

Research Paper

Implementation of Techno-Entrepreneurial Relationship Marketing (TERM) Model to Improve Competitiveness of Entrepreneurial Students in Central Java

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Abstract

To bridge the gap between entrepreneurial mindset and marketing effectiveness, thereby gaining a competitive edge, this study aims to develop and evaluate the Techno-Entrepreneurial Relationship Marketing (TERM) paradigm. This research investigates how techno-entrepreneurial relationship marketing, responsiveness capacity, and interaction proactiveness can help student entrepreneurs in Central Java improve their marketing performance. One hundred fifty business owners and managers from Central Java universities participated in this survey-based study. The research results confirm the important role of technology-entrepreneurship linkage marketing as a key mechanism linking strategic firm capabilities based on technology and entrepreneurship with superior market outcomes.

Keywords: Resource-Based View Theory, Information Technology Adoption, Entrepreneurial orientation, Techno Entrepreneurial Relationship Marketing, and Competitive Advantage

INTRODUCTION

A critical factor in the success of small and medium-sized enterprises (SMEs) is an entrepreneurial mindset, or EO. According to research, companies that rank higher on the EO scale tend to do better than those that rank lower. Wiklund and Shepherd (2003) studied 384 small and medium-sized enterprises (SMEs) in Sweden to find out how a focus on knowledge-based resources, entrepreneurial spirit, and company performance were related. In addition to improving performance, they discovered that EO fortifies the connection between knowledge-based resources and company success. Previous work by Wiklund and Shepherd (2005) argued that environmental dynamics, access to capital, and EO all work together to boost the performance of small businesses. This is because EO helps these businesses find new opportunities, stand out from the crowd, and gain a competitive edge.

Li et al. (2009) surveyed 165 Taiwanese entrepreneurs and discovered that EO has a positive effect on SME performance through the knowledge creation process. Researchers Runyan et al. (2008) examined the impact of an entrepreneur's or small business owner's mindset on their company's success. An American study of 267 SMB owners indicated that while small business orientation considerably affected firm performance, entrepreneurial orientation had no effect. In a study conducted by Hermann et al. (2010), 85 SMEs from Austria were surveyed. The researchers found that, depending on specific financial and environmental factors, EO can negatively impact SME performance. Addressing this gap, the present study proposes and tests a Techno-Entrepreneurial Relationship Marketing (TERM) framework to link EO with firm performance in SMEs. SMEs play a vital role in economic growth but face obstacles such as limited capital, weak management, low human resource quality, and especially difficulties in marketing and sales (Reijonen & Laukkanen, 2010; Franco et al., 2014). Given these challenges, this study examines the role of Techno-Entrepreneurial Relationship Marketing (TERM) in improving SME performance,

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particularly among student entrepreneurs. According to BPS (2022), diploma graduates had a 4.25% unemployment rate, signaling the need for initiatives like student entrepreneurship programs in Marketing Management to address graduate unemployment.

Table 1. Open Unemployment by National Highest Education in 2021-2022

Open Unemployment by Highest Education Completed (People)						ople)
Highest		2021	2022			
Education Completed + Total	February	August	Annual	February	August	Annual
Not/never been to school	20,461.00	23,905.00	-	24,852.00	-	-
Not/ not yet graduated from Elementary School	342,734.00	431,329.00	-	437,819.0 0	-	-
Elementary School	1,219,494.0 0	1,393,492.00	-	1,230,914. 00	-	-
Junior High School	1,515,089.0 0	1,604,448.00	-	1,460,221. 00	-	-
Senior High School	2,305,093.0 0	2,472,859.00	-	2,251,558. 00	-	-
Vocational High School	2,089,137.0 0	2,111,338.00	-	1,876,661. 00	-	-
Academy/ Diploma	254,457.00	216,024.00	-	235,359.0 0	-	-
University	999,543.00	848,657.00	-	884,769.0 0	-	-
Total	8,746,008.0 0	9,102,052.00	-	8,402,153. 00	-	-

LITERATURE REVIEW

Resource-Based View Theory

In order for businesses to achieve long-term success and competitive advantage, according to Barney's (1993) Resource-Based View (RBV) theory, they need specific skills and assets. Any assets, tangible and intangible, that are under the control of a business and aid in the development and execution of strategies to increase the efficacy and efficiency of that business are considered resources. Real assets are tangible items, such as buildings and machinery, whereas intangible assets are intangible resources, such as people and an organization's capital. Companies often have

physical assets, such as the technology they use. According to the RBV, sustainable competitive advantage arises when firms implement value creation strategies that competitors cannot duplicate. To achieve this, resources must be valuable, rare, inimitable, and non-substitutable (Barney, 1993).

