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Factor Affecting the Competing Capability of Natural Favor Product in The Global Market Under Digital Transformation: Evidence from Vietnam

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ABSTRACT

This study aims to fill the gap in considering factors affecting the competing capability of Vietnamese natural flavor products under the digital transformation by discussing and testing the impact of 7 factors (research and development; market orientation; digital transformation; awareness of difference; substitute goods; product innovation; product differentiation) to the competing capability of natural flavor products. The test results with partial least squares structural modeling technique (PLS-SEM) with SmartPLS software version 4 on a sample of 358 enterprises show that the hypotheses are supported by the data. Theoretically, the research contributes to a deeper understanding of the concept of product competing capability. Practically, it helps managers identify that in order to improve product competing capability, it is necessary to recognize the factors affecting them.

Keywords: *Competing capability, factors, impacts, natural flavors, products.*

1. INTRODUCTION

Competitiveness is an important factor in creating national prosperity (Durand, Madaschi Terribile, 1998; Krugman, 1994), as it improves living standards and real incomes by providing goods and services with some competing capability (Crouch & Ritchie, 1999). In economics, the concept of competition can be approached from a corporate, local or national perspective. According to the Organization for Economic Co-operation and Development (OECD), "Competitiveness of a business, industry or country is the ability of a business, industry or country or region to generate factor income and employ relatively high factor in the face of the international competition".

Hamel & Prahalad (1990) when studying the competing capability of enterprises, emphasized the importance of factors belonging to the endogenous capacity of enterprises. These are: (1) Business strategy of the enterprise; (2) Structures, capacities, and creativity; (3) Intangible and tangible resources. The authors have shown that the competitive advantage of an enterprise is the ability to develop and make better use of its resources than competitors, that is, to rely on the resources of the enterprise. According to this view, Markusen (1992) asserted: "A producer is competitive if it has an average unit cost equal to or lower than the unit cost of international competitors". And D'Cruz & Rugman (1992) said that: the competitiveness of an enterprise is the ability to design, manufacture and supply products

to the market with outstanding prices and quality. From there, it shows that the analysis of business competitiveness in the world can be based on many different angles depending on the point of view and the level of interest of the researcher.

Understanding competing capability requires a comprehensive picture of business advantages and competitors (Clark & Montgomery, 1999) because competitiveness comes from many different activities, such as areas related to products (Leonidou et al., 2015; Schiefer & Hartmann, 2008), market characteristics (Carbone et al., 2020), service quality (Johnson & Sirikit, 2002; Maclaran & McGowan, 1999; Inhofe Rapert, & Wren, 1998), distribution (Hoffman & Novak, 1996) and the marketing ecosystem (Zhang & Watson IV, 2020).

From a theoretical perspective, product competitive advantage is always a top concern not only for businesses but also a great concern of researchers. Up to now, there have been many studies on product competing capability and each study has a different view. There have appeared many different approaches in term of method, content and evaluation criteria. There has not been a comprehensive and unified theoretical framework on this issue, this is a gap in the research on the theory of export competitiveness in general and export competitiveness of natural flavoring products in particular. Since then, finding a comprehensive and unified approach to export competitive advantage is a very urgent requirement, especially when Vietnam is increasingly integrating more deeply and comprehensively into the global economy.

Using products with natural flavors has been quite popular globally and initially appeared in developing countries with increasing personal income and human consciousness. Vietnam's socio-economic development strategy has raised an urgent requirement for a shift to green consumption in order to protect the environment. Therefore, natural flavorings are increasingly competitive due to being in line with the trend of the times and associated with the Government's sustainable development goals (SDG).

However, at present, the competing capability of natural flavoring products in Vietnam is still low. Products still do not meet the needs of consumers and do not bring into full play their inherent advantages to compete with competitors, so they have not been able to exploit many opportunities to market and integrate into foreign markets. outside. Especially, in the context of deep international economic integration and digital transformation (i.e. big data, smart data and artificial intelligence, cloud and edge computing, the internet of things (IoT), additive manufacturing, virtual reality, simulation, digital twins, traceability, flexible automation, digital assistance systems, blockchain, plug and produce machines, 5G, etc) with huge potential for the fields of commerce, industry and society in general, each individual can access products at reasonable prices. More rationally, the competitiveness of flavoring products needs to be focused and improved.

