

# Exploring The Relationship Between Market Orientation and Performance Thai Startups

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## Abstract

The relationship between market orientation and performance is a cornerstone in the market orientation literature. A vast empirical literature has been proven in different contexts. Yet, the empirical research in startup's context has not been investigated. This study examines the effect of market orientation on startup's performance as well as the moderating role of business environments, including market turbulence, competitive intensity, and technological turbulence. Using the survey data from 209 startups, we conducted a multiple regression analysis to test our hypotheses. The results demonstrate that market orientation is positively related to startup's performance. Technological turbulence enhances the relationship. This paper shows the important implication of market orientation to a startup's community.

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**Keywords:** Startup, Market Orientation, Business Environment, Performance, Innovation, Entrepreneurship

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## Introduction

Driven by technologies and innovations, startups are young enterprises with potential to exponentially scale up their operation and adapt their business model to other services and products. Blank (2010) defined a startup is an organization formed to search for a repeatable and scalable business model. Since 2015, startups have become a new economic engine for Thailand and have captured the attention of many stakeholders, including government agency, corporations, academic institutions, investors, and entrepreneurs. For emerging economies like Thai economy, startups provide the hope of more rapid development, given they change the way of doing business, and create a new way of economic impact and growth. Startup Thailand 2016 was one of the vital events in raising an awareness of startups as well as bringing all stakeholders together. A number of startups receiving investment increase more than tenfold between 2012 and 2021, from 4 to 57 startups (Techsauce, 2022). Given most startups emerged from software houses and programmers, they are focused on digital sectors. The top three subsectors received investment are fintech, e-commerce, and business solutions (Juasrikul, 2019)

Startups in Thailand have been shaped from clusters of software firms comprising small and medium-sized enterprises (SMEs). Indeed, those enterprises organically struggled to survive and grow by seeking ideas for new business models. Initially, they received little attention from the government. However, this is the beginning of the startup sector. For example, AIS, a large telecommunication company, initiated the

AIS Startup Weekend to explore business partner for digital innovation and, more generally, to foster networking and create the profile of startup activity (Sukpanich and Juasrikul, 2019). Since then, the event began to popularize the term “startup” in Thailand. The government acknowledged that startups play a crucial role in the success of Silicon Valley and other ecosystem. In order to promote startups, several government agencies attempt to find ways to improve the startup’s ecosystem, given a supportive is crucial for nurturing entrepreneurship and creating a new startup (Berger and Kuckertz, 2016). Currently, the startup community in Thailand is growing and all stakeholders continue to collaborate and catalyze the development of the ecosystem to support startup sector (Juasrikul and Vandenberg, 2022). Yet, the survival rate for innovative startups is approximately 6-7 percentage points lower than that of non-innovators (Hyytinen, Pajarinen, Rouvinen, 2015).

Startups are not only considered as a new business model that can be scalable and repeatable, but also posited as an early stage of entrepreneurial development. To start and avoid failure in a new business idea, the process of customer discovery plays a vital role and has been mentioned in “Lean Startup” (Reis, 2011). Given startups are driven by innovation and technology, new products and services will be introduced to customers. Understanding customer insight is crucial for entrepreneurs who build their startups. The model of customer development provides entrepreneurs a tool to discover, validate, and create customer, increasing the chance of survival in startups. Similarly, market orientation is a customer-centered approach to business that prioritizes identifying the needs and



desires of customers and designing products and services that satisfy them. Previous literature has been introduced market orientation in organization. Kohli and Jowaorski (1990) defined market orientation as “the organization-wide generation of market intelligence, dissemination of the intelligence across department and organization-wide responsiveness to it (p.6)”. While customer discovery and development concept have been introduced to startup communities, startups may not yet realize the adequacy of implementing those concepts. Further, the measurement of customer development has not been developed and validated yet. To evaluate customer-oriented in startup context, market orientation may provide a guideline to investigate how a startup as organization doing well with customer and market.