Entrepreneurial Orientation

Originality, initiative, and willingness to take risks are the three pillars upon which an entrepreneurial mindset rests, according to some writers (Wiklund & Shepherd, 2003; Wiklund & Shepherd, 2005; Runyan et al., 2008; Keh et al., 2007). Being innovative means you have a propensity to encourage fresh thinking, exploration, experimentation, and creative endeavors. The ability to think ahead and respond to potential market demands is an indicator of Proactiveness, which stems from long-standing practices and technologies, and the willingness to take calculated risks is a hallmark of risk-takers. Lumpkin and Dess (1996) put forth the idea that an entrepreneurial orientation can be described by five characteristics: independence, creativity, initiative, risk-taking, and aggressiveness in competition. When a business is aggressively trying to break into new markets, strengthen its position in existing ones, or outperform its rivals, this is an example of competitiveness; in contrast, autonomy refers to the independent actions of an individual or group in developing and implementing an idea or vision.

Relationship Marketing

The term "relationship marketing," initially used by Berry (1983), refers to strategies aimed at establishing and nurturing connections with consumers. The importance of attracting, developing, and maintaining such relationships was highlighted by Berry and Parasuraman (1991). Although the effect was more pronounced in the manufacturing sector, Yau et al. (2000) discovered that market orientation and relationship marketing had a positive effect on company performance across all sectors in Hong Kong.

When applied to 279 service companies, relationship marketing increased ROI, market share, customer retention, sales growth, and customer retention rates (Sin et al., 2002). Despite its reputation for being better suited to giant corporations, it can also be used by SMEs. Therefore, to establish a connection between entrepreneurial marketing and firm performance, this study focuses on SMEs and investigates the techno-entrepreneurial relationship marketing.

Techno-Preneurial Relationship Marketing

Relationship marketing emphasizes customer loyalty through personalization and CRM to identify customer needs. From the RBV view, technology is a key asset, while innovativeness as part of entrepreneurial orientation makes e-CRM essential for meeting customer needs in the digital era. Harrigan et al. (2012) state that e-CRM can assist SMEs in improving customer communication. This is because e-CRM increases the number of interactions between SMEs and their customers, making it easier to acquire, manage, and analyze customer data for basic marketing decisions. Since e-CRM makes it easier for SMEs to sell their products and reach a larger market, firms can boost their performance by implementing it. A new marketing strategy called Techno-Entrepreneurial Relationship Marketing (TERM) is proposed in this study based on these ideas. TERM stands for tech-based relationship marketing, defined by customer communication, interactive information sharing, and the creation of mutual value.

H1: Information Technology Adoption affects Techno Entrepreneurial Relationship Marketing

H2: Entrepreneurial orientation affects Techno Entrepreneurial Relationship Marketing

Responsiveness Capability

Companies with an eye toward the marketplace place a premium on customer-needs gathering and response systems, which allow for rapid adaptation to changing conditions (Randall et al., 2003), as highlighted by Kohli and Jaworski (1990). Market responsiveness depends on competitive conditions and organizational capabilities, including innovation and flexibility (Giaglis & Konstantinos, 2011). Information technology supports relationship marketing, particularly in SMEs, through TERM, which facilitates interactive communication and faster identification of customer needs. Doherty and Lockett (2008) found that SMEs using IT tools such as e-CRM manage marketing activities more effectively, especially in multi-channel environments.

H4: Techno Entrepreneurial Relationship Marketing affects Responsiveness Capability

Interaction Proactiveness

The essence of relationship marketing is to build, maintain, and enhance long-term relationships between companies and customers (Gronroos, 1994). This approach emphasizes continuous interaction and mutual value creation, shifting marketing from one-time transactions to sustainable relationships. Advances in information technology further facilitate these interactions by enabling more personalized communication and stronger customer engagement. Customer engagement is central to value creation as it allows companies to deliver superior value, foster trust, and strengthen long-term commitment. According to Sashi (2012), engaged customers act not only as buyers but also as partners who collaborate with companies in the value co-creation process to fulfill both individual and collective customer needs.

Businesses can actively contribute to the development of customer communities through their online customer service efforts, and they can also cultivate these communities to gain a deeper understanding of customer needs, enhance current products, and create new ones. Online interactions enable real-time communication, information sharing, and feedback (Tikkanen et al., 2009). Such interactions serve as the locus of value creation, as customers not only provide input but also collaborate with companies in the value co-creation process (Prahalad & Ramaswamy, 2004).

H3: Techno Entrepreneurial Relationship Marketing affects Interaction Proactiveness

Marketing Performance

Research consistently shows that relationship marketing positively influences firm performance. Yau et al. (2000) found more potent effects in manufacturing than in services. An effect on return on investment (ROI), market share, customer retention, and sales growth was verified by Sin et al. (2002). Service quality and market positioning lead to better economic results, according to Izquierdo et al. (2005), who found that loyalty and attraction programs impact market performance more than economic performance.

