# Innovative Self-Efficacy and Social Identification as Drivers of Service Innovation Engagement and Innovation Performance in Digital SMEs

*Sudarnice[1*], Kartomo[2], Phradiansah[3], Indar Ismail Jamaluddin[4], Titin Juniarti[5]*

*[1,2,3,4]Universitas Sembilanbelas November Kolaka, Kolaka, Indonesia*
*[5]Universitas Brawijaya, Malang, Indonesia*

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CORRESPONDING AUTHOR

Name : Sudarnice
Address: Kolaka
E-mail : sudarnice@usn.ac.id

**A B S T R A C T**

Digitalization provides opportunities for small and medium-sized enterprises (SMEs) to improve their services and strengthen innovation performance. However, realizing these opportunities depends not only on technology adoption but also on individual confidence and social relationships that encourage innovation. This study examines the effects of innovative self-efficacy and social identification on service innovation engagement, as well as the effect of service innovation engagement on innovation performance among digitally enabled SMEs in Surabaya, Indonesia. Using a quantitative explanatory survey approach, the study applies partial least squares structural equation modeling (PLS-SEM) to test the proposed relationships. The findings indicate that innovative self-efficacy and social identification positively influence service innovation engagement, with social identification demonstrating a stronger relationship. Furthermore, service innovation engagement positively influences innovation performance. These findings highlight the importance of individual confidence, a sense of belonging to business communities, and active involvement in service innovation. This study extends service innovation research to digitally enabled SMEs and offers practical implications for strengthening innovation practices and competitiveness.

## INTRODUCTION

The increasing adoption of digital technologies has fundamentally changed how small and medium-sized enterprises (SMEs) interact with customers, manage transactions, and deliver services through e-commerce, social media, digital payment systems, and online ordering applications. These technologies provide opportunities to expand market access, improve service quality, and support business innovation (Costa et al., 2023). Nevertheless, the availability and adoption of digital technologies do not automatically translate into superior innovation performance. Their contribution depends partly on how business owners recognize opportunities, develop innovative ideas, and actively translate those ideas into improvements in service delivery and business processes (Hassan et al., 2024); (Merín-Rodrigáñez et al., 2024). Innovation performance reflects an SME's success in generating and implementing innovations that provide added value whether through products, services, or business processes. Digitalization can drive innovation and the development of SME business models (Hassan et al., 2024); (Merín-Rodrigáñez et al., 2024). Consequently, the ability to utilize technology becomes a crucial aspect of enhancing innovation performance.

From a theoretical perspective, the relationship between individual confidence and innovation-related behavior can be understood through social cognitive theory, which emphasizes the role of self-efficacy in shaping individuals' motivation, persistence, and actions when facing challenging tasks (Bandura, 1997). In the context of digital SMEs, innovative self-efficacy provides business owners with the confidence to explore new service ideas, respond to customer feedback, and experiment with alternative approaches to service delivery. However, individual confidence alone may not fully explain innovation engagement because SME owners also operate within social environments that influence their learning, interactions, and business practices. This belief is linked to innovative behavior in service delivery (Michael et al., 2011) as well as active engagement in service innovation (Pai et al., 2022).

Pai et al., (2022) explain that innovative self-efficacy encourages individual involvement in the service innovation process; individuals who are confident in their creative abilities are more likely to actively understand problems, seek out information, and develop alternative solutions. In the context of digital SMEs, this confidence may manifest in a business owner's willingness to test new

service features, experiment with digital marketing strategies, or refine the customer experience based on consumer feedback.

Social identity theory offers a complementary perspective by explaining how individuals' psychological attachment to a group shapes their attitudes and behaviors (Ashforth & Mael, 1989). For digital SME owners, identification with business communities, entrepreneurial associations, and digital business networks may encourage knowledge exchange, mutual support, and participation in collective problem-solving. Such social connections can provide opportunities to obtain information, learn from other entrepreneurs, and develop ideas for improving services. In the context of SMEs, this can be reflected in how business owners identify with digital entrepreneur communities, business associations, or incubator networks. Strong identification can encourage business owners to participate in collaborative activities, share experiences, and develop innovative ideas. Pai et al., (2022) found that social identification is linked to service innovation engagement. Thus, social identification has the potential to foster the involvement of SME owners in developing and implementing service innovations.

Building on these individual and social perspectives, service innovation engagement represents an important behavioral dimension through which personal confidence and social identification are translated into active participation in service improvement. It involves understanding customer problems, seeking and processing relevant information, generating alternative ideas, and pursuing service improvements. Therefore, examining these factors together provides a broader understanding of why some digital SME owners become more actively involved in service innovation than others. Such engagement encompasses efforts to understand customer problems, seek and process information, and develop alternative ideas to improve services. Pai et al., (2022) position service innovation engagement as a mechanism that links psychological and social factors to innovation performance.

Although previous research has examined the antecedents and consequences of service innovation engagement, particularly among employees in technology-intensive organizations (Pai et al., 2022), the applicability of these relationships to digital SMEs remains insufficiently understood. This distinction is theoretically relevant because SME owners and managers often occupy multiple organizational roles, make strategic and operational decisions directly, and operate with more limited resources than employees in established technology companies. Furthermore, their innovation activities may be influenced not only by personal confidence but also by their identification with external business communities and entrepreneurial networks. Consequently, the factors that encourage service innovation engagement among SME owners may differ from those influencing employees within larger organizational structures. Therefore, the relationships among innovative beliefs, social identification, service innovation engagement, and innovation performance need to be examined within the context of SMEs that are adopting digitalization or technology.

This contextual distinction raises an important research question: how do individual innovative beliefs and social identification jointly encourage SME owners to engage in service innovation, and to what extent is such engagement associated with innovation performance? Addressing this question is important for extending existing knowledge beyond employee-centered innovation research and understanding the behavioral foundations of innovation among digitally enabled SMEs.