Prior literatures have proven the relationship between market orientation and firm performance in different contexts, such as service industry (Haugland, Myrtveit, & Nygaard, 2007), or sharing economy business (Na, Kang, & Jeong, 2019). In Thailand, as an emerging economy, given startup phenomenon has been emerged, we believe that the link between market orientation and startup performance requires more research. Consequently, our research questions are two folds. First, we aim to examine whether the market orientation plays an important role in startup context, especially its performance. Second, we attempt to investigate the moderating role of business environment, such as market turbulence, competitive intensity, and technological turbulence whether enhance the relationship between market

orientation and performance in Thailand’s startup context.

We expect to make several contributions in both theoretical and managerial. First, this study empirically examines the relationship between market orientation and performance in startup’s context which has not been studied yet in existing literature. Further, Kohli and Jaworski (1993) suggested that technological turbulence mitigates the relationship between market orientation and performance. Conversely, we posit that the technological turbulence will enhance the relationship, given the startup’s context and the uniqueness of startup’s characteristic, which statistically supported from our result. Our findings also offer several unique managerial implications in the context of startup. The more technological turbulence in the industry, the more startup’s founder is needed to pay attention into market orientation. Moreover, among three components of market orientation, our results show that intelligence dissemination is the most important in startup’s context. Market information exchange and communication within organization is vital.

The remainder of this study is structured as follows. First, we review and discuss the literature review. Then, we propose hypotheses for the main relationship between market orientation and startup’s performance and the moderating role of business environments. Next, we present our data collection methods, the operationalization of the variables, followed by the data analyses and the results of our hypotheses testing. Lastly, we discuss contributions in both theoretical and managerial implication as well as limitations and future directions.



## Literature review

### Market orientation and the context of startup

In the marketing and strategic management literature, there are two most prominent conceptualizations of market orientation which are introduced by Kohli and Jaworski (1990) and Narver and Slater (1990). Market orientation “is the organization-wide *generation of market intelligence* pertaining to current and future customer needs, *dissemination of the intelligence* across departments, and organization-wide *responsiveness* to it” (Kohli & Jaworski, 1990, p.6). In contrast, Narver and Slater (1990), market orientation consists of three behavioral components: customer orientation, competitor orientation and inter-functional coordination, which are vital for a long-term profit. While Kohli and Jaworski (1990) considered market orientation as marketing concept, Narver and Slater (1990) proposed market orientation as organizational culture. However, those two conceptualizations share many underlying concepts (Nobel, Sinha & Kumar, 2002). In terms of operationalization, they are very similar. For this study, we embrace the concept of Kohli and Jaworski (1990), given the startup context related to innovation which requires new information and knowledge. Generation and dissemination of the intelligence provide a competitive advantage. Further, startups are generally small. A fast responsiveness is the key to win the competitive landscape.

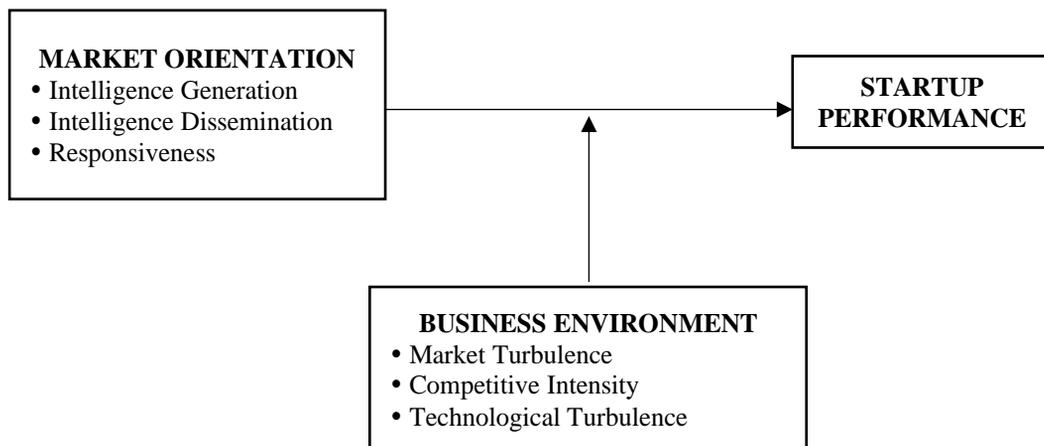
Undoubtedly, startups normally operate in a relatively new and highly uncertain environment. Driven by innovation and