H5: Techno Entrepreneurial Relationship Marketing affects Marketing Performance

H6: Responsiveness Capability affects Marketing Performance

H7: Interaction Proactiveness affects Marketing Performance

Competitive Advantage

Competitive advantage is widely recognized as a core strategic concept (Farida & Setiawan, 2022). It reflects a company's ability to deliver greater value than competitors at an efficient cost (Danjum & Rasli, 2012). This advantage emerges from effectively utilizing resources and

capabilities as strategic assets (Skoludova & Brodsky, 2015) and from implementing value-creation strategies not adopted by potential competitors (Ceniga & Šukalová, 2015). H8: Marketing Performance affects Competitive Advantage.

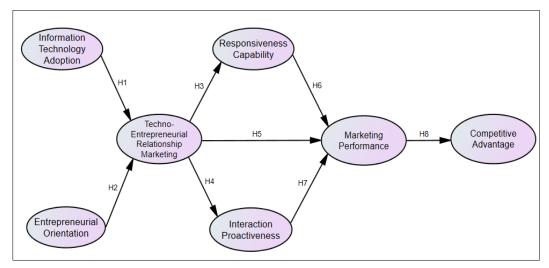


Figure 1. Research Empiric Model

RESEARCH METHOD

This study's population consists of student entrepreneurs from 35 different districts and cities in Central Java, including 29 districts and six cities. This study employed the purposive sampling method for its sampling technique. The minimum number of months a business must have been in operation before it can be included in the entrepreneurial student sample (Start-Up Business). As stated by Hair (2019), the bare minimum for SEM analysis tools in this study is 110 samples, which is calculated as $22 \times 5 = 110$.

Technology Adoption, Entrepreneurial Orientation, Techno-Entrepreneurial Relationship Marketing, Interaction Proactivity, Responsiveness Capability, Marketing Performance, and Competitive Advantage are some of the variables measured by the primary data collected from respondents in Central Java through questionnaires (Likert scale 1-5). Regression weight analysis was used to test relationships between variables, and confirmatory factor analysis was used to identify dominant factors in the data analysis conducted using structural equation modeling (SEM) with AMOS 24.0.

FINDINGS AND DISCUSSION

Table 2 displays the results of the descriptive analysis of respondents based on the research that was conducted.

	1	
Criteria	Characteristics	Percentage
Gender	Female	62%
	Male	38%
Age	17-19 years	5%
	20-21 years	38%
	22-23 years	44%
	> 24 years	13%
Duration of Operation	> 6 months	11%

Table 2. Characteristic of Respondents

Criteria	Characteristics	Percentage
	7-12 months	46%
	2-3 years	38%
	>4 years	4%

Source: Processed Primary Data, (2024).

Participating in this study were 150 student entrepreneurs from 35 districts and cities in Central Java. Among the respondents, entrepreneurial students are predominantly aged 22-23 years old, with an average business operating for approximately 7-12 months.

Measurement Model Test

The following factors are included in this study: IT adoption, entrepreneurial orientation, marketing of technologically enabled relationships, responsiveness capability, interaction proactiveness, marketing performance, and competitive advantage. With a chi-square value of 259.240, a probability of 0.110, a CMIN / DF of 1.730, a GFI of 0.81, a CFI of 0.954, a TLI of 0.942, and an RMSEA of 0.064, the fit model, which was tested using the AMOS 24 program, indicates that the structural equation modeling analysis in this study can be accepted. The goodness of fit test determines whether the model provides a good fit to the data.

Hypothesis Test

We can say that all eight of the study's hypotheses were correct because we tested them all. These are the regression weight outputs: Techno Entrepreneurial Relationship Marketing is positively and significantly impacted by the Information Technology Adaptation variable (estimated at 0.514). Techno-Entrepreneurial Relationship Marketing and Entrepreneurial Orientation are positively and statistically related (r=0.613). Techno Entrepreneurial Relationship Marketing and Responsiveness Capability are positively and statistically significantly related (estimated value = 0.887). Interaction Proactiveness is positively impacted by the Techno Entrepreneurial Relationship Marketing variable, which has an estimated value of 0.968.

A highly significant and positive relationship exists between the Responsiveness Capability and Marketing Performance variables, as indicated by an estimated value of 0.154. An estimated 0.105 indicates that the Interaction Proactiveness variable has a positive and statistically significant effect on the Marketing Performance variable. Techno Entrepreneurial Relationship Marketing and Marketing Performance are positively and statistically significantly related, with an estimated value of 0.746.