Despite the growing interest in digitalization and SME innovation, several issues remain insufficiently addressed in the service innovation literature. First, existing research on service innovation engagement has predominantly focused on employees in established organizational settings, leaving the behavioral dynamics of SME owners and managers relatively underexplored (Pai et al., 2022). Second, individual-level factors, particularly innovative self-efficacy, and social-psychological factors, particularly social identification, have not been sufficiently integrated to explain why SME owners actively engage in service innovation. Third, the relationship between service innovation engagement and innovation performance requires further examination in digitally enabled SMEs, where business owners must translate digital opportunities and customer-related information into tangible service improvements," thereby highlighting the behavioral processes through which the use of technology is translated into improved innovation outcomes.

To address these gaps, this study develops and empirically examines an integrated framework that combines innovative self-efficacy and social identification as complementary antecedents of service innovation engagement and subsequently examines the relationship between engagement and innovation performance. Accordingly, the purpose of this study is to examine the influence of

innovative self-efficacy and social identification on service innovation engagement, as well as to investigate the effect of service innovation engagement on innovation performance among digitally enabled SMEs in Surabaya, Indonesia. Specifically, this study aims to explain how individual confidence in innovative abilities and psychological attachment to business communities encourage SME owners and managers to actively participate in service innovation activities and how such engagement contributes to innovation performance.

The novelty of this research lies not merely in applying an existing relationship to a different business context, but in integrating individual psychological resources and social identification within a single explanatory framework to understand service innovation engagement among digital SME owners and managers. By doing so, the study provides a more comprehensive perspective on how personal confidence and social belonging jointly relate to entrepreneurs' active involvement in service innovation and how such involvement is associated with business-level innovation outcomes. The model shifts the research focus from employees in technology firms to SME owners or managers, who often face resource constraints and must personally oversee many innovation-related activities. Conceptually, this study emphasizes that innovation performance is not merely about the capacity to generate ideas, but also about active engagement in understanding customer needs, seeking information, and implementing service improvements.

Theoretically, this study contributes to the service innovation literature by bringing together social cognitive theory and social identity theory to explain the individual and social foundations of service innovation engagement. Social cognitive theory helps explain how innovative self-efficacy supports individuals' confidence and willingness to undertake innovation-related activities, whereas social identity theory explains how psychological attachment to business communities' shapes participation and involvement in collective learning and innovation-related activities (Bandura, 1997); (Ashforth & Mael, 1989). By integrating these perspectives, this study extends their application to the context of digitally enabled SMEs and positions service innovation engagement as an important behavioral construct connecting individual and social antecedents with innovation-related outcomes. This perspective shifts the explanation of SME innovation performance beyond technology adoption and individual innovative capacity alone toward the interaction of psychological resources, social identification, and active engagement in service innovation.

Indonesia's digitalization agenda provides an important context for examining innovation among digitally enabled SMEs. In August 2024, the Ministry of Communication and Informatics reported that approximately 27 million MSMEs had adopted digital technology, with a national target of reaching 30 million by the end of 2024 (KOMDIGI, 2024). Although this figure covers the broader MSME sector, including micro-enterprises, it illustrates the increasing relevance of digital technologies in the Indonesian business environment. However, the expansion of digital adoption also raises an important question concerning how businesses transform access to digital platforms into meaningful improvements in service innovation and business performance.

While this reflects a strong push toward digitalization, the figure encompasses the entire MSME sector, including micro-enterprises, and therefore cannot be equated solely with the number of small and medium-sized enterprises (SMEs). According to the Ministry of Cooperatives and SMEs of the Republic of Indonesia, approximately 25.42 million MSMEs had joined the digital ecosystem by December 2023. This figure increased to 25.45 million by May 2024, indicating continued progress in the digital transformation of Indonesian MSMEs (KEMENKOP, 2024). According to Statistics Indonesia (BPS), there were 82,605 small-scale industrial enterprises in East Java in 2025, out of a total of 313,002 such enterprises nationwide (BPS, 2026). This means that approximately 26.4% of all small-scale industrial enterprises recorded nationally are located in East Java. It should be noted that this data covers only micro and small-scale industries specifically the "small-scale" category and does not encompass the entire SME sector, nor does it directly measure the adoption of digital technologies.

At the local level, Surabaya provides a relevant setting for examining this issue. According to the Surabaya City Government's 2024 accountability report, 4,705 MSMEs, local grocery shops, and culinary tourism centers were integrated into the e-Peken platform, while 862 MSMEs received support through online stores within the e-Catalog system (LKPJ-Surabaya, 2024). These initiatives demonstrate the availability of institutional support and digital marketing infrastructure for local businesses. Nevertheless, access to digital platforms and government-supported marketing channels does not necessarily indicate that businesses are actively developing innovative services or achieving improved innovation performance. These figures demonstrate government support for digital marketing.

Taken together, the development of digital infrastructure and government-supported platforms in Surabaya creates opportunities for SMEs to improve their business operations and customer services. However, the realization of these opportunities depends on more than technological access. Business owners also need the confidence to generate and implement new ideas, a sense of belonging that encourages interaction and learning within business communities, and active engagement in identifying and implementing service improvements. These considerations establish the importance of examining innovative self-efficacy and social identification as antecedents of service innovation engagement and the relationship of such engagement with innovation performance among digitally enabled SMEs in Surabaya. It is not enough for business owners to simply have access to digital platforms; they must also possess confidence in their own innovative capabilities (innovative self-efficacy), feel a sense of connection to the business community (social identification), and be actively involved in service development (service innovation engagement) for technology to effectively contribute to innovation performance.

