

New Product Development Capability, Sustainable Competitive Advantage, Digital Transformation, and Marketing Performance: Evidence from Thailand

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ABSTRACT

This study aims at investigating the effects of new product development capability on sustainable competitive advantage and marketing performance through a moderator of digital transformation. In this study, 289 instant food and convenience food businesses in Thailand are the samples of the study. Structural equation model is utilized to test both direct and mediating effects and multiple regression analysis is applied to examine the moderating effects. All dimensions of new product development capability have important effects on sustainable competitive advantage. Next, sustainable competitive advantage significantly affects marketing performance and also completely mediates the new product development capability-marketing performance relationships. In addition, digital transformation plays a significant moderating role in strengthening the relationships. New product development capability is a valuable marketing strategy of firms. Therefore, firms need to critically invest in the systems and processes of this capability in order to create and improve their sustain competitiveness and long-term performance.

JEL Classification: M30, M31, M39

Keywords: new product development capability, sustainable competitive advantage, digital transformation, marketing performance

I. INTRODUCTION

Recently, business environments have changed continuously and these changes include an increase of number of new coming competitors, clients' continuous expectations and needs, rapid digital technology advancement, uncertain health situations and climates, and numerous rule, law and regulation requirements. Firms have faced with significant opportunities and threats in rapidly changing environmental conditions with more increasingly competitive environments (Ata et al., 2018). As a consequence, they need to create, develop and utilize all valuable strategies and techniques for covering and beating these environments in order to enhance sustainable competitive advantage and competitiveness and achieve long-term profitability and performance. Greater business strategies and techniques can help firms compete the environments and sustain their benefits and returns. While valuable business strategies and techniques can obtain from management, marketing, production, finance, and accounting activities and others, marketing strategy is a main mechanism of firms' business operations. It is a core source of sustainable competitive advantage in an organization. Accordingly, new product development capability is one of firms' usable marketing strategies and it has a positive and significant effect on sustainable competitive advantage and marketing performance. Therefore, new product development capability is a key driver of increasing and sustaining their competitive advantage and marketing performance.

New product development capability is an effective marketing tool that could assist firms in enhancing, achieving and sustaining marketing position, competitive advantage and marketing performance in a long-term aspect. It is defined as an ability of firms to have long-term commitments through various activities, such as product line planning, strategy development, concept generation and screening, business analysis, development, testing, validation, manufacturing development, and commercialization (Dubey et al., 2021). It comprises product originality orientation (Li et al., 2015), new product idea (Christensen et al., 2017), novel product experiment (Im et al., 2015), and product research continuity (McClure and Thomas, 2018). It helps develop and launch marketable new products that could increase their profitability via new market information, new technological applications and research and development (Rubera et al., 2016). It comprises (a) bringing a new product to market, (b) re-inventing the existing product to suit current market needs and (c) introducing a product completely to new markets. Firms with new product development capability can successfully introduce new products, expand product range, enter into new markets, and enter new technology fields. They help develop and launch competitive new products and improve the existing ones to successfully innovate new market relevant venture solutions (Rayi and Aras, 2021). As a consequence, firms can achieve faster speed-to-market, enhanced new product quality and efficient development costs, which contribute to their competitiveness, reputation, market share, long-term profitability, and organizational value (Racela, 2015). Therefore, new product development capability plays a significant role in determining their sustainable competitive advantage and marketing performance.

In this study, sustain competitive advantage is defined as a framework that makes full use of the existing business opportunities for firms' capital while exploiting other resources to guarantee the sustainability and replicability of their competitive positions for the future (Hossain et al., 2022). It is a long-term benefit resulting from unique and value creation processes asynchronously with potential competitors and dynamic rivals

cannot be easily copied and imitate. Firms with sustain competitive advantage can achieve long-term marketing performance. In addition, marketing performance refers to the efficiency, effectiveness and productivity of firms' marketing strategies, techniques and activities in relation to market-related objectives and goals (Najib et al., 2020). It is a result of marketing efforts in doing business operations. Accordingly, marketing performance is a successful outcome of implementing firms' usable marketing strategies in turbulent business environments.

For strengthening the research relationships, digital transformation is proposed to moderate the relationships. It is defined as an ability of firms to use new digital innovations to achieve major business improvements, including digital technologies and associated digitizing processes that form the innate part of the new idea and its development, diffusion or assimilation (Steiber et al., 2021). It changes the way of doing business by creating and delivering digital value propositions and simultaneously leveraging digital technologies in operational processes. It transmutes the products and services to software-defined assets and utilizes these digital to redefine the business. Therefore, digital transformation can help firms succeed, survive and sustain in competitive environments. It can support them to successfully create, develop, introduce, and launch new products to targeted markets.

The objective of this study is to test the effects of new product development capability on marketing performance of instant food and convenience food businesses in Thailand through a mediator of sustainable competitive advantage and a moderator of digital transformation. Instant food and convenience food businesses in Thailand are one of major industries that have driven Thailand's economies. To succeed, survive and sustain in competitive markets and environments, production innovation, food processing and new product development have become effective strategic tools that enhance to achieve businesses' objectives and goals continuously (Eastern Economic Corridor Office, 2019). Therefore, they are considered the appropriate samples of the study. The key research question is how new product development capability has an effect on marketing performance. The specific research questions are: (1) How new product development capability has an effect on sustainable competitive advantage, (2) How sustainable competitive advantage has an effect on marketing performance, (3) How sustainable competitive advantage mediates the new product development capability-marketing performance relationships, and (4) How digital transformation moderates all relationships.

