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E-Commerce Implementation in SMIs To Support Denpasar as a Local Culture-Based Smart City In Bali Province

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abstract

Local governments rely on small and medium industries (SMIs) as the economic foundation in generating income s to achieve equitable and sustainable economic growth. As an Indonesian competent and cultured smart city, Denpasar City is preparing itself to become a smart city to respond to current global challenges. In this respect, SMIs play a crucial role in supporting Denpasar City's efforts to become a smart city and realize its vision of a culture-based, creative, and harmonious city. They improve public welfare and create job opportunities and enhance public income. This study seeks to: 1) analyze the impact of capital on e-commerce implementation in Denpasar City's SMIs, 2) analyze the impact of production units on e-commerce implementation in Denpasar City's SMIs, 3) examine the impact of business age on e-commerce implementation in Denpasar City's SMIs, and 4) examine the impact of income on e-commerce implementation in Denpasar City's SMIs. Our population is the entire SMIs in Denpasar City (4,074 units) (Bali Province's Industry and Trade Provincial Office, 2018). Slovin's formula (margin of error of 7 percent) generates a sample of 194 SMI units. Each SMI is represented by its owner as the respondents. We use stratified random sampling based on geographical areas (subdistricts) and accidental sampling to select sample units to be interviewed. The results demonstrate that 1) capital does not positively affect e-commerce implementation in Denpasar City's SMIs, 2) production units do not significantly affect e-commerce implementation in Denpasar City's SMIs, 3) business age positively affects e-commerce implementation in Denpasar City's SMIs, and 4) income positively affects e-commerce implementation in Denpasar City's SMIs.

Keywords: e-commerce, capital, production units, business age, income s

1. INTRODUCTİON

Small and medium industries (SMIs) in Bali Province, especially Denpasar City, remain a regional priority as future potentials. Sapir et al. (2014) explain that local wisdom-based industries process raw materials from Indonesia and produce unique products based on local traditions or culture and develop dynamically. Further, Mungmachon (2012) suggests that local wisdom-based SMIs produce creative, aesthetical, and tradition-based products according to local culture. Accordingly, SMIs in Denpasar City need to adopt more modern technological innovation in their marketing activities through e-commerce to support Denpasar City's vision.

SMI empowerment is crucial for public economic development (Woo, 2010). As an Indonesian competent and cultured smart city, Denpasar City is seriously preparing itself to become a smart city to respond to global challenges. In this regard, SMIs play a crucial role in supporting Denpasar City to achieve its vision of a culture-based, creative, and harmonious city. They improve public welfare, create job opportunities, and enhance public income.

The government of Denpasar City supports SMI owners in increasing their business productivity and performance to enhance their empowerment, especially in their marketing activities, by improving their marketing methods through e-commerce. In the long run, these SMIs need to produce better and unique products based on local wisdom and culture to compete on national and international levels with similar products. As local assets, the industry sector can strengthen the local economic foundation and promote local culture (Hyman, 2012). However, SMIs in Denpasar City generally suffer from various problems, especially lack of capital, low-quality human resources, and suboptimal adoption of product marketing technologies.

Besides business capital, education level and age as parts of human resources affect financing access. Younger and more educated entrepreneurs are more active and willing to utilize external financing. As operationalized by education and experience, human capital significantly affects manufacturing and service firms' performance (Okafor, 2012).

Human resource quality can contribute significantly to product quality development. Improving human resource quality and competence likely enhances entrepreneurship

motivation to exploit local potentials in producing, selling, and marketing products through e-commerce as part of the government's initiative to transform Denpasar City into a local culture-based smart city. Although SMIs in Denpasar City potentially implement e-commerce marketing systems, many SMIs cannot execute these marketing systems due to insufficient technological skills.

SMIs exhibit varying distribution in many regencies/ cities. However, Denpasar City had an increasing number of SMIs until 2017 and was ranked second in Bali Province. Nevertheless, its SMIs fluctuate in production and even tend to decline compared to the Gianyar Regency (Bali Province's Provincial Office of Trade and Industry, 2018).