## HYPOTHESIS DEVELOPMENT

### The Influence of Innovative Self-Efficacy on Service Innovation Engagement

Innovative self-efficacy refers to an individual's belief in their ability to generate new ideas, develop creative solutions, and implement innovative approaches to address work-related challenges. Drawing on Social Cognitive Theory, Bandura, (1997) explains that self-efficacy influences how individuals approach challenging tasks, determine their level of effort, and persist when facing obstacles. In an innovation context, individuals with strong innovative self-efficacy are more likely to perceive innovation-related activities as achievable and demonstrate greater willingness to explore and implement new ideas. Similarly, Tierney & Farmer, (2002) emphasize the importance of self-efficacy in supporting creative performance, particularly through individuals' confidence in their ability to produce creative outcomes.

Previous empirical studies provide evidence of the relationship between self-efficacy and innovation-related behavior. Michael et al., (2011) demonstrate that creative self-efficacy is relevant to innovative behavior in service settings, indicating that individuals' confidence in their creative abilities can support innovation-oriented actions. Raihan & Uddin, (2023) further show that creative self-efficacy is significantly associated with creative process engagement, although its direct relationship with innovative behavior is not supported. This finding suggests that confidence in one's creative abilities may encourage individuals to become actively involved in innovation processes, rather than automatically producing innovative outcomes. Schenkel et al., (2019), in their study of SMEs, also highlight the relevance of creative self-efficacy and time devoted to innovation in explaining process improvement activities. Furthermore, Pai et al., (2022) find that innovative self-efficacy positively influences service innovation engagement among employees in Taiwan's IT industry.

Although these studies establish the relevance of self-efficacy in innovation-related activities, their findings also indicate that the relationship may depend on the context in which individuals perform their roles. In particular, evidence from IT industry employees does not necessarily explain how innovative self-efficacy operates among SMEs owners and managers, who have direct responsibility for identifying business opportunities, responding to customer needs, and implementing service improvements. In digitally enabled SMEs, owners' confidence in their innovative abilities is particularly important because they must continuously adapt their services to changing customer expectations and digital business environments. Therefore, individuals with stronger innovative self-efficacy are expected to demonstrate greater engagement in service innovation activities, including identifying service problems, exploring new ideas, and developing alternative ways to improve service delivery. Based on this reasoning, the first hypothesis is formulated as follows:

H1: Innovative self-efficacy has a positive influence on service innovation engagement.

### The Influence of Social Identification on Service Innovation Engagement

Social identification refers to the extent to which individuals perceive themselves as part of a particular social group and develop a sense of belonging and emotional attachment to that group. According to Social Identity Theory, individuals derive part of their self-concept from their membership in social groups, and this identification can influence their attitudes and behavior (Ashforth & Mael, 1989). A strong sense of identification encourages individuals to recognize shared interests, maintain relationships with other group members, and participate in activities that support

collective objectives. In a business context, social identification may therefore encourage SMEs owners and managers to become more actively involved in collaborative activities and innovation-related exchanges within their business communities.

Previous studies indicate that social identification can facilitate knowledge exchange, collaboration, and creative activities. Yu et al., (2015) demonstrate the relevance of social identification in explaining team knowledge sharing, suggesting that a sense of belonging can support the exchange of knowledge among group members. Tang et al., (2014) also show that team identification is associated with creativity through knowledge-sharing processes, although the relationship differs depending on the type of identification examined. These findings suggest that social identification does not necessarily generate innovation directly; rather, its influence may operate through social interactions and knowledge-sharing activities. Consistent with this perspective, Pai et al., (2022) find that social identification positively influences service innovation engagement among IT industry employees.

Nevertheless, the implications of social identification may differ between employees in established organizations and owners or managers of SMEs. SMEs owners often operate through business communities, professional associations, supplier networks, and other entrepreneurial groups. Identification with these communities can create a sense of belonging and shared responsibility, encouraging business owners to exchange experiences, learn from other members, and participate in activities aimed at improving their services. In digitally enabled SMEs, such interactions may become particularly relevant because business owners need to respond to changing market conditions, customer expectations, and digital service opportunities. Accordingly, social identification is expected to encourage greater involvement in service innovation activities by strengthening individuals' psychological connection with their business communities and motivating them to contribute to shared learning and improvement processes. Based on this reasoning, the second hypothesis is formulated as follows:

H2: Social identification has a positive effect on service innovation engagement.

**The Influence of Service Innovation Engagement on Innovation Performance**

Service innovation engagement refers to the extent to which individuals actively participate in activities aimed at identifying service improvement opportunities, developing new ideas, and implementing innovative service solutions. It represents an innovation-oriented behavioral process through which individuals contribute to the development and improvement of services. In contrast, innovation performance reflects the outcomes achieved through the creation, development, and implementation of innovations that improve products, services, processes, and business competitiveness. Thus, service innovation engagement represents the involvement in innovation activities, whereas innovation performance reflects the results of those activities.

Previous research indicates that engagement in innovation-related activities can contribute to improved innovation outcomes. Pai et al., (2022), for example, demonstrate that service innovation engagement is positively associated with service innovation performance among IT industry employees. Their findings highlight the importance of employees' active involvement in service innovation as a mechanism for translating individual capabilities and social factors into innovation-related outcomes. However, their research also identifies the relevance of contextual factors in explaining the relationship between engagement and performance, indicating that active involvement alone may not be sufficient without an environment that supports the implementation of innovative ideas.

This distinction is particularly important in digitally enabled SMEs, where business owners and managers are directly involved in translating customer feedback, market information, and digital opportunities into practical service improvements. Active engagement enables them to identify customer problems, explore alternative service approaches, communicate new ideas, and implement changes in business operations. These activities can support improvements in service quality, customer responsiveness, operational processes, and the overall competitiveness of the business. Therefore, service innovation engagement is expected to contribute positively to innovation performance because the more actively SMEs owners and managers participate in service innovation activities, the greater their opportunities to generate and implement improvements that produce measurable business outcomes.

Based on this reasoning, the third hypothesis is formulated as follows:

H3: Service innovation engagement has a positive influence on innovation performance.