The following section presents a brief background and literature of new product development capability and its effects. Next, the research model and hypotheses are presented. In addition, the details on the research methods are described before estimation results. Finally, the study concludes with a discussion of implications and future research directions.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

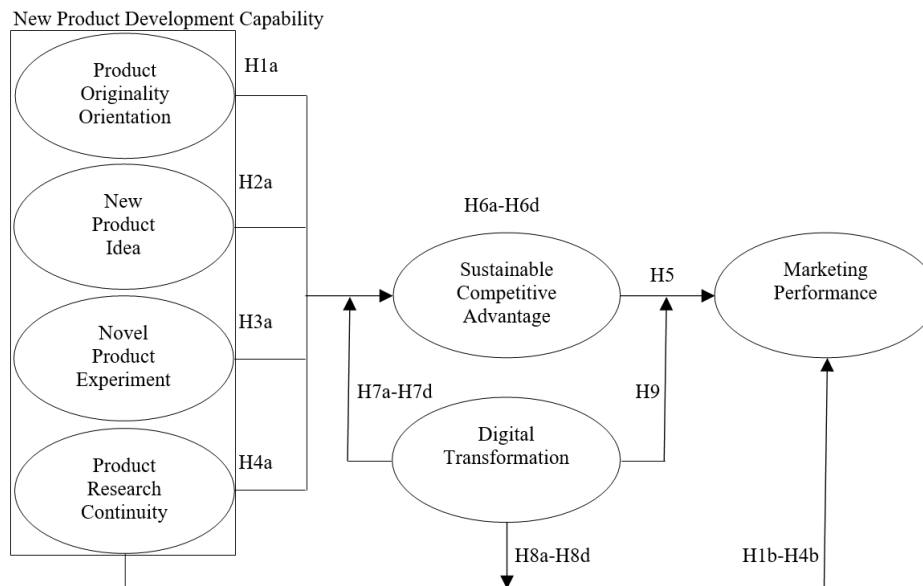
In this study, dynamic capability theory is used to explain the new product development capability-marketing performance relationships. It is an ability of firms to integrate, build and reconfigure internal and external competencies to address rapidly changing environments (Teece et al., 1997). It is also a capacity of firms to purposefully create, extend or modify their resource base. Therefore, new product development capability is

a dynamic capability as a core competency that is used to modify short-term competitive positions that can be used to build longer-term competitive advantage. Accordingly, all dimensions of new product development capability are independent variables. Sustainable competitive advantage is a mediating variable. Digital transformation is a moderating variable, and marketing performance is a dependent variable. Figure 1 shows the conceptual model.

A. Marketing Performance

The goal of marketing efforts through marketing strategies, techniques and practices is marketing performance. Marketing performance is defined as the efficiency, effectiveness and productivity of firms' marketing strategies, techniques and activities with correlation to market-related objectives and goals (Najib et al., 2020). It is influenced by customer and competitor focus, and this focus encourages firms to innovate in order to meet customer needs. It can be measured through marketing productivity, identification of the metrics in use and size of the brand equity. It comprises market share growth, sales growth, profit growth, growth in the numbers of customers, customer satisfaction, perceived quality, customer loyalty, brand equity, and firm reputation. Therefore, marketing performance directly increases firms' asset endowment and their market-based assets. In addition, marketing performance is a result of firms' new product development capability which is regarded as one part of marketing strategies. Great new product development capability can positively influence better marketing performance (Helm et al., 2020). Accordingly, marketing performance is an effectiveness of successful new product development capability.

Figure 1
A Conceptual Model of the New Product Development Capability-marketing Performance Relationships



B. Product Originality Orientation

Product originality orientation is the first dimension of new product development capability. It refers to an ability of firms to create a product's perceived newness or uniqueness, according to the customer, relative to previous offerings (Li et al., 2015). It introduces a product that differs from existing products in its use of advanced or radical technology. It reflects the objective degree of newness of a new product relative to the rest of the market and develops firm perspectives. A high product originality orientation is considered useful because it could pleasantly interest and surprise customers with its new and superior utility. Moreover, it could lead to more positive adoption intentions among customers (Moldovan et al., 2011). Likewise, product originality orientation refers to development and introduction of new products by emphasizing a quality of being new and inventive in created a strong demand by opening new markets and contributing to a growth of innovator firms (Göllü, 2017). It focuses on firms' competencies and capabilities to significantly launch new products through original ideas that come from the sources and are conceived by their creators. In addition, product originality orientation is a talent of creativity which evolves from an idea to a behavior, then to a product. It is a product's ability to meet customers' needs. It is critical to firms' success and can offer a meaningful source of competitive advantage. Firms with product originality orientation can have large, positive and long-lasting effects on their revenue streams and profits (Herd and Mehta, 2019). Then, product originality orientation is hypothesized to have a positive effect on sustainable competitive advantage and marketing performance. Therefore,

H1: Product originality orientation affects (a) sustainable competitive advantage and (b) marketing performance.

C. New Product Idea

New product idea is the second dimension of new product development capability and it is defined as an initial outcome of a creative process that can be further developed into a proposal, prototype or tangible product (Christensen et al., 2017). It is a formal blueprint, roadmap, template or thought process for driving a new product from the idea stage through to market launch and beyond (Hammedi et al., 2011). It is a process of finding and constructing fresh ideas about products aimed at conveying the mental concept to real world. In addition, new product idea refers to a process of creating, developing and communicating new products which are abstract, concrete and visual as well as a process of constructing through innovating the concept, developing the process and bringing the concept to reality (Nikou, 2019). It is a systematic pursuit of the creation, growth, development, maturation, and refinement of concrete product ideas. It is critical for recognizing new opportunities and initiating creative out through functioning an amount of information that obtains from customers, competitors and product technologies. It is a valuable tool for identifying new market opportunities and new products that satisfy customer needs. Firms with new product idea can enhance new products and new market opportunities that help satisfy customer needs which lead to strong competitive advantage and great marketing performance in long-term aspects. Therefore,

H2: New product idea affects (a) sustainable competitive advantage and (b) marketing performance.