Based on the above background, this research asks the following question "how do capital, production, business age, and income affect e-commerce implementation in Denpasar City's SMIs?" Accordingly, this research seeks to: 1) analyze the impact of capital on e-commerce implementation in Denpasar City's SMIs, 2) analyze the impact of production units on e-commerce implementation in Denpasar City's SMIs, 3) examine the impact of business age on e-commerce implementation in Denpasar City's SMIs, and 4) examine the impact of income on e-commerce implementation in Denpasar City's SMIs.

2. LİTERATURE REVİEW

Business capital is the main production factor in producing certain products. Capital as investments represents costs incurred to purchase production equipment and other capital goods in production processes to produce goods and services (Sukirno, 2009:76). Capital production factor positively affects production outputs, implying that more capital in the production processes tends to generate more products. Huazhang (2014) documents that capital positively affects production units. Assuming that all production factors are used optimally, technological utilization likely improves production outputs. Thus, technology also affects production outputs (Li & Dongge, 2015). Higher production outputs also increase income because of the ease of electronic communication processes with customers (Andreu *et al.*, 2010).

Human capital relies on employees' individual ability, knowledge, talent, skills, education, and experience (Bontis *et al.,* 2000). Salwa & Mara Ridhuan (2016) suggest that SMEs need to identify human resources based on their roles in different business cycles to exploit human resource potentials fully. Consequently, human resource investments offer SMEs advantages in value creation and performance.

Human resources can be classified into three categories: ability and potentials, motivation and commitment, and innovation and learning. Ability and potentials refer to employees' education level, professional skills, experience, attitudes, personal networks, values, and ability to develop within organizations. Next, motivation and commitment refer to aligning individual interests with organizational objectives. Lastly, innovation and learning represent employees' openness to change. Mayo, A, (2001) and Sullivan and Sheffrin (2003) propose that human capital represents the attributes of competence, knowledge, and personality that generate economic values. Fatoki (2011) argues that human capital as public investments through education and training is crucial because it improves productivity. Ofoegbe et al. (2013) suggest that sufficient human resource development is crucial for organizational survival, especially for small and medium enterprises (SMEs). Human capital is crucial because it represents intellectual capital based on human knowledge and experience and affects firms' values through other elements (Mushrel, 2014). Human capital specifically includes education, specific skills, industry-related experience, and managerial experience (Ganotakis, 2010).

Sharafat (2017) follows Pena (2001) by concluding that operators' training and experience in economic activities significantly affect firms' business growth. Further, Ojokuku, R.M & Sajuyigbe, A.S. (2015) demonstrate that human resource development significantly affects SMEs' performance. Similarly, Tessema (2014) documents that human capital investments likely enhance firms' performance.

Sharafat's findings (2017) are consistent with Hisrich and Drnovsek (2002) who observe that education and experience positively affect new firms' performance. In a similar vein, Eny Lestari (2015) reveals that human capital elements (education level, motivation, and experience) significantly affect Indonesian SMEs' performance. Further, Karadag (2017) shows a strong correlation between SME owners' education and financial performance. Human resource is so crucial in improving business performance that continuous human resource development is necessary. Experienced and competent human resources respond more quickly to massive technological changes, including promoting their products. Online marketing technologies have recently developed so fast that human resources need to respond to technological changes quickly.

Firms initially rely on financial capital to acquire physical goods, working capital, and other productive assets in running their business activities. Elsenhardt and Martin (2000) use the resource theory to demonstrate the importance of financial capital in explaining

SMEs' performance. Firms need to maintain their access to financial capital to acquire fixed and current assets to preserve their competitive advantage. The amount of capital in business activities likely increases the production of goods or services because capital affects production.

Capital is a crucial production factor in the production processes. Capital enables firms to provide other assets, such as equipment, to sell their produced goods and services. Firms arguably need several facilities to enable communication, such as mobile phones, computers, or other communication devices to obtain information.

Firms need high-tech communication devices that enable marketing or information-generating activities on production factor availability to enhance their business productivity. Firms having transaction-facilitating computers are better able to use e-commerce marketing methods that likely increase their income. Income can be operationalized with sales. Firms can increase their income by many factors, including capital, education level, human resource quality, business experience, and the use of e-commerce technology in product marketing. Besides, business income is affected by the number of employees, age, wage levels, product prices, and productivity (Parinduri, 2014).