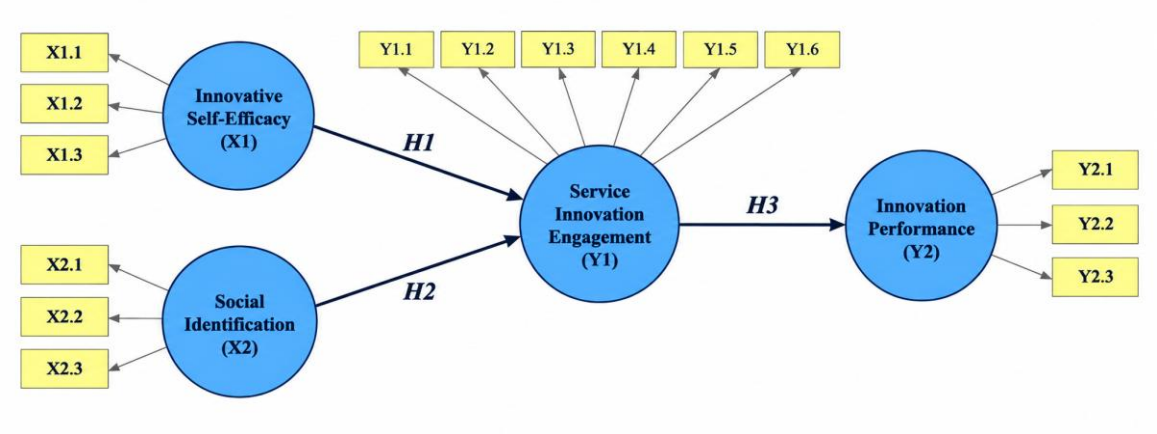



**Figure 1**. Conceptual Framework

This study proposes an integrated framework explaining how individual and social psychological factors contribute to service innovation engagement and innovation performance in digitally enabled SMEs. Drawing on Social Cognitive Theory (Bandura, 1997) and Social Identity Theory (Ashforth & Mael, 1989), the framework positions innovative self-efficacy and social identification as complementary antecedents of service innovation engagement.

Innovative self-efficacy reflects SMEs owners' confidence in their ability to generate ideas, solve problems creatively, and implement innovative solutions. Social identification, in contrast, captures their psychological attachment to business communities, which may encourage knowledge exchange, collective learning, and participation in innovation activities. These two dimensions explain how individual confidence and social belonging can jointly foster active involvement in service innovation.

Service innovation engagement represents the behavioral dimension through which these psychological factors are associated with innovation-related activities, including identifying customer problems, seeking information, developing alternative ideas, and improving services. Such engagement is subsequently expected to contribute positively to innovation performance through the generation, communication, and implementation of new ideas in business operations.

Accordingly, the framework proposes three positive relationships: innovative self-efficacy and social identification influence service innovation engagement, while service innovation engagement contributes to innovation performance. This framework highlights the importance of integrating individual psychological resources and social identification to understand the behavioral foundations of innovation performance in digital SMEs.

## METHOD

### Research Design

This study employs a quantitative approach with an explanatory survey design to examine the relationships among innovative self-efficacy, social identification, service innovation engagement, and innovation performance. A quantitative approach is appropriate for testing relationships between variables based on numerical data and theoretically formulated hypotheses (Creswell & Creswell, 2018). Data were collected via a structured questionnaire completed by owners or managers of small and medium-sized enterprises (SMEs).

The study utilizes a cross-sectional design, in which all variables are measured during a single data collection period. While this design allows for the testing of statistical relationships between variables, it does not, by itself, establish temporal causality (Setia, 2016). Consequently, the research findings are interpreted based on relationships supported by theory and empirical evidence, while accounting for the inherent limitations of the research design.

**Population and Sample**

The study population consists of owners or managers of small and medium-sized enterprises in the city of Surabaya that have adopted digital technologies, excluding micro-enterprises. The digital technologies in question include e-commerce, social media for transactions or marketing, digital payment systems, ordering applications, and business management software. These criteria ensure that respondents possess experience relevant to the context of digital service innovation.

The study population consisted of owners or managers of small and medium-sized enterprises (SMEs) operating in Surabaya City that had adopted digital technologies. The target sample comprised 120 respondents. The selection of eight respondents per indicator was based on a proportional methodological consideration rather than an arbitrary decision. Given the 15 measurement indicators, the selected multiplier resulted in 120 respondents, which falls within the commonly cited range of five to ten observations per indicator. We chose eight as an intermediate multiplier to provide a larger observation base than the minimum ratio while maintaining proportionality with the scope and complexity of the proposed research model. Furthermore, we acknowledge that indicator-based ratios provide preliminary guidance rather than definitive statistical evidence of sample adequacy. Therefore, the sample size was also considered in relation to the structural model and the requirements of PLS-SEM.

The sample size was determined by considering the requirements of Partial Least Squares Structural Equation Modeling (PLS-SEM), particularly the complexity of the proposed research model and the number of indicators used to measure the constructs. The study employed purposive sampling to ensure that respondents possessed relevant knowledge and experience regarding digital business operations and service innovation. This approach was considered appropriate because the study required respondents with specific characteristics relevant to the research objectives (Etikan et al., 2016). This technique is appropriate when a study requires respondents with specific characteristics and experiences (Etikan et al., 2016). The criteria for respondents are as follows:

1. Owners or managers of businesses classified as small or medium-sized according to the regulations in force in Indonesia.
2. Businesses operating in the city of Surabaya, excluding those classified as micro-enterprises.
3. Businesses that utilize at least one digital technology in their operations or service delivery.
4. Respondents are directly involved in decision-making regarding services and business innovations.
5. Respondents understand the process of service development or improvement and are willing to complete the questionnaire in its entirety.