technology, startups attempt to create exponential or growth in the short period of time and strive to grow on a global scale (Reis, 2011). The chances of success for startups are dependent on many different factors. In an early entrepreneurial stage, the process of marketing is relevant to entrepreneurship in capturing opportunities. In addition, leveraging knowledge about customers, marketing, and technology provide firms gaining competitive advantage (Hills, Hultman, and Miles, 2008). However, it seems that many startups pay attention to the relative advantages of products, platform, or service rather than attempting to understand how their product reflects actual or latent customer needs. One of well-known mantra of startup is fail fast and fail often which could promote unnecessary fail. Even though, by definition, startup is a temporary organization which seek a business model that can repeatable and scalable (Blank, 2020), we believe that market orientation could mitigate such startup failure rate. By increasing and exploring the process of market orientation, startups should be able to evaluate the viability of their business idea and address the market need. Mueller and Thoring (2012) suggested that the biggest waste in startup is creating a product or service that nobody needs.

Past literatures have explored the relationship between market orientation and firm performance in different contexts, such as service industry (Haugland, Myrtveit, & Nygaard, 2007), hospital industry (Raju, Lonial, & Gupta, 1995), biotech industry (Appiah-Adu & Ranchhod, 1998), retail industry (Pnigyrakis & Theodoridis, 2007), private university (Ahmed & Goodwin, 2012), small manufacturing firm (Pelham, 1999), a transition economy (Appiah-Adu,

1998), sharing economy business (Na, Kang, & Jeong, 2019), and tourism industry (Chen & Myagmarsuren, 2013). In startup's context, however, there are few recent literatures. For instance, Sommer (2018) examined market orientation of new startups in media industry based on four case studies.

Belhman (2020) investigated 172 startup companies in Netherlands by using the lean startup concept to market orientation. Yet, in emerging market like Thailand and startup's context, none has been studied. The conceptual framework of this study is provided below (see Figure 1).



**Figure 1** Conceptual framework

## Hypotheses development

### Market orientation and startup's performance

Startups strive to survive and gain performance including growth performance, profitability, and effectiveness. In doing so, understanding customer needs and responding to it give startups chance to save resources and times for operating their business idea. Business practitioners and researchers have continuously advocated the

importance of developing market orientation. Such an orientation emphasizes on identifying customer needs and offering products which are different from or better than the competitions. A market orientation facilitates and assists an organization and a team to gain clarity and vision strategy, especially understanding the need of customer and product-market fit. It appears to provide a unifying focus for the efforts and project of individuals and departments within the organization, thereby leading to a superior performance (Kohli & Jaworski, 1990).



In the startup's context, retrieving and maintaining new customer are key activities to generate income for survival. Startups are not only introducing new products into the market, but also creating new ideas and innovations that match customer needs. A market orientation also promotes innovation's impact project performance. Atuahene-Gima (1996) examined the influence of market orientation on innovation characteristic and performance and found that market orientation has a significant relationship with innovation – marketing fit, product advantage and inter-functional teamwork. Moreover, startups are required to maintain new customer and attempt to gain more market share in order to generate revenue and cashflow. Market-oriented practice is a pathway to growth and sustainability into the market. As such, we hypothesize as the following.

**H1: The greater the market orientation of startup, the higher its startup's performance.**

### **Intelligence generation, intelligence dissemination, responsiveness in market orientation**

Kohli and Jaworski (1990) introduced market orientation as composed of three components: 1) organization-wide *generation* of market intelligence pertaining to current and future customer needs, 2) *dissemination* of the intelligence across departments, and 3) organization-wide *responsiveness* to it. These three components conceptualization make possible a more focused analysis of the role of market orientation. Since startups as organizations differ in the extent to

which they generate market intelligence, disseminate it internally, and respond based on intelligence, this paper seeks to develop the hypotheses according to these three components as follows.