The use of internet for marketing activities also likely increases sales. Efficiently used capital increases demands and eventually sales (Wiyasa, 2017). SMIs also need financial capital to acquire physical resources to capitalize on business opportunities (Zhou dan Chen (2008). Firms that cannot use their capital efficiently produce less, and hence they have to ensure the availability of their capital to optimize their production. Capital is available from various financing sources, both internally and externally. Using capital and other production factors effectively can increase business productivity. Bartocho (2016) reveals that financial capital ability greatly affects employee productivity and plays a crucial role in organizational performance.

Biney (2018) demonstrates that venture capital-financed SMEs perform better in sales and employee growth. Gathogo and Ragui (2014) explain that capital is capital for firms' performance and competitiveness. SMEs can acquire capital from various sources, including self-financing, banks, and a combination of both sources (Struky (2011), Azhagaiah and Gavoury (2011)). Firms use capital for investments (acquisition of fixed and long-term assets) and short-term financing (material acquisition, salary payments, and other operational costs) (Kasmir, 2008). Zhou (2013) suggests that internally and externally sourced business capital should be used optimally.

Business activities aim to generate income commensurate with economic sacrifice, and entrepreneurs expect higher income from their economic activities. Income represents monetary values from business activities (selling goods or services to consumers). Business activities mainly aim for income. Economic income refers to maximum values consumed by individuals without eroding their initial conditions. Income refers to compensation received by production factor owners within certain periods in the form of rent, salary or wage, interest, or profit (Sukirno, 2004: 37). According to Mankiw et al. (2014: 270), income is the deduction of revenues by total costs. The definition emphasizes the quantitative expenditures on consumption within a period.

Production activities combine several production factors as inputs into outputs with added values. Production theory determines optimal production levels with existing resources. Firms cannot run production activities without raw materials, labor, natural resources, various capital, and skills as commonly labeled as production factors. These factors facilitate value-creation activities that enhance output values.

Products or outputs are production processes' final results from production factors sacrificed. Hajejet al. (2018) argue that production systems greatly affect product quality and eventually customer satisfaction. Production can be classified into three types: total, marginal, and average production. Production functions represent the relationship between physical outputs and inputs that effective and efficient uses of inputs produced optimal outputs.

Ministry of Industry Regulation No. 64 of 2016 defines small industries as industries that: 1) have employees at most 19 employees and investment values less than Rp 1 billion, excluding lands and business buildings, 2) business buildings and lands are in the same location with owners' residential places. Meanwhile, medium industries are industries that: 1) have 19-99 employees and investment values of at least Rp 1 billion or 2) have at least 20 and at most 99 employees and investment values at most Rp 15 billion.

In a narrow sense, industries are economic activities that process raw materials, unfinished goods, and finished goods into goods with higher added values, including industrial engineering and design. SMIs (small and medium industries) exhibit several similarities. Accordingly, SMIs include firms with or without legal forms with 1-99 employees and maximum annual sales of Rp 15 billion and owned by Indonesian citizens.

Electronic commerce (e-commerce) represents the electronic purchase and sales of products, services, and information by utilizing computer networks to distribute and sell

services through electronic systems, including the internet and computer networks. Information technology has developed rapidly, that e-commerce uses social media for more attractive product marketing. Social media, in the form of internet-based social networks, offers virtual rooms for communication and socialization (Vinerean *et al*., 2013). Social media is a new phenomenon that changes business environments (Jagongo and Kinyua, 2013). According to Kusumo (2012), social media helps J.Co retain its customers because it provides influential information effectively. Facebook is a social media commonly favored by potential customers because it has more users than other social media. Facebook is used not only by teenagers but also children and adults, and it has more users likely because of its ease of use.

Nevertheless, many SMI owners lack knowledge of current technological aspects and cannot identify market demands effectively. Entrepreneurs can market their products through e-commerce. Irmawati (2011) defines e-commerce as the process of purchasing, selling, or exchanging products, services, or information through electronic networks, including the internet. In a narrow sense, e-commerce refers to business transactions through electronic networks, including online advertisements, booking, payments, distribution, and customer services.

