

## The role of effectual reasoning in shaping the relationship between managerial-operational capability and innovation performance

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### CHRONICLE

#### Article history:

Received: June 26, 2020

Received in revised format:

June 30 2020

Accepted: July 26, 2020

Available online:

August 4, 2020

#### Keywords:

Managerial Capability

Operational Capability

Effectuation

Innovation Performance

### ABSTRACT

The aim of this research is to analyze the relationship between the managerial-operational capability of digital business strategy and innovation performance on the setting of entrepreneurial small and medium enterprises (SMEs). This article is valuable to extend the comprehension and knowledge of SME's entrepreneurship to obtain innovation performance through digital business strategies and these efforts are encouraged by effectuation decision-making logic. This survey targets the manufacturing of small and medium-scale food and beverage SMEs in Indonesia. A total of 52 SME entrepreneurs were selected as the respondent in this research. The data obtained from the collecting of the online questionnaires were analyzed using Moderating Regression Analysis with SPSS for data analysis. The successful entrepreneurial SMEs enhance their innovation performance by improving managerial-operational capability. Effectuation decision-making logic contributes more to strengthening the relationship between managerial capability with innovation performance than operational capability with innovation performance.

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## 1. Introduction

The Fourth Industry Revolution (4IR) era is characterized by technological scrutiny that blurs the boundaries between physical, digital, and biological fields, or collectively referred to as cyber-physical systems (CPS). In the 4IR era, a company is very dependent on the quality of human resources in mastering and utilizing science and technology and innovation ([lipi.go.id](http://lipi.go.id)). This era is an opportunity for businesses to be able to increase their competitiveness and market their flagship products reaching markets throughout the country, even crossing borders to overseas. In order not to be eroded by change and turn it into an opportunity, businesses must improve. SMEs must begin to carefully prepare the process of transformation into the digital age. In response to those technological advancements, the Indonesian government is committed to implementing Making Indonesia 4.0 and making it a national agenda. The Making Indonesia 4.0 initiative provides excellent potential to double the productivity of the workforce, thereby increasing global competitiveness and raising Indonesia's global export market share. This program has begun in the first semester of 2018. Indonesia has set up task forces for five sector focus (food and beverage, textiles and apparel, automotive, chemical, and electronics). The program's goals are to push innovation and technology appropriation and to support Small and Medium Enterprises (SMEs) entrepreneurs with building e-commerce platforms for SMEs. Including accelerating the improvement of digital foundation, high-speed internet, and digital capacities in collaboration with government, all divisions to be ready to advance in digital technologies such as cloud, data center, safety control, and broadband support. The consequence of technology-based SMEs in most economics cannot be undervalued. Entrepreneurship is critical in the transformation towards a more sustainable prospect (Belz & Binder, 2017). The high impact growth generated by the innovative capabilities of SMEs. The contribution of SMEs is expected through job creation. SMEs also

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contribute to gross domestic product (GDP) and support by the government to these businesses to ensure sustainable growth is not only profitable to individual firms but also grow the economy. The reliable performance of Indonesia's economic growth plays a role in anticipating the uncertain conditions of the global economy. Economic growth in 2018 was recorded at 5.17%, higher than the growth in 2017 of 5.07%, and is the highest achievement in the last five years based on data from the Central Statistics Agency released in February 2019. It shows that entrepreneurship is an essential factor that affects a country's economic growth.

