meanwhile, the business sustainability (business, environmental, social) uses a scale of 1 (very low) to a scale of 5 (very high). Researchers will later compare other business sustainability compared to competing companies over the past 3 years.

As this study uses purposive sampling with a single-source self-report data, the potential of common method bias such as social desirability bias exists. These biases occur when the respondents change their answer to look better than others, feel better about their self, or because of the social norms implying certain answers will be more likeable (Larson, 2019). To address this possibility, this study follows the recommendation from King & Bruner (2000). First, the first page of the questionnaire contains the respondent's willingness to participate in the research and fill out the questionnaire, as well as explain the respondent's anonymity. Second, in the next section, each construct or variable name is given a special coding. Finally, the nature of the questions on several items is reverse (reverse questions). Furthermore, the distribution of this questionnaire is carried out directly to ensure that the data collection procedures are appropriate while minimizing social appropriateness bias.

Table 1. Variable, Operational Definition, and Indicator

| Variable | Operational Definition | Indicator |
|---|---|---|
| Offline Social Capital (Lee & Hallak, 2020) | The ability of MSMEs to cooperate in achieving common goals in various groups or communities that are carried out by meeting in person. | - Personal network<br>- Professional network<br>- Society network<br>- Government association<br>- Public association |
| Online Social Capital (Lee & Hallak, 2020) | The ability of MSMEs to cooperate in achieving common goals in various groups or communities carried out online, either through Facebook, Instagram, Twitter, Linkedin, or other social media. | - Number of Facebook connections<br>- Number of LinkedIn connections<br>- Number of Instagram connections<br>- Number of Twitter/X connections |
| Digital Innovation (Shah et al., 2023) | The process and application of new digital technologies carried out by MSMEs on a continuous basis to solve business and technology problems in order to find solutions. | - Security and privacy of digital products/services<br>- Digital trust<br>- Digital accessibility<br>- Public awareness |
| Business Sustainability (Muafi & Hadi, 2023) | Business performance generated by MSMEs on an ongoing basis that provides consistent and sustainable benefits. | - Business performance<br>- Environmental performance<br>- Social performance |

# 4. Result

## 4.1. Respondents Characteristic

The data in this study were obtained by distributing questionnaires to 300 respondents, and 258 acceptable filling results were obtained from SMEs in the batik industry in West Java and Central Java. The results of respondent classification of gender, age, education, business age, and position are shown in Table 2.

Table 2. Respondent Characteristics

| Characteristics | Classification | Total | Percentage |
|---|---|---|---|
| Gender | Man | 16 | 9% |
| | Woman | 249 | 94% |
| Age | < 20 Years Old | 1 | 0,4% |
| | 20 – 30 Years Old | 23 | 9% |
| | 31 – 40 Years Old | 60 | 22% |

| Characteristics | Classification | Total | Percentage |
|---|---|---|---|
| | 41 – 50 Years Old | 116 | 44% |
| | > 50 Years Old | 64 | 24% |
| Education | High School | 95 | 36% |
| | Diploma | 77 | 28,8% |
| | Bachelor | 93 | 35,2% |
| Business Age | 1-10 years | 163 | 61% |
| | 11 – 20 years | 99 | 38% |
| | > 20 years | 5 | 2% |
| Position | Owner | 112 | 42% |
| | Manager | 146 | 55% |
| | Other | 7 | 3% |

From Table 2. It can be known that the majority of respondents in this study were women (94%) and only 9% men. Furthermore, based on age, it is known that most respondents in this study are 41–50 years old (44%). Based on their latest education, 36% of respondents have a high school education, and 35.2% have a bachelor's degree. Then, based on the age of MSMEs, it was found that there were 61% of respondents who worked in MSMEs with an age of 1–10 years. As for the position of respondents, it was found that 55% of respondents were managers of MSMEs and 42% of respondents were MSME owners.

## 4.2. Normality and Outlier Test

AMOS analysis requires research data to be normally distributed. The Structural Equation Modeling (SEM) model that uses maximum likelihood estimation (MLE) assumes that the data is normally distributed, both univariate and multivariate. The normality of the data can be assessed through the critical ratio (CR) values of skewness and kurtosis. If the CR value falls within the range of -2.58 to 2.58 at a significance level of 1% (0.01), it is indicative that the data exhibits a normal distribution, both in univariate and multivariate contexts.