Technological skills, e-commerce ability, and IT infrastructure can improve performance (Zhu, 2014). E-commerce technology likely increases income because it facilitates better communication with customers (Andreu et al., 2010). Siricharoen (2012) proposes that individuals use technology for different reasons. Firms incur costs to distribute their product information to their customers. Consequently, they can use social media to promote products or services effectively from anywhere at any time. Taneja and Toombs (2014) suggest that small industries need to use social media that offers clarity, viability, and sustainability to achieve superior competitive advantage.

Using the theory and relationships between variables discussed previously, this study proposes the following research hypotheses: 1) capital positively affects e-commerce implementation in Denpasar City's SMIs, 2) production units positively affects e-commerce implementation in Denpasar City's SMIs, 3) business age positively affects e-commerce implementation in Denpasar City's SMIs, and 4) income positively affects e-commerce implementation in Denpasar City's SMIs.

3. RESEARCH METHOD

3.1 Research design

This study uses an associative research design by using measured independent variables and a qualitative (binary) dependent variable that equals one if the SMI implements e-commerce marketing and zero otherwise. Thus, this study investigates the likelihood of SMIs implementing e-commerce affected by several independent variables, such as capital, production units, business age, and income.

3.2 Research Location

This study is administered in Denpasar City that has the most SMIs in Bali Province. Consequently, SMIs in Denpasar City likely have more varying problems related to the use of e-commerce in marketing, capital, human resource, age, education level, and income.

3.3 Variable Identification and Operational Definition

The dependent variable is binary and on a nominal scale that equals one if the SMI implements e-commerce and zero otherwise. The independent variables are measured variables: capital, production, experience, and income. The following are the operational definition of our variables. Capital refers to business capital used by SMI owners in production processes and measured with Rupiah. Production is units produced by SMI owners within a production process and measured with units. Next, business age represents the length SMI owners run their businesses and is measured with year. Lastly, income is monetary inflows from sales of products within a month and measured with Rupiah.

3.4 Data Type and Sources

This study uses both quantitative and qualitative data. Quantitative data can be measured quantitatively, including capital amount, production units, experience, and income. Qualitative data refers to detailed explanations and descriptions that support the statistical analysis. Data is collected from primary and secondary sources. Primary data is directly generated in the field by using the questionnaire instrument. Meanwhile, governmental agencies collect secondary data, especially Bali Province's Office of Industry and Trade, on the number of SMIs and production units.

3.5 Population, Sample, and Sample Selection

Our population is the entire SMIs in Denpasar City (4,074 units) (Bali Province's Provincial Office of Trade and Industry, 2018). Slovin's formula with a margin of error of 7 percent generates 194 SMI units as the research sample. Each SMI is represented by one of its owners as the respondent. We use stratified random sampling based on geographical area (subdistrict) and accidental sampling to select sample units to be interviewed.

3.6 Data Collection Method

This study combines several following methods to collect the data: 1) non-participant observation method to obtain secondary data by observing and recording data from Provincial Office of Industry and Trade's documents on the number of SMIs and production units; 2) structured interview to SMI owners to collect primary data by using prepared questions. We also use in-depth interviews to collect primary data from competent SMI owners.

3.7 Data Analysis Technique

This study uses both qualitative and quantitative approaches. The qualitative analysis generates detailed information from competent informants to answer the research questions. The quantitative analysis employs descriptive statistics and inferential analysis with the following logistic regression analysis:

$$\text{Ln } (P/1-P) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where:

Ln : natural logarithmic value, $B_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_4 X_4 + \mu = Z$, OLS equation.

P: logistic probability from the following formula.

$$P = 1/1+ e^{-Z} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Using equation (1) makes it difficult to interpret the regression coefficient. Hence, we use the odds ratio or Exp (β) with e is exponent = 2.718

X_1 = capital, X_2 = production units , X_3 = business age, X_4 = income

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are regression coefficients, and μ refers to the error term.