2. LITERATURE REVIEW

2.1 Product innovation and competing capability

Wahyono (2020) argues that innovation can create a competing capability for companies so companies are required to develop sustainable innovation as a business strategy. Innovation is often understood as a breakthrough/innovation related to a new product. Product innovation presents opportunities for companies to grow and develop into new areas to enhance their competitive advantage (Udegbe Scholastica & Udegbe Maurice, 2013; Liu et al., 2002). Product innovation can be understood as the creation of new products from new materials or alteration of existing materials to meet consumer expectations. Product innovation, new processes, new production methods, and new distribution are considered the most important factors leading to improving the competing capability of products in the long term. From there, the following research hypotheses are proposed:

H1: Product innovation has a positive impact on competing capability.

2.2 Product innovation and research and development (R&D)

R&D expands a firm's knowledge base (Zahra et al., 2000) by introducing various new forms of knowledge (Wu and Shanley, 2009) and combining existing knowledge (Zahra et al., 2000; Ahuja and Lampert, 2001). This provides increasingly better opportunities to create useful combinations of knowledge (Kogut and Zander, 1992; Katila and Ahuja, 2002; Laursen, 2012) that can be used to realize product innovation (Zahra and George, 2002; Zhou and Wu, 2010).

R&D can also bring about major changes in the knowledge base and can modify the frame of reference to a company (Zahra and Chaples, 1993), i.e. reshaping the firm's knowledge base. Modifying existing knowledge in line with dual-loop learning (Argyris and Schön, 1978), favors product innovation (Holmqvist, 2003; Forsman, 2009). New technological knowledge that challenges a company's core beliefs and assumptions allows a company to rethink and innovate its processes and operating habits (Forsman, 2009; Wu and Shanley, 2009) and drive it to recognize new opportunities for product innovation (Foss, Lyngsie and Zahra, 2013). Therefore:

H2: R&D has a positive impact on product innovation.

2.3 Research and development (R&D) and competing capability

Investment in research and development (R&D) generates innovation as demonstrated by an increase in market share following the development of new product that is brought to market (Garcia and Mohnen, 2010). Organizations must also strive continuously to improve their engineering technology by using research and development as a way to build a strong organization to gain a sustainable competing capability (Chumaidiyah, 2012). Many researchers agree that organizations that continuously improve themselves using modern technologies through R&D help them increase their competing capability sustainably by increasing operational efficiency (Porter, 1983; 1985).

Aldabbas & Oberholzer (2023) show that R&D enhances firms' learning capabilities, transformational capabilities, strategic performance, financial performance, thereby enhances competing capability overall. To generate new processes that are more effective and efficient and to support the expansion of present competitive advantages, transformative capabilities in R&D are necessary (Adams & Lamont, 2003). Therefore, transformational R&D capabilities provide opportunities for collaborators to discuss their concerns and obstacles, which encourage creative thinking that leads to enhanced organizational performance and competitive advantages. Beside, one way for a company to gain a competitive edge is to learn faster than its competitors (Fatoki, 2021), and firms can enhance their learning processes from successes and failures in R&D projects (Aldabbas & Oberholzer, 2023). Consequently, successful learning capabilities in R&D allow organizations to match their products and services to customers' preferences and increase competitive advantage. Therefore:

H3: R&D has a positive impact on competing capability.

2.4 Product innovation and market orientation

Previous studies have identified a positive relationship between market orientation and innovation-related aspects. Kohli and Jaworski (1990), Deshpande et al (1993) and Slater and Narver (1994a, b) argue that market-oriented behavior leads to higher levels of innovation and, therefore, commercial success. make new products. Atuahene-Gima (1995) analyzes the impact of market orientation on the profit margins of new products. In addition to having a positive influence on the development of new products, market orientation also enhances the profitability of new products. In a later

study, Atuahene-Gima (1996) showed that market orientation has a decisive impact on the profitability of product and service innovation.

