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# The Influence of the Use of Information Technology on Internationalization Export Performance in Indonesian Micro, Small, and Medium Enterprises

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## Abstract

Although micro, small, and medium enterprises (MSMEs) hold an important role in Indonesian economic growth, especially MSMEs that have already done internationalization through export and the use of information technology (IT) for leveraging, there is limited data that can explain their factors and relationships that can influence export performance in order to achieve more. This study aims to analyse the roles of information technology (IT) and internationalization in explaining export performance in micro, small, and medium enterprises (MSMEs). International entrepreneurial orientation, organisational learning orientation, and product/service quality are posited as the basis of internationalization analysis. Respondents are 104 MSMEs involved in the foreign market. This study uses a quantitative method, partial least squares (PLS), to test the hypothesis. The results indicate that export performance is positively significant influenced by international entrepreneurial orientation, and product/service quality. While the use of IT does not directly influence export performance, it does positively influence organisational learning orientation. The study also shows that organisational learning orientation does not positively influence the export performance. Studies on the internationalization of micro, small, and medium businesses in developing countries are still quite limited, so the study contributes to the existing literature on internationalization and international entrepreneurship research.

**Keywords**: *Internationalization; International Entrepreneurial Orientation; Organisational Learning Orientation; Product/Service Quality; Use Of IT; Export Performance; MSMEs; Partial Least Squares.*

## INTRODUCTION

The contribution of MSMEs in Indonesia to GDP is 61.1%, and to employment is 97% (Kementerian Koperasi, Usaha Kecil, dan Menengah, 2020). Hence, research into developing MSMEs is encouraging, given the social problems Indonesia still faces, such as unemployment and low social welfare. Knowledge from various literatures will provide insights that can assist MSMEs specifically and Indonesia's economic growth in general. Today, information and opportunities in the globalization era are wide open and borderless, thereby driving internationalization. Nowadays, internationalization cannot be separated from the information technology (IT) world, as IT has also become a driver of internationalization. IT usage can help MSMEs bridge their limitations into opportunities. Moreover, the use of IT in business can increase a firm's competitive advantage. However, there is a lack of evidence on the relationship between IT use and internationalization in developing countries.

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Although internationalization has been studied extensively, few studies examine SMEs as their object (Forsman et al., 2002), particularly micro enterprises, which are the largest in number in Indonesia. Forsman et al. (2002) stated that several driving forces motivate SMEs to internationalize, such as seeking new customers, acquiring new knowledge, and increasing revenue and profits. In addition, internationalization can increase opportunities, improve the chances of business survival, and enhance productivity. However, in practice, MSMEs need assistance to realize internationalization so they can meet their needs and seize opportunities. To succeed in international markets, MSMEs should develop a strategy that aligns with their ambitions, capabilities, and constraints. One strategy that MSMEs can use is IT. Previous research has shown that IT can improve firm performance. However, before developing IT capability, there is a stage of IT use. This step requires investigation to determine its relationship with the firm's export performance. Another interesting finding is that not all MSMEs have high awareness of internationalization and of IT opportunities and benefits.

Enterprises have widely adopted information technology as a strategic means of optimizing business operations under conditions of limited resources. In this context, the effective use of IT can enhance MSMEs' productivity in their internationalization efforts by improving operational efficiency, facilitating access to international markets, and creating opportunities for expansion into new global market segments. There are several reasons why MSMEs use IT, including optimizing profitability, reducing costs, and meeting customer demand. Although IT use has evolved, there are areas and contexts of study that remain underexplored, such as its relationship with international business. Another interesting fact is that IT adoption among MSMEs has not yet been investigated, especially among those that already engage in internationalization through export activity. Consciously or not, MSMEs that already adopt or use IT have opportunities to expand their markets and improve their international performance. Hence, this relationship requires further examination and development. Based on the previous statements, the problem is that although MSMEs hold an important role in Indonesian economic growth, even more so for MSMEs who already do internationalization through their GDP contribution and the potency of IT usage for leveraging and supporting MSMEs in internationalization, there are limited data that can state the factors influencing export performance regarding the use of IT and the internationalization context. So, the research questions are:

RQ1. What are the predictors of MSMEs' export performance regarding the use of IT?
RQ2. How does the influence of all predictors in the use of IT and predictors of internationalization affect the export performance?

## LITERATURE REVIEW

### Internationalization

Theories of internationalization have undergone continuous development over the past five decades and continue to represent a compelling area of scholarly inquiry. Within the context of small and medium-sized enterprises, the literature generally identifies four main approaches to explaining the internationalization process: stage models, the network approach, resource-based perspectives, and international entrepreneurship. Nevertheless, some scholars contend that only three approaches are particularly salient, namely the stage approach, the network approach, and



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the international entrepreneurship approach. Hence, Table 1 projects the three internationalization approaches.