4. RESULT

4.1 General Description of Denpasar City

Denpasar City has been the governmental center of Bali Province since 1958 and has experienced rapid growth in terms of physical and sociocultural environments. As the capital city of Bali Province, Denpasar has experienced population growth and physical, economic, and sociocultural development. The city has also physically been developed, and its residents exhibit urban characteristics. Besides, as the provincial capital city, Denpasar undergoes rapid growth of cultural tourism industry that business centers develop tremendously. Denpasar City's tourism development policies focus on environmentally focused cultural tourism. As a tourism development center, Denpasar City is the barometer of tourism progress in Bali (Denpasar City's RPJ, 2010-2015).

Denpasar City has a total area of 127.78 km2 or 12,788 hectares or 2.18 percent of Bali Province's total land area (5,632.82 km2). It is bordered by Badung Regency in the north (Mengwi, Abiansemal, and North Kuta Subdistricts), Gianyar Regency in the east (Sukawati Subdistrict), and Badung Regency in the south (Kuta Subdistrict). Denpasar City consists of four subdistricts, namely North Denpasar, East Denpasar, South Denpasar, and West Denpasar.

4.2 Descriptive Analysis

Before making inferential data analysis, we discuss the respondents' descriptive characteristics from the research variables.

1) Respondents' Characteristics based on Capital

Capital refers to capital used in certain periods to produce products. Table 4.1 presents the descriptive analysis of average capital.

Table 1 Respondent Distribution based on Capital in research "E-Commerce Implementation in SMIs to Support Denpasar City as a Local Culture-based Smart City in Bali Province"

Capital (Rp)	Number (people)	Percentage (%)
≤ 1,000,000-10,999,000	55	28.35
11,000,000-20,999,000	31	15.98
21,000,000-30,999,000	41	21.13

31,000,000-40,999,000	27	13.92
41,000,000-50,999,000	24	12.37
≥51,000,000	16	8.25
Total	194	100.00

Source: primary data, 2020

Table 1 suggests that the capital distribution varies widely, ranging from Rp 1 million to more than 51 million. Most respondents (28 percent) have capital between Rp 1 million and Rp 10 million, while only 8 percent of total respondents have capital of more than Rp 51 million. The remaining respondents have capital between Rp 11 million and Rp 50 million. From the capital variable, it can be concluded that most respondents still belong to small and medium industries.

Capital amount is proportional to production units produced. Firms that produce more products arguably require higher capital. Many SMI owners experience capital problems, especially when they receive excess orders above their available capital. Nevertheless, SMIs can solve this problem in the short run by requiring down payments from consumers. SMI owners operate on order-based or make mass products. SMIs that produce mass products and have unsold products will have capital tied in unsold goods, a condition commonly experienced by SMIs during low seasons. Firms' fluctuating external environments also affect their business productivity and income. However, technology enables firms to market their products using the internet. SMI owners who can access the internet will likely improve their sales.

2) Respondents' Characteristics based on Production units

Industries' products are greatly affected by production factors or inputs. Capital, human resource, production, and marketing technologies determine production units. Product factors' economic efficiency can be measured when there is information on average production, average input, output and input prices, and marginal products of each input. It is then crucial for SMIs that rely on mass production to ensure that production units are continuously available because consumers may buy their products in large quantities. Table 4.2 presents respondent distribution based on production units.

Table 2 Respondent Distribution based on Production units in research "E-Commerce Implementation in SMIs to Support Denpasar City as a Local Culture-based Smart City in Bali Province"

Production (units)	Number (people)	Percentage (%)
≤ 15.-64	49	25.26
65-99	22	11.34
100-149	30	15.46
150-199	20	10.31
200-249	25	12.89
≥250	48	24.74
Total	194	100.00

Source: primary data, 2020

Table 2 indicates that respondents have varying production units, ranging from 15 to more than 250 units, because they produce different creative industrial products (wood carving, clothes, jewelry, cosmetics, and other products). Most SMIs produce between 15 and 64 units (slightly more than 25 percent), followed by more than 250 units (slightly less than 25 percent). The remaining respondents produce between 65 and 249 units. Because SMIs have varying production units and types, the selling prices of their products also vary widely. Creative products in Bali Province greatly support developments in Bali Province in general and particularly in Denpasar City. These products contribute to regional revenues through Gross Domestic Regional Product. Creative industries are greatly supported by creative youngsters that produce creative products. Several programs have been launched to stimulate creative industries, such as training to motivate youngsters to become young entrepreneurs. Balinese youngsters' interest to become entrepreneurs contribute to about 12.57 percent of Gross Domestic Product (GDP), the second-highest in Indonesia after Yogyakarta (16.12 percent) (Bali Creative Industry Center /BCIC. Denpasar, 23/2019).