Table 3. Normality Test

| Variable | min | max | skew | c.r. | kurtosis | c.r. |
|---|---|---|---|---|---|---|
| DI4 | 2,000 | 5,000 | -,801 | -5,325 | ,068 | ,226 |
| DI3 | 2,000 | 5,000 | -,883 | -5,867 | ,270 | ,897 |
| DI2 | 2,000 | 5,000 | -,983 | -6,531 | ,154 | ,511 |
| DI1 | 2,000 | 5,000 | -,756 | -5,027 | ,133 | ,442 |
| EP1 | 2,000 | 5,000 | -,991 | -6,587 | ,373 | 1,241 |
| EP5 | 2,000 | 5,000 | -,771 | -5,123 | ,185 | ,615 |
| EP4 | 2,000 | 5,000 | -,980 | -6,515 | ,375 | 1,246 |
| EP3 | 2,000 | 5,000 | -,817 | -5,431 | ,190 | ,631 |
| EP2 | 2,000 | 5,000 | -,734 | -4,879 | ,249 | ,828 |
| SP1 | 2,000 | 5,000 | -,892 | -5,930 | ,283 | ,941 |
| SP3 | 2,000 | 5,000 | -,947 | -6,292 | ,209 | ,694 |
| SP2 | 2,000 | 5,000 | -,998 | -6,633 | ,721 | 2,395 |
| BP4 | 2,000 | 5,000 | -,920 | -6,115 | ,173 | ,575 |
| BP3 | 2,000 | 5,000 | -,792 | -5,263 | ,178 | ,591 |
| BP2 | 2,000 | 5,000 | -,645 | -4,285 | -,105 | -,350 |
| BP1 | 2,000 | 5,000 | -,788 | -5,237 | ,100 | ,333 |
| MSN1 | 2,000 | 5,000 | -,735 | -4,882 | ,172 | ,573 |
| MSN2 | 2,000 | 5,000 | -,703 | -4,674 | ,459 | 1,524 |
| MSN3 | 2,000 | 5,000 | -,864 | -5,743 | ,321 | 1,066 |
| MSN4 | 2,000 | 5,000 | -,848 | -5,633 | ,406 | 1,349 |
| MSF1 | 2,000 | 5,000 | -,786 | -5,223 | ,182 | ,605 |
| MSF2 | 2,000 | 5,000 | -,901 | -5,989 | ,434 | 1,443 |

| Variable | min | max | skew | c.r. | kurtosis | c.r. |
|---|---|---|---|---|---|---|
| MSF3 | 2,000 | 5,000 | -,682 | -4,533 | ,127 | ,423 |
| MSF4 | 2,000 | 5,000 | -,765 | -5,083 | ,033 | ,110 |
| MSF5 | 2,000 | 5,000 | -,768 | -5,105 | ,180 | ,597 |
| MSF6 | 2,000 | 5,000 | -,743 | -4,938 | ,294 | ,975 |
| Multivariate | | | | | 9,504 | 2,027 |

Table 3 shows that there are no indicators with CR values less than (-) 2.58 and more than (+) 2.58. The CR value of the smallest kurtosis in the BP2 indicator is -350, and the highest in SP2 is 2.395. Because the CR value lies between -2.58 and 2.58, it proves that the variable is univariate normal. While the multivariate kurtosis value obtained is 2.027, So it can be inferred that the data follows a normal distribution as multivariate.

The outlier test is conducted to assess the presence of outliers. This is determined by comparing the Mahalanobis d-square values from the Mahalanobis distance table with the chi-square value. The chi-square value is calculated based on the number of research indicators, and in this study with 26 indicators, the chi-square value is determined to be 45.642. The analysis reveals that the highest Mahalanobis d-square value is 45.112, which is below the chi-square value. Consequently, it is inferred that no data points surpass the chi-square threshold, leading to the conclusion that no outliers are present in the research data.

## 4.3. Validity and Reliability

Validity in research instruments is a measure of their truth or accuracy. In Structural Equation Modeling (SEM) analysis using AMOS 24, validity is indicated by the loading factor values, with a criterion of ≥ 0.5. Construct validity is further assessed through the Average Variance Extracted (AVE) value, with a criterion of AVE ≥ 0.5. On the other hand, reliability is gauged by the construct reliability value, where a criterion of ≥ 0.7 is applied. These criteria serve as benchmarks to ensure the robustness and credibility of the measurement model in AMOS analysis.

