

The Contingency Approach of Digitalization and Entrepreneurial Orientation on Smes Performance in Metal and Machinery Industry

by Laurentius D Gadi

Submission date: 17-Jul-2021 02:22AM (UTC-0500)

Submission ID: 1620624814

File name: entation_on_Smes_Performance_in_Metal_and_Machinery_Industry.pdf (381.02K)

Word count: 10227

Character count: 59781

The Contingency Approach of Digitalization and Entrepreneurial Orientation on Smes Performance in Metal and Machinery Industry

LD Gadi Djou¹, Udin Udin^{2,*}, Fitri Lukiasuti³ and Eldes Willy Filatrovi³

¹Flores University, East Nusa Tenggara, Indonesia

²Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia

³STIE Bank BPD Jateng, Semarang, Indonesia

Abstract: The ability to enter the global market has become a competitive necessity for many firms and one important for survival and growth in the era of globalization. At the same time, digitalization is transforming the locus of entrepreneurial opportunities and entrepreneurial practices, thus offering new perspectives on internationalization. When entering the global market, SMEs will require innovativeness capability, proactiveness, and risk-taking. However, there is a gap in the literature exploring the interplay of digitalization and entrepreneurial orientation in the internationalization process. The objective of the present study aims at developing insights that explain how SMEs in Slawi district in the metal and machinery industry can use the tactics and strategies associated with EO to achieve superior performance in the digitalization age. Results from a survey in 63 SMEs show that: 1) SMEs that display high levels of EO report a higher level of performance, 2) SMEs that display high levels of digitalization report a higher level of EO, 3) the relationship between EO and performance is moderated by digitalization and 4) the relationship between digitalization and performance is moderated by EO. These results indicate that for those firms, innovativeness capability, risk-taking, and proactiveness are crucial to their success in foreign markets. Instead, SMEs should develop a clear vision of digitalization that is characterized by innovation, being ahead of the competition, and a willingness to take risks.

Keywords: Entrepreneurial Orientation, Digitalization, Foreign Markets, SMEs Performance.

1. INTRODUCTION

Globalization and an increasingly integrated world market brought the emergence of new rules of the competitive game (Renata and EmőkeSződónia in Purnomo, 2016). One of the new rules of competition is the internationalization of SMEs. Today's internationalization of SMEs is not an impossible opportunity because SMEs in the era of the knowledge economy is supported by the development of increasingly user-friendly information and communication technology. In addition, the technological literacy of entrepreneurial actors, namely owners and managers of SMEs, is increasing. There are some limitations that SMEs have when carrying out internationalization processes, for example, such as the tendency to avoid risk (Dimitratos & Plakoyiannaki, 2003), limited ability to find new market opportunities (Vos, Keizer, & Halman, 1998), limitations in finding information and networking (Indarti & Langenberg, 2004; Ahmad & Ahmad, 2019), and limited access to international markets and lack of management skills (Abor & Quartey, 2010).

Despite having various limitations, in empirical evidence, there are 2100 SMEs from 21 countries that generate income from global markets (Oxford

Economics & SAP, 2013). These findings indicate that not a few SMEs have succeeded in internationalizing in the midst of their limitations.

The process of internationalization in small and medium enterprises (SMEs) is a learning process (Schweizer 2012) and requires a set of entrepreneurial orientation sub-dimensions. There are risk-taking, innovativeness, and proactiveness.

A firm with an entrepreneurial orientation (Covin and Slevin, 1989, 1991; Lumpkin and Dess, 1996; Miller, 1983) is referred to as a firm "that engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with "proactive" innovations, beating competitors to the punch" (Miller, 1983). Miller was early in making an important distinction between entrepreneurship as the activity of firms, rather than focusing on the individual actor, or in other words, the entrepreneur. At the time, entrepreneurship research was mainly concerned with individuals, not firms (Gartner, 1988). This distinction raised the level of analysis from the entrepreneur to a firm or organizational level. This is important because it enables entrepreneurship to be connected with other management terminology and concepts such as strategy, structure, environment, and performance (Ahmad & Ahmad, 2018; Wiklund, 1998).

Another observation reveals that entrepreneurial orientation research has been conducted in many

*Address correspondence to this author at the Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia; E-mail: u.pub.56@mail.ru

different types of firms and organizations, for example, large and small firm (cf. Andersén, 2012; Javalgi and Todd, 2011; Kraus, 2013; Tajeddini *et al.*, 2013; Wang and Altinay, 2012). In addition, entrepreneurial orientation has been connected to different types of organizational performance and other outcomes, for example, growth and profit (cf. Dada and Watson, 2013; Mickiewicz *et al.*, 2014; Miller and Toulouse, 1986; Walter *et al.*, 2006).

By seeing a large population of 259 million, it is a great opportunity for SMEs to market their products, from 326 million mobile phone users and more than 88 million internet users, and more than 79 million Facebook users will further open opportunities and facilitate SMEs in conducting promotions and develop business through digital media (Partner, 2016 in Slamet *et al.*, 2016). In Indonesia, the average person spends time using the internet is 4.42 hours/day (desktop) and 3.33 hours/day via mobile phone and for using social media an average of 2.51 hours/day and watching television 2, 22 hours/day (We Are Social, 2016 in Slamet *et al.*, 2016), this indicates that using the internet and social media has become a behavior in Indonesia.

On the one hand, digitalization changes the locus of entrepreneurship opportunities and entrepreneurial practices (Autio 2017), thus offering a new perspective on internationalization. Autio (2017) argues that the effects of digitalization create opportunities for existing SMEs to proactively rethink their internal and external interactions and how they create, deliver and capture value in their interactions with customers, partners, suppliers, and internal stakeholders. Digital technology can be used to expand, enhance, and enrich the interaction of boundaries in almost all new businesses or small and medium enterprises. Thus, it is important to consider the effects of digitalization on the internationalization of SMEs.

Digital transformation has and will continue to change industry and business. The biggest impact of these changes has been seen in highly consumer-oriented industries such as music, publishing, consumer electronics, retail and financial services (e.g., Acker *et al.*, 2015; Hagberg, 2016; Liu *et al.*, 2011) but have also started affecting the large manufacturing sector (Wang, Wang, Mohammed, & Givehchi, 2015; Ahmad & Sahar, 2019). In Tegal Regency, the metal processing and machinery industry is one type of business that has a large number of business units. So that it can absorb labor that is not small. Compared to

other types of industrial businesses, the metal and machinery manufacturing industry is the largest contributor to the Tegal Regency Gross Regional Domestic Product (GRDP).

According to the Department of Industry and Manpower (Disperinaker) of Tegal District, there are nearly 4000 small-scale industrial industries (IKM) (<http://jateng.tribunnews.com>). The Domestic Component Level (TKDN) must reach 70 percent so that it welcomes a large number of businesspeople in the metal field. According to him, the IKM and metal manufacturing SMEs in Tegal Regency have varied production. It is ranging from heavy equipment, automotive, shipping equipment to agricultural machinery.

Their economic interests are indisputable, but their opportunities and challenges in terms of competing in an increasingly digitalized industry still have not received much attention. In the digital transformation manufacturing industry, it has begun to become increasingly important to improve operational efficiency, but also by creating revolutionary ways of manufacturing. In a concept known as Industry 4.0, a combination of smart digital objects and interconnected machines enables automation at new levels and products, which ultimately tells the machine what to do with them (Regeringen, 2016). The level of internationalization varies between sectors in the industry, for SMEs operating in the Metal Machinery and Processing industry, it is very important to learn how to succeed in the international market.

The purposes of this study are to improve our understanding of the moderating role of digitalization on the relationship between entrepreneurial orientation and performance of export-oriented SMEs, and the moderating role of entrepreneurial orientation on the relationship between digitalization and performance of export-oriented SMEs.

2. LITERATURE REVIEW

2.1. Contingency Fit View

Another view of contingency fit is that of configurations. The configurational approach suggests that fit between variable(s) and context leads to fit. However, some of the theoretical arguments are fundamentally different. The configurational approach builds upon the notion that firms fall into a limited number of states of internal coherence among a collection of theoretical attributes. Since only a small

number of states of fit exist, firms that wish to make changes need to make major changes at great speed (i.e., quantum jumps) to avoid in-between states (Drazin and Van de Ven, 1985; Meyer *et al.*, 1993; Miller, 1996). In entrepreneurial orientation research, it seems that only a few studies have taken a configurational perspective. One such study is that of Kreiser and Davis (2010), who embrace a configurational approach when they conceptualize the entrepreneurial orientation sub-dimensions, organizational structure, and various environmental contexts into ideal types. Also, with a configurational perspective, Andersén (2012) empirically derives six configurations of manufacturing firms based on a range of resources and capabilities and connects each configuration with their entrepreneurial orientation level. Both of these studies are rare examples of research that use configuration models in the entrepreneurial orientation field.