**Data Collection and Measurement Techniques**

Primary data were collected through a structured, closed-ended questionnaire distributed to eligible SME owners or managers in Surabaya City. Data collection was conducted using two methods: online distribution through digital platforms and direct distribution to respondents. Before completing the questionnaire, respondents were informed about the purpose of the study, the voluntary nature of their participation, and the confidentiality of their responses. Respondents were screened based on the predetermined eligibility criteria, including business classification as small or medium-sized enterprises, business location in Surabaya City, adoption of at least one digital technology, and direct involvement in service-related decision-making. Only questionnaires completed by respondents who met these criteria were included in the analysis. The use of online and offline distribution methods enabled the researcher to reach respondents with different levels of digital access while maintaining consistency in the questionnaire structure and measurement procedures (Dillman et al., 2014).

The research instrument consisted of measurement items adapted from established studies relevant to each construct. Innovative self-efficacy was measured using items adapted from previous research on creative self-efficacy and innovation-related behavior, particularly Michael et al., (2011), Tierney & Farmer, (2002), and Pai et al., (2022). Social identification was measured based on the conceptualization of group identification developed by (Ashforth & Mael, 1989), while service innovation engagement was adapted from (Pai et al., 2022). Innovation performance was measured using items reflecting the generation, communication, and implementation of new ideas to improve products, services, and business processes. All measurement items were adjusted to the context of digitally enabled SMEs to ensure their relevance to business owners and managers. The questionnaire employed a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). This

scale was selected to provide sufficient response variation and measurement discrimination, consistent with the findings of (Preston & Colman, 2000).

### Operationalization of Variables and Indicators

**Table 1.** Operational Definitions and Variable Indicators

| Variable | Operational Definition | Questionnaire indicators/statements | Source |
|---|---|---|---|
| Innovative Self-Efficacy (X1) | The confidence of SMEs owners or managers in their ability to generate new ideas, solve problems creatively, and discover alternative solutions for developing business services. | I am confident in my ability to resolve business problems in a creative way.<br>I am confident in my ability to generate new ideas to improve business services.<br>When faced with business problems, I am able to identify several alternative solutions | Michael et al., (2011) ; (Tierney & Farmer, 2002); Pai et al., (2022) |
| Social Identification (X2) | The level of psychological attachment that an SMEs owner or manager has toward the business community or group to which they belong, as reflected in a sense of ownership, emotional connection, and concern for the group | I feel like I am a part of the community or business group to which I belong.<br>I have an emotional attachment to that community or business group.<br>I feel that the challenges and successes of the business community are also important to me | Ashforth & Mael, (1989) |
| Service Innovation Engagement (Y1) | The level of active involvement by SMEs owners or managers in understanding service-related issues, seeking and processing information, and developing alternative ideas to improve business services. | I take the time to understand customer issues.<br>I break down service-related problems into smaller parts to make them easier to understand.<br>I seek information from various sources to improve services.<br>I store and utilize relevant information for service development.<br>I consider multiple sources of information when generating new ideas.<br>I strive to find service solutions that differ from conventional approaches. | Pai et al., (2022) |
| Innovation Performance (Y2) | The success rate of SMEs in generating, promoting, and implementing new ideas that lead to improvements in products, services, or business processes. | I was successful in generating or introducing new ideas for business.<br>I communicate innovative ideas and work to gain support for their implementation.<br>I successfully implement new ideas into real improvements to products, services or business processes. | Pai et al., (2022) |

## Data Analysis Techniques

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the aid of SmartPLS 4 to examine the relationships among innovative self-efficacy, social identification, service innovation engagement, and innovation performance. The analysis was conducted in three main stages, following the guidelines provided by (Hair et al., 2022).

First, the measurement model (outer model) was evaluated to ensure the validity and reliability of the instruments. This evaluation included assessing outer loadings (ideally $\geq 0.708$) buat if $\geq 0.5$ is acceptable, internal consistency reliability measured via Cronbach's alpha, composite reliability, and rho_A (generally $\geq 0.70$) convergent validity via the Average Variance Extracted (AVE) ($\geq 0.50$), and discriminant validity using the Heterotrait-Monotrait (HTMT) ratio (generally $< 0.85$ or $< 0.90$, depending on the conceptual proximity of the constructs) (Henseler et al., 2015); (Hair et al., 2022).

Second, hypothesis testing was performed using a bootstrapping procedure with 10,000 subsamples to obtain path coefficients, standard errors, t-values, p-values, and 95% confidence intervals. A hypothesis is considered supported if the path coefficient aligns with the hypothesized direction and is statistically significant at the 5% level (Hair et al., 2022).

## RESULTS & DISCUSSION

### Evaluation of the Measurement Model (Outer Model)

The evaluation of the measurement model is conducted to assess indicator validity, construct reliability, convergent validity, and discriminant validity. Based on the criteria established for this study, an outer loading value above 0.50 is considered to satisfy the requirements for indicator validity. Consequently, all indicators presented in the SmartPLS results are deemed valid according to this threshold, with no indicators being removed or negatively evaluated even if their values fall below 0.708.

**Table 2.** Outer Loading Results

| Indicator | Innovative Self-Efficacy | Social Identification | Service Innovation Engagement | Innovation Performance |
|---|---|---|---|---|
| Confidence in creatively solving business problems | 0,929 | | | |
| Confidence in generating new ideas to improve business services | 0,747 | | | |
| Ability to identify several alternative solutions when facing business problems | 0,909 | | | |
| Sense of belonging to a business community or group | | 0,585 | | |
| Emotional attachment to a business community or group | | 0,916 | | |
| Concern for the challenges and successes of the business community | | 0,894 | | |
| Taking time to understand customer issues | | | 0,797 | |
| Breaking down service-related problems into smaller parts | | | 0,753 | |
| Seeking information from various sources to improve services | | | 0,736 | |
| Storing and utilizing relevant information for service development | | | 0,642 | |
| Considering multiple sources of information when generating new ideas | | | 0,652 | |
| Striving to find service solutions that differ from conventional approaches | | | 0,658 | |
| Successfully generating or introducing new ideas for the business | | | | 0,870 |
| Communicating innovative ideas and obtaining support for their implementation | | | | 0,946 |
| Successfully implementing new ideas into tangible improvements in products, services, or business processes | | | | 0,908 |