D. Novel Product Experiment

Novel product experiment is the third dimension of new product development capability. It is defined as a development of a creative new product that is cool, trendy, hip, appealing, attractive, and fascinating (Im et al., 2015). It could lead to positive affective reactions, including positive surprise, stimulation and savoring and a wow response. It focuses more on the sensory and experiential dimensions of the new product that leads to utilitarian and hedonic values of the product. In addition, novel product experiment refers to the extent to which a new product diverges from conventional practices through competitive products (Cheng et al., 2013). It is the degree to which a new product is remarkable relative to their competitors' products which is perceived as distinct from those competitors in a domain. Firms with novel product experiment can obtain an advanced technological portfolio that helps them achieve a premium position for new products, identifying them from competitors' products (Kim et al., 2013). They can launch a creative new product to potential customers with more appropriateness when compared to other competitive products. Moreover, novel product experiment is a process of a creative new product that evokes an effective surprise in the customers, along with a shock of recognition which is entirely appropriate (Dabrowski, 2019). It is the degree to which a new product is distinct from competing alternatives and preceding product generations. It involves a combination of technological and market-related knowledge that ultimately contribute to firms' survival and growth. Firms with novel product experiment can provide more incentives to customers by getting their attention and exceeding expectations from the market that continually evolve over time. They can attract attention and increase the likelihood of a new product being in customers' consideration set by enabling them to better evaluate alternatives, try the product and eventually transform preference into conviction. Therefore, novel product experiment is hypothesized to have a positive effect on sustainable competitive advantage and marketing performance. Therefore,

H3: Novel product experiment affects (a) sustainable competitive advantage and (b) marketing performance.

E. Product Research Continuity

Product research continuity is the last dimension of new product development capability and it is defined as a prospect for new viable innovations through the search for working prototypes (McClure and Thomas, 2018). It is a pre-launch production of a new product consisting of the productization of cost-efficient working prototypes and the production of enough initial inventories to meet the anticipated demand for products launched onto the open market. It comprises (a) radical breakthroughs under other conditions, (b) emulation of successful pioneers, (c) product extensions, (d) application engineering, and (e) prolonged works for new product research and development. It occurs prior to the pricing and open market sale of products for competing firms within this stage of the capital structure. Focusing on product research continuity, firms could have opportunities

to identify potential issues and steer clear of costly mistake. They can make sure there is a market for their products, see what their competitors are doing well and what they can do even better, and assess how much customers will pay. In addition, product research continuity refers to a process of validating a product idea through detained market research and customer analysis before launching new products to competitive markets (Hardt et al., 2016). It challenges firms to improve their products through prioritizing, identifying and selecting specific attributes of products. It can help firms test product concepts, evaluate ideas, examine competitors, price their products, and avoid expensive mistakes. It allows them to gauge customer expectation and make improvements. Firms with product research continuity can achieve more expertise about new innovative ideas to deliver an excellent product to end customers. They can provide fulfillment of customer needs and market expectations that can help achieve sustainable competitiveness and marketing success. Then, product research continuity is hypothesized to have a positive effect on sustainable competitive advantage and marketing performance. Therefore,

H4: Product research continuity affects (a) sustainable competitive advantage and (b) marketing performance.

F. Sustainable Competitive Advantage

Sustainable competitive advantage is defined as a framework that makes complete use of the existing business opportunities for firms' capital while exploiting other resources to guarantee the sustainability and replicability of their competitive positions for the future (Hossain et al., 2022). It presents a powerful resource-based strategy for competitive markets through offering relatively low pricing as rivals, providing customers with high product and service and launching new features of products to customers and markets. Firms with sustainable competitive advantage can build long-term market advantage through providing superior customer value, achieving relative lower cost for a long period of time and creating superior performance (Quaye and Mensah, 2019). In addition, sustainable competitive advantage is a long-term benefit resulting from unique and value creation processes asynchronously with potential competitors and dynamic rivals cannot be easily copied and imitate. It reflects an ability of firms to keep the advantage that is subject to competitors' impossibilities to copy firms' sustainability initiatives and outcomes (Lichtenthaler, 2022). Greater sustainable competitive advantage positively affects better marketing performance. Firms with sustainable competitive advantage can achieve long-term marketing performance. For the mediating effects, sustainable competitive advantage can help link new product development capability to marketing performance. It is a go-between for both two variables. While sustainable competitive advantage is an effective result of new product development capability, it also has a significant positive effect on marketing performance. Therefore,

H5: Sustainable competitive advantage affects marketing performance.

H6: Sustainable competitive advantage mediates (a) the product originality orientation-marketing performance relationships, (b) the new product idea-marketing performance relationships, (c) the novel product experiment-marketing

performance relationships, and (d) the product research continuity-marketing performance relationships

G. Digital Transformation

To strengthen the research relationships, digital transformation is proposed to be a moderator. It is defined as an ability of firms to use new digital innovations to achieve major business improvements, including digital technologies and associated digitizing processes that form the innate part of the new idea and its development, diffusion or assimilation (Steiber et al., 2021). It changes the way of doing business by creating and delivering digital value propositions and simultaneously leveraging digital technologies in operational processes. Interestingly, digital transformation refers to the use of new digital technologies (social media, mobile, analytics or embedded devices) to achieve major business improvements by enhancing customer experience, streamlining operations and creating new business models (Mattila et al., 2021). It is an ability of firms to absorb, use, adapt, create, develop, transfer, and disseminate technologies that materialize through a set of resources, skills and learning mechanisms. It can innovate firms' pivotal positions by reshaping value propositions that help define their organizations as well as operational processes of creating, capturing and delivering digital value (Baiyere et al., 2020). It transmutes the products and services to software-defined assets and utilizes these digital to redefine the business. In addition, digital transformation is a process undertaken to realize major business improvements through the use of new digital technologies with firms' strategy, organizational structure and business model (Liu et al., 2021). It is challenging to adopt applications of digital technologies and continuously develop and renew their digital capabilities. It can support firms to successfully create, develop, introduce, and launch new products to targeted markets. Accordingly, it significantly moderates the aforementioned relationships in this study. Therefore,