The configuration stream takes a view of the organization and its underlying themes and systematic features. These themes that configurations take might come from, for example, the CEO's vision, which embraces the whole organization, that is, an overarching theme that sets the agenda for all parts of the organization, such as strategies and organizational culture (Miller, 1996). The benefit for firms in having a central theme is that it gives a unifying direction. This makes coordination easier and focuses efforts and complementarities between, for example, strategies, leadership style, and product offerings. Certain synergies can be achieved by unique combinations of organizational parts that complement one another; for example, a specific strategy might be more effective in a firm with a conservative leadership style and which is situated in a particular context (Miller, 1993). Because of this thematic view, only a few viable configurations are theorized to exist. This is also why it is theorized that firms make 'quantum jumps', that is, changes that are major and drastic when change is needed. Changing only one element would disturb the harmony in the configuration and move it out of fit. For that reason, it is proposed that the variables or elements have to change together (Miller and Friesen, 1982b; Miller, 2017).

2.2. Entrepreneurial Orientation

Entrepreneurial orientation is a construct consisting of several others that are innovative, proactive, and risk-taking is influenced by appreciation, autonomy employees, and strategic leadership and support

(Awwad & Ali, 2012). Autonom employees can take the form of courage to take risks, while rewards can generate innovation. If the employer can use various information well, then it can affect all dimensions proactively, innovatively, and decision making with both (Caseiro & Coelho, 2018).

Soininen, *et al.* (2013) argue that the attitudes of entrepreneurs who pay attention to the development and survival of the company are the determining factors of entrepreneurial orientation. Like innovation, risk-taking and proactivity are important actions for the survival and growth of a company. Entrepreneurial orientation emerged as an enterprise-level multidimensional concept in the entrepreneurship literature strategic management and, therefore, (Altinay & Wang, 2011) argue that EO can be an important indicator in an organizational structure and has the ability or the potential to compete with competitors.

According to Cong, Dempsey, & Xie (2017), innovation and proactivity are key elements of entrepreneurial orientation is to provide facilities such as activities to invite the participants or stakeholders to be more active to support activities entrepreneurship. Innovation is one of the main keys to doing business in a global market where it is inter-company companies do not do the lowest price competition to attract consumers, rather it is seen through their level of innovation (Gerschewski, Lindsay, & Rose, 2016). Besides plan innovation well, companies must also dare to develop or create new products to be superior to competitors (Wong, 2014). Taatila & Down (2012) argues that people who have a proactive attitude will be more likes to make decisions independently rather than follow in the footsteps of others in dealing with its situation. Proaktif company means having a view or perspective for the future (Li & O'Connor, 2017). Risk-taking includes the courage to accept risk in terms of making decisions the right and profitable investment, even though everything that's done is not necessarily get the desired results. This concept also includes the ability to control and evaluating risk (Franco & Haase, 2013). According to (Tuan, 2015), the company is used to make decisions quickly and compete aggressively with a clear strategy for achieving entrepreneurial orientation in both the proactive dimension and risk-taking, entrepreneurial orientation can also be seen with a proactive looking attitude information from competitors to find out good opportunities, innovation is also done in a way start a new relationship in the supply chain.

2.3. Digitalization

Digitization is a new trend of technological and organizational change that can be dated to the beginning of the 2010s (Alekseev, Lobova, Bogoviz, & Ragulina, 2019; Brynjolfsson & McAfee, 2011; Kapitonov, Filosofova, & Korolev, 2019). The concept of digitization, in its basic understanding, relates to a way of encoding data. It is the process of transforming an analogical signal (a frequency) into a digital signal (bits). Strictly speaking, digitization means "putting into digits," a simple signal transformation from analogical to digital (de Coulon, 1998). In a broader sense, digitization relates to data management and how physical documents are conserved and archived digitally (Chaumier, 2006; Coyle, 2006). In an even broader sense, the one this work focuses on, digitization is about transforming organizations and bringing them to a more connected world (Brynjolfsson & McAfee, 2014). Digitization is a global concept rather than a specific technology. In that respect, it can be considered as an "organizing vision" (Kaganer, Pawlowski, & Wiley-Patton, 2010; Ramiller & Swanson, 2003), a broad concept to which a whole lot of technologies and managerial trends might be associated (such as web 2.0, web. 3.0, IoT, Industry 4.0, advanced robotics).

Literature does not give a proper and complete definition of digitization (other than the one given by Brynjolfsson and McAfee, 2014) but scholars link many different kinds of digital changes to digitization, be it automation (Arntz, Gregory, & Zierahn, 2016; Autor, 2015), advanced robotics (Brynjolfsson & McAfee, 2014), augmented reality (Barfield, 2015; Ong & Nee, 2013), Big Data (De Mauro, Greco, & Grimaldi, 2015; John Walker, 2014; McAfee & Brynjolfsson, 2012), Cloud Computing (Armbrust *et al.*, 2010; Qian, Luo, Du, & Guo, 2009), social networks (Brynjolfsson & McAfee, 2011; Cook, 2008; McAfee, 2009).

In other words, digitization appears as a catch-all word built around technological change and extensive use of data. As highlighted earlier, digitization – in the context of organizations – also represents huge changes for companies. Indeed, many organizational concepts are linked to digitization. "Industry 4.0" refers to automation in the industry (Bauer & Horváth, 2015; Drath & Horch, 2014; Hermann, Pentek, & Otto, 2016); "New Ways of Working" emphasizes the greater flexibility of space and time at work due to mobile technologies (Burke & Cooper, 2006; Felstead & Henseke, 2017; Hoeven & Zoonen, 2015; ten

Brummelhuis, Bakker, Hetland, & Keulemans, 2012); "Software as a Service" refers to Cloud Computing and to a more flexible use of technologies on multiple devices (Benlian & Hess, 2011); "Service encounter 2.0" (Larivière *et al.*, 2017) refers to self-service technologies; and Big Data has huge implications when it comes to transforming business models (Loebbecke & Picot, 2015).

2.4. Firm Performance

Zhang & Bruning (2011) consider that there are many indicators included in firm performance, such as income, return on investment, and return on assets. Firm performance measures are ROA, ROE, market to book value of equity (MTBV) and return on capital employed (ROCE) (Lam & Lee, 2012). Firm performance depends on variables such as government policy, marketing strategy, and financial strategy (Pratono, 2018).

Clarke, Seng, & Whiting (2011) argue that physical and financial capital provide the strongest influence on firm performance by getting research results that the ROA most influence firm performance, second ROE, third employee productivity, and last income growth. If the company determines the price of a product, (Liozu & Hinterhuber, 2013) suggest exploring the ability to price, the ability to negotiate prices, the ability to convey information about the value of production prices, as well as price processes and systems to improve firm performance.

Zahra (2008) has the opinion that firm performance can be measured by profit company assets (ROA) collected over three years from survey data collection ROA at the beginning of the period. Managers will work hard to improve Facebook productivity can reduce costs and ultimately improve firm performance (Liu, Qu, & Haman, 2018), use research with return on assets (ROA) as a measure of performance accounting-based company.

3. HYPOTHESIS DEVELOPMENT

3.1. Entrepreneurial Orientation and Firm Performance

⁴ The possible role of entrepreneurial orientation as a vector of performance has been extensively examined by previous scholars, and a number of studies have found an inconsistent relationship between entrepreneurial orientation and performance (Al-Dhaafri, Al-Swidi, & Yusoff, 2016). Some of the prior

studies established a positive relationship between entrepreneurial orientation and firm performance (Magaji *et al.*, 2017; Ogunsiji & Ladanu, 2010; Shan *et al.*, 2015; Song & Jing, 2017). Others found entrepreneurial orientation as having a negative bearing on firm performance (Hartsfield, Johansen, & Knight, 2008; Kreiser, Marino, Kuratko, & Weaver, 2013; Stam & Elfring, 2008). While some others advanced a curvilinear relationship between entrepreneurial orientation and firm performance (Cadogan *et al.*, 2016; Tang, Tang, Marino, Zhang, & Li, 2008; Yoon & Solomon, 2017). Thus, this study contends that there is a relationship between entrepreneurial orientation and firm performance. So, based on the description, we suggest our first hypothesis:

H1: entrepreneurial orientation has a positive impact on firm performance.