Source: Data processed, 2026

Based on the test results, the outer loading values for all indicators fall within the range of 0.585–0.946. Since all values are above 0.50, the fifteen indicators are considered valid according to the criteria applied in this study. The construct of innovative self-efficacy has loadings ranging from 0.747–0.929; social identification from 0.585–0.916; service innovation engagement from 0.642–0.797; and innovation performance from 0.870–0.946. According to Hair et al., (2019), the standardized factor loading value should be at least 0.5 for an indicator to be considered valid in measuring the latent construct. Consequently, all indicators have been retained for the reporting of the measurement model.

**Table 3.** Construct Reliability and Convergent Validity

| | Cronbach's alpha | Composite reliability (rho_a) | Composite reliability (rho_c) | Average variance extracted (AVE) |
|---|---|---|---|---|
| Innovative Self-Efficacy | 0,827 | 0,831 | 0,899 | 0,749 |
| Social Identification | 0,723 | 0,782 | 0,849 | 0,660 |
| Service Innovation Engagement | 0,818 | 0,877 | 0,857 | 0,502 |
| Innovation Performance | 0,894 | 0,901 | 0,934 | 0,825 |

Source: Data processed, 2026

All Cronbach's alpha values are above 0.70 ranging from 0.723 to 0.894 indicating adequate internal consistency for the constructs. The rho_A values range from 0.782 to 0.901, and the composite reliability values range from 0.849 to 0.934; all of these also exceed the common threshold of 0.70. Thus, all four constructs meet the reliability criteria based on the reported metrics.

The AVE values for all constructs are at or above 0.50. Specifically, the AVE values are 0.749 for innovative self-efficacy, 0.660 for social identification, 0.502 for service innovation engagement, and 0.825 for innovation performance. These results satisfy the criteria for convergent validity, as each construct explains, on average, at least 50% of the variance in its indicators. Although the AVE value for service innovation engagement (0.502) is close to the minimum threshold, it still meets the established criteria. Overall, the results for reliability and convergent validity indicate that the measurement model meets the criteria required for further analysis.

**Table 4.** Discriminant Validity (HTMT)

| | Heterotrait-monotrait ratio (HTMT) |
|---|---|
| Social Identification <-> Innovative Self-Efficacy | 0,535 |
| Service Innovation Engagement <-> Innovative Self-Efficacy | 0,557 |
| Service Innovation Engagement <-> Social Identification | 0,775 |
| Innovation Performance <-> Innovative Self-Efficacy | 0,263 |
| Innovation Performance <-> Social Identification | 0,601 |
| Innovation Performance <-> Service Innovation Engagement | 0,564 |

Source: Data processed, 2026

The HTMT values range from 0.263 to 0.775, all of which fall below the 0.85 threshold. The highest value was observed for the pair consisting of social identification and service innovation engagement (0.775), yet it still meets the established criteria. These results indicate that the four constructs can be empirically distinguished based on the provided HTMT matrix.

## Structural Model Evaluation (Inner Model)

**Table 5.** Coefficient of Determination (R-square)

| | R-square | R-square adjusted |
|---|---|---|
| Service Innovation Engagement | 0,492 | 0,485 |
| Innovation Performance | 0,341 | 0,337 |

Source: Data processed, 2026

The R-square value for service innovation engagement is 0.492, indicating that innovative self-efficacy and social identification collectively explain 49.2% of the variation in service innovation

engagement. The remaining 50.8% is not accounted for by the two predictors in the model. The adjusted R-square value of 0.485 indicates that, after adjusting for the number of predictors, the model's explanatory power is 48.5%.

Regarding innovation performance, an R-square of 0.341 shows that service innovation engagement explains 34.1% of the variation in innovation performance, while the remaining 65.9% lies outside the scope of the predictors included in the model. The adjusted R-square is 0.337, reflecting a value of 33.7% after adjustment. Descriptively, the model accounts for a greater proportion of the variation in service innovation engagement than in innovation performance. This suggests that innovation performance may also be linked to other factors not included in the model factors that, while not directly tested in this study, could nonetheless be relevant.

**Table 6.** Hypothesis Testing Results

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values |
|---|---|---|---|---|---|
| Innovative Self-Efficacy-> Service Innovation Engagement | 0,213 | 0,215 | 0,062 | 3,419 | 0,001 |
| Social Identification -> Service Innovation Engagement | 0,587 | 0,593 | 0,054 | 10,909 | 0,000 |
| Service Innovation Engagement -> Innovation Performance | 0,584 | 0,589 | 0,070 | 8,394 | 0,000 |

Source: Data processed, 2026

**The Influence of Innovative Self-Efficacy on Service Innovation Engagement (H1)**

The results show that innovative self-efficacy has a positive and significant influence on service innovation engagement, with a path coefficient of 0.213, a t-statistic of 3.419, and a p-value of 0.001. These findings support H1 and indicate that SMEs owners' confidence in their ability to generate new ideas, solve business problems creatively, and develop alternative solutions plays an important role in encouraging their active involvement in service innovation activities.

From the perspective of Social Cognitive Theory, this finding reinforces the argument that self-efficacy influences individuals' motivation, effort, and persistence when undertaking challenging activities (Bandura, 1997). In the context of digitally enabled SMEs, innovative self-efficacy provides business owners with the psychological confidence to explore new service approaches, respond to customer feedback, and experiment with digital business practices. This confidence is particularly important because SMEs owners often have to make innovation-related decisions directly and operate with limited organizational resources. Consequently, their belief in their innovative abilities becomes an important motivational resource for engaging in service improvement activities.