SMEs perform a significant part in most economies, especially in emerging countries. According to the World Bank at [www.worldbank.org](http://www.worldbank.org), formal SMEs provide up to 60% of total employment, and up to 40% of national revenue (GDP) in developing countries, those figures will be more significant when including the informal SMEs. The entrepreneurial sector promotes economic steadiness in developing countries, confirming prosperous as a notable economic increase generator and settling factor for enhancing people's well-being (Bruton, Zahra, & Cai, 2018). The Indonesian economy is significantly supported by SMEs, with the number of SMEs is currently around 99% and contribution to the national gross domestic product (GDP) of 60%, as well as the absorption of a large workforce. The Ministry of Cooperatives and SMEs in [kominfo.go.id](http://kominfo.go.id) stated the importance of the entrepreneurial population because of the ability of entrepreneurs to see opportunities, develop, and create new businesses. Global Entrepreneurship Monitor (GEM) Global Report 2018-2019 states that entrepreneurship is believed to contribute to economic development because entrepreneurs create new businesses, and new businesses create jobs, intensify competition, and play a role in increasing productivity through technological change. Technological innovation is an essential determinant of a company's competitiveness. Technological innovation is compulsory for businesses that desire to grow and sustain competitive advantage and access new markets (Hayton, George, & Zahra, 2007). The adoption of innovations empowers SMEs to withstand hard competition, global economic pressure, and compete with more prominent companies (Katre & Salipante, 2012). Digital alteration models a great challenge for corporations (L. Li, Su, Zhang, & Mao, 2018). The companies need to embrace certain moves with connected products, services, and operations to improve business, generate distinct strategies (Kallinikos, Aaltonen, & Marton, 2013; Yoo, Boland, Lyytinen, & Majchrzak, 2012). Digital business strategy points to alteration in business methods (Cui & Pan, 2015), corporation capacity (Cha, Hwang, & Gregor, 2015), and operational habits (Chen, Pan, & Ouyang, 2014), and their combination with the company's strategy. Studies regarding digital alteration have emphasized management perspectives (Helfat & Martin, 2015; L. Li et al., 2018), and technological and operative features (Chen et al., 2014; L. Li et al., 2018; Yoo et al., 2012). The current investigation was focusing on the factors of a prosperous digital business strategy (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013; Matt, Hess, & Benlian, 2015; Woodard, Ramasubbu, Tschang, & Sambamurthy, 2013). Therefore, how to build digital companies has converted an essential functional obstacle for conventional companies as they exert the path to Industry 4.0. Competition pressure, a fast shifting and disruptive environment, recurrent technological changes and shortening of the product life cycle are all aspects that describe many businesses in the global economy and entail companies to continually reconfigure their structures and procedures to withstand present business and, at the same period, to produce innovations to fulfill and generate demand in the future (Agostini, Nosella, & Filippini, 2016). Among businesses of varying sizes, SMEs are commonly more resilient, suitably adjusted, and adequately arranged to promote and realize new ideas. SME flexibility, modest SME organizational composition, low risk, and SME acceptance are critical characteristics that promote SMEs to be innovative.

Concerning the completion result from digital transformation, dynamic directors can practice the potential of new technologies also promote their entrance, which operates as a requirement toward digital business strategies (Chatterjee, Grewal, & Sambamurthy, 2002; L. Li et al., 2018). Better managerial capacities promote prosperous strategic development, such as digital revolution, recognized as an improvement in company performance (Helfat & Martin, 2015; L. Li et al., 2018) or entrepreneurial SME performance (Pati, Nandakumar, Ghobadian, Ireland, & O'Regan, 2018). Managerial capacities also give particular consideration to exploring new knowledge and building novel associations (L. Li et al., 2018; Lin & Lin, 2016). The scholars further recommend that performance improvement may be achieved in fields such as business method optimization, expense cut, also improved productivity (Ash & Burn, 2003; Kauffman & Walden, 2001; Li et al., 2018).

Ukko, Juhani et al. (2019) examines whether sustainability strategies can promote the connection between digital business strategies and financial achievement. The conclusions note that the sustainability strategy operates as an enhancer within the relationship between managerial capacity and financial achievement yet represses the relationship between the operational capacity and economic achievement (Ukko, Nasiri, Saunila, & Rantala, 2019). Thus, research conducted by Chu, Yizhou et al. (2019), affirmed that digital transformation performs a partial mediating role within IT capacities and the means of corporate innovation performance. It holds a total mediating function within a company's IT capacities and product innovation performance (Chu, Chi, Wang, & Luo, 2019). Thus, it is important for entrepreneurs to be able to make decisions that focus on the use of a set of resources or developing ways to look for different new goals, which generate creative processes and transformative tactics. This principle is called effectuation (Sarasvathy, 2001), which then draws our attention to further research. Decision making based on this logic of effectuation is likely to increase managerial and operational capabilities in achieving innovation performance.