3.2. Digitalization and Firm Performance

Businesses in Indonesia are increasingly aware of the power of the internet and digital devices in improving business performance (Deloitte, 2015). The site, social media, and mobile messaging applications are very important media for SMEs in interacting with consumers (Deloitte, 2015). As many as 38% of business owners and managers state that the site is very important for them to interact with consumers, while 32% and 23% choose social media and mobile messaging applications in interacting with consumers. Furthermore, Deloitte conveyed the results of his research on 437 SMEs spread in the cities of Medan, Jakarta, Bandung, Semarang, Surabaya and Makassar, which showed some advantages of using digital technology for SMEs in Indonesia: increasing revenues by 80%, one and a half times more likely to increase job opportunities, 17 times more likely to be more innovative and SMEs more competitive internationally (Deloitte, 2015). Likewise, the results of Slamet *et al.* (2016) research on 60 SMEs located at the SKOCI Industrial Center in Bandung and Batik Trusmi Cirebon that digitalization has an effect on improving the performance of SMEs in the form of: Access to new customers in the country 30.67%, Increased sales and revenues 26.67%, Ease of transactions with customers and suppliers 20.33%, Lower advertising costs 14.78% and new market access abroad 7.56%. That the adoption of digital technology is proven to improve the performance of SMEs, especially in increasing access to new customers in the country and increasing sales. So,

based on this description, we suggest our second hypothesis:

H2: digitalization has a positive impact on firm performance.

3.3. The Moderating Role of Entrepreneurial Orientation in Digitalization and Firm Performance

According to new venture internationalization studies, born globals' entrepreneurial orientation is essential for their success (Knight & Cavusgil, 2004). The proactiveness, innovativeness, and risk-taking characteristics determine whether these firms willing to challenge the international market. In SME internationalization studies, entrepreneurial orientation is associated with firm performance (Cannone & Ughetto, 2014; Falahat *et al.*, 2018; Fernández-Mesa & Alegre, 2015; Gerschewski, Rose, & Lindsay, 2015; Gruber-Muecke & Hofer, 2015; Zhang *et al.*, 2013). SMEs can be characterized by a variety of different approaches to digitalization. Some SMEs can develop a coherent strategic vision of digitalization while the online services they provide are not necessarily very innovative. In cases like this, usually, the owner/manager of an SME will evaluate the success of the digitization efforts made by other SMEs and try to emulate this effort. These SMEs are reluctant to take their own actions. It is important to understand that actions to emulate this will not be able to bring SMEs to achieve sustainable competitive advantage (Porter, 1996). Instead, companies need to build unique resources (Barney, 1991) and need to constantly adapt their products and services before competing in their business (Lumpkin and Dess, 1996). An entrepreneurial approach to digitization will produce unique resources.

Highly entrepreneurial firms are more committed to building the required capabilities in line with their competitive strategies to excel (Weerawardena, 2003; Weerawardena *et al.*, 2007). Entrepreneurial orientation is a necessitate factor that triggers early internationalization (Cavusgil & Knight, 2015; Øyna & Alon, 2018). When SME owners/managers develop a coherent vision of digitalization that focuses on innovation, they will be ahead of competition when introducing new digital services (proactive), and it is possible to establish reasonable costs incurred when experimenting with new digital solutions (risk-taking), online/digital services from SMEs are more likely to be innovative and unique. As a result, these online services and tools are more likely to be differentiated

by other SMEs and to attract new customers/buyers. Based on this description, we suggest our third hypothesis:

H3: the relationship between digitalization and firm performance is moderated by entrepreneurial orientation

3.4. The Moderating Role of Digitalization in Entrepreneurial Orientation and Firm Performance

Entrepreneurial orientation not only enables SMEs to pursue their vision on digitalization more effectively, but SMEs that have made the switch to the digitalization of their business and the online market can also pursue different opportunities than SMEs that have not made this switch. Digitalization allows SMEs to communicate more quickly, frequently, and more effectively with their customers/buyers (Jayachandran et al., 2004; Narver and Slater, 2000). Also, new business opportunities in the manufacturing sector, dynamic business conversion (see Gerritsen et al., 2015), for example, often require the use of IT applications. Consequently, SMEs that have a high digitalization rate will be better able to develop the required skills and to adapt their business models to allow for the pursuit of such opportunities. Over time, SMEs become acquainted with digital technologies and solutions if they frequently implement and experiment with new technologies. Therefore, SMEs with relatively high levels of digitalization will be able to pursue business opportunities that require digital solutions more quickly and effectively than SMEs that have little experience with them, leveraging the effect of their entrepreneurial orientation. Based on this description, we suggest our third hypothesis:

H4: The relationship between entrepreneurial orientation and firm performance is moderated by the level of digitalization (Figure 1).

4. METHODOLOGY

The total number of the sample was calculated using the formula of Djarwanto et al (2000) with a 95% confidence level, and the estimation of error rate is not more than 9%, that was: $n = (Z \cdot \sigma / E)^2$. And the number of samples is: $n = (0.25) (1.96 / 0.09)^2 = 118.57 \approx 119$ people. The questionnaires were distributed to 119 (= N) owner/manager of SMEs in the metal and machinery industry in Tegal Regency. The population of these metal SMEs is around 1000 businesses. All the firms were SMEs located in Talang and Slawi Sub District. The potential respondents were reduced from 150 to 100. The sampling technique used was simple random sampling. It provides the same opportunity for each member of the population to be a research sample. How to take it using lottery numbers. We received 63 answers, a response rate of 52.9 percent. 30 percent of respondents are active in international markets, 70 percent only in their domestic markets. We used path analysis to analyze those data.

The questionnaire contained previously validated multi-item measures from entrepreneurial research as well as sector-specific variables (Table 1 for item labels). The business performance of SMEs was measured using a 3-items from (Windi Astuti, 2016) that was adopted from Lee and Tsang: sales growth, profit growth, and capital growth. Cronbach's alpha for the measurement instrument was 0.925. Entrepreneurial orientation measurement followed the approach by Eggers et al. (2013) and consisted of 14 items reflecting risk-taking (4 items), proactiveness (5 items), and innovativeness (5 items). Cronbach's alpha for the measurement instrument was 0.823. Strategic vision digitalization (Müller et al., 2016) reflected by 5 items was used. Cronbach's alpha for the measurement instrument was 0.816. All variables were based on a five-point Likert-type scale (1: "does not fit at all," 5: "fits perfectly").

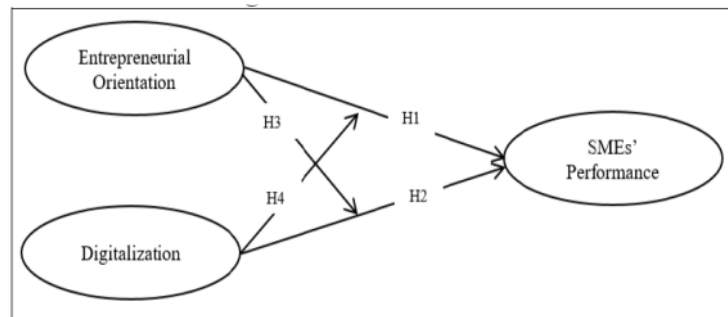


Figure 1: Research Model.

Table 1: Measures

Construct	Items wording
Firm performance	8 Last year we achieved a higher sales growth than our (direct/ indirect) competitors.
	Last year we achieved a higher profit growth than our (direct/ indirect) competitors.
	Last year we achieved a higher capital growth than our (direct/indirect) competitors.
	2 Last year we achieved a higher growth on market shares than our (direct/indirect) competitors.
Risk-taking (Entrepreneurial orientation)	We value new strategies/plans, even if we are not certain that they will always work.
	To make effective changes to our offering, we are willing to accept at least a moderate level of risk of significant losses.
	We encourage people in our company to take risks with new ideas.
	We engage in risky investments (e.g., new employees, facilities, debt, stock options) to stimulate future growth.
Proactiveness (Entrepreneurial orientation)	We continuously try to discover the additional needs of our customers, of which they are unaware.
	We consistently look for new business opportunities.
	Our marketing efforts try to lead customers rather than respond to them.
	We incorporate solutions to unarticulated customer needs in our products and services.
	We work to find new businesses or markets to target
Innovativeness (Entrepreneurial orientation)	When it comes to problem-solving, we value creative new solutions more than solutions that rely on conventional wisdom.
	We highly value new product lines.
	We consider ourselves as an innovative company.
	Our business is often the first to market with new products and services.
	1 Competitors in this market recognize us as leaders in innovation.
Digitalization	Our business has a clear vision of how to stay competitive in the next 5-10 years with respect to the digital strategy
	Our business has a clearly defined digital strategy.
	Our digital strategy is implemented in all business units.
	Our digital strategy is evaluated and adapted steadily.
	We have established new business models on the basis of our digital technologies.