3) Respondents' Characteristics based on Business Age

Business experience also likely affects business productivity and income. More experienced SMI owners have better knowledge of business problems and are more likely to

improve business performance by solving these problems. We operationalize SMI owners' business experience with business age. Table 4.3 displays respondent distribution based on business age.

Tabel 3 Respondent Distribution based on Business Age in research "E-Commerce Implementation in SMIs to Support Denpasar City as a Local Culture-based Smart City in Bali Province"

Business age (years)	Number (people)	Percentage (%)
≤ 5-6	83	25.26
7-8	48	11.34
9-10	43	15.46
11-12	10	10.31
13-14	6	12.89
≥15	4	24.74
Total	194	100.00

Source: primary data, 2020

Table 3 suggests that SMIs' business ages vary widely, ranging from five to more than 15 years. Most SMI owners (52 percent of total respondents) have business experience between five to ten years, followed by those with more than ten years of experience (about 48 percent).

4) Respondents' Characteristics based on Income

SMI owners' income is calculated by multiplying product units sold with average unit prices. The income represents gross revenues before being deducted with costs and profits. Table 4.4 displays respondent distribution based on income.

Tabel 4 Respondent Distribution based on Income in research "E-Commerce Implementation in SMIs to Support Denpasar City as a Local Culture-based Smart City in Bali Province"

Income (Rp)	Number (people)	Percentage (%)

≤ 10,000,000-34,999,000	78	40.21
35,000,000-59,999,000	46	23.71
60,000,000-84,999,000	15	7.73
85,000,000-119,999,000	15	7.73
120,000,000-154,999,000	23	11.86
≥155,000,000	17	8.76
Total	194	100.00

Source: primary data, 2020

4.3 Inferential Analysis

This study uses the binary-logistic (logit) model to analyze the data. Table 5 presents the results of our logit analysis using Eviews software. Based on the results, we propose the following regression equation:

$$Ln\ (P/1-P) = -1.410609 + 0{,}0000000219X_1 + 0.000175X_2 + 0.158774X_3 + 0{,}0000000147X_4$$

Table 5 The Results of Logistic Regression of E-commerce Implementation in Denpasar City's SMIs

Constant/Variable	Coefficient	Z-statistic	Explanation
E-commerce			
Constant	-1.410609	-2.628521	significant
Capital (X_1)	-0.0000000219	-2.439338	Not significant
Production units (X_2)	0.000175	0.529967	Not significant
Business Age (X_3)	0.158774	2.497411	Significant
Income (X_4)	0.0000000147	2.845473	Significant
McFadden R-squared	0.146552		
LR Statistic	39.41083 sig = 0.0000		
N	194		
D=1	96		
D = 0	98		

5. DİSCUSSİON

5.1 The The Effect of Capital on E-commerce Implementation in Denpasar City's SMIs

The logit regression results show a very high LR statistic value (39.41083), much higher than the X^2 table of 9,48773 at $\alpha = 5$ percent, implying that capital, production units, business age, and income simultaneously affect e-commerce implementation in Denpasar City's SMIs. However, the results indicate that capital does not positively affect e-commerce implementation in Denpasar City's SMIs. Thus, the hypothesis predicting that capital positively affects e-commerce implementation is not empirically supported. Although the coefficient of capital is statistically significant, the sign is negative, suggesting that the coefficient remains insignificant and the null hypothesis cannot be empirically rejected.

Thus, the hypothesis predicting the positive impact of capital on e-commerce implementation is not empirically supported. SMI owners who implement e-commerce have similar average capital as those who have not implemented e-commerce. SMI owners who have not utilized the internet to search for production factor-related information and sell their products still rely on traditional methods. The finding is interesting because the empirical and conceptual literature suggests that SMI owners who implement e-commerce arguably require more capital to acquire computers, mobile phones, and internet access to communicate and obtain information that facilitates business activities. However, this study demonstrates that SMIs that implement e-commerce do not differ significantly in using capital for the implementation. SMI owners who have not utilized the internet because of insufficient technological capabilities still rely on traditional methods, such as word of mouth, to obtain business-related information.