It remains fascinating to explore wherewith managerial and operational capability improves innovation performance and whence the moderating influence of the effectuation can encourage directors in entrepreneurial SMEs to develop innovation performance. Therefore, this study will adopt research conducted by Ukko, Juhani et al. (2019) for the application of digital business strategy and its impact on innovation performance by adopting research conducted by Chu, Yizhou et al. (2019) (Chu et al., 2019; Ukko et al., 2019). There are still few studies that explain the moderating role of effectuation decision-making

logic in forming the relationship between managerial-operational capabilities and innovation performance. The goal of this article is to clarify the correlation between managerial-operational capability and innovation performance in the setting of entrepreneurial SMEs by employing effectuation theory. This research is advantageous to extend the understanding and knowledge of SME entrepreneurship to achieve innovation performance by digital business strategies and whereby those works are established by effectuation decision-making logic.

## 2. Theoretical background

### 2.1. Managerial and Operational Capability

The application of digital technology, additionally recognized as digitization, draws numerous research works (Frishammar, Cenamor, Cavalli-Björkman, Hernell, & Carlsson, 2018; Jahanmir & Cavadas, 2018; Viglia, Pera, & Bigné, 2018), particularly in the setting of entrepreneurship SMEs (Bi, Davison, & Smyrnios, 2017; Giotopoulos, Kontolaimou, Korra, & Tsakanikas, 2017; L. Li et al., 2018). Competitive advantage in digitalization is principally associated with strategy, culture, and capability improvement rather than technological matters (El Sawy, Kræmmergaard, Henrik Amsinck, & Anders Lerbech Vinther, 2016; L. Li et al., 2018). Digital revolution encompasses an essential change in business methods and procedures (Cui & Pan, 2015), corporation capacity (Cha et al., 2015), and operational habits (Chen et al., 2014). Approach points to a project to accomplish an object either purpose, and skill is described as the capacity of interrelated habits inside the organization to complete specific responsibilities (Ngo & O’Cass, 2013) is the critical digital business strategy elements. Digital business strategies in this study will be explained based on managerial and operational capabilities by adopting research conducted by Ukko et al., 2019 (Ukko et al., 2019). But unlike previous studies, this study will examine the role of each managerial and operational capabilities on innovation performance independently. The capability of directors to act with digitality is respected as one of the obstacles that form the corporation's strategy into the digital age (El Sawy et al., 2016). Knowledge is one of the machines that support directors rightly recognize perils and chances. Hence, proper expertise about digital devices and digital business strategies assists directors proactively distinguish uncertainties and attain resolutions to these uncertainties (Xue, 2014). Besides, the advancement of digital abilities needs to be considered in a digital context. Consequently, a management unit with an excellent understanding of digital devices also a sharp concept for digitality is necessitated (Parida, Sjödin, Lenka, & Wincent, 2015; Sia, Soh, & Weill, 2016). Overall, operational abilities rise from specific determinants, such as sources and practices, also considerations, such as skills, knowledge, and leadership (Wu, Melnyk, & Flynn, 2010). Digitalization needs to be blended into the business approach (El Sawy et al., 2016). Furthermore, digitalization must be acknowledged as a significant portion of the company (Sia et al., 2016). Besides, digitalization is shifting the business by employing new approaches to profit from contemporary strategic assets. Operational capacity in the digital age is a crucial decision for acquiring and disseminating digital in relating with works in all companies (Pagoropoulos, Maier, & McAloone, 2017). Companies need to adapt their business rules to be in line with digitality, to complement and combine different relevant capacities in all business processes (Chuang & Lin, 2015; Xue, 2014). Because operational abilities are utilized to handle particular obstacles or difficulties (Wu et al., 2010), they are essential in the circumstances of digitalization. In this setting, operational capacity leads to the ability of a corporation to combine digitality within the business method and procedure (Chuang & Lin, 2015; Xue, 2014). This contention directs to the next hypothesis:

H<sub>1</sub>: Managerial capability has a positive influence on the innovation performance of entrepreneurial SMEs.

H<sub>2</sub>: Operational capability has a positive influence on the innovation performance of entrepreneurial SMEs.