H4: Market orientation has a positive effect on product innovation

2.5 Market orientation and competing capability

The market orientation set by the company can give the company a competitive advantage. Zhou et al. (2009) stated that the company's customer-oriented effectiveness has an impact on increasing competing capability. Lings and Greenley (2009) concluded that market orientation contributes to the success of external marketing, such as firm performance, financials, and customer satisfaction. This is consistent with the results of research conducted by Li & Azarm (2000), Suendro (2010) and Prakosa & Imam, (2005), competing capability has a positive impact on improving marketing effectiveness. Based on the results of previous research, the fifth hypothesis is:

H5: Market orientation has a positive impact on competing capability

2.6 Product differentiation and competing capability

Davcik & Sharma (2015) argue that product differentiation in fast-moving consumer goods (FMCG) brands from Nielsen has a significant influence on competitive advantage. Job & Nyongesa (2016) shows that product differentiation strategy has a positive impact on competing capability. Product differentiation reflects the competitive pressures created by manufacturers and customers. Indirectly, increased customer focus can help identify market gaps and find new market opportunities.

H6: Product differentiation has a positive impact on competing capability.

2.7 Digital transformation and competing capability

Martinez-Caro et al (2020) emphasize the need for technology to gain competitive advantage and conclude that companies should focus on digital technologies including computing, information aggregation and connected technologies to achieve sustainable competing capability. Furthermore, these digital technologies play an important role in the strategic development of companies and digital transformation can help companies improve their competitive advantage. In addition, Verhoef et al (2021) mentioned that the purpose of digital transformation is to bring more value to businesses and it can also create competitive advantage (Wroblewski, 2018). Zhang et al (2022) state that to achieve sustainable competing capability, organizations must change the original logic of their services and promote digital transformation in all contexts including operations, architecture and strategic planning.

According to Schwertner (2017), companies that consider technologies such as cloud, big data, social technologies, and mobile as important parts of their infrastructure will be more profitable and have a greater market value. compared to competitors. These technologies are the key drivers and tools to enhance competitive advantage through digital transformation. Many studies are focusing on the importance of digital transformation but still need a unified definition of digital transformation (Kraus et al., 2021) and consider the role for competing capability in the context of the industry. Therefore, to study the role of digital transformation on competitive advantage, the following hypothesis was developed:

H7: Digital transformation has a positive impact on competing capability.

2.8 Digital transformation and product differentiation

Digital transformation helps a company differentiate itself not only through price but also through product innovation, shorter time to market and customer service (Bloch et al., 1996). Technologies and applications like advanced data (incl. big data, smart data and artificial intelligence), cloud and edge

computing, cyber physical systems and the internet of things, smart sensors, additive manufacturing, virtual reality, augmented and mixed reality, real-time data and simulation, digital twins, traceability, flexible automation, co-bots and exoskeletons, digital assistance systems, blockchain, cyber security, plug and produce machines, flexible logistics systems and autonomously guided vehicles, 5G, etc. are discussed in this field of transformation (Saturno et al., 2017; Vogel-Heuser et al., 2017; Frank et al., 2019; Neugebauer, 2019). The adoption of information technology can help a company offer customized products and services, thereby enhancing a competing capability. Powered by the interactive features of big data, smart data, artificial intelligence, the Internet - e-mail, registration forms, discussion groups and customer communities - a company can easily collect customer data, including demographic data, product comments and potential demand for certain products/services. These data can provide a good platform for the company to customize existing products in innovative ways (Fruhling & Digman, 2000), which will help the company to differentiate its products and services with competitors or focus on markets. From that:

H8: Digital transformation has a positive impact on product differentiation.

2.9 Perceived difference and competing capability

The customer is the judge of all differences (Porter, 1990). According to Michael Porter's five-force model, buyer power is one of those five factors, which includes the company's product differentiation against competitors and price sensitivity. Product differentiation has the purpose of creating a uniqueness that potential customers consider unique. Differentiation reduces direct competition thereby impacting performance. Product differentiation makes differentiation easy, giving the company an new edge over its competitors. Duong and Huyen (2021) point out that if product differentiation is successful, the product will switch to non-price competition (competition on product features, distribution,...). Therefore, the authors propose the research hypothesis:

H9: Perception of difference has a positive impact on competing capability.