Vinerean *et al*. (2013) also emphasize the importance of social media, in the form of social networks, that capitalizes on the internet to support e-commerce implementation. Implementing e-commerce to enhance competitiveness is crucial for SMIs to compete against similar products. Consequently, firms can capitalize on market opportunities optimally by distributing product-related information more effectively that customers know their products better.

Most respondents (28 percent) have capital between one million Rupiah and ten million Rupiah. Hence, it is understandable that SMI owners equally consider the importance of the internet in supporting e-commerce implementation. During highly competitive conditions with massive information technology development, SMI owners must prepare to

respond to technological changes through social media to obtain input-related information or market their outputs.

5.2 The Effect of Production units on E-commerce Implementation in Denpasar City's

The analysis result shows that production units do not significantly affect e-commerce implementation in Denpasar City's SMIs. Hence, on average, SMIs that implement e-commerce do not produce significantly different production units than those that do not implement. SMIs produce products in varying units based on their product types. For example, SMI owners who produce wood carving produce fewer products than those who produce clothes, jewelry, or cosmetics, although unit prices vary. SMIs may produce fewer products but with higher unit prices. Conversely, others produce more units with lower unit prices than those that produce wood carving and jewelry. The facts indicate that production units do not affect e-commerce implementation.

The results demonstrate that SMIs that produce clothes or cosmetics are more likely to use e-commerce in their transactions to obtain inputs or sell outputs. Meanwhile, SMIs that produce wood carving or handicrafts are less likely to implement e-commerce in transactions. Combining technological skills (e-commerce ability) and information technology infrastructure can improve performance (Zhu, 2014).

5.3 The Effect of Business Age on E-commerce Implementation in Denpasar City's SMIs

Business age or SMI owners' experience positively affects e-commerce implementation in Denpasar City's SMIs. Thus, e-commerce implementation is significantly affected by SMI owners' experience. More experienced SMI owners are more likely to implement e-commerce, and SMIs that implement e-commerce tend to exhibit better business performance. More experienced SMI owners have better production experience and obtain better input and output-related information.

The development of internet technology enables more experienced SMI owners to obtain more complex information to make adjustments and adopt technological progress. Hence, SMI owners' experience is crucial in improving SMIs' performance by implementing e-commerce. The result is consistent with Sharafat (2017) and Hisrich and Drnovsek (2002) who observe that education and experience positively affect new firms' performance.

Similarly, the finding supports Eny Lestari (2015) who documents that human capital elements (education level, motivation, and experience) significantly affect Indonesian SMEs' performance. Human capital is a dimension of intellectual capital based on humans' knowledge and experience that can affect firms' values through other elements (Mushrel, 2014).

5.4 The Effect of Income on E-commerce Implementation in Denpasar City's SMIs

The analysis result reveals that income positively affects e-commerce implementation in Denpasar City's SMIs. Higher income may result from using better marketing technologies through the internet (e-commerce). SMI owners' income may also be affected by implementing e-commerce marketing systems. This study predicts that the income variable affects e-commerce implementation. SMIs that can increase their income are more likely to implement e-commerce. Conversely, those that implement e-commerce can increase their income because they can maintain their loyal customers. Their social media helps customers to obtain product-related information. This study supports Kusumo (2012) who reveals that social media can maintain J.Co's customers by providing information to customers effectively to improve customer loyalty.

6. CONCLUSİON

The analysis results lead to the following conclusions.

1) Capital does not positively affect e-commerce implementation in Denpasar City's SMIs.
2) Production units do not significantly affect e-commerce implementation in Denpasar City's SMIs.
3) Business age positively affects e-commerce implementation in Denpasar City's SMIs.
4) Income positively affects e-commerce implementation in Denpasar City's SMIs.

This study suggests that e-commerce is crucial in improving technological utilization for better customers' product knowledge.

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