**Intelligence generation** refers to the collection and assessment of both customer needs/preferences and the forces that influence the development and refinement of those needs. Given startups create new product and service, retrieving and analyzing customers and needs provide a vital information for startups to improve their business. Finding customers' insights could avoid a failure of launching a wrong product and service and enhance a chance of success. Market intelligence generation is not only related to a current need, but also expects a future need for both current and future customers. The crucial point is that intelligence generation does not stop at obtaining customer opinion, but also involves careful analysis and subsequent interpretation of customer voices and preferences. With customer information and marketing knowledge, startups can create the best marketing strategy to win competitive landscape. Furthermore, the development of product design will improve a new product that fits into the market which in turn alleviating the chance of failure for startups. Therefore, we hypothesize as the following.

**H1a: The greater the intelligence generation in market orientation, the higher its startup's performance.**

**Intelligence dissemination** refers to the process and extent of market information exchange within a given organization. The dissemination makes the whole organization acknowledge in



the same direction. Responding effectively to a market requires the participation of all departments in an organization – R&D to design, and develop a new product, manufacturing to produce it, purchasing part and materials, finance to fund activities, and so on. Market intelligence must be communicated, interpreted, and disseminated to every staff and ensured that everyone understands the direction of organization and market. Furthermore, intelligence dissemination is a powerful tool to keep every staff focusing on customers and their preferences. When every department in organization knows their customers, how to design, operate, and deliver the product and service will turn to the need of the customer. Moreover, intelligence dissemination can help the organization to solve problems with customers more accurately. Although the size of startup's employee is normally small, the dissemination of information is still important. As the result, we hypothesize as the following.

**H1b: The greater the intelligence dissemination in market orientation, the higher its startup's performance.**

**Responsiveness** is an action taken to respond to intelligence that is generated and disseminated. In a nutshell, how an organization reacts on the information and knowledge that is retrieved from customers and shared within it. Knowing without action is meaningless. An organization can generate and disseminate market intelligence internally; however, unless acting to market need is a must to success in performance. The action could be selecting target customers, validating and designing products and services with customers, and delivering in the time

need. Jaworski and Kohli (1993) categorized responsiveness in market orientation into two components, including responsive design and responsive implementation. While the former emphasizes on how to design react strategy in the competitive landscape, the latter is related to implemented time and internal policy to react on competitors. In addition, responsiveness be viewed as a speed of organization to respond to the market. For startup's context, speed is one of the critical factors to success. A quick responsiveness is one of the key to gain customer satisfactions. As such, we hypothesize as the following.

**H1c: The greater the responsiveness in market orientation, the higher its startup's performance.**

### **Moderating role of business environment**

Generally, a business environment is the combination of internal and external factors that influence organization operating situation. It can include factors such as political situation, competitive landscape, law and regulation, social and economic trends and so on. The condition of environments can posit such as uncertainty, fluctuation, dynamism, intensity, complexity, or stability. Kohli and Jaworski (1993) suggested three business environments, including market turbulence, competitive intensity, and technological turbulence that moderate the relationship between market orientation and performance. Undeniably, startups confront to the same environment. In this paper, we embrace the moderating role of those three business environments as the following.



**Market turbulence** refers to the rate of change in the composition of customers and their preferences (Kohli and Jaworski, 1993). Organizations which run business in more turbulent markets are more likely to change and adapt their product and services continuously in order to meet customers' changing preference. In the high market turbulence, market orientation becomes more rigorous to organization to modify products and services. In contrast, in the stable market, organizations may not require changing to address the market. The market turbulence enhances the relationship between market orientation and performance. Therefore, we hypothesize as the following.

**H2a: The greater the market turbulence, the stronger the relationship between a market orientation and startup's performance**

**Competitive intensity** refers to the rate of competition in order to gain market share. Without competitors, organization may not need to improve or perform well since customers do not have any choice to choose from. They are limited with only one product and service. However, this situation is rare. Each industry often has many organizations or players to compete with each other to gain market share. Different industries have different competitive environments. Competitive intensity can also reflect the number of organizations or firms who operates in such location or industry. Under the highly competitive intensity, customers have more alternative options to choose and satisfy their requirements. Thus, an organization that is not very market-orientated is more likely to lose customer to its competitor. In startup's context,

although startups may innovate the product or service, the substitute product or service from competitors will emerge and attempt to capture the same customers. Then, market orientation is expected to be a more important factor of performance under a condition of highly competitive intensity. As such, we hypothesize as the following.