**Table 1.** Internationalization Approaches

| Model | Source | Understanding | Fundamental concept |
|---|---|---|---|
| I. The Stage. | | | |
| The Uppsala Model (U-Model). | Johanson et al. (1975) | "Internationalization as a process of gradual learning through experiences gained from foreign markets". | 1) The process of learning.<br>2) The distance of psychic. |
| | Johanson and Vahlne (1977) | "Internationalization is a process of successive commitment in foreign markets". | 1) The static aspect.<br>2) The dynamic aspect. |
| | Johanson and Vahlne (1977, 1990) | "Internationalization is realized by small incremental steps". | 1) Irregular export.<br>2) Indirect export via independent agents.<br>3) Direct export by overseas sales subsidiary establishment.<br>4) Export expansion through the production or manufacturing units' overseas building. |
| Innovation-Related Internationalization Model (I-Model) | Rogers (1962) | "Internationalization as a process in which the steps are analogous to that of a new product adoption". | 1) Innovation<br>2) The incremental development |
| | Leonidou and Katsikeas (1996) | "I-Models can be essentially generalized into three main stages". | 1) Stage of pre-export.<br>2) Stage of export trail.<br>3) Stage of advanced export. |
| II. The network | Johanson and Mattson (1988) | "Internationalization is a process developed inside the network through commercial relationships with other countries by | 1) Continuous learning.<br>2) Knowledge development via network interactions. |



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| Model | Source | Understanding | Fundamental concept |
|---|---|---|---|
| | | three steps: extension, penetration, and integration". | |
| III. The international entrepreneurship (IE) | Oviatt and McDougall (1994); Sharder et al. (2000) | "Internationalization as the proactive role of the entrepreneur in the dynamic process of resources and competences construction to conquer the foreign markets". | 1) Innovative.<br>2) Proactive.<br>3) Behavior of risk-seeking.<br>4) Creation of value. |

The initial emergence of the internationalization concept, as shown in Table 1, relates to the adoption of new products, involving innovation and incremental development. Learning is required in this process; thus, at the next milestone, internationalization is viewed as a gradual process of learning from foreign markets. Gradual learning enables a firm to build knowledge and experience that can ease decision-making, reduce psychic distance (e.g., cultural, political, and linguistic differences), and increase commitment to international markets (Johanson et al., 1975; Johanson & Vahlne, 1977, 1990). In brief, learning, networks, and activities contribute to a firm's competitiveness and can enhance performance (export performance/international performance). Previous research has identified variables that predict export performance, including international entrepreneurial orientation, organizational learning orientation, and product/service quality (Zou et al., 1998; Kearns & Lederer, 2004; Gerschewski et al., 2014). Entrepreneurs who are committed to entering and engaging with foreign markets drive internationalization (Etemad et al., 2010). The most common form of internationalization in Indonesia is export; therefore, in this study, internationalization refers specifically to export, whether direct, indirect, or cooperative.

***Internationalization in Indonesian MSMEs***

Indonesian exports continued to decline over the last 3 years; in 2020, Indonesia's export value was USD 163,191.8 million, a 2.68 percent decrease from 2019, and is projected to decline further in 2014. In 2020, hundreds of product groups were exported; of Indonesia's total exports (US$154,940.8 million), 94.94 percent comprised non-oil and gas commodities, while 5.06 percent (US$8,251.1 million) consisted of oil and gas commodities. Oil and gas exports are primarily natural gas, whereas non-oil and gas exports are primarily manufacturing goods. These products are produced primarily by large enterprises, typically as unprocessed commodities or minimally processed, with a small share produced and exported by MSMEs.

Export-based entrepreneurship greatly contributes to macro-economic growth. In addition to the foreign market, the domestic market must be considered, as Indonesia is the 4th-largest country in the world and has a growing consumer market. In addition, Indonesia is situated along major global trade routes and possesses abundant natural resources. Studies on Indonesia's future



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role in international business, particularly those related to MSMEs, need to be strengthened. In international business, MSMEs face greater challenges than larger companies. One reason is limited resources; on the other hand, internationalization trends among MSMEs have increased significantly.

***International entrepreneurial orientation***

International entrepreneurial orientation (IEO) is the first to be reviewed. There are six elements associated with entrepreneurial activity: innovation, opportunity, risk, action, resources, and added value (Filion, 2008). Hence, IEO is defined as an entrepreneurial activity for firm expansion that crosses national borders. Previous research by Sharder et al. (2000) and Knight and Cavusgil (2004) also aligns with the IEO, emphasizing an innovative and proactive approach to pursuing international opportunities, where the difference is that Sharder et al. (2000) adds a risk-seeking element. Another finding from Knight and Cavusgil (2004) and Kuivalainen et al. (2007) is that IEO can enhance business strategy, such as quality, which has a positive relationship with export performance. Another body of literature has extensively examined the relationship between entrepreneurial orientation and the internationalization of SMEs, asserting that entrepreneurial orientation reflects an organization's propensity to innovate and renew its market offerings (innovativeness), to engage in risk-taking by pursuing new and uncertain products and services (risk taking), and to act more proactively than competitors in identifying and exploiting emerging market opportunities (proactiveness).

***Organisational learning orientation***

Learning orientation related to the ways of the firm in interpreting, evaluating, and sharing information through their organizational structure (Dixon, 1992). Organisational learning orientation focuses on creating and sharing knowledge both within and across organisational units and locations. Knowledge is needed for firm adaptation in the face of market changes in the current era of globalization. Firms encourage investing more in information capabilities through IT, such as communication networks, knowledge bases, access, and other supported processes (Earl & Feeny, 1996). An organisational learning orientation had a positive effect on IT capability, indicating that IT can foster knowledge sharing. Based on internationalization theory - network approach by Johanson and Mattson (1988), that escalation in knowledge through learning and networking can strengthen firm commitment in the market, then consequently build commercial relationships with other countries, hence firm international performance can also be improved.