Table 4. Validity and Reliability Test

| Variable | Indicators | Loading Factors | Validity | CR | AVE | Reliability |
|---|---|---|---|---|---|---|
| Offline Social Capital | MSF1 | 0.80 | Valid | 0.9 | 0,6 | Reliable |
| | MSF2 | 0.77 | Valid | | | |
| | MSF3 | 0.74 | Valid | | | |
| | MSF4 | 0.81 | Valid | | | |
| | MSF5 | 0.78 | Valid | | | |
| | MSF6 | 0.76 | Valid | | | |
| Online Social Capital | MSN1 | 0.82 | Valid | 0.9 | 0.6 | Reliable |
| | MSN2 | 0.78 | Valid | | | |
| | MSN3 | 0.78 | Valid | | | |
| | MSN4 | 0.82 | Valid | | | |
| Business Performance | BP1 | 0.80 | Valid | 0.8 | 0.5 | Reliable |
| | BP2 | 0.71 | Valid | | | |
| | BP3 | 0.63 | Valid | | | |
| | BP4 | 0.51 | Valid | | | |
| Social Performance | SP1 | 0,68 | Valid | 0.6 | 0.5 | Reliable |
| | SP2 | 0,58 | Valid | | | |
| | SP3 | 0,51 | Valid | | | |

| Variable | Indicators | Loading Factors | Validity | CR | AVE | Reliability |
|---|---|---|---|---|---|---|
| Environmental Performance | EP1 | 0.59 | Valid | 0.8 | 0.5 | Reliable |
| | EP2 | 0.58 | Valid | | | |
| | EP3 | 0.68 | Valid | | | |
| | EP4 | 0.65 | Valid | | | |
| | EP5 | 0.66 | Valid | | | |
| Digital Innovation | DI1 | 0.76 | Valid | 0.8 | 0.5 | Reliable |
| | DI2 | 0.62 | Valid | | | |
| | DI3 | 0.74 | Valid | | | |
| | DI4 | 0.71 | Valid | | | |

Table 4 presents results indicating that all indicators meet the required validity criteria. The testing of both construct validity and construct reliability demonstrates conformity with the specified criteria, namely AVE (Average Variance Extracted) values of ≥ 0.5 and construct reliability values of ≥ 0.7. These findings collectively suggest that the study exhibits strong indicator and construct validity, and the data can be considered reliable for further analysis.

## 4.4. Goodness of Fit

The goodness-of-fit test serves to assess the alignment between a research model and a set of observations. Utilizing various goodness-of-fit indices, such as RMSEA, GFI, CFI, TLI, PGFI, and PNFI, it aims to evaluate the concordance between observed and expected values within the statistical model. In the initial analysis, it was observed that the goodness-of-fit index did not meet the predefined criteria, prompting the need for model modification. This involved introducing covariance lines among indicators with high modification index values. The outcomes of the final model testing are detailed in Table 5.

Table 5. Goodness of Fit

| Goodness of Fit | Criteria | Cut-off value | Description |
|---|---|---|---|
| RMSEA | ≤ 0.08 | 0.07 | Fit |
| GFI | ≥ 0.90 | 0.9 | Fit |
| CFI | ≥ 0.90 | 0.9 | Fit |
| TLI | ≥ 0.90 | 0.9 | Fit |
| PGFI | ≥ 0.60 | 0.71 | Fit |
| PNFI | ≥ 0.60 | 0.73 | Fit |

Table 5 indicates that all goodness-of-fit criteria have successfully met the specified requirements, establishing the model's fitness. Therefore, it can be concluded that the model in this study is deemed appropriate and satisfies the goodness-of-fit standards.

## 4.5. Hypothesis Test

Hypothesis testing in this study is conducted through the regression weight table. The directional influence between variables is discerned by examining the estimate values within each variable relationship, as depicted in Figure 1 and detailed in Table 6.