**H2b: The greater the competitive intensity, the stronger the relationship between a market orientation and startup's performance**

**Technological turbulence** refers to the rate of technological change (Kohli and Jaworski, 1993). For startups, technology is an important key of success to gain a competitive advantage over the market. For example, ZTRUS, one of the Thai Startups, has been embraced OCR (Optical Character Recognition) and AI-based cognitive template as technology to gain the competitive advantage for its business. With newness from innovative technology, startups can create a new value and have a new solution to solve and address their customer's need in the new way, which is difficult to duplicate. Given startups driven by technology, the change of technology provides more chance for startups to earn superior performance. Market orientation is likely to be enhanced from technology change for organization like startups. In the entrepreneurship literature, the technology change provides opportunity to create new means (Shane, 2003). Startups are young organizations attempting to find a new opportunity. Although Kohli and Jaworski (1993) suggested that technology turbulence mitigates the relationship between market orientation and performance, we posit that



given the uniqueness of startup's characteristics, the technology turbulence will enhance the relationship. As a result, we hypothesize as the following.

**H2c: The greater the technological turbulence, the stronger the relationship between a market orientation and startup's performance**

## Research methodology

### Data and Sample

Given that this study examines the relationship between market orientation and startup's performance, we collected data through a survey from either a founder or a co-founder of digital startup in Thailand. We retrieved the database of startup from National Innovation Agency (NIA). According to NIA, over 1,700 of registered startups (Sukpanich and Juasrikul, 2019). The samples comprised 300 startups in Thailand, using a purposive sampling technique. The items used in questionnaire were based on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). A link of e-questionnaire and covering e-letter was delivered through an email of founders and co-founders. Then, the follow-up call was conducted by researchers to remind those founders/co-founders. A total response of 209 questionnaire was retrieved. The final response rate is 69.67%. It is worth to mention that this questionnaire was conducted in 2018-2019 prior to the COVID-19 pandemic, given the competitive landscape for most of the industry were shifted during the pandemic.

### Measures of constructs

This study measures the constructs of market orientation, business environment, and startup's performance on multi-item scales. Those questionnaire items were originally proposed in English and accepted by leading scholars. However, we conducted the translation method by two native Thai speakers with more than 10-year experience in a professional translation to ensure the accuracy of the translation. Then, the translated questionnaire was back translated into English to confirm the process. The questionnaire was tested for index of item objective congruence (IOC) by five experts for their accuracy and validity (Rovinelli & Hambleton, 1977). Given this study have embraced the scale, each construct was tested for its reliability and found that it was over 0.7, which was appropriate to use to measure and run analysis.

### Variables

#### Market orientation

Developed and validated by Jaworski and Kohli (1993), market orientation was measured by a 32-item scale of three components, consisting of market intelligence generation 10-item scale, intelligence dissemination 8-item scale, and responsiveness 14-item scale. The three components were interwoven with issues related to the needs and preferences of customers and end-users. To validate the market orientation scale, Kohli and Jawaorski (1993) proposed the measure of market orientation for application in the future. The measure has been proven and employed in many literatures.

#### Business environment

For business environment as the moderator, we drew on Jaworski and Kohli's study including market



turbulences 6-item scale, competitive intensity 6-item scale, and technological turbulence 5-item scale (Jaworski and Kohli, 1993). The items for the market turbulence scale evaluate the extent to which the composition and preferences of customers tended to change over time. Competitive intensity scale items assessed the level of competition, competitor’s responsiveness, and promotion. Lastly, technological turbulence items tapped the extent to which technology change or level of technological fluctuation.

**Startup’s performance**

Our dependent variable is startup’s performance. To measure startup’s performance, we drew on the concept of item-scale from Jaworski and Kohli (1993) and change into four components including growth, raising fund, profitability, and effectiveness (Rompho, 2018). To avoid missing data, we measure startup’s performance by judgmental measures. The judgmental measure asked informants for their assessment of overall performance in four components, rated on 5-point scale ranging from “poor” to “excellent”.

**Control variable**

In order to eliminate any competing explanations for this analysis, we included several control variables in our analysis. Founder’s characteristics and demographics can influence startup’s performance. We controlled founder’s gender, age, education, working experience, and startup’s experience. Furthermore, we controlled a number of founders, years of establishment, funding status, and number of employees, given these variables related to organizational competency and performance. We used dummy variables for founder’s gender, where 1 represented male and 0 otherwise.