2.10 Perceived difference and product differentiation

When making a purchase, consumers not only buy the physical part but also buy the emotional one contained in the product. Emotional factor – the thing outside the product, created by marketers, that makes the product perfect and convinces the target customer is very important, can decide and add value to the product (Duong and Huyen, 2021).

If in the past price drove sales, today the value of the product determines whether customers will come to the brand or not. The value here is all that customers get when coming to the brand, not merely the functional part of the product. Each brand gives customers a completely different perceived value, through the brand's positioning. With that difference, with marketing tools, the brand owner will retain customers and increase customer loyalty (Duong and Huyen, 2021). From there, the hypothesis is proposed as follow:

H10: Perception of difference has a positive impact on product differentiation.

2.11 Product differentiation and product innovation

Product differentiation is the most commonly used type of strategy (Spencer, Joiner and Salmon, 2009). A differentiation strategy involves the company creating a product/service that is considered unique in some respect that customers get value added because the customer's need is satisfied. In other words, product differentiation promotes businesses to innovate their products to create competitive advantage for their products. From there, it can be seen that product differentiation is associated with product innovation, or:

H11: Product differentiation has a positive impact on product innovation.

2.12 Substitute goods and competing capability

Substitute goods are pairs of goods that satisfy a given need and are interchangeable. X and Y are pairs of substitutes if using Y instead of X still satisfies the need. When the price of good X increases, X becomes more expensive than B, customers will switch to product Y (demand for Y increases) more than product, thereby reducing the revenue of good X. (Duong and Huyen, 2021). This makes good X less competitive than good Y. From that, the authors propose the research hypothesis:

H12: Substitute goods have a negative impact on competing capability.

2.13 Substitute goods and product differentiation

X is said to be a substitute for Y if people can use X instead of Y in satisfying their needs. The closer the utility of X is to the utility of Y, the easier it is to substitute X for Y in consumption. Duong and Huyen (2021) argue that the appearance of equivalent substitutes will make the product more difficult when there are price fluctuations - one of the factors that make up the difference. In addition, substitute goods also require the product to meet the differentiation in use but must be consistent with the requirements of consumers, costs and resources of the enterprise. In short:

H13: Substitute goods have a negative impact on product differentiation

On the basis of analysis, inheriting the above theoretical bases and research models in previous studies, the authors propose a research model:

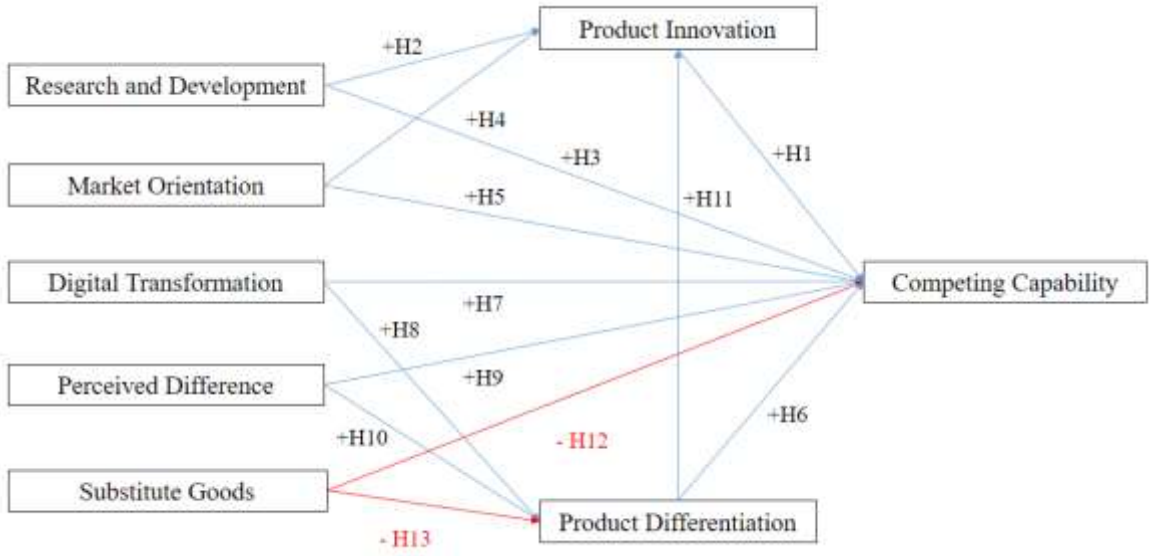

Figure 1: Proposed research model
Source: Compiled by the author team

3. MATERIALS & METHODS

3.1. Methods of data collection and sample study

The authors conduct interviews, group interviews and send surveys to experts and senior leaders such as directors, deputy directors, department heads, deputy heads and officials in charge of exporting natural flavorings. of Vietnam. Interviewed firms with different characteristics provide diverse information sufficient for the study. Open-ended questions were included in the interview to get the respondents' opinions.