### 2.2. Effectuation Decision-Making Logic

The adoption of information technology (IT) to support innovation has emerged as a popular approach for managers to secure their firms' competitive positions in the marketplace (Ko & Liu, 2019). Nevertheless, SMEs' knowledge and expertise to utilize technological innovation are insufficient (Cenamor, Parida, & Wincent, 2019). SMEs strive to encounter in a highly dynamic context (Chan, Teoh, Yeow, & Pan, 2019). Entrepreneurial SMEs encounter different hurdles in performing digital platforms because they may require specific sources, abilities, and engagement; a greater recognition of the obstacle is demanded (Giotopoulos et al., 2017). In the context of entrepreneurial SMEs, entrepreneurs are less likely to try to predict the future and are more likely to change their initial goals and visions for the new venture (Sarasvathy, 2001). Entrepreneurs are more likely to work with means within their control and make modifications as necessary rather than predicting the future (Dew, Read, Sarasvathy, & Wiltbank, 2009). These things show that entrepreneurial SMEs fulfill the characteristics of effectuation logic rather than causation logic. Causation and effectuation are two most commonly decision-making logics by entrepreneurs that must be considered in order to comprehend entrepreneurial action (Sarasvathy, 2001). The logic of effectuation is consistent with emerging strategies that grow in conditions of uncertainty where it is not likely to estimate expected earnings for certain actions. On the other hand, the processes of effectuation go beyond the current resources, to opportunities that may arise and thus offer wider choice for outside collaboration rather than causation. (Chandler, DeTienne, McKelvie, & Mumford, 2011). Contrary to effectuation, causation logic generates a process that sets to achieve predetermined goals and to control the predictable aspects of an uncertain future. Causation logic can be contrasted with a planned strategical approach if earnings from various alternatives can be projected through statistical calculations. The causation process is based on known resources and plans (Sarasvathy, 2001). Because the emphasis of this study is entrepreneurial SMEs, the investigation concentrates on the moderating role of effectuation logic, which can be anticipated to represent in entrepreneurial decision making by the level of shared rational and commitment.

A number of scholars explore the drivers of causal and effectual reasoning in student-founders of new ventures (Laskovaia, Shirokova, & Morris, 2017) and online and high-tech start-up firms (Frese, Geiger, & Dost, 2019). Other researchers study causation together with effectuation to try to enhance business performance (Smolka, Verheul, Burmeister-Lamp, & Heugens, 2018), the performance of R&D projects (Brettel, Mauer, Engelen, & Küpper, 2012), and to create business model innovation (Futterer, Schmidt, & Heidenreich, 2018), also in relation with entrepreneurial orientation (Palmié, Huerzeler, Grichnik, Keupp, & Gassmann, 2019). Previous studies have described the role of causation logic in moderating the association between diversity of the founding team and generation of ideas and innovation (Kristinsson, Candi, & Sæmundsson, 2016), and in exit strategies in entrepreneurship (DeTienne, McKelvie, & Chandler, 2015). There are still few studies that explain the moderating effect of effectuation logic in moderating the association between managerial-operational capabilities and innovation performance, thus the authors study the aspect of rational decision-making on which effectuation logic plays a role.

This study was using confirmed scale developed by Chandler et al. in 2011 to measure effectuation, without the pre-commitment dimension (Chandler et al., 2011). Indication shows this dimension is not as strong as the remaining scale components and divided between effectuation and causation (Laskovaia et al., 2017). This makes us to hypothesize that stronger effectuation reasoning in SMEs is expected to have a positive moderating effect on the relationship between managerial-operational capability on the innovation performance of entrepreneurial SMEs. This contention directs to the next hypothesis:

H<sub>3</sub>: The effectuation logic of the SME owner positively moderates the consequence of the managerial capability on the entrepreneurial SMEs' innovation performance.

H<sub>4</sub>: The effectuation logic of the SME owner positively moderates the consequence of the operational capability on the entrepreneurial SMEs' innovation performance.

### 2.3. Innovation Performance

In current years, many scientific articles associated to the innovation performance are growing. For example, for example research that measures green innovation performance (Albort-Morant, Leal-Millán, & Cepeda-Carrión, 2016; Albort-Morant, Leal-Rodríguez, & De Marchi, 2018; Huang, Hu, Liu, Yu, & Yu, 2016; Leal-Rodríguez, Ariza-Montes, Morales-Fernández, & Albort-Morant, 2018; Li & Huang, 2017), product innovation performance (Curado, Muñoz-Pascual, & Galende, 2018), disruptive digital innovation or disruptive innovation (Chan et al., 2019; Kranz, Hanelt, & Kolbe, 2016; Reficco & Gutiérrez, 2016), and acceptance of innovation (Ommen, Blut, Backhaus, & Woisetschläger, 2016).