Like funding status and startup’s experience, dummy variables were applied, where 1 represented funded or have experience, and 0 otherwise. Other control variables were a numeric number like number of years or persons.

**Method**

We used a multiple regression model to test our hypotheses. The descriptive statistics (means and standard deviations) and correlations are shown in Table 1. While the correlations between the dependent variable and independent variables did not show high correlation values, we ensured that our regression models did not have a problem of multicollinearity by running collinearity diagnostics. The average score of the variance inflation factor (VIF) was 1.40, which was far below the standard threshold of 10 (Cohen, Cohen, West, & Aiken, 2003). Therefore, multicollinearity was not an issue in our models.

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“Insert Table 1 about here”  
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**Results**

We ran three different regression models. Model 1 was the baseline model which demonstrating the effect of market orientation as a whole and the dependent variable, startup’s performance. Model 2 showed the effects of three components of market orientation, including market intelligence generation, intelligence dissemination, and responsiveness, on startup performance. Lastly, Model 3 demonstrated the interaction effect of business environments, including market turbulence, competitive intensity, and technological turbulence. All model included control variables in our analysis.



The model fit for all three models was significant: F-ratio value ranges from 4.94 to 7.14 ( $p < .01$  for all models). The variance explained ( $R^2$ ) in the three models ranged from .20 to .37. The model estimation results were reported in Table 2 and Table 3

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We test the hypotheses for the main effects in model 1 and 2. We found support for H1 which suggested that market orientation was positively associated with startup’s performance. The coefficients for market orientation in model 1 ( $\beta= 0.420, p < .01$ ) was positive and significant. When we separate the market orientation into three components and test separately, we have not found support on the effect of market intelligence generation and responsiveness on startup’s performance. However, we find support for H2b which mentioned that intelligence dissemination is positively related to startup’s performance ( $\beta= 0.917, p < .001$ , in model 2).

Next, we analyzed the interaction effect between market orientation and business environment on the startup’s performance. In H2a, H2b, and H2c, we proposed that all moderators will enhance the relationship of market orientation and startup’s performance. However, we found that only H2c is supported, significantly ( $\beta= 0.226, p < .001$ , in model 3). All of results were shown in table 4.

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## Discussion and implication

### Discussion and conclusion

In this study, we have empirically proven the link between market orientation and performance in the startup’s context. A startup has emerged around the world. Given a startup has a unique characteristic, it is driven by young entrepreneurs who embrace technology and innovation as a key driver to gain a competitive advantage in business ideas. Surviving and gaining momentum to grow in a repeatable and scalable fashion are a must for startup. Clearly, customer discovery and creation have been accepted into startup communities as one of the vital startup tools. This tool is a core marketing concept that market orientation has been proposed for more than 30 years. In our research, we seek to examine whether market orientation influence on business performance, especially in startup’s context. The results supported our first hypotheses, that is, the greater the market orientation of startup, the higher its startup’s performance. This finding illustrates the importance of market orientation in startup’s context. Understanding customer by generating and disseminating market intelligence and responding to it is a fundamental to improve startup’s performance.

Interestingly, we further analyzed our data in three components of market orientation. The results did not support the effect of intelligence generation and responsiveness of market orientation on startup’s performance. Given startups confronted to the liability of newness, generating market intelligence could be embraced by startups to develop products



and services to solve customer's problems and create new values. Furthermore, one of the startups' characteristics which provides their competitive advantage is small and agile. The responsiveness should be equipped within startup's nature. As a result, intelligence generation and responsiveness of market orientation may not show statistically significant from our analysis. In contrast, intelligence dissemination plays a significant role to startup's performance. Our result illustrated that intelligence dissemination of market orientation was positively associated with startup's performance, significantly. This finding may provide an insight of startup's operational gap. To operate the market orientation correctly, information developed in the intelligence generation phase need to disseminate other functional units. Because of the changing size of startups to scale up the business, the challenge for startups is how to create a proper exchanging information across organization. Therefore, the superior performance from market orientation can only happen when there is an appropriate informational sharing of within organization.