5. RESULTS

6 With regards to the respondent profiles, more than 81 percent of respondents were classified according to 6 the title of being general manager and 19 percent manager/assistant manager, reinforcing the reliability of the survey findings. In all, 71.42 percent of the respondents had 6 engaged in the field of metal machine and electronic industry for more than 10 years, suggesting that they had abundant practical experience to answer the questions. Table 2 shows that:

A person's age is considered a major demographic characteristic in understanding his behavior and entrepreneurial intensity. Research shows that almost all active entrepreneurial activities are at the age level of 25 years and above. Data were analyzed using SPSS 22-software. The normality of the scales was

tested using the Kolmogorov-Smirnov, which showed that all the variables in our model were normally distributed (Table 3).

In testing the hypothesis with multiple regression analysis, F test, and t-test to determine the magnitude of the effect of the entrepreneurial orientation and digitalization on business performance; moderating effect of entrepreneurial orientation on the relation between digitalization and firm performance; moderating effect of digitalization on the relation between entrepreneurial orientation and firm performance. For more details, can be seen in Tables 4, 5 and 6.

In summary, this confirms our assumption that entrepreneurial orientation have positive influence on SMEs performance success (b = .457, p < .05,

Table 2: Profiles of Respondents

Characteristics	Freq.	%	Characteristics	Freq.	%
<i>Job Title</i>			<i>Type of company :</i>		
General Manager	52	82.54%	Metal machine & electronic company	55	87.3%
Assistant Manager	11	17.46%	Metal machine & electronic agency	8	12.7%
<i>Age of SMEs :</i>			<i>Revenue (Million Rp) :</i>		
<5 years	6	9.52%	<10	9	14.3%
6 – 10 years	12	19.05%	10 – 50	18	28.6%
11 – 15 years	9	14.28%	50 – 100	7	0.1%
16 – 20 years	17	26.98%	100 – 1,000	10	15.9%
>20 years	19	30.16%	1,000 – 5,000	3	0.05%
<i>The number of employees:</i>			5,000 – 10,000	3	0.05%
<20	19	30.16%	10,000 – 50,000	4	0.06%
21 – 50	18	28.57%	>50,000	5	0.08%
51 – 100	13	20.63%	<i>Age of Entrepreneurs of SMEs :</i>		
101 – 500	7	11.11%	25 – 40 years	17	26.9%
>500	6	9.52%	41 – 50 years	26	41.26%
<i>Ownership :</i>			51 – 60 years	20	31.74%
Local Firm	63	100%			

13
Table 3: One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		63
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	.84063469
Most Extreme Differences	Absolute	.216
	Positive	.145
	Negative	-.216
Kolmogorov-Smirnov Z		1.712
Asymp. Sig. (2-tailed)		.006

^aTest distribution is Normal.

^bCalculated from data.

Table 4: Summary from Multiple Regression Analysis 1

		Coefficients ^a				
Model		Unstand. Coeff.		Stand. Coeff.	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.386	2.622		-.910	.367
	EO	.229	.043	.457	5.357	.000
	Digitalization	.259	.045	.490	5.738	.000

^aDependent Variable: FP.

F test = 56.185; R² = 0.652; Adjusted R² = 0.640.

Probability = 0.0000.

Table 5: Summary from Moderated Regression Analysis 2

11 Coefficients ^a						
Model	Unstand. Coeff.		Stand. Coeff.	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	12.394	1.106		11.201	.000
	Digitalization	-.182	.153	-.343	-1.184	.241
	EOxDigitalization	.007	.002	1.086	3.748	.000

^aDependent Variable: FP.
F test = 41.953; R² = 0.583; Adjusted R² = 0.569.
Probability = 0.0000.

Table 6: Summary from Moderated Regression Analysis 3

11 Coefficients ^a						
Model	Unstand. Coeff.		Stand. Coeff.	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	2.598	2.948		.881	.382
	EOxDigitalization	.004	.001	.547	5.327	.000
	EO	.162	.051	.324	3.154	.003

^aDependent Variable: FP.
F test = 51.971; R² = 0.634; Adjusted R² = 0.622.
Probability = 0.0000.

Hypothesis 1 confirmed). Digitalization significantly predict firm performance (b = .49, p < .05, Hypothesis 2 confirmed). However, on the other hand, the interaction between entrepreneurial orientation and digitalization can strengthen the effect of entrepreneurial orientation on SMEs' performance (b = 1.086, p < .05, Hypothesis 3 confirmed). Consistent with our theorization, without the role of entrepreneurial orientation, the level of digitalization does not predict firm performance directly (b = -.343, p > .05). It appears that the digitalization is very capable of strengthening the effect of entrepreneurial on SME performance (b = 1.086, p < .05, Hypothesis 4 confirmed).

6. DISCUSSION

6.1. The Influence of Entrepreneurial Orientation on Firm Performance

Entrepreneurial orientation has a positive influence on SME performance. This result is suitable for the study of Magaji *et al.* (2017); Ogunsiji & Ladanu (2010); Shan *et al.* (2015) and Song & Jing (2017). Our research shows that all dimensions of entrepreneurial orientation (risk-taking, proactiveness, and innovativeness) are directly related to the business performance of the metal and machinery SMEs under investigation in this study. They can expand markets

Table 7: The Using of Digital Media

No	Media Digital	Yes	No
1	Web Pages	38	25
2	Social Media	63	-
3	Cloud Services	11	52
4	Digital communication with stakeholders	63	-
5	Web Commerce	50	11
6	Industrial Internet of Things	12	51
7	Big Data	2	61

that have an effect on increasing sales and business profit growth and increasing business capital. They also dare to take risks to develop new strategies to obtain business opportunities, meet customers, and services.

6.2 The Influence of Digitalization on Firm Performance

Based on the partial test (t-test), digitalization has an effect on the business performance of metal and machinery SMEs in Slawi. This result is suitable for the study of Deloitte (2015) and Slamet *et al.* (2016). This shows that if the utilization of digitalization is increasing, business performance will certainly increase optimally.

The most widely used digital media (refers to Table 7) is social media, digital communication with stakeholders, and web commerce. Digitalization is a potential asset but one requiring a firm to be able to adjust its processes so as to utilize this resource effectively in a dynamic business environment. These findings suggest that firms require heightened levels of this ability when operating in foreign markets. All of the business owners and managers state that the site is very important for them to interact with consumers, and also further opportunities to intensify customer relations the use of digital technologies. It will provide the customer with greater transparency. Customers are able to retrieve the same information that is available to SMEs management. A key advantage of this business model is the possibility to use different tools such as computers, phones, websites, or social media for doing business.

6.3. The Moderating Effect of Entrepreneurial Orientation on Digitalization and Firm Performance Relation

Based on the partial test (t-test) interaction between digitalization and the business performance of metal and machinery, SMEs in Slawi was moderated by entrepreneurial orientation. This result is suitable for the study of Cannone & Ughetto (2014); Falahat *et al.* (2018); Fernández-Mesa & Alegre (2015); Gerschewski, Rose, & Lindsay (2015); Gruber-Muecke & Hofer (2015); and Zhang *et al.* (2013). Entrepreneurial orientation is able to strengthen the relationship between digitalization and SME performance. With the acquisition of a fairly high percentage of 108,6%. This shows that the role of digitalization will have a greater influence on the performance of SMEs if supported by SMEs that have

a high entrepreneurial orientation. Entrepreneurial orientation is thus crucial for metal and machinery SMEs in Slawi that want to achieve competitive advantages, and they need to combine a strategic vision on digitalization with entrepreneurial orientation, as a strategic vision alone (digitalization) does not improve performance.

6.4. The Moderating Effect of Digitalization on Entrepreneurial Orientation and Firm Performance Relation

Based on the partial test (t-test) interaction between entrepreneurial orientation and the business performance of metal and machinery, SMEs in Slawi was moderated by digitalization. This result is suitable for the study of Jayachandran *et al.* (2004); Slater and Narver (2000) and Gerritsen *et al.* (2015). develop a coherent vision on digitalization that focuses on innovation, being ahead of the competition when introducing new digital services (proactiveness), and that allows for reasonable costs incurred while experimenting with new digital solutions (risk-taking), the digital services of those SMEs are more likely to be innovative and unique. As a result, these services and online tools are more likely to allow SMEs to differentiate themselves from other SMEs and to attract new customers and markets.