***Product/service quality***

Research by Gerschewski et al. (2014) and Knight and Cavusgil (2004) stated that one of the critical drivers of global firm performance in international markets involves focusing on product/service quality. Moreover, "product quality, which has a good combination of marketing competence and product differentiation, is positively related to international performance" (Knight & Cavusgil, 2004). Buzzell and Gale (1987) argued that "customer-perceived quality is positively associated with profitability and noted the critical nature of product/service quality, with respect to performance. One of the key success factors of SMEs' internationalization in the industrial service sector is product/service development. Good product/service quality for customers can be an



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intangible asset for a firm to grow. One way to improve product/service quality is to adopt appropriate technology that supports business processes. Foreign customers have different expectations, requirements, and even characteristics from domestic customers. Thus, firms need to pay close attention to the quality of their products or services to be accepted by the targeted international market. Nowadays, IT can help firms conduct market research and product design to improve product quality and development.

**Use of IT**

One technology that has undergone rapid development is information technology (IT). Sketchily, IT is knowledge needed to process or transform information so that it can be found conveniently and accurately. The nature of technology, which benefits humankind, leads humans to use it in their lives. Using IT can give many benefits for the firm, and, in line with the gradual process of usage, the firm will gain capability in technology (IT) to support its operations. Organizations use IT components such as hardware, software, and telecommunications networks to build their services and infrastructure, especially in IS systems such as the internet, which almost everybody uses nowadays. Frye (2007) claims that organizations rely on IT to improve performance and support their processes. Kearns and Lederer's (2004) study on the use of IT for competitive advantage stated that it can be achieved through inter-organizational links, raising unique firm capabilities, reducing production costs, and pursuing product differentiation.

***Use of IT in internationalization***

In an internationalization context, IT can play a significant role in navigating the dynamic foreign market and environment. One popular IT use is via the internet; the internet is believed to accelerate internationalization and reduce the liability of foreignness and resource scarcity (Arenius et al., 2006). Liability of foreignness can harm the firm because it arises from costs the firm must incur in foreign markets or in international business that are not applicable to domestic operations, such as transportation costs, costs arising from both the host and home-country environments, and other firm-specific costs. While resource challenges range from resource availability and access to uncertainty (Gulati & Singh, 1998). Some scholars have argued that IT is one of the technological capabilities believed to be key to enabling firms to achieve global competitiveness (Dhungana, 2003; Johnson, 2004).

Altschuller et al. (2010) report that investment in information technology is associated with firm performance and may function as a strategic resource that enables agility and fosters competitive advantage. They argue that IT contributes to agility through both direct mechanisms, such as strengthening operational processes and facilitating information communication, and indirect mechanisms, whereby IT supports “digital options” embedded in organisational support systems, including knowledge-related systems. Prior evidence also indicates that IT capability is positively and significantly associated with the global market and strategic performance of export-oriented MSMEs, although no significant relationship is observed with financial performance. In this regard, the impact of IT on financial outcomes is suggested to be largely indirect and is better assessed through its influence on intermediary capabilities, such as organisational learning.



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### Export performance

The most prevalent entry mode for MSMEs in an internationalization context is export, due to its advantages over other entry modes, such as requiring minimal resources (financial, human, and other) commitment. Zou et al. (1998) defined export performance measurement into three scales: financial, strategic, and satisfaction. Whether two other dimensions, which are claimed to be more appropriate for assessing MSMEs export performance, are the ratio between export sales and total sales, and international market growth. Based on the explanations in this section, in order to understand the necessary export performance for Indonesian micro, small, and medium enterprises in the context of internationalization and use of IT, the hypotheses in this study are:

H1 International entrepreneurial orientation has a positive influence on export performance.
H2 Organisational learning orientation has a positive influence on export performance.
H3 Product/service quality has a positive influence on export performance.
H4a Use of IT has a positive influence on export performance.
H4b Use of IT has a positive influence on organisational learning orientation.

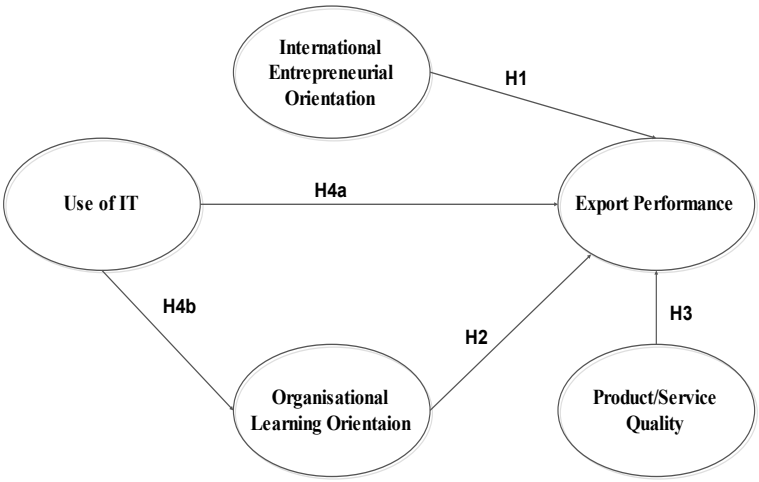


**Figure 1.** Theoretical Framework

## RESEARCH METHOD

### Sample

The population of this study comprises MSMEs (micro, small, and medium enterprises) in Indonesia whose products or services have already entered foreign markets (exported). Purposive sampling is used because the respondents were selected based on the following criteria:

1. This study was conducted only on the owner, CEO, or manager (decision maker) of MSMEs who are involved in export trades
2. The criteria of MSMEs in accordance with Law of the Republic of Indonesia Number 20 of 2008 concerning Micro, Small, and Medium Enterprises, who state that micro is enterprise who has net assets < Rp50 million and its revenue/annual sales < Rp300



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million; small is enterprise who has net assets between Rp50million - Rp500million and its revenue/annual sales in the range of Rp300million– Rp2.5 billion

3. Medium is an enterprise that has net assets between Rp500 million– Rp10 billion, and its revenue/annual sales between Rp2.5 billion – Rp50 billion
4. MSMEs involved are adopting IT in their business. There is no limit on the duration, volume, or entry mode when entering a foreign market, nor on the type of IT being used, given that micro and small enterprises have limited resources to implement it.

A total of 104 MSMEs in any field were participating in this survey. Data collection on MSMEs that already export and adopt IT is conducted online and via referrals from friends to identify suitable respondents. Several websites provide information, such as http://indonesiansme.com/ (Indonesian SME Service Center, under the Deputy of Research and Development for Cooperative and SME Resources, Ministry of Cooperative and SME, Republic of Indonesia) and kemenperin.go.id (Indonesian exporter directory and handbook of commodity profiles). The researcher is also involved in an entrepreneurial community focused on export learning through a Facebook group. This study uses PLS methods; thus, the minimum recommended sample size is 30-100 cases (Chin & Newsted, 1999). Marcoulides and Saunders (2006) stated that the minimum sample size required depends on the number of latent-variable paths (arrows) in the structural equation model. Five arrows are pointing to this study; the minimum sample size requirement, according to Marcoulides and Saunders (2006), is 70 cases.

**Data collection and instrument**

As presented in the conceptual framework, this study includes five variables: international entrepreneurial orientation, organizational learning orientation, product/service quality, and IT use. The study uses measurement variables from Kearns and Lederer (2004) and Gerschewski et al. (2014). A questionnaire was used to collect data, which were then analysed using PLS to obtain the results of this study. Researchers use PLS due to conditions encountered, consistent with Hwang et al. (2010) and Wong (2013), such as small sample sizes, limited theories or applications, a focus on predictive accuracy, and the inability to preconceive the correct model. In the PLS technique, differences of multidimensional constructs can be determined simultaneously.

Of the 364 questionnaires distributed, only 104 were returned and used, with a response rate of 28.57%. The questionnaires are divided into two sections. First, it is about respondent business profiles, such as firm size, business sector, and types of IT usage, and international sales, such as the perceived foreign sales ratio compared to total turnover and the percentage of foreign market growth. Second, the respondents were asked to select statements that best reflected their views on the factors affecting export performance, international entrepreneurial orientation, organisational learning orientation, product/service quality, and the use of IT. Variables measured on a Likert scale were later translated into indicator variables. To minimize executive response time and effort, this study uses a 7-Point Likert scale (Fowler, 1988).

Statistical analysis method used in the study is Partial Least Squares (PLS) – a soft modeling approach to variance-based SEM by software SmartPLS 2.0. SmartPLS is one of the eminent software applications developed by Ringle et al. (2005) for Partial Least Squares - Structural Equation Modeling (PLS-SEM). Model construction in this study is categorized as multidimensional because more than one dimension is involved in the construct. Thus, analysis PLS-SEM was



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conducted in two stages: First Order Construct (FOC) or Lower Order Construct (LOC) and Second Order Construct (SOC) or Higher Order Construct (HOC) (MacKenzie et al., 2005). In this study, the first order was constructed reflectively, and the second order was constructed formatively.

According to Wong (2013), reliability is commonly assessed in two ways. First, indicator reliability is examined using the outer loadings output. Indicator reliability can be obtained by squaring each outer loading, and an outer loading of 0.70 or higher is generally preferred (Hulland, 1999). Second, internal consistency reliability is assessed using the composite reliability values reported in the "Reliability" section. Composite reliability should be 0.70 or above, while values of 0.60 or abovemay still be acceptable for exploratory research (Bagozzi & Yi, 1988).

Meanwhile, for validity, two main checks are highlighted. Convergent validity is assessed using the average variance extracted (AVE), with AVE values of 0.50 or higher (Bagozzi & Yi, 1988). Finally, discriminant validity is assessed using AVEs and latent-variable correlations, following the Fornell–Larcker criterion. Specifically, Fornell and Larcker (1981) suggest that the square root of AVE for each latent variable should be greater than the correlations between that latent variable and the other latent variables.

## FINDINGS AND DISCUSSION

### Respondent profile

Table 2 presents the business profiles of survey respondents from 104 micro, small, and medium enterprises that have already entered foreign markets and use IT.