H7: Digital transformation moderates (a) the product originality orientation-sustainable competitive advantage relationships, (b) the new product idea-sustainable competitive advantage relationships, (c) the novel product experiment-sustainable competitive advantage relationships, and (d) the product research continuity-sustainable competitive advantage relationships.

H8: Digital transformation moderates (a) the product originality orientation-marketing performance relationships, (b) the new product idea-marketing performance relationships, (c) the novel product experiment-marketing performance relationships, and (d) the product research continuity-marketing performance relationships.

H9: Digital transformation moderates the sustainable competitive advantage-marketing performance relationships.

III. RESEARCH DESIGN AND METHODOLOGY

A. Instant Food and Convenience Food Businesses in Thailand

Instant food and convenience food businesses in Thailand are important. They are considered the appropriate samples of the study due to the fact that Thailand is well-known for its agricultural powerhouse with an abundance of resources from land to sea and a year-round growing season. These businesses are one of major industries that have driven Thailand's economies as becoming a kitchen of the world. They have focused on a source of complete food production by importantly investing production technology, creating a standard of food safety and developing a system of quality investigation in all production stages. In addition, Thailand has had complete natural resources, produced agricultural products in year around and become one of important exporting nations in the world for tuna cans, pineapple cans, rice, and sugar. Next, instant food and convenience food businesses have used raw materials in Thailand as more than eighty percentage for their manufacturers. These businesses comprise tunas, pineapples, fruits and vegetables, instant noodles and related products, porridges and flavored porridges, seasonings and ready-to-eat products, frozen seafoods, sweet corns, boiled rice and rice porridges, soups and full-flavored soups, and others. Accordingly, they can reduce costs of products that help them grow and compete in the world market.

To succeed, survive and sustain in competitive markets and environments, production innovation, food processing and new product development have become a strategic effective tool that enhances to achieve businesses' objectives and goals continuously (Eastern Economic Corridor Office, 2019). In order to respond to customer needs and fulfill market requirements in the marketplace, these businesses have continuously developed new products and services which help improve and renew existing products and services. Accordingly, new product development capability has become a valuable business tool that helps them meet customer needs and market expectations. Moreover, it can help them achieve sustainable competitive advantage and marketing performance in long-term aspects. In this study, marketing executives (chief marketing officers, marketing directors, marketing managers or marketing heads) are the key informants. They are responsible for developing, implementing and executing strategic marketing plans for an entire organization or lines of business and brands within an organization in order to attract potential customers and retain existing ones. They have worked with executives to determine budgets and targets and they are often charged with developing pricing strategies for products and services. Marketing executives work closely with them for an appropriate guidance and a clear direction, and this could result in greater profitability and better results. They generally work in corporate environments as part of a larger marketing team or a digital team with creative communications. As part of an organization, they play a critical role in aligning creative directions with firms' strategic goals.

B. Data Collection and Sample Selection

The questionnaire with dichotomous scales was utilized as a key instrument for collecting data. In this study, total 783 key participants from instant food and convenience food businesses in Thailand were contacted (Thai Food Processors' Association, 2022; Food

and Drug Administration, 2020). The mailed questionnaire was distributed to these participants as the highest marketing executive of these targeted businesses. The participants were requested complete the questionnaire and return to the researchers. With regard to the questionnaire distribution, 319 responses were received. Of the surveys completed and returned, 289 were usable. The effective response rate was approximately 36.91%. With an appropriate follow-up procedure suggested by Aaker et al. (2001), the response rate for a mailed survey as being greater than 20 was considered acceptable. In addition, to verify potential non-response bias, a comparison of the first and the second wave data as recommended by Armstrong and Overton (1977) was considered. This study had no response bias problems for investigating the research relationships because there were no statistically significant differences between the first and the second groups at a 95% confidence level as firm age ($t = 0.17, p > .05$), firm size ($t = 0.14, p > .05$) and firm capital ($t = 0.19, p > .05$).

C. Variables and Measures

Measurements of these constructs are self-developed from existing literature. Multiple items are for measuring each construct. Despite the fact that all constructs are obviously defined, the measurement is impossible for one to directly manifest or observe the scale due to the abstract nature of the construct. Certainly, variables are estimated scales from their definitions and are applied from relevant marketing research and other related literature through the measurements of using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), except for control variables. A source of measurements is presented in Table 1. Measurements of these constructs are self-developed from existing literature as shown in Appendix A. Thus, all variable measurements (product originality orientation, new product idea, novel product experiment, product research continuity, sustainable competitive advantage, digital transformation, and marketing performance) are used in this study. In addition, control variables were empirically examined. Firm age (FA) was measured by the number of years a firm has been in existence (Zahra et al., 2000) by using a dummy variable as less than 10 years = 0 and equal to or greater than 10 years = 1. Next, firm size (FS) was measured by the number of employees in a firm (Arora and Fosfuri, 2000) by using a dummy variable as less than 200 employees = 0 and equal to or greater than 200 employees = 1. Lastly, firm capital (FC) was measured by the amount of money a firm has invested in doing business (Ussahawanitchakit, 2007) by using a dummy variable as less than 250 million baht = 0 and equal to or greater than 250 million baht = 1.