7. CONCLUSION

It seems clearly recommendable that SMEs need to build unique resources and need to adapt their products and services ahead of the competition constantly. A more entrepreneurial approach to digitalization would result in such unique resources. When the owners/managers of SMEs Digitalization have become a strategic priority for an increasing number of entrepreneurial SMEs. The diffusion of digital platforms is based on the unprecedented benefits of managing large and growing numbers of diverse relationships and ever-increasing amounts of information. The platform approach represents an emerging research stream that presents opportunities efficiency improvements and innovation thrusts. However, current understanding of the performance implications of implementing digital platforms is limited, and many firms' digitalization efforts are unsuccessful. This lack of success is especially relevant for entrepreneurial SMEs because of their liability of smallness, which creates unique challenges. Recent

research, therefore, calls for further developments to explain the relationship between digital platforms and entrepreneurial SMEs' performance.

REFERENCES

- Abor, J., & Quartey, A. (2010). Issues in SME Development in Ghana and South Africa. *International Research Journal of Finance and Economics*, 39(6), 215-228.
- Acker, O., Gröne, F., Lefort, T., & Kropiunigg, L. (2015). The impact of digitization and the Internet on the creative industries in Europe. PwC.
- Ahmad, I., & Ahmad, S. (2018). Multiple Skills and Medium Enterprises' Performance in Punjab Pakistan: A Pilot Study. *Journal of Social Sciences Research*, 7(4), 44-49.
- Ahmad, I., & Ahmad, S. (2019). The Mediation Effect of Strategic Planning on The Relationship Between Business Skills and Firm's Performance: Evidence from Medium Enterprises in Punjab, Pakistan. *Opcion*, 35(24), 746-778.
- Ahmad, I., Sahar. (2019). Waste Management Analysis From Economic Environment Sustainability Perspective. *International Journal Of Scientific & Technology Research* 8(12), 1540-1543.
- Al-Dhaafri, H.S., Al-Swidi, A.K. and Yusoff, R.Z.B. (2016) The Mediating Role of Total Quality Management between the Entrepreneurial Orientation and the Organizational Performance. *The TQM Journal*, 28, 89-111. <https://doi.org/10.1108/TQM-03-2014-0033>
- Alekseev, A. N., Lobova, S. V., Bogoviz, A. V., & Ragulina, Y. V. (2019). Digitalization of the Russian Energy Sector: State-of-the-art and Potential for Future Research. *International Journal of Energy Economics and Policy*, 9(5), 274-280. <https://doi.org/10.32479/ijeeep.7673>
- Altinay, Levent and Wang, Chaterine L.(2011), "The influence of an entrepreneur's socio-cultural characteristics on the entrepreneurial orientation of small firms", *Journal of Small Business and Enterprise Development* 18(4):673-694 · October 2011. <https://doi.org/10.1108/14626001111179749>
- Andersén, J. (2012). A resource-based taxonomy of manufacturing MSMEs. *International Journal of Entrepreneurial Behavior & Research*, 18(1), 98–122. <https://doi.org/10.1108/13552551211201394>
- Armbrust, M., Fox, A., Griffith, R., Joseph, A. D., Katz, R., Konwinski, A., ... others. (2010). A view of cloud computing. *Communications of the ACM*, 53(4), 50–58. <https://doi.org/10.1145/1721654.1721672>
- Arntz, M., Gregory, T., & Zierahn, U. (2016). The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis. OECD Social, Employment and Migration Working Papers, (189). Retrieved from https://www.oecd-ilibrary.org/social-issues-migration-health/the-risk-of-automation-for-jobs-in-oecd-countries_5jtz9h56dvq7-en
- Autio, Erko. (2017). Strategic Entrepreneurial Internationalization: A Normative Framework. *Strategic Entrepreneurship Journal* 11(3) · August 2017 <https://doi.org/10.5465/AMBPP.2017.10595abstract>
- Autor, D. H. (2015). Why are there still so many jobs? The history and future of workplace automation. *The Journal of Economic Perspectives*, 29(3), 3–30. <https://doi.org/10.1257/jep.29.3.3>
- Awwad, M. S., & Ali, H. K. (2012). Emotional intelligence and entrepreneurial orientation: The moderating role of organizational climate and employees' creativity. *Journal of Research in Marketing and Entrepreneurship*, 14(1), 115-136 <https://doi.org/10.1108/14715201211246869>
- Barfield, W. (2015). *Fundamentals of wearable computers and augmented reality* (2nd ed). Oakville: CRC Press. <https://doi.org/10.1201/b18703>
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. <https://doi.org/10.1177/014920639101700108>
- Bauer, Wilhelm & Horváth, Péter (2015), "Industrie 4.0 : volkswirtschaftliches Potential für Deutschland", *Controlling : Zeitschrift für erfolgsorientierte Unternehmenssteuerung*. - München : Beck, ISSN 0935-0381, ZDB-ID 649545-X. - Vol. 27.2015, 8/9, p. 515-517 <https://doi.org/10.15358/0935-0381-2015-8-9-515>
- Benlian, A., & Hess, T. (2011). Opportunities and risks of software-as-a-service: Findings from a survey of IT executives. *Decision Support Systems*, 52(1), 232–246. <https://doi.org/10.1016/j.dss.2011.07.007>
- Bryanjolfsson, E., & McAfee, A. (2011). *Race Against The Machine : How the Digital Revolution is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and Economy*. Digital Frontier Press.
- Burke, R. J., & Cooper, C. L. (2006). The new world of work and organizations: Implications for human resource management. *Human Resource Management Review*, 16(2), 83–85. <https://doi.org/10.1016/j.hrmr.2006.03.013>
- Cadogan, J. W., Boso, N., Story, V. M., & Adeola, O. (2016). Export strategic orientation – performance relationship: Examination of its enabling and disabling boundary conditions ☆. *Journal of Business Research*. <https://doi.org/10.1016/j.jbusres.2016.04.078>
- Cannone, G. and Ughetto, E., 2014. Born globals: a cross-country survey on high-tech start-ups. *International Business Review*, 23(1), pp.272-283. <https://doi.org/10.1016/j.ibusrev.2013.05.003>
- Caseiro, N. and Coelho, A. (2018), "Business intelligence and competitiveness: the mediating role of entrepreneurial orientation", *Competitiveness Review: An International Business Journal*, Vol. 28No. 2, pp. 213-226. <https://doi.org/10.1108/CR-09-2016-0054>
- Cavusgil, S. T., & Knight, G. (2015). The born global firm: An entrepreneurial and capabilities perspective on early and rapid internationalization. *Journal of International Business Studies*, 46(1), 3-16. <https://doi.org/10.1057/jibs.2014.62>
- Christensen, C.M.; Bower, J.L. 1996. Customer lower, strategic investment, and the failure of leading firms. *Strategic Management Journal*, 17, 197–218. [https://doi.org/10.1002/\(SICI\)1097-0266\(199603\)17:3<197::AID-SMJ804>3.0.CO;2-U](https://doi.org/10.1002/(SICI)1097-0266(199603)17:3<197::AID-SMJ804>3.0.CO;2-U)
- Clarke, M., Seng, D., & Whiting, R. H. (2011). Intellectual capital and firm performance in Australia. *Journal of Intellectual Capital*, 12(4), 505-530. <https://doi.org/10.1108/14691931111181706>
- Conduit, J., Mavondo, F.T. 2001. How critical is internal customer orientation to market orientation? *Journal of Business Research*, 51, 11–24. [https://doi.org/10.1016/S0148-2963\(99\)00044-2](https://doi.org/10.1016/S0148-2963(99)00044-2)
- Cong, C., Dempsey, M., & Xie, H. M. (2017). Political skill, entrepreneurial orientation and organizational justice: A study of entrepreneurial enterprise in China. *International Journal of Entrepreneurial Behavior & Research*, 23(1), 20-34. <https://doi.org/10.1108/IJEBR-05-2015-0103>
- Cook, N. (2008). *Enterprise 2.0: How Social Software Will Change the Future of Work*. London: Routledge.
- Covin, J. G. and D. P. Slevin (1989). "Strategic management in small firms in hostile and benign environments." *Strategic Management Journal* 10 (1), 75-87. <https://doi.org/10.1002/smj.4250100107>