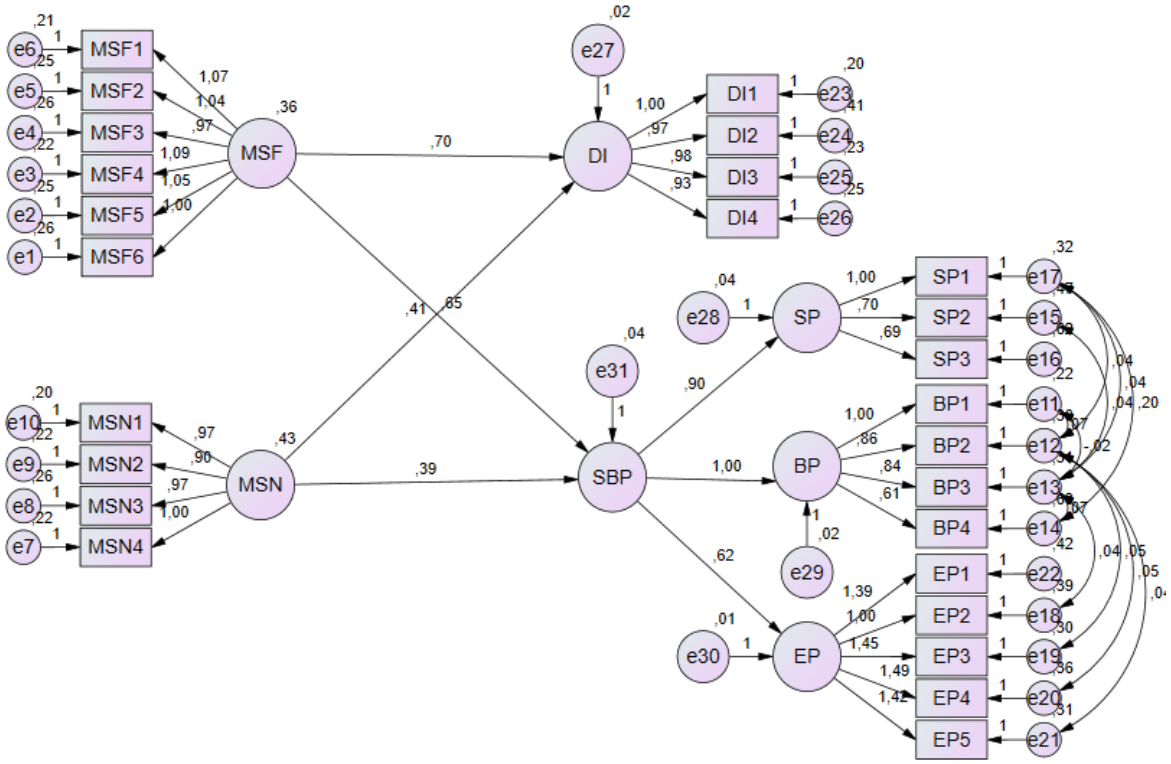


Fig.1: Path Diagram Amos 24

In Figure 1, the estimated values illustrate the impact between variables. A positive estimate value signifies a positive effect, while a negative estimate value indicates a negative effect. The significance of these inter-variable influences is determined by examining the critical ratio and probability values. An effect is considered significant when the critical ratio value is greater than 1.96 and the probability value is less than 0.05. Detailed test results are provided in Table 6.

Table 6. Regression Weight

| Hypothesis | Estimate | S.E. | C.R. | P | Result |
|---|---|---|---|---|---|
| H1: MSF on DI | .698 | .060 | 11.557 | 0.000* | Supported |
| H2: MSN on DI | .410 | .042 | 9.651 | 0.000* | Supported |
| H3: MSF on SBP | .654 | .062 | 10.471 | 0.000* | Supported |
| H4: MSN on SBP | .390 | .044 | 8.786 | 0.000* | Supported |

* Sign with alpha 0.05

The results of hypothesis testing in Table 6 reveal that MSF (offline social capital) exhibits a positive and significant impact on DI (digital innovation), as evidenced by a high estimate value of 0.698, a critical ratio (C.R.) value of 11.557, and a p-value of 0.000, all of which support H1. Similarly, MSN (online social capital) demonstrates a positive and significant effect on DI (digital innovation) with a positive estimate value of 0.410, a C.R. value surpassing 1.96 OF 9.651, and a probability value below 0.05, providing support for H2. Additionally, the results reveal that MSF positively influences SBP (sustainable business performance) with an estimate value of 0.654, a C.R. value of 10.471, and a p-value below 0.05, thus confirming H3. Likewise, MSN demonstrates a positive and significant effect on SBP, with an estimate value of 0.390, a C.R. value of 8.786, and a p-value below 0.05, supporting H4. The effect sizes for MSF's impact on DI and SBP, as well as MSN's impact on DI and SBP, are notably robust, as indicated by their large estimate values and corresponding C.R. values exceeding 1.96. Sustainable business performance and digital innovation turns out to be more affected by offline social capital than online social capital, but both results are significant. These effect sizes suggest that both offline and online social capital play significant roles in driving digital innovation and sustainable

business performance among MSMEs. Such substantial effects underscore the importance of fostering social capital, both offline and online, for enhancing various aspects of MSMEs' operations and outcomes in the digital era.