The qualitative research sample was selected using a convenient non-randomized method. The study population is the exporters of products related to natural flavorings. Sample size: The rule on the number of samples according to Bollen (1989), Hair et al. (1998) estimated the number of samples to be 5 times the number of variables. Thus, applying the above regulation to a study with

56 variables, the minimum sample size must be 280. The authors have distributed 500 questionnaires and collected 400 answer sheets. After cleaning, there were 358 valid votes remaining, accounting for 89.5%. During the survey, there were 42 invalid votes because of choosing more answers than prescribed, not answering enough questions, and answering all the same answers. All valid samples will be processed by SPSS 22 and SMARTPLS 4 software to conduct analysis steps to test the hypothesis.

3.2. Research scale and model

According to the results of qualitative research, the factors affecting the competing capability of Vietnamese natural flavoring products in the international market in the context of digital transformation were approved by all interviewees. and no new factor was found. The research team built 56 observed variables in 8 factors to measure the factors affecting the competing capability of Vietnamese natural flavoring products in the international market in the context of digital transformation. Through qualitative research, some words and statements in the scale were changed to match the topic.

For factors (1) Research and Development (Research and Development); (2) Market Orientation; (3) Digital Transformation; (4) Perceived Difference; (5) Substitute Goods; (6) Product Innovation; (7) Product Differentiation; the research team decided to use the 5-point Likert scale; answers are obtained in each question by choosing the appropriate level from 1 to 5 with specific levels: (1) Totally disagree; (2) Disagree; (3) Normal; (4) Agree; (5) Totally agree.

For the Competitive Capability factor, the research team decided to use a 5-point Likert scale; answers are obtained in each question by choosing the appropriate level from 1 to 5 with specific levels: (1) Much lower; (2) Lower; (3) Equal; (4) Higher; (5) Much higher.

Table 1: Summary of research variables, indicators, scales and origins

Element	Symbol	Group name	Criteria	Reference source
RD	RD1	Research and Development	Research and development help drive business innovation	Hurley and Hult (1998); Damanpour (1991)
	RD2		Research and development makes product innovation easier	
	RD3		Research and development make product innovation faster	
	RD4		Research and development enhances business strategy	
	RD5		Research and development enhances modern technology	
	RD6		Research and development motivates to improve product quality	
	RD7		Long-term performance-enhancing research and development	
	RD8		Research and development create competitive dynamics for products	
MO	MO1	Market Orientation	Market orientation helps guide product development	Lukas and Ferrell (2000); Kohli and Jaworski (1990); Slater and Narver (1994a, b); Zhou et al (2009)
	MO2		Market orientation makes product innovation easier	
	MO3		Market orientation makes product innovation more relevant to market needs	
	MO4		Market orientation brings the right development strategy for the product	
	MO5		Good market orientation helps to increase product innovation	
	MO6		Market orientation creates the basis for businesses to dominate market share	
	MO7		Market orientation helps businesses gain competitive advantage	
	MO8		Good market orientation improves marketing efficiency	
	MO9		Market orientation helps increase customer satisfaction	
	MO10		Market orientation to increase efficiency	