The previous studies on organizational innovation confirm that there are differences in estimating innovation performance in companies. Measurement with the product and process innovation is commonly used by previous researchers (Chu et al., 2019; Curado et al., 2018; Forés & Camisón, 2016; Mennens, Van Gils, Odekerken-Schröder, & Letterie, 2018; Prajogo & Sohal, 2003; Rafailidis, Trivellas, & Polychroniou, 2017; Soto-Acosta, Popa, & Palacios-Marqués, 2017). Others measure innovation performance with the dimensions of radical and incremental innovation (Agostini, Nosella, & Filippini, 2017; Forés & Camisón, 2016; Harmancioglu, Sääksjärvi, & Hultink, 2020; Johansson, Raddats, & Witell, 2019; Lennerts, Schulze, & Tomczak, 2020). Furthermore, this study measures innovation performance in two central areas, namely product and process innovation. The research framework was generated based on the literature study to concurrently investigate the correlation between managerial-operational capability and innovation performance by being moderated by effectuation decision-making logic. The framework is presented in Fig. 1.

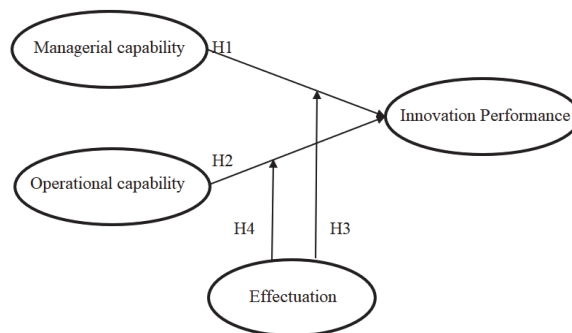


Figure 1. Research framework

### 3. Research methods

SMEs' entrepreneurial need to be efficient in managing their business today also adaptable to changes in the future. Supported by the Making Indonesia 4.0 program to improve SME competitiveness, with technology innovation and appropriate digital business strategies, it will ultimately deliver the expected innovation performance. The fourth Industrial Revolution in Indonesia presents a chance to revitalize Indonesia's manufacturing sector and shift one of the ways to stimulate the realization of Indonesia's vision from 2020 to suit the 10th largest economy in the world. This research will focus on small and medium industries by type of food and beverage industry. In 2019, this sector contributed a share of 23.57% of the total production of

the manufacturing industry and the production of the Food Industry, up 3.74% compared to 2018. More than 80% of the workforce in this industry work at MSMEs. This industry consists of four business scales; 62 million micro units; small as many as 757,090 units; medium as many as 58,627 units; and large scale a total of 5,460 units in 2017 based on data from the 2017 Indonesian Ministry of Cooperatives and SMEs. Then, the food and beverage sector is one of the sectors that are the focus of the Indonesian government, as conveyed by the Indonesian Ministry of Industry. This consideration after assessing the economic influence and employment eligibility measures that include the size of gross domestic product (GDP), trade, possible effects on other industries, investment size, and rapidity market penetration. These survey targets are food and beverage SMEs in Indonesia. The online questionnaire was used to gather data. A total of 52 SME entrepreneurs were designated in this research. Direct link to the questionnaire and emails were sent to SME entrepreneurs starting from April 2020. This study was using Likert scale to measurement the data. The scale is ranging from 1 which represent “strongly disagree” to 5 to represent “strongly agree”. Demographic information of SME entrepreneurs as respondents is presented in Table 1.

**Table 1**  
Respondents' Characteristics

Number of employees	Annual income in rupiah	Years since established		Gender		Total
				Male	Female	
<10 employees	<50 million	Years since established	<1 year	2	14	16
		Total		2	14	16
	50-300 million	Years since established	<1 year	7	1	8
			1-5 years	6	4	10
			> 5 years	2	2	4
Total			15	7	22	
10-50 employees	50-300 million	Years since established	1-5 years	2	3	5
			> 5 years	5	4	9
	Total			7	7	14

Table 1 represents that business owners as respondents in this study were dominated by 14 women with annual income in rupiah <50 million and the number of employees <10; 15 men with annual income in rupiah 50-300 million and the number of employees <10; and 7 men and 7 women with annual income in rupiah 50-300 million and the number of employees 10-50. Information on the amount of business income shows that all respondents are small enterprises. Small business is a productive economic venture that stands independent, which is carried out by persons. These units are not affiliating or non-branch corporations that are possessed controlled or become a part either directly or indirectly by medium-sized companies or large companies. This definition encounters the criteria Small Business as denoted to in the Republic of Indonesia Act of the Micro, Small, and Medium Enterprises Number 20 of 2008. The data collected from the administration of questionnaires were analyzed using Moderating Regression Analysis with SPSS for data analysis.