## 5. Discussion and Implications

The research results prove that offline social capital has a significant positive impact on digital innovation (H1). This finding proves the theory that business people who have strong social capital can optimize company members to utilize their resources through existing social networks (Lee & Hallak, 2020; Portes, 1998). The results of this research support findings from Lee & Hallak (2020; Bastelaer, 2001; Grooater, 2002) that social capital can provide a company's ability to increase digital innovation. Business actors must strive to strengthen both tangible and intangible resources that can be optimized to produce digital-based innovations. Likewise, the social network owned must be used to expand access to facilitate business processes from upstream to downstream. Fukuyama (2002) divided them into norms, networks, and trust. Norms can be carried out by MSME actors while still wanting to maintain and pass on habits or values from local wisdom, which are usually carried out by MSME actors who are members of associations. Networks, usually started from existing networks of friends, family, and cooperation that have been passed down from one generation to the next, are formed from associations that can eventually be managed professionally in the form of cooperatives. Social networks need to be mapped so that business people are not wrong in categorizing the wants and needs of their customers (Wang et al., 2017). Trust, fashion MSME players maintain the trust that has been built and maintained in terms of the quality of their products and services. In this research, there are several important points that need to be considered, including: the ability to cooperate with personal networks; the benefits of business actors having personal networks; and the fact that business actors must have the ability to cooperate with Professional networks and expanding professional benefits and business actors must have the ability to cooperate with associate networks. Likewise, they must have the ability to cooperate with institutional networks.

This research proves that online social capital has a significantly positive impact on digital innovation (H2). This result supports several previous research findings from Lee & Hallak (2020; Muller & Perres, 2018; Bastelaer, 2001; Grooater, 2002). In today's digital era, Lee & Hallak (2020) recommend that businesses optimize online media through Facebook, LinkedIn, and Twitter. Through contact in this online network, it turns out that it can increasingly penetrate and increase the marketing network more broadly, even on a global scale. However, businesses need to divide user groups to develop appropriate strategies per customers' needs and desires. When the company does not have the ability to use valuable, rare, imitable, and non-substitute resources, it will have difficulty increasing digital innovation. It is recommended by Leenders & Dolfsma (2015) that business people should also understand the existing network levels, namely: the company's own internal network, across companies, between companies, and the company's external network. These four networks, if developed and optimized, can have an impact on increasing old product innovation and open innovation. Muller & Perres (2018) recommend the importance of having the 3Cs—cohesion, connectedness, and conciseness—so that market innovation can flourish. Businesses need to identify and understand formal and informal channels in virtual social networks. In online social capital, business actors should increase the number of friends on Facebook, the number of LinkedIn connections, and the number of IG and Facebook followers. This is because it can have an impact on the spread of knowledge and innovation that can be shared with its customers (Cartoni et al., 2017). Even companies can grow in performance when they increase innovation differentiation openly and up-to-date (Johan et al., 2022). It is proven that the social capital owned by the company should complement each other so that it can help accelerate the company's digital innovation (Shah et al., 2023; Hamburg, 2020). In digital innovation, businesses must pay attention to the security and privacy of digital products and services, trust from stakeholders, increased accessibility, and public awareness.

The research results prove that offline social capital has a significant positive effect on business sustainability (H3 proven). This result supports the theory and previous research from Isensee et al. (2020; Liu & Yang, 2019; Li et al., 2019; Gu et al., 2016). Fisher & Reuber, 2011). The company's business performance can be sustainable when it can establish a good relationship with several social networking groups (Isensee et al., 2020; Li et al., 2019; Liu & Yang, 2019). Some social network groups can belong to certain groups of stakeholders. Usually, entrepreneurs can increase formal and informal social capital in various ways. Formally, it can be through: participating in education and training, further study, participating in scientific events such as workshops and seminars, or other methods that can be used. Informal structures can be implemented through participating in events at neighborhood associations, families, friendships, and others. When it can be optimized, entrepreneurs can use it to share information and knowledge related to products and services that can be offered to these network groups. When they can maintain norms, networks, and trust well, entrepreneurs can improve business performance in a sustainable manner, which can include business, environmental, and social performance, directly or indirectly.