DT	DT1	Digital Transformation	Digital transformation makes a difference in manufacturing technology	Bloch et al (1996); Porter (1990); Zhang et al (2022)
	DT2		Digital transformation helps improve product quality	
	DT3		Digital transformation helps create innovative products	
	DT4		Digital transformation helps businesses build a professional image	
	DT5		Switching motivational arguments makes it easy for customers to reach cross-platform businesses	
	DT6		Digital transformation makes product information more transparent	
PD	PD1	Perceived Difference	Perceiving the difference drives businesses to differentiate their products	Ohe et al,. (1991); Smeltzer & Ogden (2002)
	PD2		Perceiving the difference motivates product innovation compared to competitors	
	PD3		Customers awareness of the difference increases the ability to choose products	
	PD4		The higher the perception of difference, the more competitive the product is	
	PD5		The higher the perception of difference, the better the product differentiation process	
	PD6		Businesses gain an advantage when they increase the difference in customer perception compared to competitors	
SG	SG1	Substitute Goods	The more substitute goods, the harder it is for businesses to make a difference	Duong & Huyen (2021); Azar (2011)
	SG2		Substitute goods lose price competitive advantage	
	SG3		Substitute goods lose their ability to compete in use	
	SG4		Substitute goods make it impossible for businesses to differentiate in price	
	SG5		Substitute goods create pressure to innovate products without changing costs and resources	
	SG6		It is difficult for enterprises to differentiate their products from equivalent substitutes	
	SG7		Substitute goods make the product less attractive	
	SG8		The more substitute goods are consumed, the lower the firm's revenue	
PI	PI1	Product Innovation	Product innovation helps products attract more customers	Udegbe Scholastica & Udegbe Maurice (2013); Liu et al. (2002)
	PI2		Product innovation creates new competitive advantages for products	
	PI3		Good product innovation helps achieve higher satisfaction	
	PI4		Enterprises regularly innovate products to match the changing requirements of customers	
	PI5		Product innovation represents the development of the business, ahead of the competition	
DP	DP1	Product Differentiation	Good product differentiation helps create a unique brand for the product	Davcik and Sharma (2015); Job and Nyongesa (2016); Spencer, Joiner and Salmon (2009)
	DP2		Product differentiation creates competitive advantage	
	DP3		Consumers appreciate products with many differences	
	DP4		Products with suitable differences will be prioritized by customers	
	DP5		Businesses that make a difference will not be under much pressure from competitors	
CC	CC1	Competing Capability	Market share	Awdeh et al. (2013); Katsikeas (1994)
	CC2		Market share growth	
	CC3		Revenue	
	CC4		Profit	
	CC5		Level of product recognition	
	CC6		Customer satisfaction	
	CC7		Product quality	
	CC8		Distribution level	

3.3. Data Analysis Methods (Statistical Analysis)

Secondary data analysis method: The research team uses data analysis, synthesis, and comparison methods.

Methods of primary data analysis: After collecting the questionnaire, the research team selects the questionnaire, cleans the data, encodes the necessary information in the questionnaire, and enters the data. and analyzed the data using SPSS 22 and SMARTPLS 4 software according to the following steps:

First: Descriptive statistics on the characteristics of the research sample

Statistical results on the characteristics of enterprises exporting natural flavoring products of the research sample include: Labor size (person); Operation time (years); Type of business; Head office of the enterprise; Processing type of the enterprise; Main export items

Second: Assess the reliability of Cronbach's Alpha scale

Each group of observed variables belonging to different factors was evaluated by the author group for the reliability of the scale through Cronbach's Alpha coefficient by SPSS software technique. Hair et al. (2010) Hair et al. (2010) suggested that Cronbach's Alpha must be greater than 0.7 to be reliable. In addition, when there is a correlation coefficient of the total variable, Corrected Item - Total Correlation ≥ 0.3 (Nunnally, 1978), the measured variable is said to be satisfactory. When the correlation coefficient of this total variable is <0.3, the authors will remove that variable to increase the reliability of the scale.

Third: Verify the value of the scale by exploratory factor analysis - EFA using SPSS software technique.

The variables meet the requirements of Cronbach's Alpha reliability, the authors continue to use EFA exploratory factor analysis to evaluate two important types of values: discriminant value and convergent value.

The method EFA factor analysis belongs to the group of multivariate analysis based on the correlation between variables with the aim of reducing the number of variables with more significant factors. The research team analyzed EFA factors using the extraction method (Extraction) - Principal Components, Varimax rotation, Chi Square test.