#### 4. Result

Before investigating the hypothesis, confirmatory factor analysis is conducted to examine whether the indicators that have been classified based on their latent variables are consistent in their constructs or not. Thus, the results of the Confirmatory Factor Analysis (CFA) are presented in Table II. The Measure of Sampling Adequacy (MSA) Kaiser-Meyer-Olkin (KMO) of Managerial Capability, Operational Capability, Effectuation, and Innovation Performance are 0.745; 0.742; 0.916 and 0.940, sequentially, which is higher than 0.5, these means all the constructs are acceptable valid. The component matrix was formed in one; this means that the indicators were valid and formed one factor, namely Managerial Capability, Operational Capability, Effectuation, and Innovation Performance.

Based on the component matrix in Table 1, the entrepreneur bolsters the application of digitality in the company (MC3) is the greatest contribution in defining managerial capability. Digitality is a common element of the business (OC2) is the greatest contribution in defining operational capability. Entrepreneur allowed the business to evolve as opportunities emerged (EFC5) is the greatest contribution in defining effectuation. The number of new products that are first marketed (PD5) is the greatest contribution to defining product innovation performance. The recency of the technology utilized in the process (PR2) is the greatest contribution in defining process innovation performance.

The Sig. Bartlett's Test of Sphericity is 0.000 for each Managerial Capability, Operational Capability, Effectuation, and Innovation Performance, which is below alpha of 0.05, this refers the association between these indicators is positive, and the factor analysis of each indicator is valid and reliable. Measures of Sampling Adequacy (MSA) in Anti-image Correlation for each indicator also confirms that each of the indicators is greater than 0.5, which means the indicators can be predicted and can be analyzed further.

The next step is testing the effects of moderation with a moderated regression analysis. The significance test results of the research model are shown in Table 3. Model 1 shows without the interaction term and Model 2 shows the interaction term.

**Table 2**  
Validity and Reliability Test

Indicator	Component Matrix - Component 1	Anti-image Correlation - (MSA)
<b>Managerial capability</b>		
MC1. The familiarity with digital instruments.	0.915	0.875
MC2. The level of precise vision for utilizing digitalization in the future.	0.955	0.701
MC3. The entrepreneur bolsters the application of digitalization in the company.	0.956	0.698
<b>Operational capability</b>		
OC1. Appropriating digitalization in internal procedures has shifted an essential component of the business.	0.904	0.856
OC2. Digitality is a common element of the business.	0.949	0.692
OC3. Digitality heightens the business.	0.943	0.710
<b>Effectuation</b>		
EFC1. The product/service that I now deliver is considerably dissimilar than I first imagined.	0.888	0.929
EFC2. I tried several different methods till I create a business model that functioned.	0.900	0.922
EFC3. I was careful not to commit more resources than I could afford to lose.	0.913	0.926
EFC4. I was cautious not to risk more money than I was prepared to lose.	0.890	0.956
EFC5. I allowed the business to evolve as opportunities emerged.	0.924	0.910
EFC6. I altered what I was doing to the capitals we required.	0.907	0.884
EFC7. I was flexible and acquired benefit of chances as they ascended.	0.827	0.887
<b>Innovation Performance (IP)</b>		
Product innovation		
PD1. The level of novelty of the products	0.902	0.923
PD2. Applying the newest technological innovations in current product advancement	0.902	0.967
PD3. Speed of improvement of new products	0.930	0.944
PD4. Number of new products launched to the market	0.856	0.949
PD5. Number of new products that are first marketed	0.947	0.909
Process innovation		
PR1. Technology competitiveness	0.917	0.935
PR2. The recency of the technology utilized in the process	0.947	0.961
PR3. The rate of appropriation of the latest technological innovations in processes	0.924	0.945
PR4. The rate of evolution in processes, techniques, and technology	0.902	0.933