- Covin, J. G. and D. P. Slevin (1991). "A conceptual model of entrepreneurship as firm behaviour." *Entrepreneurship Theory and Practice* 16 (1), 7-24.
<https://doi.org/10.1177/104225879101600102>
- Dada, O and Watson, A (2013). Entrepreneurial orientation and franchise system: Organizational antecedent and performance outcomes. *European Journal of Marketing*, vol.47 no 5/6 pp. 792-793.
<https://doi.org/10.1108/03090561311306877>
- De Mauro, A., Greco, M., & Grimaldi, M. (2015). What is big data? A consensual definition and a review of key research topics. In *AIP Conference Proceedings* (Vol. 1644, pp. 97–104).
<https://doi.org/10.1063/1.4907823>
- Deloitte. 2015. UKM Pemicu kemajuan Indonesia : Instrumen pertumbuhan bangsa [Online]. Tersedia pada: <http://www2.deloitte.com/content/dam/Deloitte/id/Documents/financ/e/id-fas-sme-powering-indonesia-success-report-bahasa-noexp.pdf> [31 Agustus 2016]
- Dimitratos, P. and Plakoyiannaki, E. (2003) Theoretical foundations of an international entrepreneurial culture. *Journal of International Entrepreneurship*, 1(2), pp. 187-215.
<https://doi.org/10.1023/A:1023804318244>
- Djarwanto, dan Subagyo, Pangestu, ((2000), Statistik Induktif, Edisi 4, BPFE, Yogyakarta.
- Drath, R., & Horch, A. (2014). Industrie 4.0: Hit or hype?[industry forum]. *IEEE Industrial Electronics Magazine*, 8(2), 56–58.
<https://doi.org/10.1109/MIE.2014.2312079>
- Drazin, R. and A. H. Van de Ven (1985). "Alternative Forms of Fit in Contingency Theory." *Administrative Science Quarterly* 30 (4), 514-539.
<https://doi.org/10.2307/2392695>
- Eggers, F., Kraus, S., Hughes, M., Laraway, S., dan Snyerski, S. (2013). Implications of customer and entrepreneurial orientations for SME growth. *Management Decision*, 51(3), 524-546.
<https://doi.org/10.1108/00251741311309643>
- Falahat, M., Knight, G., & Alon, I. (2018). Orientations and capabilities of born global firms from emerging markets. *International Marketing Review*, 35(6), 936-957.
<https://doi.org/10.1108/IMR-01-2017-0021>
- Farrelly, F., & Quester, P. 2003. The effects of market orientation on trust and commitment: the case of the sponsorship business relationship. *European journal of marketing*, 37 (3/4), 530-553.
<https://doi.org/10.1108/03090560310459078>
- Felstead, A., & Henseke, G. (2017). Assessing the growth of remote working and its consequences for effort, well-being and work-life balance. *New Technology, Work and Employment*, 32(3), 195–212.
<https://doi.org/10.1111/ntwe.12097>
- Franco, M., & Haase, H. (2013). Firm resources and entrepreneurial orientation as determinants for collaborative entrepreneurship. *Management Decision*, 51(3), 680-696.
<https://doi.org/10.1108/00251741311309724>
- Gartner, W. B. (1988). "Who is an Entrepreneur" is the wrong question. *American Small Business Journal*, 12(4), 11-31.
<https://doi.org/10.1177/104225878801200401>
- Gerritsen, D. F., J. P. C. Rigtering, S. Bouw and S. Vonk (2015). "Travelers' conversion behavior at foreign cash withdrawals: An experimental study." *Annals of Tourism Research* 50 (1), 162- 165.
<https://doi.org/10.1016/j.annals.2014.10.005>
- Gerschewski, S, Lindsay, VJ and Rose, E. (2016) "Advancing the entrepreneurial orientation construct: the role of passion and perseverance", *Review of International Business and Strategy*, 26 (4). pp. 446-471. ISSN 2059-6014.
<https://doi.org/10.1108/RIBS-08-2016-0042>
- Gruber-Muecke, T. and Hofer, K.M.(2015)," Market orientation, entrepreneurial orientation and performance in emerging markets", *International Journal of Emerging Markets* 10(3):560-571 · July 2015.
<https://doi.org/10.1108/IJoEM-05-2013-0076>
- Hagberg, J. (2016). The digitalization of retailing: an exploratory framework. *International Journal of Retail & Distribution Management*, 44(6), 336–368.
<https://doi.org/10.1108/IJRDM-09-2015-0140>
- Han, J.K.; Kim, N.W.; Srivastava, R.K. 1998. Market orientation and organizational performance: Is innovation a missing link? *Journal of Marketing*, 62, 30–45.
<https://doi.org/10.1177/002224299806200403>
- Hartsfield, S., Johansen, D., & Knight, G. A. (2008). Entrepreneurial orientation, strategy, and marketing capabilities in the performance of born global firms. *International Business: Research Teaching and Practice Journal of the AIB-SE*, 2(1), 12–38
- Hermann, M., Pentek, T., & Otto, B. (2016). Design principles for industrie 4.0 scenarios. In *System Sciences (HICSS), 2016 49th Hawaii International Conference on* (pp. 3928–3937). IEEE.
<https://doi.org/10.1109/HICSS.2016.488>
- Hills, S.B.; Sarin, S. 2003. From market driven to market driving: An alternate paradigm for marketing in high technology industries. *Journal of Marketing Theory and Practice*, 11, 13–24.
<https://doi.org/10.1080/10696679.2003.11658498>
- Hoeven, C. L., & Zoonen, W. (2015). Flexible work designs and employee well-being: examining the effects of resources and demands. *New Technology, Work and Employment*, 30(3), 237–255.
<https://doi.org/10.1111/ntwe.12052>
- Indarti, Nurul; Langenberg, Marja. 2004. Factors affecting business success among SMEs: empirical evidences from Indonesia. *Proceedings of the Second Bi-Annual European Summer University*, (19) 20 & 21 September 2004, University of Twente, Enschede, The Netherlands.
- Jang, H.Y. 2013. Relationships among market orientation, marketing performance and CRM performance: Focused on the modulating effects of customer asset value. *Academy Customer Satisfaction Management* 15, 1–27.
- Javalgi RG., Todd PR .2011. Entrepreneurial Orientation, Management Commitment and Human Capital : The Internalization of SMEs in India. *Journal of Business Resesearch*, Vol. 64, No.9, pp:1004-1010.
<https://doi.org/10.1016/j.jbusres.2010.11.024>
- Jaworski, B.J.; Kohli, A.K. Market orientation: Antecedents and consequences. 1993. *Journal of Marketing*, 57, 52–70
<https://doi.org/10.1177/002224299305700304>
- Jayachandran, S., K. Hewett and P. Kaufman (2004). "Customer response capability in a sense-and-respond era: the role of customer knowledge process." *Journal of the Academy of Marketing Science* 32 (3), 219-233.
<https://doi.org/10.1177/0092070304263334>
- Jeong, G.Y., 2017. The effect of entrepreneurial orientation on marketing capability. *Korean Corp. Management Review*, 24, 75–106.
<https://doi.org/10.21052/KCMR.2017.24.4.04>
- John Walker, S. (2014). Big Data: A Revolution That Will Transform How We Live, Work, and Think. *International Journal of Advertising*, 33(1), 181–183.
<https://doi.org/10.2501/IJA-33-1-181-183>
- Kaganer, E. A., Pawlowski, S. D., & Wiley-Patton, S. (2010). Building legitimacy for IT innovations: the case of computerized physician order entry systems. *Journal of the Association for Information Systems*, 11(1), 1-33.
<https://doi.org/10.17705/ijais.00219>