For the interaction effect, we hypothesized that market turbulence, competitive intensity, and technological turbulence would enhance the relationship between market orientation and startup's performance. Unexpectedly, we could not find a significant interactional effect on the market turbulence and competitive intensity. Startups normally innovate new products and services and sometime create a new market. As such, startups are the one who creates market change. Furthermore, startups normally enter into a new market and new landscape which neither have turbulence nor competition. Competitive intensity may not be formed

in the startup's context. However, we found that technological turbulence significantly enhanced the relationship between market orientation and startup's performance. Given startups embedded into technology context, the rapidly technological change could provide more startup's opportunities to engage new customer and chance to address customer need, which in turn provide superior performance.

### **Implication and limitation**

This study provides both theoretical and managerial implications. First, we extend the market orientation literature in startup's context. With our empirical study, we can prove that market orientation is positively related to startup's performance. It is widely acknowledged that market orientation promotes business performance. However, given a startup has a unique characteristic, we believe that market orientation should be discussed and applied into startup's communities. In addition, we find that intelligence dissemination in market orientation plays a significant role in startup's context to achieve superior performance while intelligence generation and responsiveness may not affect on the startup's performance. However, given the dynamic growth in startups, all three components of the market orientation are needed for startups to address the need of customers.

In addition, we conversely hypothesized that technology turbulence would enhance the relationship while Kohli and Jaworski (1993) suggested that technology turbulence mitigates the relationship between market orientation and performance. Our results illustrated that



technology turbulence enhanced our main relationship which indicated that technology changing promoted opportunity for startup's performance, given startups are driven by innovation and technology. However, we did not find any significant moderating roles from market turbulence and competitive intensity that have been mentioned in existing literatures. Startup's market and competitive landscape are different. The rationale from prior research may not be able to explain this phenomenon. We believe that the newness of products and services from startups creates new market and competitive landscape.

The limitations of this study allow for future research to expand on the concepts of market orientation. First, we collected the data only digital startups which have

certain characteristic such as digital platform. In the meantime, deep tech startup may provide another venue to fulfill the research, given it creates and develops innovation and technology. Second, our measurement was drawn from Jaworski and Kohli (1993) did not include the measures from Narver and Slater (1990). Future studied may conduct the comparative study in different measurements as well as different contexts of industry in startup at an early stage of entrepreneurial development. Moreover, we also collected the data before Covid-19 pandemic which has changed the whole market and competitive landscapes and affected to all industries. Future studies may collect data after the Covid-19 which may differently provide the effect of moderated variables.

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**Table 1** Descriptive statistics and correlations

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1) Startup's Performance	3.26	0.87																	
2) Market Orientation	3.33	0.49	0.85*																
3) Intelligence Generation	3.50	0.45	0.58*	0.34*															
4) Intelligence Dissemination	3.45	0.41	0.87*	0.70*	0.25														
5) Responsiveness	3.46	0.41	0.81*	0.61	0.19	0.77													
6) Market Turbulence	3.66	0.59	0.23*	0.25*	0.24*	0.25*	0.14												
7) Competitive Intensity	3.32	0.75	0.13	0.09	0.12	0.12	0	0.58*											
8) Technological Turbulence	3.49	0.53	0.05	0.18*	0.17*	0.12	0.16	0.49*	0.35*										
9) Gender	0.36	0.48	-0.08	-0.04	-0.05	-0.07	-0.11	-0.16	-0.11	-0.16									
10) Age	2.29	0.71	0.17	0.13	0.13	0.12	0.16	-0.04	-0.17	-0.03	0.12								
11) Education	2.61	0.70	0.07	0.09	0.13	-0.02	0.02	0.05	-0.02	0.11	0.03	0.01*							
12) Work Experience	7.87	7.38	0.08	0.17	-0.09	0.08	0.09	0.28	0.18	0.18	0.37	-0.02	0.44*						
13) Startup's Experience	0.69	0.46	-0.10	-0.06	-0.17	-0.04	-0.03	0.03	-0.05	0.05	0.09	-0.04	0.02	-0.07					
14) Number of Founders	3.21	2.42	0.01	0.03	0.09	-0.03	-0.06	0.10	0.13	0.12	-0.01	0.19	-0.06	0.14	-0.03				
15) Years of Establishment	4.38	3.75	0.09	0.05	0.15	0.03	0.03	-0.13	-0.17	0.00	-0.17	0.04	0.23	0.16	0.14	0.04*			
16) Funding Status	0.41	0.49	0.36	0.29	0.31	0.27	0.25	0.21	0.12	0.18	0.24	0.03	0.13	0.15	0.12	0.05	0.12		
17) Number of Employees	25.20	36.91	0.13	0.11	0.24	0.07	-0.02	-0.07	-0.09	0.01	-0.10	0.21*	0.07	0.04	-0.07	0.12	0.13*	0.35*	