**Table 3**  
The results of ANOVA test

Model	ANOVA(c)					
		Sum of Squares	df	Mean Square	F	Sig.
Predictors: (Constant), MC	Regression	4,008.288	1	4,008.288	714.145	0.000
	Residual	280.635	50	5.613		
	Total	4,288.923	51			
Predictors: (Constant), MC, MCxEFC	Regression	4,066.736	2	2,033.368	448.428	0.000
	Residual	222.188	49	4.534		
	Total	4,288.923	51			
Predictors: (Constant), OC	Regression	4,008.182	1	4,008.182	713.859	0.000
	Residual	280.741	50	5.615		
	Total	4,288.923	51			
Predictors: (Constant), OC, OCxEFC	Regression	4,048.885	2	2,024.442	413.258	0.000
	Residual	240.038	49	4.899		
	Total	4,288.923	51			

c Dependent Variable: IP

Based on Model 1, sig = 0.000 that lower than alpha 0.05, indicates that managerial capability (MC) has a positive effect on the innovation performance (IP) of SMEs. Operational capability (OC) also has a positive influence on the innovation performance (IP) of entrepreneurial SMEs. Based on Model 2, sig = 0.000 also lower than alpha 0.05, indicates that the effectuation decision-making logic (EFC) of entrepreneurial SMEs moderates the effect of the managerial capability (MC) on the innovation performance (IP) of entrepreneurial SMEs. The effectuation decision-making logic (EFC) of entrepreneurial SMEs also moderates the effect of the operational capability (OC) on the innovation performance (IP) of entrepreneurial SMEs.

**Table 4**  
The summary of the results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
Predictors: (Constant), MC	.967	0.935	0.933	2.369	0.935	714.145	1	50	0.000
Predictors: (Constant), MC, MCxEFC	0.974	0.948	0.946	2.129	0.014	12.890	1	49	0.001
Predictors: (Constant), OC	.967	0.935	0.933	2.370	0.935	713.859	1	50	0.000
Predictors: (Constant), OC, OCxEFC	0.972	0.944	0.942	2.213	0.009	8.309	1	49	0.006

Furthermore, to test the effect of moderation, refer to the R square change presented in Table 4. Model 2 with the interaction between MC and EFC in affecting IP accounted for significantly more variance than just MC in affecting IP, R square change = 0.014,  $p = 0.001$ , indicating that there is potentially significant moderation between MC and EFC on IP. The interaction between OC and EFC also accounted for significantly more variance than just OC in affecting IP, R square change = 0.009,  $p = 0.006$ , indicating that there is potentially significant moderation between OC and EFC on IP. Then to see whether moderating variables strengthen or weaken the relationship between independent and dependent variables, it can refer to the coefficient column in Table 5. Model 2 with the interaction between MC and EFC,  $B = 0.036$ , this positive coefficient indicates that EFC strengthens the relationship between MC and IP. Model 2 with the interaction between OC and EFC,  $B = 0.032$ , this positive coefficient indicates that EFC strengthens the relationship between OC and IP.

**Table 5**

The results of regression analysis

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta	B		
1	(Constant)	1.900	1.157			1.643	0.107
	MC	2.787	0.104	0.967		26.723	0.000
	(Constant)	8.311	2.066			4.022	0.000
	MC	1.247	0.439	0.433		2.842	0.007
2	MCxEFC	0.036	0.010	0.547		3.590	0.001
	(Constant)	1.553	1.169			1.328	0.190
	OC	2.882	0.108	0.967		26.718	0.000
	(Constant)	7.235	2.253			3.210	0.002
	OC	1.510	0.486	0.507		3.104	0.003
	OCxEFC	0.032	0.011	0.470		2.882	0.006

The moderating role of EFC on the relationship between MC and IP is positive and significant. The moderating role of EFC on the relationship between OP and IP is also positive and significant. Thus, the coefficient of determination of interaction (see Table 4) between MC and EFC (adjusted R Square = 0.946) is higher than the interaction between OC and EFC (adjusted R Square = 0.942). This result indicates effectuation decision-making logic contributes more in strengthening the relationship between managerial capability with innovation performance than operational capability with innovation performance. Four of the hypotheses were supported, as summarized in Table 5.