**Table 2.** Profile of business respondent

| No. | Respondent Profile | Category | Frequency | Percentage (%) |
|---|---|---|---|---|
| 1 | Firm Size | Micro | 38 | 36.54% |
| | | Small | 41 | 39.42% |
| | | Medium | 25 | 24.04% |
| 2 | Business sector | Fashion | 45 | 43.27% |
| | | Craft | 18 | 17.31% |
| | | Culinary | 15 | 14.24% |
| | | Service | 13 | 12.50% |
| | | Other | 9 | 12.50% |
| 3 | Types of IT usage* | Computer | 103 | 21.28% |
| | | Social media | 92 | 19.01% |
| | | Website | 85 | 17.56% |
| | | Communication gadget/device | 100 | 20.66% |
| | | Internet marketing | 52 | 10.74% |
| | | Certain software | 52 | 10.74% |

Note: * Respondents were allowed to choose more than one option

By firm size group, the results showed that small enterprises accounted for 39.42% of participants, slightly lower than micro enterprises at 36.54%. It showed the previous argument that



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the number of micro and small enterprises is far greater than that of medium-sized firms. Next, by business sector group, fashion has the highest participation rate at 43.27% of the total sample. The craft sector accounts for 17.31%, followed by culinary, service, and other sectors such as agriculture and manufacturing products. The largest contributor to the creative economy is the fashion subsector, followed by culinary, craft, publishing, and printing (services).

The profile of respondents, which indicates the IT usage context in this study, is represented by the IT use group type. IT in this study includes hardware and software. The results showed that the computer is the most preferred option for 21.28% of respondents in IT. Slightly followed by communication gadgets/devices such as mobile phones for 20.66%, and social media for 19.01%. Computers, communication gadgets, and social media are considered friendlier than other technologies, such as websites, internet marketing, and certain software. It is also related to resources that support MSMEs in operational areas. Due to limited resources, they tend to select an IT type they already have, which requires less effort. The larger the firm, the greater the commitment required to develop IT use, given intense competition. Table 3 presents the profile of respondents' international sales based on survey data from 104 micro, small, and medium enterprises that had already entered foreign markets in this study.

**Table 3.** International Sales Profile of Respondents

| No. | Respondent Profile | Category | Frequency | Percentage (%) |
|---|---|---|---|---|
| 1 | % Foreign sales/total turnover | <10 % | 28 | 26.92% |
| | | 10-30% | 30 | 28.85% |
| | | 31-50% | 20 | 19.23% |
| | | 51-70% | 9 | 8.65% |
| | | 71-80% | 5 | 4.81% |
| | | 81-90% | 8 | 7.69% |
| | | >91% | 4 | 3.85% |
| 2 | % Foreign market growth | Extremely decrease >20% | 2 | 1.92% |
| | | Decrease 10-20% | 7 | 6.73% |
| | | Slightly decrease 1-10% | 12 | 11.54% |
| | | Neutral (fluctuated) | 29 | 27.88% |
| | | Slightly increase 1-10% | 22 | 21.15% |
| | | Increase 10-20% | 26 | 25.00% |
| | | Extremely increase >20% | 6 | 5.77% |

Based on data from 104 MSMEs in Indonesia, it can be seen that most of the MSMEs' revenues, which come from export, are 10-30% or as much as 28.85% from total respondents, and slightly followed by firms that have <10% export sales or as much as 26.92% of total respondents. Despite the % growth in the foreign market, MSMEs have still fluctuated by as much as 27.88%. This could occur for several reasons, such as sudden changes in government policy that affect resource allocation. However, as many as 25.00% of respondents report an increase in the foreign market, with 10-20% reporting a similar increase. Based on the percentage of the foreign market,



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overall, it was in the escalation area, ranging from 1-20%. This can be a good indication for further international business context.

**First Order Construct**

The first order was constructed reflectively; thus, several topics require review to assess the measurement model's fit, such as reliability and convergent validity. Figure 2 shows the PLS-SEM results using SmartPLS 2.0.

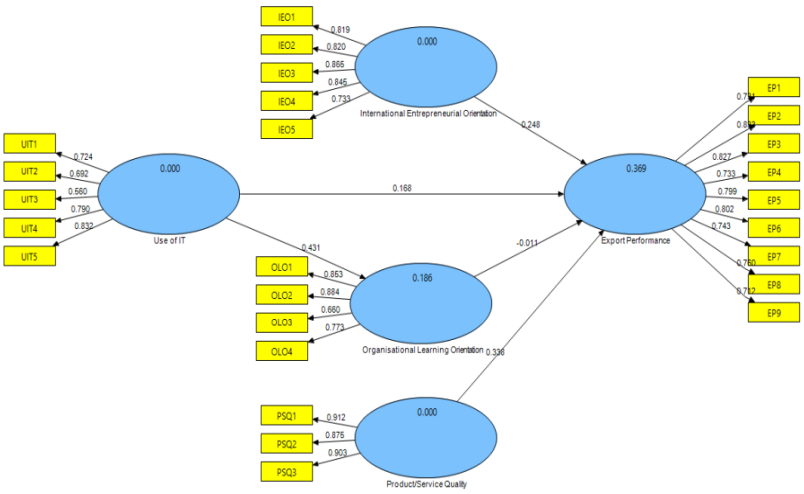


**Figure 2.** PLS-SEM Result of Calculation

The variable or set of variables needs to be consistent based on the indicator's reliability measurement. A value of 0.70 or higher is preferred (Hulland, 1999). In PLS-SEM, indicator reliability results are displayed in the outer loadings, as shown in Table 4.