This result is consistent with Michael et al., (2011), who demonstrate the relevance of creative self-efficacy to innovative behavior in service settings, and Pai et al., (2022), who identify a positive relationship between innovative self-efficacy and service innovation engagement among IT industry employees. It also complements the findings of Schenkel et al., (2019), which highlight the relevance of creative self-efficacy to innovation-related activities in SMEs. However, Raihan & Uddin, (2023) report that creative self-efficacy is associated with creative process engagement, while its direct relationship with innovative behavior is not supported. This difference suggests that confidence in one's innovative abilities does not necessarily translate directly into innovative outcomes; rather, it may first encourage individuals to participate actively in the innovation process.

The present findings extend this discussion by demonstrating the relevance of innovative self-efficacy among SMEs owners and managers rather than employees in established organizational settings. Unlike employees who may operate within predetermined organizational structures, SMEs owners often have direct responsibility for identifying service problems, evaluating alternatives, and implementing improvements. Therefore, innovative self-efficacy functions not merely as an individual psychological belief but also as a motivational foundation for entrepreneurial involvement in service

innovation. Nevertheless, the relatively smaller path coefficient of 0.213 compared with social identification indicates that individual confidence is not the only relevant factor explaining service innovation engagement. This finding highlights the importance of considering social factors alongside individual psychological resources. In a digital context, this might be reflected when a business owner attempts to refine an online ordering process or evaluates service delivery methods after receiving customer feedback.

The coefficient of 0.213 indicates a positive relationship, though it is smaller than the coefficient for the effect of social identification on service innovation engagement. Thus, innovative self-efficacy serves as a significant predictor, even if it is not the predictor with the largest coefficient in the equation. These results align with the nature of the relationship proposed by Pai et al., (2022) regarding employees in the information technology industry, while extending the scope of that research to the context of digital SMEs.

**The Influence of Social Identification on Service Innovation Engagement (H2)**

The findings indicate that social identification has a positive and significant influence on service innovation engagement, with a path coefficient of 0.587, a t-statistic of 10.909, and a p-value less than 0.001. Therefore, H2 is supported. Among the two antecedents examined in this study, social identification demonstrates the larger path coefficient, suggesting that psychological attachment to business communities has a relatively stronger relationship with SMEs owners' engagement in service innovation than individual innovative self-efficacy. However, this comparison is descriptive and does not establish a statistically significant difference between the two path coefficients.

Theoretically, this finding provides support for Social Identity Theory, which explains that individuals' psychological attachment to a social group influences their attitudes, perceptions, and behavior (Ashforth & Mael, 1989). In the context of digital SMEs, social identification reflects more than formal membership in a business association or entrepreneurial community. It also represents a sense of belonging, emotional attachment, and shared responsibility toward the development of the group. Such identification can encourage SMEs owners to participate in knowledge exchange, learn from other entrepreneurs' experiences, and contribute to collective problem-solving activities. These social interactions can create an environment in which business owners become more willing to identify service problems, explore alternative ideas, and implement service improvements.

This finding is consistent with Yu et al., (2015), who demonstrate the relevance of social identification in explaining knowledge sharing within teams. It also complements Tang et al., (2014), who identify an association between team identification and creativity through knowledge-sharing processes. Furthermore, the result is in line with Pai et al., (2022), who find that social identification positively influences service innovation engagement among IT industry employees. Taken together, these studies suggest that social identification can facilitate innovation-related involvement by strengthening individuals' psychological connections with the groups to which they belong.

Nevertheless, the present findings extend previous research by demonstrating that this relationship is also relevant to SMEs owners and managers operating within external business communities rather than only employees working within formal organizational structures. In established organizations, social identification may primarily develop through relationships with colleagues and organizational membership. In contrast, SMEs owners may develop identification through entrepreneurial communities, business associations, supplier networks, and digital business groups. These relationships can provide access to shared experiences, information, and social support that encourage participation in service innovation.

The relatively large coefficient of social identification (0.587) suggests that the social dimension is particularly important in explaining service innovation engagement among the SMEs examined in this study. This result enriches Social Identity Theory by demonstrating its relevance to entrepreneurial innovation activities in digitally enabled business environments. It also suggests that service innovation engagement should not be understood exclusively as an outcome of individual

creative confidence, but also as a behavioral process shaped by social belonging and collective interaction. Such communities can serve as a source of social support and information, assisting entrepreneurs in evaluating new ideas. These results are consistent with the findings of Pai et al., (2022), although the form of group identification among SMEs owners may differ from that of employees identifying with a team or organization.

**The Influence of Service Innovation Engagement on Innovation Performance (H3)**

The results demonstrate that service innovation engagement has a positive and significant influence on innovation performance, with a path coefficient of 0.584, a t-statistic of 8.394, and a p-value less than 0.001. Therefore, H3 is supported. This finding indicates that SMEs owners who are more actively involved in identifying service problems, seeking relevant information, developing alternative ideas, and implementing service improvements tend to report higher innovation performance. The result highlights the importance of active participation in the innovation process as a behavioral mechanism associated with the achievement of innovation-related outcomes.

From a theoretical perspective, this finding reinforces the argument that innovation performance is not determined solely by the availability of innovative ideas or individual capabilities, but also by the extent to which individuals actively participate in translating ideas into practical improvements. Service innovation engagement represents the behavioral process through which business owners identify opportunities, evaluate customer needs, explore alternative solutions, and implement changes in service delivery. In this sense, engagement connects innovation-oriented intentions and activities with the outcomes reflected in improved products, services, and business processes.

This finding is consistent with Pai et al., (2022), who demonstrate a positive relationship between service innovation engagement and service innovation performance among IT industry employees. Their research emphasizes the importance of employees' active involvement in service innovation as a factor associated with innovation-related outcomes. The present study extends this evidence to digitally enabled SMEs, where owners and managers directly participate in service development and business decision-making. Although both contexts emphasize active involvement in innovation, the organizational roles differ. Employees in IT companies generally undertake innovation activities within established organizational structures, whereas SMEs owners frequently assume responsibility for identifying problems, making decisions, and implementing service improvements themselves.