Table 1
A Summary of Measurements of All Variables

Variables	Items	References
Product originality orientation (PO)	5	Göllü (2017); Li et al. (2015)
New product idea (PI)	5	Christensen et al. (2017); Göllü (2017)
Novel product experiment (PE)	5	Cheng et al. (2013); Im et al. (2015)
Product research continuity (PR)	5	Hardt et al. (2016); McClure and Thomas (2018)
Sustainable competitive advantage (SA)	6	Hossain et al. (2022)
Digital transformation (DT)	8	Steiber et al. (2021)
Marketing performance (MP)	9	Najib et al. (2020)

D. Validity and Reliability

To achieve validity and reliability of the model, three criteria are examined (Hair et al., 2010). Firstly, the factor loadings of all items are greater than 0.60. Secondly, Cronbach alpha coefficients as well as the composite reliability are achieved with scoring greater than 0.07. Lastly, item-total correlations are greater than 0.30 indicating the achievement of the convergent validity. Based on these criteria, all the indices can be accepted. Table 2 presents the validity and reliability results for multiple-item scales used in this study.

E. Measurement Model

In this study, the maximum likelihood estimation as a method and the most important indices, such as comparative fit index (CFI), the goodness of fit index (GFI), the incremental fit index (IFI), and root mean square error of approximation (RMSEA) was used to assess the model fit (Awang, 2014). The measurement model was performed with all constructs included. The model for indices is achieved (CFI = 0.94, GFI = 0.92, IFI = 0.93, and RMSEA = 0.04). According to Hair et al. (2010), this study could continue further when at least three of the indices met the threshold requirement. Thus, the initial test of the measurement model results in the good fit to the data.

Table 2
Results of Measure Validation

Items	Factor Loadings	Item-total Correlation	Cronbach Alpha
Product originality orientation (PO)	0.68-0.75	0.63-0.78	0.71
New product idea (PI)	0.78-0.93	0.78-0.92	0.91
Novel product experiment (PE)	0.80-0.86	0.77-0.84	0.85
Product research continuity (PR)	0.84-0.87	0.84-0.86	0.89
Sustainable competitive advantage (SA)	0.86-0.90	0.86-0.91	0.89
Digital transformation (DT)	0.85-0.90	0.89-0.91	0.93
Marketing performance (MP)	0.81-0.93	0.80-0.90	0.92

F. Hypotheses Testing

For examining the direct, mediating and moderating hypotheses, product originality orientation, new product idea, novel product experiment, and product research continuity are the dependent variables. Sustainable competitive advantage is the mediating variable. Digital transformation is the moderating variable whereas marketing performance is the dependent variable in this study. Structural equation model was employed to investigate both direct and mediating hypotheses (Budi et al., 2021; Vongurai, 2021) while multiple regression analysis was applied to test the moderating hypotheses. The results of this study are presented in the next section.

IV. RESULTS AND DISCUSSION

The descriptive statistics and correlation matrix for all variables are presented in Table 3. Multicollinearity might occur when inter-correlation in each predict variable is more than 0.80, which suggests a strong relationship (Hair et al., 2010). The correlations range from

0.45 to 0.75 at the $p < 0.05$ level, which suggests that the possible relationships of the variables in the conceptual model could be tested. Thus, there are no substantial multicollinearity problems encountered in this study.

Table 4 presents the results of path coefficients and hypotheses testing of the direct and mediating hypotheses. Figure 2 shows a summary of the new product development capability-marketing performance relationships. Interestingly, product originality orientation has an important positive effect on sustainable competitive advantage ($b = 0.54, p < 0.01$). Firms with product originality orientation can create a product's perceived newness or uniqueness, according to the customer, relative to previous offerings (Li et al., 2015). They can pleasantly interest and surprise customers with their new and superior utilities, which leads to more positive adoption intentions among customers. Then, product originality orientation is a product's ability to meet customers' needs. It is critical to firms' success and can offer a meaningful source of competitive advantage in long-term aspects. Therefore, Hypothesis 1a is supported. In contrast, product originality orientation does not affect marketing performance ($b = 0.05, p < 0.80$). In existing literature, product originality orientation can introduce a product that differs from existing products in its use of advanced or radical technology so as to meet customer needs and market expectations. More customer satisfaction and market acceptance are likely to enhance firms' greater long-term marketing performance. Then, product originality orientation has no direct effect on marketing performance. Therefore, Hypothesis 1b is not supported.

In addition, new product idea has a critical positive effect on sustainable competitive advantage ($b = 0.25, p < 0.05$). It is an initial outcome of a creative process that can be further developed into a proposal, prototype or tangible product (Christensen et al., 2017). It is a process of finding and constructing fresh ideas about products aimed at conveying the mental concept to real world. It is valuable for identifying new market opportunities and new products that can satisfy customer needs which leads to strong competitive advantage in long-term aspects. Therefore, Hypothesis 2a is supported. Surprisingly, new product idea has no effect on marketing performance ($b = 0.07, p < 0.58$), but it can help successfully respond to customer wants and market requirements. Greater response to customer and market focuses are positively related to better marketing performance. Similar to product originality orientation, new product idea could not directly link to marketing performance. Therefore, Hypothesis 2b is not supported.