**Table 4**. Reliability and Convergent Validity of First-Order Constructs

| Construct - indicator | Item Reliability Loading | Construct Reliability Composite Reliability | Convergent Validity (AVE) |
|---|---|---|---|
| International entrepreneurial orientation - IEO | | 0.909472 | 0.668376 |
| Global marketplace – IEO1 | 0.819176 | | |
| Active exploration organization culture – IEO2 | 0.819764 | | |
| International market communication – IEO3 | 0.865347 | | |
| Human resources development – IEO4 | 0.844546 | | |
| Top management experience – IEO 5 | 0.732571 | | |
| Organisational learning orientation - OLO | | 0.886269 | 0.723148 |
| Opportunities for individual development – OLO1 | 0.853071 | | |



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| Construct - indicator | Item Reliability Loading | Construct Reliability Composite Reliability | Convergent Validity (AVE) |
|---|---|---|---|
| Formal development activities – OLO2 | 0.884445 | | |
| Guidance and counseling – OLO3 | 0.659934 | | |
| Career management – OLO4 | 0.773274 | | |
| Product/service quality - PSQ | | 0.924974 | 0.804339 |
| Praise for product/service quality – PSQ1 | 0.912283 | | |
| Competitive product/service quality – PSQ2 | 0.87468 | | |
| International customers' conviction – PSQ3 | 0.903158 | | |
| Use of IT – UIT | | 0.859886 | 0.672502 |
| Lower costs' advantage – UIT1 | 0.724484 | | |
| Electronic links establishment – UIT2 | 0.692305 | | |
| Create competitor barriers – UIT3 | 0.560359 | | |
| Influencing the buyer's decision – UIT4 | 0.790047 | | |
| Leverage unique firm capabilities – UIT5 | 0.832345 | | |
| Export Performance – EP | | 0.929801 | 0.596146 |
| Profitable export venture – EP1 | 0.731398 | | |
| High sales volume – EP2 | 0.832647 | | |
| Rapid growth – EP3 | 0.8268 | | |
| Global competitiveness – EP4 | 0.732686 | | |
| Strategic positions – EP5 | 0.799288 | | |
| Global market share – EP6 | 0.801899 | | |
| Perceived satisfactory – EP7 | 0.742718 | | |
| Perceived successful – EP8 | 0.760115 | | |
| Expectation's meeting – EP9 | 0.71201 | | |

As seen in Table 4, regarding item reliability, all indicators are >0.70 threshold except ''guidance and counseling – OLO3" (0.66), "electronic links establishment – UIT2" (0.69), and "create competitor barrier – UIT3" (0.56). We decided to drop this indicator due to inconsistent measurements of the respective variable. After deleting OLO3, UIT2, and UIT3, the PLS-SEM calculation must be rerun to continue the analysis of construct reliability and AVE. Construct reliability was assessed using composite reliability, with results ranging from 0.859 to 0.929. Composite reliability is considered acceptable when the value exceeds 0.7; in other words, it indicates that each set of indicators consistently measures its construct. Eventually, AVE values were also all above the 0.5 rejection boundary, which implies that the first-order constructs with reflective indicators account for much more variance than measurement error. Therefore, reflective indicators in the constructs are reliable and possess convergent validity.



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**Second Order Construct**

The second-order construct was derived from a formative measurement model, distinct from a reflective one. Several aspects require review to assess the measurement models, including indicator validity (indicator weights and Variance Inflation Factor (VIF)), structural model paths, and explained variance ($R^2$). Collinearity should be considered in the formative measurement model in further analysis. Inner-model collinearity was measured using SPSS. 22.0; latent variable scores were used as inputs for multiple regressions to obtain tolerance and VIF values. Tolerance and VIF provided support for the absence of multicollinearity among indicators; VIF is calculated as "1/Tolerance". According to Bollen (1984), formative constructs need not correlate. "Presence of multicollinearity could bias and affect the stability of the estimations" (Hair et al., 2006). Multicollinearity was tested as a customary precaution when using formative indicators in the constructs. Table 5 shows the indicator weights, which were positive except for "organizational learning orientation," and their different contributions to the measures. VIF value should be lower than 5 and higher than 0.2 to avoid collinearity problems (Hair et al., 2011); based on the results of Table 5, there are no collinearity problems.

**Table 5.** Item weights and multicollinearity tests for the second-order formative construct

| Second Order Construct | Weight | Tolerance | VIF |
|---|---|---|---|
| IEO - EP | 0.246695 | 0.514 | 1.947 |
| OLO - EP | -0.007140 | 0.505 | 1.979 |
| PSQ - EP | 0.346104 | 0.597 | 1.675 |
| UIT –EP | 0.173312 | 0.763 | 1.311 |

Table 6 shows the discriminant validity of the construct in the structural model. Since the "square root" of the AVE value from each latent variable is greater than its latent variable correlations, it means that all indicators in every construct (variable) are different and accumulated in the respective construct, or in other words, the discriminant validity property possessed by the measurement model.