The findings also provide an important distinction between service innovation engagement and innovation performance. Engagement reflects the extent of participation in innovation-related activities, whereas performance represents the outcomes achieved through the generation and implementation of innovative ideas. Thus, being actively involved in innovation does not simply represent an innovation outcome; rather, it provides an important behavioral foundation for achieving such outcomes. For digitally enabled SMEs, this process may involve using customer feedback to improve online ordering systems, modifying digital payment procedures, introducing more responsive customer services, or improving business processes through digital platforms.

The path coefficient of 0.584 further indicates that service innovation engagement has a substantial positive relationship with innovation performance within the proposed model. This interpretation is also supported by the R-square value of 0.341, which indicates that service innovation engagement explains 34.1% of the variance in innovation performance. Nevertheless, the remaining variation suggests that other organizational and environmental factors may also contribute to innovation performance. Consequently, the findings should not be interpreted as evidence that engagement alone determines innovation outcomes. Rather, service innovation engagement represents an important behavioral mechanism that helps explain how the active involvement of SMEs owners and managers is associated with improved innovation performance.

For instance, an SMEs operator who regularly examines customer complaints might identify weaknesses in a digital ordering process, devise potential improvements, and implement new procedures. If these changes are successfully applied, such innovation activities can translate into improved innovation performance. These results align with the findings of Pai et al., (2022), who demonstrated a positive relationship between service innovation engagement and innovation performance among employees in the IT industry.

Overall, all three hypotheses received empirical support, and all path coefficients showed a positive direction. These results are consistent with a model that positions individual and social factors as predictors of service innovation engagement, which in turn serves as a predictor of innovation performance. An R-square value of 0.492 for service innovation engagement indicates that the two predictors in the model account for 49.2% of the variance in this construct. Meanwhile, an R-square value of 0.341 for innovation performance indicates that service innovation engagement explains 34.1% of the variance in innovation performance.

Substantively, these results suggest that the innovation performance of digital SMEs is linked not only to individual beliefs but also to social connectedness and active involvement in the innovation process. Nevertheless, since the model does not incorporate all the factors that might influence innovation performance, these results cannot be interpreted as a comprehensive explanation for the full variation in innovation performance.

## CONCLUSION

This study concludes that innovative self-efficacy and social identification positively and significantly influence service innovation engagement among digitally enabled SMEs in Surabaya. The findings demonstrate that SMEs owners' confidence in generating innovative ideas and solving business problems, together with their psychological attachment to business communities, contributes to active participation in service innovation activities. Although social identification exhibits a higher path coefficient than innovative self-efficacy, this numerical difference does not establish a statistically stronger effect. Furthermore, the explanatory power of the model indicates that these two factors account for nearly half of the variation in service innovation engagement, suggesting that individual psychological resources and social relationships are important, but not the only, factors shaping innovation involvement.

The findings also confirm that service innovation engagement positively and significantly influences innovation performance. The model's explanatory power indicates that service innovation engagement accounts for approximately one-third of the variation in innovation performance, demonstrating its important contribution while acknowledging the influence of other factors beyond the scope of this study. These results highlight that actively identifying customer needs, seeking relevant information, developing alternative ideas, and implementing service improvements are essential activities for strengthening innovation outcomes. Overall, this study demonstrates that individual psychological resources and social identification provide important foundations for service innovation engagement, which subsequently contributes to innovation performance among digitally enabled SMEs. This research extends the application of Social Cognitive Theory and Social Identity Theory in explaining the behavioral foundations of innovation in the SMEs context.

The research findings provide several implications for SMEs owners, business community managers, and policy makers. First, SMEs owners need to build innovative self-efficacy through digital learning, problem-solving training, and gradual service experimentation. Businesses can start by evaluating customer complaints, testing ordering system improvements, and utilizing feedback to develop services. Second, the strong relationship between social identification and service innovation engagement shows the importance of an active and supportive business community. SMEs associations, digital entrepreneur communities, business incubators, and local governments can facilitate experience sharing forums, mentoring between business actors, and collaboration in service development. Third, SMEs need to ensure that involvement in innovation results in real change. Regular service evaluations, testing new ideas, and monitoring customer satisfaction can help

businesses assess whether the innovations implemented provide benefits for customers and business sustainability.

This research has several limitations. First, the use of a cross-sectional design limits the study's ability to explain the temporal sequence and causal relationships between variables. Second, the use of questionnaires filled out by the same respondents has the potential to cause common method bias and perception bias. Third, the use of purposive sampling on digital SMEs in Surabaya City limits the generalization of findings to other regions or SMEs with different characteristics. Fourth, the research model only includes innovative self-efficacy, social identification, service innovation engagement, and innovation performance, so other factors such as leadership, digital resources, market orientation, and organizational support have not been tested. Fifth, measuring innovation performance based on respondents' perceptions does not fully describe innovation results that can be verified through objective data.

It is recommended that future research use a longitudinal design to observe changes in innovation involvement and innovation performance over time. The use of data from multiple sources, such as customer ratings, service innovation records, or business performance indicators, can also strengthen the validity of results and reduce reliance on respondents' perceptions. In addition, future research could expand the geographic coverage to other cities and compare SMEs based on business sector, digital maturity level, or small and medium business scale. Research models can also be developed by including variables such as digital capability, market orientation, community support, or innovative leadership to explain other factors related to innovation performance.

Finally, further research needs to directly test the indirect effects of innovative self-efficacy and social identification on innovation performance through service innovation engagement. Testing mediation with bootstrapping will help determine whether service innovation involvement is truly a mechanism connecting these two factors with innovation performance, rather than simply correlating with each relationship separately.

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