Table 3
Descriptive Statistics and Correlation Matrix

Variables	PO	PI	PE	PR	SA	DT	MP
Mean	4.26	4.16	4.03	4.10	4.05	4.19	4.00
s.d.	0.39	0.59	0.58	0.57	0.52	0.49	0.54
PO							
PI	0.67***						
PE	0.57***	0.74***					
PR	0.52***	0.74***	0.75***				
SA	0.61***	0.51***	0.55***	0.49***			
DT	0.64***	0.65***	0.65***	0.59***	0.63***		
MP	0.52***	0.45***	0.53***	0.54***	0.72***	0.56***	

*** $p < .01$

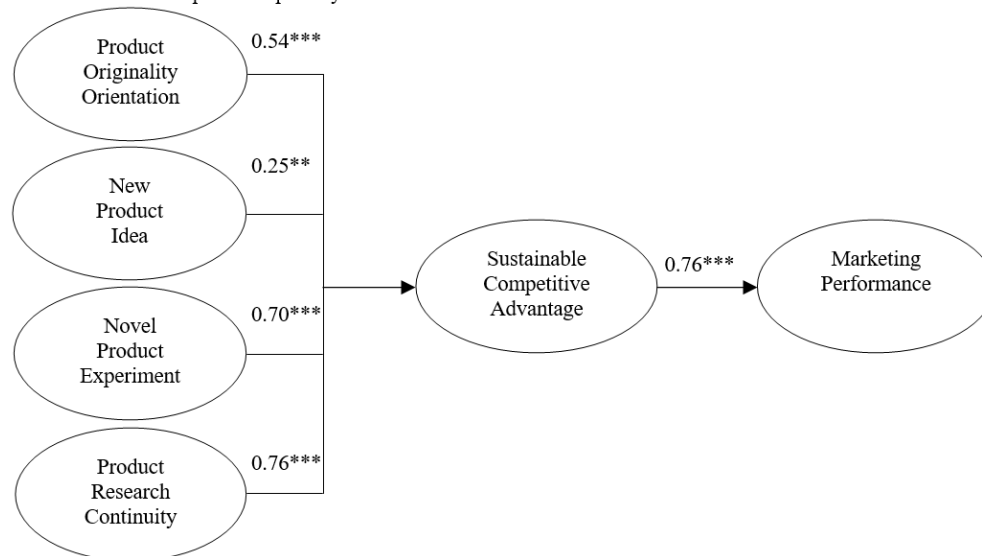
Table 4
Results of Path Coefficients and Hypotheses Testing

Hypotheses	Relationships	Coefficients	t-value	Results
H1a	PO → SA	0.54***	2.95	Supported
H1b	PO → MP	0.05	0.26	Not Supported
H2a	PI → SA	0.25**	2.03	Supported
H2b	PI → MP	0.07	0.56	Not supported
H3a	PE → SA	0.70***	3.00	Supported
H3b	PE → MP	0.09	0.56	Not Supported
H4a	PR → SA	0.76***	3.34	Supported
H4b	PR → MP	0.15	0.70	Not Supported
H5	SA → MP	0.76***	3.55	Supported
H6a	PO → SA → MP	0.65***	3.25	Supported
H6b	PI → SA → MP	0.51***	2.79	Supported
H6c	PE → SA → MP	0.73***	3.28	Supported
H6d	PR → SA → MP	0.76***	3.45	Supported

p<.05, *p<.01, CFI = 0.94; GFI = 0.92; IFI = 0.93; RMSEA = 0.04

Figure 2

A Summary of the New Product Development Capability-marketing Performance Relationships
New Product Development Capability



p<.05, *p<.01

Indeed, novel product experiment has an important positive effect on sustainable competitive advantage ($b = 0.70$, $p < 0.01$). It develops a creative new product that is cool, trendy, hip, appealing, attractive, and fascinating (Im et al., 2015). It leads to positive affective reactions, including positive surprise, stimulation and savoring and a wow response. Firms with novel product experiment can generate an advanced technological portfolio that can help them achieve a premium position for new products, identifying them from competitors' products. They can launch a creative new product to

potential customers with more appropriateness when compared to their competitive products. Superior novel product experiment can offer great long-term competitive advantage. Therefore, Hypothesis 3a is supported. In contrast, novel product experiment does not affect marketing performance ($b = 0.09, p < 0.58$). Firms with novel product experiment can provide more incentives to customers by getting their attention and exceeding expectations from the market that continually evolve over time. They can attract attention and increase the likelihood of a new product being in customers' consideration set by enabling them to better evaluate alternatives, try the product and eventually transform preference into conviction. However, novel product experiment could not directly affect marketing performance. Therefore, Hypothesis 3b is not supported.

Lastly, product research continuity positively affects sustainable competitive advantage ($b = 0.76, p < 0.01$). It prospects new viable innovations through the search for working prototypes (McClure and Thomas, 2018). It is a pre-launch production of a new product which consists of the productization of cost-efficient working prototypes and the production of enough initial inventories to meet the anticipated demand for products launched onto the open market. Firms with product research continuity can ensure that there is a market for their products, that they see what their competitors are doing well and what they can do even better, and that they can assess how much customers will pay. They can provide fulfillment of customer needs and market expectations that can help achieve sustain competitiveness. Therefore, Hypothesis 4a is supported. Surprisingly, product research continuity does not affect marketing performance ($b = 0.15, p < 0.49$). It challenges firms to improve their products through prioritizing, identifying and selecting specific attributes of products. It can help firms test product concepts, evaluate ideas, examine competitors, price their products, and avoid expensive mistakes. Better product research continuity has an important relationship with more long-term competitive advantage which it could not directly relate to marketing performance. Therefore, Hypothesis 4b is not supported.