- Kapitonov, I. A., Filosofova, T. G., & Korolev, V. G. (2019). Development of Digital Economy in the Energy Industry-specific Modernization. *International Journal of Energy Economics and Policy*, 9(4), 273. <https://doi.org/10.32479/ijeep.8013>
- Kim, W.C.; Mauborgne, R. 1997. Value innovation: The strategic logic of high growth. *Harv. Bus. Rev.*, 75, 103–112.
- Knight, Gary A. and Cavusgil, S Tamar. March 2004. Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies*, Volume 35, Issue 2, pp 124–141 <https://doi.org/10.1057/palgrave.jibs.8400071>
- Kohli, A.K.; Jaworski, B.J. 1990. Market orientation: The construct, research propositions, and managerial implications. *Journal of Marketing*, 54, 1–18. <https://doi.org/10.1177/002224299005400201>
- Kraus, S. (2013). "The role of entrepreneurial orientation in service firms: empirical evidence from Austria", *Service Industry Journal*, Vol. 33, No. 5, pp. 427-444. <https://doi.org/10.1080/02642069.2011.622373>
- Kreiser, P. M., Marino, L. D., Kuratko, D. F., & Weaver, K. M. (2013). Disaggregating entrepreneurial orientation: the non-linear impact of innovativeness, proactiveness and risk-taking on SME performance. *Journal of Small Business and Economics*, 40, 273–291. <https://doi.org/10.1007/s11187-012-9460-x>
- Kreiser, Patrik M. and Davis, Justin L. (2010), "Entrepreneurial Orientation and Firm Performance: The Unique Impact of Innovativeness, Proactiveness, and Risk-Taking", *Journal of Small Business & Entrepreneurship* 23(1):39-51. <https://doi.org/10.1080/08276331.2010.10593472>
- Krush, M.T., Sohi, R.S. and Saini, A. (2015) 'Dispersion of marketing capabilities: impact on marketing's influence and business unit outcomes', *Journal of the Academy of Marketing Science*, Vol. 43, No. 1, pp.32–51. <https://doi.org/10.1007/s11747-014-0420-7>
- Lam, Tin Yan & Lee, Shu kam (2008), "CEO duality and firm performance: Evidence from Hong Kong", *Corporate Governance International Journal of Business in Society* 8(3):299-316 · June 2008. <https://doi.org/10.1108/14720700810879187>
- Larivière, B., Bowen, D., Andreassen, T. W., Kunz, W., Sirianni, N. J., Voss, C., ... De Keyser, A. (2017). "Service Encounter 2.0": An investigation into the roles of technology, employees and customers. *Journal of Business Research*, 79, 238–246. <https://doi.org/10.1016/j.jbusres.2017.03.008>
- Levitt, T. 1980. Marketing success through differentiation of anything. *Harvard Business Review*, 58, 83–91.
- Li, H., & O'Connor, A. (2017). The entrepreneurial influence on winery market performance – a mediation perspective. *International Journal of Wine Business Research*, 29(2), 210-232 <https://doi.org/10.1108/IJWBR-11-2016-0037>
- Liozu, S. M., & Hinterhuber, A. (2013). Pricing orientation, prLiu, D.-Y., Chen, S.-W., & Chou, T.-C. (2011). Resource fit in digital transformation: Lessons learned from the CBC Bank global e-banking project. *Management Decision*, 49(10), 1728–1742. <https://doi.org/10.1108/00251741111183852>
- Liu, L., Qu, W., & Haman, J. (2018). Product market competition, state-ownership, corporate governance and firm performance. *Asian Review of Accounting*, 26(1), 62-83. <https://doi.org/10.1108/ARA-05-2017-0080>
- Loebbecke, C., & Picot, A. (2015). Reflections on societal and business model transformation arising from digitization and big data analytics: A research agenda. *The Journal of Strategic Information Systems*, 24(3), 149–157. <https://doi.org/10.1016/j.jsis.2015.08.002>
- Lumpkin, G. T. and G. G. Dess (1996). "Clarifying the entrepreneurial orientation construct and linking it to performance." *Academy of Management Review* 21 (1), 135-172. <https://doi.org/10.5465/amr.1996.9602161568>
- Lumpkin, G. T. and G. G. Dess (2001). "Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle." *Journal of Business Venturing* 16 (5), 429-451. [https://doi.org/10.1016/S0883-9026\(00\)00048-3](https://doi.org/10.1016/S0883-9026(00)00048-3)
- Magaji, M. S., Baba, R., & Entebang, H. (2017). Entrepreneurial Orientation and Financial Performance of Nigerian SMES: The Moderating Role of Environment . A Review of Literature. *Journal of Management and Training for Industries*, 4(1), 25–42. <https://doi.org/10.12792/JMTI.4.1.25>
- McAfee, A. (2009). *Enterprise 2.0: New collaborative tools for your organization's toughest challenges*. Boston: Harvard Business Press.
- McAfee, A., Brynjolfsson, E. (2012). Big data: the management revolution. *Harvard Business Review*, 90(10), 60–68.
- Meyer, Alan D., S. Tsui, Anne and Hinings, C. R. (1993). Configurational Approaches to Organizational Analysis. *The Academy of Management Journal*/Vol. 36, No. 6 (Dec., 1993), pp. 1175-1195 <https://doi.org/10.2307/256809>
- Mickiewicz, T., Sauka, A., & Stephan, U. (2016). On the compatibility of benevolence and self-interest: Philanthropy and entrepreneurial orientation. *International Small Business Journal*, 34, 303–328. <https://doi.org/10.1177/0266242614555245>
- Miller, D (2017). "Challenging trends in configuration research: Where are the configurations?", *Strategic Management Journal*. Volume: 16 issue: 4, page(s): 453-469 <https://doi.org/10.1177/1476127017729315>
- Miller, D. (1983). "The correlates of entrepreneurship in three types of firms." *Management Science* 29 (7), 770-791. <https://doi.org/10.1287/mnsc.29.7.770>
- Miller, D. and Toulouse, J.M. (1986), "Strategy, structure, CEO personality and performance in small firms", *American Journal of Small Business*, Vol. 10, No. 3, pp. 47-62 <https://doi.org/10.1177/104225878501000305>
- Miller, D., & Friesen, P. H. (1982). Innovation in conservative and entrepreneurial firms: two models of strategic momentum. *Strategic Management Journal*, 3, 1–25. <https://doi.org/10.1002/smj.4250030102>
- Miller, Danny (1996). "Configurations Revisited", *Strategic Management Journal*, Vol.17, pp.505-512. [https://doi.org/10.1002/\(SICI\)1097-0266\(199607\)17:7<505::AID-SMJ852>3.0.CO;2-I](https://doi.org/10.1002/(SICI)1097-0266(199607)17:7<505::AID-SMJ852>3.0.CO;2-I)
- Narver, J.C.; Slater, S.F.; MacLachlan, D.L. 2004. Responsive and proactive market orientation and new product success. *Journal of Production Innovation Management*, 21, 334–347. <https://doi.org/10.1111/j.0737-6782.2004.00086.x>
- Ogunsiji, A. S., & Ladanu, K. W. (2010). Entrepreneurial Orientation as a Panacea for the Ebbing Productivity in Nigerian Small and Medium Enterprises: A Theoretical Perspective. *International Business Research*, 3(4), 192–199. <https://doi.org/10.5539/ibr.v3n4p192>
- Ong, S. K., & Nee, A. Y. C. (2013). *Virtual and Augmented Reality Applications in Manufacturing*. London: Springer.
- Oxford and SAP, 2013. How successful SMEs are reinventing global business. https://www.oxfordeconomics.com/Media/Default/Landing%20pages/SAP%20SME/Research/SAP_SME_Executive_Summary.pdf
- Øyna, S., & Alon, I. (2018). A Review of Born globals. *International Studies of Management & Organization*, 48(2), 157-180. <https://doi.org/10.1080/00208825.2018.1443737>