Notes: \* $p < .05$ ,  $N = 209$

**Table 2** Regression results on startup's performance (Main effect)

Dependent Variables Startup's Performance	Model 1		Model 2	
	Est.	SE	Est.	SE
<i>Independent Variables</i>				
Market Orientation	0.420**	0.161		
Intelligence Generation			-0.088	0.149
Intelligence Dissemination			0.917***	0.165
Responsiveness			-0.513†	0.202
<i>Control Variables</i>				
Gender	-0.095	0.124	-0.065	0.118
Age	0.192*	0.094	0.227**	0.092
Education	-0.044	0.089	-0.113	0.085
Working Experience	-0.007	0.009	0.001	0.009
Startup's Experience	-0.241†	0.125	-0.263†	0.120
Number of Founders	-0.016	0.026	-0.022	0.025
Years of Establishment	0.012	0.017	-0.005	0.016
Funding Status	0.547***	0.125	0.602***	0.120
Number of Employees	0.001	0.002	0.000	0.002
Constant	1.520*	0.634	1.932**	0.609
R-Squared		0.200		0.246
Adj R-Squared		0.159		0.754
F-Ratio		4.94***		6.65***
N		209		209

Note: † $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table 3** Regression results on startup's performance (Moderation effect)

<b>Dependent Variable</b> <b>Startup's Performance</b>	<b>Model 3</b>	
	<b>Est.</b>	<b>SE</b>
<b><i>Independent Variable</i></b>		
Market Orientation	-0.631	0.842
<b><i>Moderator Variable</i></b>		
Market Turbulence	-0.384	0.885
Competitive Intensity	0.393	0.734
Technological Turbulence	-0.797†	0.176
<b><i>Moderation Effect</i></b>		
Market Orientation x Market Turbulence	0.167	0.250
Market Orientation x Competitive Intensity	-0.109	0.210
Market Orientation x Technological Turbulence	0.226***	0.034
<b><i>Control Variable</i></b>		
Gender	-0.052	0.115
Age	0.105	0.086
Education	0.046	0.082
Work Experience	-0.006	0.008
Startup Experience	-0.067	0.119
Number of Founders	-0.009	0.025
Years of Establishment	0.005	0.015
Funding Status	0.423***	0.118
Number of Employees	0.001	0.002
Constant	4.329	2.939
R-Squared	0.373	
Adj R-Squared	0.321	
F-Ratio	7.14***	
N	209	

Note: † $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table 4** Hypotheses result

<i>Hypotheses</i>	<i>Est.</i>	<i>P-Value</i>	<i>Result</i>
H1: The greater the market orientation of startup, the higher its startup's performance.	$\beta = 0.420$	$< 0.01$	Supported
H1a: The greater the intelligence generation in market orientation, the higher its startup's performance.	$\beta = -0.088$	-	Not Supported
H1b: The greater the intelligence dissemination in market orientation, the higher its startup's performance.	$\beta = 0.917$	$< 0.001$	Supported
H1c: The greater the responsiveness in market orientation, the higher its startup's performance.	$\beta = 1.683$	-	Not Supported
H2a: The greater the market turbulence, the stronger the relationship between a market orientation and startup's performance	$\beta = 0.167$	-	Not Supported
H2b: The greater the competitive intensity, the stronger the relationship between a market orientation and startup's performance	$\beta = -0.109$	-	Not Supported
H2c: The greater the technological turbulence, the stronger the relationship between a market orientation and startup's performance	$\beta = 0.226$	$< 0.001$	Supported