**Table 6.** Discriminant validity

| Construct | IEO | OLO | PSQ | UIT | EP |
|---|---|---|---|---|---|
| *IEO* | 0.8175* | | | | |
| *OLO* | 0.626 | 0.850* | | | |
| *PSQ* | 0.577 | 0.565 | 0.897* | | |
| *UIT* | 0.419 | 0.453 | 0.271 | 0.820* | |
| *EP* | 0.514 | 0.421 | 0.531 | *0.367* | 0.772* |

Note: * means the square root of the AVE value.

The structural model paths (β) and variances explained ($R^2$) of the endogenous constructs are presented in Table 7 and Figure 3. 200 sub-samples were performed in the bootstrap re-sampling technique. "Bootstraping generates a random sample requested number from an original dataset by sampling with replacement, which indicates all the hypothesized relationships are significant at the 99.9% confidence level". In other words, the model's combination of IT and



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internationalization is empirically supported and validated across the constructs and their relationships.

**Table 7.** Effects, $R^2$, and Stone–Geisser $Q^2$ tests

| Effects on endogenous variables | Effect | t-value (bootstrap) | $R^2$ | Stone–Geisser$Q^2$ |
|---|---|---|---|---|
| Effects on international entrepreneurial orientation – export performance | 0.246695* | 2.170292 | 0.371438 | 0.491240 |
| Effects on organizational learning orientation – export performance | -0.007140 | 0.056257 | | 0.121911 |
| Effects on product/service quality – export performance | 0.346104* | 2.673744 | | 0.574239 |
| Effects on the use of IT – export performance | 0.170078 | 1.318067 | | 0.353672 |
| Effects on the use of IT – organizational learning orientation | 0.452951* | 6.014102 | 0.205165 | |

Note: *at significance level of 0.05 (distribution with two tails)

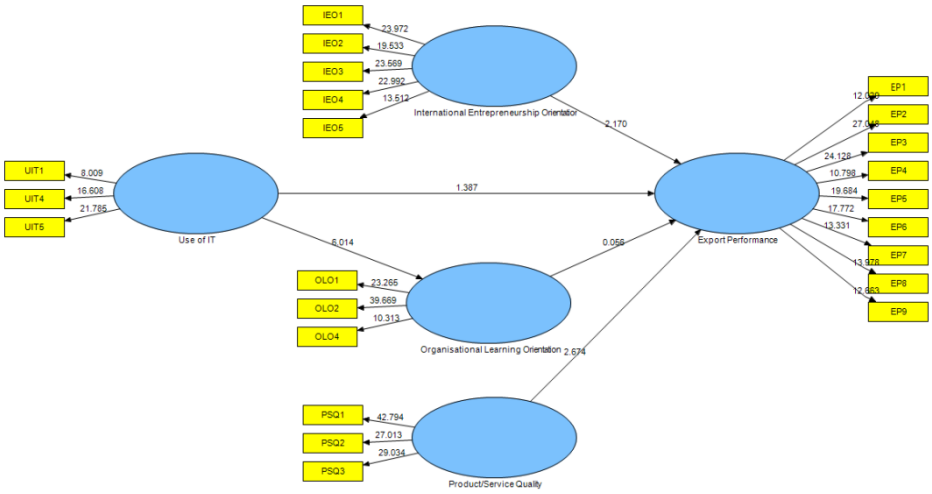


**Figure 3.** Bootstraping Result of the Structural Model

International entrepreneurship has a significant positive influence on export performance, as expected, with a β coefficient of 0.247 and a t-value of 2.170 > 1.96, providing empirical support for the first hypothesis (H1). Organizational learning orientation has not proven a significant positive influence on export performance due to the β coefficient value = 0.007 and t-values = 0.056< 1.96, as hypothesized (H2). Product/service quality has the expected significant positive effect on export performance (H3), as evidenced by the β coefficient of 0.346 and t-value of 2.673 (> 1.96). Use of IT



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does not positively and significantly affect export performance, as hypothesized (H4a), as indicated by a β coefficient of 0.170 and a t-value of 1.318 < 1.96. And the use of IT has the expected significant positive effect on export performance (H4b) due to the β coefficient value = 0.453 and t-value = 6.014 > 1.96.

The determination of $R^2$ in the baseline model measurement is based on Chin (1998, p. 337), who stated that $R^2$ values of 0.63 indicate a substantial level of determination, 0.33 a moderate level, and 0.19 a weak level. In advance, the variance explained ($R^2$) is 0.371 and 0.205 for export performance and organisational learning orientation. International entrepreneurial orientation, organisational learning orientation, product/service quality, and the use of IT explain 37.1% of the variance in Export Performance, with these factors being moderately correlated. IT use explains 20.5% of the variance in organisational learning orientation. The structural model suggests that product/service quality has the strongest effect on export performance (0.346), followed by international entrepreneurship orientation (0.247).

The Stone–Geisser $Q^2$ statistic, obtained from a blindfolding calculation, confirmed the model's predictive relevance for export performance. A "blindfolding" technique was used to estimate the omission distance at seven observations. Blindfolding techniques are used for assessing path validity. The model achieves an $R^2$ of 0.371, indicating reasonable overall quality within the 0-1 range, indicating a better model.