In terms of marketing performance and competitive advantage, there is a positive and statistically significant relationship (estimated at 0.987). It is possible to explain this situation as follows: A high positive relationship exists between the two variables, as indicated by a correlation coefficient of 0.514, which is 51%. This means that for every one-unit increase in the Information Technology Adaptation variable, the Techno Entrepreneurial Relationship Marketing variable will also increase by 51%.

An increase of one standard deviation in the Entrepreneurial Orientation variable results in a corresponding increase of 63 percent in the Techno Entrepreneurial Relationship Marketing variable, indicating a strong positive relationship between the two variables. The correlation coefficient for this relationship is 0.613, or 63%.

A strong positive relationship exists between the Techno Entrepreneurial Relationship Marketing and the Responsiveness Capability variables; specifically, a correlation coefficient of 0.887, or 88%, indicates that a one-unit increase in the Techno Entrepreneurial Relationship

Marketing variable will result in an 88% increase in the Responsiveness Capability variable. Techno Entrepreneurial Relationship Marketing and Interaction Proactiveness are positively correlated with one another (r=0.968, or 96%). This means that for every one-unit increase in Techno Entrepreneurial Relationship Marketing, there will be a corresponding 96% increase in Interaction Proactiveness.

The Responsiveness Capability and Marketing Performance variables are positively correlated with one another (r=0.154, or 15%), meaning that a one-unit increase in Responsiveness Capability will result in a fifteen-unit increase in Marketing Performance. The Interaction Proactiveness and Marketing Performance variables are positively correlated with each other (r=0.105, or 10%), meaning that a one-unit increase in Interaction Proactiveness results in a corresponding 10% increase in Marketing Performance.

An impressive correlation coefficient of 0.746, or 74%, indicates a strong positive relationship between the Techno Entrepreneurial Relationship Marketing and Marketing Performance variables. This means that a one-time increase in Techno Entrepreneurial Relationship Marketing will also result in a 74% increase in Marketing Performance. The Marketing Performance and Competitive Advantage variables are positively correlated with one another (r=0.987, or 98%), meaning that a one-unit increase in Marketing Performance will result in a corresponding 98% increase in Competitive Advantage.

Table 3. Hypothesis Test Result (Region weights)

			Estimate	S.E.	C.R.	P
TERM	←	Information_Technology_Adoption	,514	,065	7,912	***
TERM	←	Entrepreneurial_Orientation	,613	,073	8,378	***
Responsiveness Capability	←	TERM	,887	,065	13,556	***
Interaction Proactiveness	←	TERM	,968	,069	14,094	***
Marketing Performance	←	Responsiveness_Capability	,154	,038	4,084	***
Marketing Performance	←	Interaction_Proactiveness	,105	,033	3,166	,002
Marketing Performance	←	TERM	,746	,074	10,036	***
Competitive Advantage	←	Marketing_Performance	,987	,071	13,859	***
RC3	←	Responsiveness_Capability	,962	,088	11,334	***
IP3	←	Interaction_Proactiveness	,967	,084	11,474	***
CA4	(Competitive_Advantage	,960	,081	11,808	***

			Estimate	S.E.	C.R.	P
MP2	←	Marketing_Performance	,933	,088	10,582	***
MP1	←	Marketing_Performance	1,000			
MP3	←	Marketing_Performance	,956	,085	11,212	***
ITA1	←	Information_Technology_Adoption	1,000			
ITA3	←	Information_Technology_Adoption	,940	,083	11,364	***
ITA2	←	Information_Technology_Adoption	,921	,080,	11,588	***
E01	←	Entrepreneurial_Orientation	1,000			
E03	←	Entrepreneurial_Orientation	1,019	,095	10,715	***
EO2	←	Entrepreneurial_Orientation	1,087	,095	11,405	***
TERM1	←	TERM	1,000			

Source: Processed Primary Data, (2024)

CONCLUSIONS

This study provides more evidence that an entrepreneurial mindset and widespread adoption of IT have a positive effect on techno-enterprise relationship marketing (TERM), which boosts responsiveness, interaction proactiveness, marketing performance, and competitive advantage. All eight hypotheses were supported, highlighting TERM as a key mechanism linking technology and entrepreneurship to superior market outcomes. Firms that adopt digital tools and foster an entrepreneurial mindset can strengthen customer relationships, adapt quickly, and engage proactively to achieve a competitive advantage. Future research should take industry backing, infrastructure, and external factors into account, according to this study's findings. Developing relevant research also requires increasing the size of the respondent pool. Additionally, other variables that can bolster this research must be considered.

LIMITATIONS & FURTHER RESEARCH

This study has limitations because it focused only on student entrepreneurs in Central Java. For future research, it is recommended to expand the sample to a broader demographic. It is also recommended to examine additional moderating variables such as institutional support, digital literacy, and market volatility.

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