**Table 5**

Hypothesis Testing Results

Hypotheses	Result
H1: Managerial capability has a positive influence on the innovation performance of entrepreneurial SMEs.	Supported
H2: Operational capability has a positive influence on the innovation performance of entrepreneurial SMEs.	Supported
H3: The effectuation logic of the SME owner positively moderates the effect of the managerial capability on the entrepreneurial SMEs' innovation performance.	Supported
H4: The effectuation logic of the SME owner positively moderates the effect of the operational capability on the entrepreneurial SMEs' innovation performance.	Supported

## 5. Discussion and conclusion

Consequently, the outcomes recommend that successful SMEs enhance innovation performance by improving managerial and operational capability. Furthermore, the findings on the moderating impacts of effectuation can encourage directors in entrepreneurial SMEs to concentrate on improving managerial capability. Thus, this research is consistent with previous studies (Futterer et al., 2018; Laskovaia et al., 2017; Palmié et al., 2019; Smolka et al., 2018). An entrepreneur in the contemporary age is demanded to utilize information technology to augment operational effectiveness by enhancing task management and market orientation by superior market information (Johnson & Schaltegger, 2019). Digitalization pushes businesses to produce novel approaches (El Sawy et al., 2016), also driving all corporation projects as of management to operations to be digitized (Chuang & Lin, 2015; Sia et al., 2016).

Effectuation is important since it is a logic that can be used by both novice entrepreneurs and those who have experience in starting or running any business that is very difficult to predict to reduce the cost of failure of an entrepreneur since being an entrepreneur is not genetic or certain personality traits or heredity, like behavior that is looking for a unique risk or mission but entrepreneurs can be learned with effectuation and can be taught and transmitted to others. Someone should be able to manage the resources they have to grow existing businesses, that is the principle of effectuation.

Human resources are essential to achieve successful implementation of Making Indonesia 4.0 and are an issue of concern in digitalization compared to technological issues ([www.kemenperin.go.id](http://www.kemenperin.go.id)). Managers need to promote digitality as organizational culture (Chuang & Lin, 2015). Hence, this role of the manager is to lead the corporation towards the utilization of digitality. The successful implementation of the digital business strategy comprises the sources and abilities of the whole system (Karimi & Walter, 2016). The organizational arrangement is essential to promote greater adoption of digital platforms (Yunis, Tarhini, & Kassar, 2018). The capability to organize internal and external knowledge sets the corporation to recognize market drifts and to react instantly to customer demands. Therefore, sustaining varied expertise from different causes in a

organized process promotes the innovation development, which further assures developments in the corporation's value resolution and long-term accomplishment (Wareham, Fox, & Cano Giner, 2014).

Nearly 70% of the Indonesian workforce serves for small and medium enterprises (SMEs). The government of Indonesia must commit to promote SME entrepreneurs by creating e-business platforms for SMEs, agriculturalists, and artisans, producing technology centers to develop SME entrance to technology procurement and presenting mentoring assistance to foster innovation. The innovation ecosystem is essential to secure the completion of Making Indonesia 4.0. The Indonesian government must produce a design for national innovation centers, provide pilot centers of innovation and optimize relevant guidance, including protecting intellectual property and economic enticements to stimulate cross-sector partnership between private or state-owned businesses and universities. The development of this digital ecosystem is undoubtedly inseparable from several driving factors including Infrastructure development (both hardware and software), the size of social media users, extensive use of data to the ease of obtaining mobile devices.

This research certainly has shortcomings; the addition of antecedents or modifications to this model can maximize the efficacy of predictions. Other aspects that can be involved in future research are causation perspective, digital capability, or operational and dynamic capabilities. Given the number of the respondent are still small in this preliminary research, the next stage of the study will include SMEs entrepreneurs at a required amount of sample so that it may reflect the Indonesian population. Besides, because this research was conducted only in Indonesia, it might produce different findings in other countries. A cross-country study contrasting this possible diversity may encourage further study. However, the unit of analysis of this study comprises entrepreneurial SMEs in the food and beverage sector, and the forthcoming study could find a difference between two or more of the industry sectors, thereby reducing respondents' judgment bias. Future research can test the authors' findings by counting them to present models and theories to bring new theoretical and managerial insights.

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