## Discussion

This study proposed a predictive model and empirically examined a set of factors related to IT use and the internationalization context that may influence MSMEs' export performance. Overall, the results support our model. Hypothesis 1: International entrepreneurship orientation positively influences export performance. International entrepreneurial orientation refers to entrepreneurial activity in a foreign market. The findings of this hypothesis align with the statements by Knight and Cavusgil (2004), and Kuivalainen et al. (2007) that this element is important for pursuing international opportunities. Based on hypothesis 1, MSMEs need to be more proactive in global markets and willing to take risks, which will positively affect their export performance.

Hypothesis 2 fails to show a statistically significant positive influence on organisational learning orientation in predicting export performance. Currently, not all Indonesian MSMEs are aware of the importance of creating and sharing knowledge within and across organisational units and locations. In advance, this study provides the knowledge needed by MSMEs operating in global markets and can transform that knowledge into a practical, implementable strategy with the help of IT.

Hypothesis 3 was supported, indicating that product/service quality significantly positively influences export performance. This is consistent with research by Gerschewski et al. (2014) and Knight and Cavusgil (2004), which indicates that one critical driver of a firm's globalization and involvement in international markets is a focus on product/service quality. MSMEs in Indonesia, particularly in the creative industry sector, have a unique advantage stemming from the country's multiculturalism and abundant natural resources, which can be further processed to enhance added value and market differentiation. Although Indonesia is considered a developing country today, MSMEs are already aware of the importance of product and service



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quality for international expansion. Today, with the support of IT, MSMEs can conduct market research and product design to improve product quality and drive development.

Hypothesis 4 relates to the use of IT in internationalization, both directly on export performance and organisational learning orientation. Result from hypothesis 4a finds that use of IT has not proven a positive influence on export performance, this is consistent with Tippins and Sohi (2003), who argued that "the effect of IT on a firm's financial performance cannot be measured directly, but can only be quantified by examining the indirect effect on some intervening firm capability such as organisational learning". Although MSMEs in Indonesia are increasingly concerned with adopting IT for their businesses in response to current demands, they adopt it gradually, starting with the simplest and cheapest option, such as a communication device, and progressing to more complex software. The gradual process is closely related to the learning process; thus, in hypothesis 4b, the use of IT is proven to influence organisational learning orientation, and organisational learning orientation mediates the use of IT on export performance. Slowly but surely, use of IT can become the key to global competitiveness (Dhungana, 2003; Johnson, 2004)

## CONCLUSION

This study examines the influence of information technology (IT) adoption and internationalization factors on the export performance of Indonesian micro, small, and medium enterprises (MSMEs). The results predict relationships among model elements as determinants of export performance. The research identifies product and service quality, as well as international entrepreneurial orientation, as key factors influencing MSME export performance. In addition, organizational learning orientation is positively affected by IT usage. However, IT adoption does not directly enhance export performance, as MSMEs tend to implement IT incrementally, progressing from basic to advanced applications, which reflects a gradual learning process. This finding aligns with Zhang et al. (2008), who reported that IT has a positive and significant relationship with global market and strategic performance, but not with financial performance.

Overall, the findings advance understanding of the role of IT in internationalization practices among MSMEs in developing countries. Few studies have focused on MSMEs as subjects of internationalization, particularly in developing economies. This research empirically tests a newly hypothesized relationship between IT usage, internationalization dimensions, and export performance, providing insights into predictors of MSME export success. The study extends knowledge of the factors that affect IT adoption and internationalization in developing countries. The results are also practically valuable for MSMEs and policymakers. Decision-makers in MSMEs, regardless of their current level of international market entry, can benefit from a deeper understanding of the predictors of export performance. Insights into IT usage and internationalization can inform future development initiatives by stakeholders such as government, educational institutions, communities, and industry. By identifying the most influential predictors of export performance, MSMEs can adopt appropriate internationalization strategies. Furthermore, as the study focuses on Indonesian MSMEs, which differ from those in developed countries, where most prior research has been conducted, it offers a novel perspective on internationalization. This research contributes to the growing body of knowledge on MSME internationalization in Indonesia.



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## LIMITATION & FURTHER RESEARCH

Several limitations emerged during the study. Challenges in obtaining precise data on the number of micro, small, and medium-sized enterprises (MSMEs) engaged in internationalization or export activities resulted in a respondent pool limited to MSMEs that had already entered foreign markets and used information technology in their operations. The quantitative research method employed in this study restricts the depth of information that can be explored. Additionally, the measurement instruments, specifically the questionnaires, required refinement, leading to the revision or removal of certain items. Future research could re-examine this study by incorporating additional variables into the reference model to support the analysis of export performance better and by increasing the sample size. Given Indonesia's significant export potential for economic development, further investigation of internationalization within specific sectors, such as the fashion industry, is warranted to deepen understanding of strategic development. Qualitative research is also recommended to validate the current findings for stakeholders, including government, educational institutions, society, and the MSME industry. Such research could offer valuable input for MSME internationalization policy. Increasing the sample size in future studies is also necessary to enhance the statistical significance of the results.

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