The research results prove that online social capital has a significant positive effect on business sustainable SME (H4 proven). These results support some research from previous studies (Ambarwati et al., 2023; Caputo et al., 2022; Aglamaz & Menez, 2021; Fisher & Reuber, 2011). Social networks in external networks can be used by business people to share information and knowledge (Hattam & Greetham, 2018). Twitter is one of the most effective media to improve company performance (Fisher & Reuber, 2011), as well as optimizing other media such as Facebook and LinkedIn (Lee & Hallak). Currently, the use of WhatsApp and Instagram is also a very powerful medium to carry out promotions and transactions widely and on a global scale. The case in Italy has proven that digital platforms can improve the performance of SMEs in a sustainable manner (Caputo et al., 2022). Even research findings from Ambarwati et al. (2023) and Aglamaz & Menez (2021) show that online social capital is becoming more capable of benefiting several socio-economic groups and, on average, is preferred by younger generations who have higher education and a class of people who have high social status. Support from online and offline social capital allows fashion MSMEs in West Java to gain more attention and support in improving environmental and social performance. Several associations from professionals, government and the community favour MSMEs that pay attention to green environmental aspects and pay attention to social aspects to improve the quality of life of the surrounding community. The company has an internal responsibility to reduce ecological pressure and improve the quality of life of the community so that it can continue to be motivated to improve environmentally friendly business processes continuously (Arqawi, et al., 2019; Yong et al., 2019; Albort-Morant, 2016).

## 5.1. Theoretical Implication

The findings of this study provide theoretical implications for understanding the role of social capital in the context of MSMEs' digital innovation and business sustainability. Specifically, the significant positive effects of both offline and online social capital on digital innovation and business sustainability underscore the importance of considering social capital as a critical resource for organizational success in the digital era. This aligns with prior literature but extends it by highlighting the specific mechanisms through which social capital influences digital innovation and sustainable business performance. Moreover, by emphasizing the complementary nature of offline and online social capital, this study contributes to a nuanced understanding of how different forms of social networks interact to drive organizational outcomes.

## 5.2. Practical Implication

The practical implications of this research are twofold. Firstly, for MSMEs, understanding the value of social capital, both offline and online, can inform strategic decisions regarding resource allocation, networking activities, and digitalization efforts. By actively cultivating strong social networks and leveraging digital platforms effectively, MSMEs can enhance their capacity for innovation and

sustainable business practices. Secondly, policymakers, business support organizations, and other stakeholders involved in fostering MSME development can use these findings to design interventions and programs that promote the accumulation and utilization of social capital among MSMEs. Initiatives aimed at facilitating networking opportunities, providing digital literacy training, and incentivizing digital adoption can help MSMEs capitalize on the benefits of social capital for long-term growth and resilience. Overall, this research underscores the practical importance of integrating social capital considerations into strategies aimed at promoting MSMEs' competitiveness and sustainability in an increasingly digitalized global economy.

# 6. Conclusion

In conclusion, this study offers empirical insights into how small and medium enterprises can leverage different facets of social capital to foster digital innovation and sustainable business performance. The results demonstrate that both conventional offline social capital and more modern online social networking capabilities positively influence SMEs' digital innovation activities and sustainable business practices spanning economic, environmental, and social dimensions. From a theoretical perspective, these findings contribute to the intersection of social capital, innovation, and sustainability literatures by clarifying the differentiated yet complementary roles of offline and online social capital in this context. The study also informs practice by highlighting the continued relevance of traditional social networks and relationships, while underscoring the growing importance of online social capital and digital networking skills.

Nevertheless, this research also has limitations that should be addressed through future work. First, the sample was limited to particular geographic regions and incubated SMEs in Indonesia, which may limit the generalizability of the insights. Furthermore, the cross-sectional design restricts causal inferences about the relationships examined. Longitudinal or experimental studies could shed additional light on the evolution and directionality of social capital's impacts over time. It would also be valuable to incorporate qualitative insights to unpack the specific mechanisms by which different social capital dimensions facilitate digital innovation and sustainability goals. Despite these limitations, the study offers a useful BASE from which to advance understanding of social capital's role in SMEs' digital transformation journeys.

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