In this study, sustainable competitive advantage becomes a valuable determinant of marketing performance. It has a significant positive effect on marketing performance ($b = 0.76, p < 0.01$). It is a framework that makes complete use of the existing business opportunities for firms' capital while exploiting other resources to guarantee the sustainability and replicability of their competitive positions for the future (Hossain et al., 2022). It can build long-term market advantage through providing superior customer value, achieving relative lower cost for a long period of time and creating superior performance. This study suggests that greater sustain competitive advantage positively affects better marketing performance. Therefore, Hypothesis 5 is supported. Interestingly, while sustainable competitive advantage is an important outcome of implementing all dimensions of new product development capability, it also plays a significant role in determining marketing performance. It is a connectivity between these all dimensions and marketing performance. Then, it is a mediator of the research relationships. Therefore, Hypotheses 6a-6d are supported.

Table 5 presents the results of multiple regression analysis and hypotheses testing of the moderating research relationships. Digital transformation moderates the new product idea-sustainable competitive advantage relationships ($b = 0.63, p < 0.05$), the novel product experiment-marketing performance relationships ($b = 0.33, p < 0.08$), the product research continuity-marketing performance relationships ($b = 0.39, p < 0.07$),

and the sustainable competitive advantage-marketing performance relationships ($b = 0.19$, $p < 0.04$). In existing literature, digital transformation is an ability of firms to use new digital innovations to enable major business improvements, including digital technologies and associated digitizing processes that form the innate part of the new idea and its development, diffusion or assimilation (Steiber et al., 2021). It changes the way of doing business by creating and delivering digital value propositions and simultaneously leveraging digital technologies in operational processes and realizes major business improvements through uses of new digital technologies with firms' strategy, organizational structure and business model. It is challenging to adopt applications of digital technologies which helps continuously develop and renew their digital capabilities. Therefore, Hypotheses 7b, 8c, 8d, and 9 are supported, but the rests are not.

Table 5
Results of Multiple Regression Analysis and Hypotheses Testing ^a

Independent Variables	Dependent Variables		
	SA	MP	MP
PO	0.15 (0.15)	0.17 (0.17)	
PI	0.12 (0.21)	0.09 (0.23)	
PE	0.56** (0.26)	0.30 (0.29)	
PR	0.32 (0.26)	0.03 (0.30)	
SA			0.68*** (0.11)
DT	0.47* (0.15)	0.32* (0.17)	0.15* (0.11)
PO*DT	0.20 (0.17)	0.08 (0.19)	
PI*DT	0.63** (0.30)	0.17 (0.35)	
PE*DT	0.20 (0.33)	0.33* (0.38)	
PR*DT	0.01 (0.25)	0.39* (0.28)	
SA*DT			0.19** (0.09)
FA	0.14 (0.16)	0.10 (0.18)	0.02 (0.13)
FS	0.03 (0.10)	0.20 (0.12)	0.01 (0.09)
FC	0.12 (0.10)	0.20 (0.12)	0.09 (0.08)
Adjusted R ²	0.45	0.34	0.59

* $p < .10$, ** $p < .05$, *** $p < .01$, ^a Beta coefficients with standard errors in parenthesis.

V. IMPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH

A. Theoretical Implication and Directions for Future Research

This study utilizes dynamic capability theory to help explain firms' competitive advantage and performance. New product development capability is a valuable source of sustainable competitive advantage and marketing performance in long-term aspects. It has long-term commitments through various activities, such as product line planning, strategy development, concept generation and screening, business analysis, development, testing, validation, manufacturing development, and commercialization via new market information, new technological applications and research and development. To confirm and expand the current research relationships, future research may need to examine the reconceptualized direct relationships between new product development capability (all dimensions) and marketing performance using a comprehensive literature review and a systematic existing literature. Next, future research may need to re-check and re-

investigate the moderating effects of digital transformation because it has a small effect on the research relationships as reflected in the current study. In addition, the research results of the moderating effects as presented at 10% significance that is generally regarded. Future research may pay an attention in increased response rate in order to build a greater power of the tests and verify the research results. Moreover, for achieving a generalized verification of the study, future research may consider using a comparative study to collect data from different groups or larger groups in order to prove the generalizability of the study. Lastly, targeted product markets were not asked in the questionnaire. Future research may add this question into the questionnaire in order to clearly know the targeted markets for the products and greatly utilize this information for discussing and explaining the new product development capability-marketing performance relationships.

B. Managerial Implication

New product development capability is important for enhancing firms to achieve success, survival and sustainability in long-term aspects. Firms must create, build, develop, and utilize it as a valuable strategy and technique for competing rapid environmental changes and uncertain competitive markets. Therefore, they need to learn and understand characteristics and processes of new product development capability and successfully apply it in an organization. In addition, firms must systematically invest their resources and assets pertaining to a concept of new product development capability which includes its frameworks and procedures. Moreover, they can support their employees to study and understand the system of new product development capability and implement it in their business practices, operations and activities. Accordingly, new product development capability serves as a strategic tool for doing businesses in order to achieve firms' outstanding market positions, sustainable competitiveness and long-term performance and benefits. In summary, firms need to implement the new product development capability in helping them provide best business practices and achieving great business results in long-term and future aspects.

VI. CONCLUSION

When faced with rapid environmental changes, firms could adopt new product development capability as a strategy to achieve success, survival and sustainability. The objective of this study is to investigate the effects of new product development capability on marketing performance through the mediator of sustainable competitive advantage and the moderator of marketing performance. New product development capability comprises product originality orientation, new product idea, novel product experiment, and product research continuity. In this study, 289 instant food and convenience food businesses in Thailand are the samples. Both structural equation model and multiple regression analysis are utilized to test both direct and indirect effects. The results of this study suggest that all dimensions of new product development capability positively affect sustainable competitive advantage, but they do not affect marketing performance. Next, sustainable competitive advantage positively affects marketing performance and also fully mediates the new product development capability-marketing performance relationships. In addition, digital transformation is found to be a moderator of the new

product idea-sustainable competitive advantage relationships, the novel product experiment-marketing performance relationships, the product research continuity-marketing performance relationships, and the sustainable competitive advantage-marketing performance relationships, but it is not the moderator of the remaining of other research relationships. In summary, new product development capability is regarded as an important tool for enhancing, achieving and sustaining long-term competitive advantage and performance. This study suggests that firms need to utilize new product development capability as an important business tool to help them achieve success, growth and sustainability in long-term aspects. To verify and expand the current study, future research may need to examine the reconceptualized direct relationships between new product development capability and marketing performance for re-checking and re-investigating the moderating effects of digital transformation. Collecting data from different groups or larger groups is another recommendation for future research.