- Park, M.S.; Lee, D.J. 2002. The role of integrating mediators between market orientation and performance of hotels. *Asia Marketing Journal*, 4, 55–78.
- Pham, T. S., Monkhouse, L. L., & Barnes, B. R. (2017). The influence of relational capability and marketing capabilities on the export performance of emerging market firms. *International Marketing Review*, 34(5), 606-628. <https://doi.org/10.1108/IMR-07-2014-0235>
- Pratono, A. H. (2016). Strategic Orientation and Information Technological Turbulence: Contingency Perspective in SMEs. *Business Process Re-Engineering & Management Journal*, 22(2), 50–65. <https://doi.org/10.1108/14637150210449102>
- Pumomo, Margo. April 2016. Internasionalisasi sebagai perilaku entrepreneurial usaha kecil dan menengah. *Jurnal Aplikasi Bisnis*, Vol. 6 No. 2.
- Qian, L., Luo, Z., Du, Y., & Guo, L. (2009). Cloud computing: An overview. *Cloud Computing*, 626–631. https://doi.org/10.1007/978-3-642-10665-1_63
- Ramiller, N. C., & Swanson, E. B. (2003). Organizing visions for information technology and the information systems executive response. *Journal of Management Information Systems*, 20(1), 13–50. <https://doi.org/10.1080/07421222.2003.11045760>
- Regeringen. (2016). Smart Industry - A strategy for new industrialisation for Sweden. Retrieved February 23, 2017, from <http://www.regeringen.se/49a937/globalassets/regeringen/dokument/naringsdepartementet/pdf-igenavgsblock/smart-industry.pdf>
- Schlegelmilch, B.B.; Ram, R. 2000. The impact of organizational and environmental variables on strategic market orientation: An empirical investigation. *Journal of Global Marketing*, 13, 111–127. https://doi.org/10.1300/J042v13n03_06
- Schweizer, Roger. 2012. The internationalization process of SMEs: A muddling-through process. *Journal of Business Research* 65(6):745–751 · June 2012. <https://doi.org/10.1016/j.jbusres.2010.12.011>
- Shan, P., Song, M., & Ju, X. (2015). Entrepreneurial orientation and performance: Is innovation speed a missing link? *Journal of Business Research*. <https://doi.org/10.1016/j.jbusres.2015.08.032>
- Slamet et al. (2016). "Strategi Pengembangan UKM Digital Dalam Menghadapi Era Pasar Bebas", *Jurnal Manajemen Indonesia*. Vol.16 - No.2 APRIL 2016 <https://doi.org/10.25124/jmi.v16i2.319>
- Soininen et al. (2018). "Entrepreneurial orientation in small firms - values-attitudes-behavior approach", *International Journal of Entrepreneurial Behaviour & Research* 19(6) · September 2013 <https://doi.org/10.1108/IJEBR-10-2012-0106>
- Song, L., & Jing, L. (2017). Strategic orientation and performance of new ventures: empirical studies based on entrepreneurial activities in China. *International Entrepreneurship and Management Journal*. <https://doi.org/10.1007/s11365-017-0433-z>
- Stam, W., & Elfring, T. O. M. (2008). Entrepreneurial Orientation and New Venture Performance: the Moderating Role of Intra- and Extraindustry Social Capital. *Academy of Management Journal*, 51(1), 97–111. <https://doi.org/10.5465/amj.2008.30744031>
- Taatila, V., & Down, S. (2012). Measuring entrepreneurial orientation of university students. *Education + Training*, 54(8/9), 744–760. <https://doi.org/10.1108/00400911211274864>
- Tajeddin et al., (2013). Efficiency and effectiveness of small retailers: The role of customer and entrepreneurial orientation. *Journal of Retailing and Consumer Services* 20(5):453–462. <https://doi.org/10.1016/j.jretconser.2013.05.004>
- Tang, J., Tang, Z., Marino, L. D., Zhang, Y., & Li, Q. (2008). Exploring an Inverted U-Shape Relationship between Entrepreneurial Orientation and Performance in Chinese Ventures. *Entrepreneurship Theory and Practice*, 32(1), 219–239 <https://doi.org/10.1111/j.1540-6520.2007.00223.x>
- ten Brummelhuis, L. L., Bakker, A. B., Hetland, J., & Keulemans, L. (2012). Do new ways of working foster work engagement? *Psicothema*, 24(1), 113–120.
- Tuan, L. T. (2015). Entrepreneurial orientation and competitive intelligence: cultural intelligence as a moderator. *Journal of Research in Marketing and Entrepreneurship*, 17(2), 212–228. <https://doi.org/10.1108/JRME-07-2015-0038>
- Vos, J. P., Keizer, J. A., & Halman, J. I. M. (1998). Diagnosing constraints in knowledge of SMEs. *Technological forecasting and social change*, 58(3), 227-239. [https://doi.org/10.1016/S0040-1625\(98\)00024-9](https://doi.org/10.1016/S0040-1625(98)00024-9)
- Walter, A., Auer, M., & Ritter, T. (2006). The impact of network capabilities and entrepreneurial orientation on university spin-off performance. *Journal of Business Venturing*, 21, 541–567. <https://doi.org/10.1016/j.jbusvent.2005.02.005>
- Wang, Chaterine L. and Allinay, Levent. (2012). Social embeddedness, entrepreneurial orientation and firm growth in ethnic minority small businesses in the UK. *International Small Business Journal* 30(1):3-23 <https://doi.org/10.1177/0266242610366060>
- Wang, X. V., Wang, L., Mohammed, A., & Givehchi, M. (2015). Ubiquitous manufacturing system based on Cloud: A robotics application. *Robotics and Computer-Integrated Manufacturing*, 45, 116–125. <https://doi.org/10.1016/j.rcim.2016.01.007>
- Weerawardena, J. (2003). The role of marketing capability in innovation-based competitive strategy. *Journal of Strategic Marketing*, 11(1), 15-35. <https://doi.org/10.1080/0965254032000096766>
- Weerawardena, J., Mort, G. S., Liesch, P. W., & Knight, G. (2007). Conceptualizing accelerated internationalization in the born global firm: A dynamic capabilities perspective. *Journal of World Business*, 42(3), 294-306. <https://doi.org/10.1016/j.jwb.2007.04.004>
- Wiklund, J. (1998). Small Firm Growth and Performance: Entrepreneurship and Beyond. Doctoral dissertation. Jönköping: Jönköping International Business School.
- Windi Astuti, Murwatingsih (2016). Pengaruh Kemampuan Manajemen dan Karakteristik Usaha Terhadap Kinerja Usaha UKM Olahan Produk Salak di Kabupaten Banjarnegara. *Management Analysis Journal*:5(2) ISSN 2252-6552
- Wong, S. K.-S. (2014). Impacts of environmental turbulence on entrepreneurial orientation and new product success. *European Journal of Innovation Management*, 17(2), 229-249. <https://doi.org/10.1108/EJIM-04-2013-0032>
- Yang, Y.I. 2013. The relationships of market orientation, marketing/R&D interface, strategic flexibility and performance, and the moderating effect of environmental turbulence in the domestic manufacturing firms: From the perspective of CEO. *Journal of Professional Management*, 16, 141–167.
- Yoon, J., & Solomon, T. (2017). A curvilinear relationship between entrepreneurial orientation and firm performance: The moderating role of employees' psychological safety. *International Entrepreneurship and Management Journal*, 1–18. <https://doi.org/10.1007/s11365-017-0448-5>

Zahra, SA 2008, 'Being Entrepreneurial And Market Driven: Implications For Company Performance', *Journal of Strategy and Management*, vol. 1, no. 2, p. 125-142.
<https://doi.org/10.1108/17554250810926339>

Zhang, David Di., & Bruning, Edward R., (2011)," Personal characteristics and strategic orientation: Entrepreneurs in Canadian manufacturing companies", *International Journal*

of Entrepreneurial Behaviour & Research 17(1):82-103 · February 2011

<https://doi.org/10.1108/13552551111107525>

Zhang, M., Sarker, S., & Sarker, S. (2013). Drivers and export performance impacts of IT capability in _born global'firms: a cross national study. *Information Systems Journal*, 23(5), 419-443.

<https://doi.org/10.1111/j.1365-2575.2012.00404.x>

Received on 07-11-2020

Accepted on 17-12-2020

Published on 27-12-2020

DOI: <https://doi.org/10.6000/1929-4409.2020.09.266>

© 2020 Djou *et al.*; Licensee Lifescience Global.

This is an open access article licensed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted, non-commercial use, distribution and reproduction in any medium, provided the work is properly cited.

The Contingency Approach of Digitalization and Entrepreneurial Orientation on Smes Performance in Metal and Machinery Industry

ORIGINALITY REPORT

21 %
SIMILARITY INDEX

12 %
INTERNET SOURCES

11 %
PUBLICATIONS

16 %
STUDENT PAPERS

PRIMARY SOURCES

- 1** Submitted to Technische Universität Clausthal
Student Paper **6** %
- 2** Carolin Palmer, Thomas Niemand, Christoph Stöckmann, Sascha Kraus, Norbert Kailer.
"The interplay of entrepreneurial orientation and psychological traits in explaining firm performance", Journal of Business Research, 2017
Publication **3** %
- 3** pdfs.semanticscholar.org
Internet Source **2** %
- 4** publishing.globalcsrc.org
Internet Source **2** %
- 5** Javier Cenamor, Vinit Parida, Joakim Wincent.
"How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity", Journal of Business Research, 2019 **2** %

6	Submitted to Higher Education Commission Pakistan Student Paper	1 %
7	Gabriel Linton, Johan Kask. "Configurations of entrepreneurial orientation and competitive strategy for high performance", Journal of Business Research, 2017 Publication	1 %
8	www.researchgate.net Internet Source	1 %
9	Submitted to Padjadjaran University Student Paper	1 %
10	Devi Asiati, Gutomo Bayu Aji, Vanda Ningrum, Ngadi Ngadi et al. "Employment Opportunities And Human Resources Development In Digital Era: A Case Study In Industrial Sector", Journal of Indonesian Social Sciences and Humanities, 2018 Publication	1 %
11	Submitted to University of Auckland Student Paper	1 %
12	eprints.utas.edu.au Internet Source	1 %
13	feb.unila.ac.id Internet Source	1 %