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Appendix A
Measurement of all variables

Items

Product originality orientation

PO1: We create a product's perceived newness or uniqueness, according to the customer, relative to previous offerings.

PO2: We introduce a product that differs from existing products in its use of advanced or radical technology.

PO3: We develop new products by emphasizing a quality of being new and inventive in created a strong demand by opening new markets and contributing to a growth of their innovators.

PO4: We focus on our competencies and capabilities to significantly launch new products through original ideas that come from the sources and are conceived by our creators.

PO5: We provide a talent of creativity which evolves from an idea to a behavior, then to a product, in order to meet customers' needs.

New product idea

PI1: We initiate an outcome of a creative process that can be further developed into a proposal, prototype or tangible product.

PI2: We provide a formal blueprint, roadmap, template or thought process for driving a new product from the idea stage through to market launch and beyond.

PI3: We focus on a process of finding and constructing fresh ideas about products aimed at conveying the mental concept to real world.

PI4: We emphasize a process of creating and communicating new products which are abstract, concrete and visual as well as a process of constructing through innovating the concept, developing the process and bringing the concept to reality.

PI5: We systematically pursue the creation, growth, development, maturation, and refinement of concrete product ideas.

Novel product experiment

PE1: We develop a creative new product that is cool, trendy, hip, appealing, attractive, and fascinating.

PE2: We launch a creative new product to potential customers with more appropriateness, which leads to positive affective reactions, including positive surprise, stimulation and savoring and a wow response.

PE3: We focus more on the sensory and experiential dimensions of the new product that leads to utilitarian and hedonic values of the product.

PE4: We provide the extent to which a new product diverges from conventional practices through competitive products.

PE5: We emphasize a process of a creative new product that evokes an effective surprise in the customers, along with a shock of recognition which is entirely appropriate.

Product research continuity

PR1: We focus a prospect for new viable innovations through the search for working prototypes.

PR2: We provide a pre-launch production of a new product consisting of the productization of cost-efficient working prototypes and the production of enough initial inventories to meet the anticipated demand for products launched onto the open market.

PR3: We emphasize a process of validating a product idea through detained market research and customer analysis before launching new products to competitive markets.

PR4: We continuously improve our products through prioritizing, identifying and selecting specific attributes of products.

PR5: We gauge customer expectation and made improvements by providing more expertise about new innovative ideas to deliver an excellent product to end customers.

Sustainable competitive advantage

SA1: We can make complete use of the existing business opportunities for firms' capital while exploiting other resources to guarantee the sustainability and replicability of their competitive positions for the future.

SA2: We can present a powerful resource-based strategy for competitive markets through providing customers with high product and service and launching new features of products to customers and markets.

SA3: We can achieve a long-term benefit resulting from unique and value creation processes asynchronously with potential competitors and dynamic rivals cannot be easily copied and imitate.

SA4: We have kept the advantage that is subject to competitors' impossibilities to copy our sustainability initiatives and outcomes.

SA5: We can build long-term market advantage through providing superior customer value and creating superior performance.

SA6: We have abilities, competencies and capabilities to meet our customer needs, wants and requirements better than our competitors can in the marketplace.

Digital transformation

DT1: We use new digital innovations to achieve major business improvements, including digital technologies and associated digitizing processes that form the innate part of the new idea and our development, diffusion or assimilation.

DT2: We change the way of doing business by creating and delivering digital value propositions and simultaneously leveraging digital technologies in operational processes.

DT3: We absorb, use, adapt, create, develop, transfer, and disseminate technologies that materialize through a set of resources, skills and learning mechanisms.

DT4: We can innovate our pivotal positions by reshaping value propositions that help define our organizations as well as operational processes of creating, capturing and delivering digital value.

DT5: We transmute the products and services to software-defined assets and utilizes the digital to redefine the business.

DT6: We adopt applications of digital technologies and continuously develop and renew our digital capabilities.

DT7: We apply latest technology for introducing new products, besides improving existing products and services through encouraging and supporting innovative ideas.

DT8: We can build new technical solutions through technology leadership and offer new, advanced and differentiated processes, products and services to meet customer needs.

Marketing performance

MP1: We can always achieve the desirable objectives, goals, targets, and outcomes of firms in doing business over a long period of time.

MP2: We clearly obtain increased rate of new customers outstandingly when compared with major potential competitors.

MP3: We continuously create a number of new customers and gain increased market share continuity compared with operations in past years.

MP4: We critically create the reliability and acceptance of new products and certainly increase the expansion and growth of new sales from new and existing customers.

MP5: We have increased our sales, profits and profitability from successfully doing business in a marketplace.

MP6: We get acceptance from new and existing customers with regards to our efficiency, effectiveness, productivity, excellence, and success in developing product creativity and innovation.

MP7: We always receive customer satisfaction, gratification, fulfillment, loyalty and equity from our best marketing activities and practices.

MP8: We have a confidence that customers and markets are aware of our brand value and reputation and competitors and we can overcome potential competitors continuously.

MP9: We have a confidence that we can survive and sustain in competitive markets and environments.