Fourth: Evaluation of the measurement model PLS-SEM

When evaluating the result-type measurement model on SMARTPLS, we will focus on the main issues: quality of observed variables (indicators), reliability, convergence and discriminability of the scales. Specifically: Quality of observed variables (indicators); Reliability scale Reliability; Calculate Convergence; Discriminant Discriminant.

Fifth: Analysis of PLS-SEM linear structure model by SmartPLS software technique.

This study uses PLS-SEM technique by using SmartPLS 4 software because the features of this software are suitable for the purpose of the study. The group coefficients used include: *Multicollinearity evaluation VIF coefficient*; *Impact coefficient Sig and P-VALUES; Coefficients R squared and R squared corrected*; *Effect size value - Factor f squared.*

4. RESULT

4.1. Check the reliability of the scale using Cronbach's Alpha - reliability coefficient

Table 2: Summary of the results of assessing the reliability of the scales of the research concepts

Observed variables	Cronbach's alpha	Cronbach's alpha if variable type
Research and Development (RD)	0.886	0.871
Market Orientation (MO)	0.905	0.894
Digital Transformation (DT)	0.876	0.857
Perceived Difference (PD)	0.864	0.840
Substitute Goods (SG)	0.884	0.869
Product Innovation (PI)	0.852	0.816
Product Differentiation (DP)	0.829	0.790
Competing Capability (CC)	0.883	0.867

Source: Compiled by the author team

All scales used in the analysis of the study have Cronbach's Alpha coefficient greater than 0.7 and general correlation coefficient greater than 0.6. No observed elements were excluded as a result of this finding. As a result, the scale for all factors has the necessary reliability to use for the next analysis.

4.2. EFA - exploratory factor analysis

After analyzing the Cronbach's Alpha reliability coefficient, the scales are next evaluated by the EFA exploratory factor analysis method to reduce and group the variables into factors, considering the degree of convergence of the variables. observed variables for each component and discriminant value between factors.

Next, the scales are evaluated by exploratory factor analysis (EFA) method to reduce and arrange the variables into factors considering the degree of convergence of the variables and the value of discriminant factors. after checking the reliability coefficient Cronbach's Alpha.

Scales consisting of 56 observed variables are retained after testing the scale by Cronbach's Alpha and will be classified into groups to continue to be included in Exploratory Factor Analysis (EFA).

- Group 1: Research and Development (Research and Development); Market Orientation; Digital Transformation; Perceived Difference; Substitute Goods.
- Group 2: Product Innovation; Product Differentiation.
- Group 3: Competitive Capability.

Table 3: Variance Explained

	Factor	SME	p-value	Eigenvalues	Total Variance Explained	The smallest Factor loading
Group 1	Research and Development (RD)	0.927	0.000	9.857	56.686%	0.671
	Market Orientation (MO)			4.439		0.660
	Digital Transformation (DT)			2.854		0.699
	Perceived Difference (PD)			2.664		0.720
	Substitute Goods (SG)			2.292		0.722
Group 2	Product Innovation (PI)	0.911	0.000	4.859	61.562%	0.713
	Product Differentiation (DP)			1.297		0.689
Group 3	Competing Capability (CC)	0.903	0.000	4.406	55.080%	0.729

Source: Compiled by the author team

The results of EFA factor analysis show that the KMO coefficients are all greater than 0.5, so the EFA is consistent with the data. In addition, Factor Loading (factor loading) > 0.5, so the observed variables are important in the research factors and have practical significance. Sig Statistics. (Bartlett's Test) = 0.000 < 0.05 shows that observed variables are correlated with each other in the population.

The factors RD, MO, DT, PD, SG, PI, DP, CC all have Eigenvalues values greater than 1, so these factors are kept in the analytical model. The total value of the extracted variance is greater than 50%, which meets the requirements. The research model is well evaluated.

4.3. Assess the quality of observed variables (indicators)

Hair et al (2016) argue that the sub-observed variable is quality with the parent latent variable explaining at least 50% of the variation of that observed variable.

We see that the Outer Loadings coefficients of the first-order variables in the table 4 are all greater than 0.7, so the first-order variables are significant in the model (Hair et al., 2016).

Table 4: Outer Loadings Value

Observed variables	Minimum Outer Loadings Value
Research and Development (RD)	0.735
Market Orientation (MO)	0.719
Digital Transformation (DT)	0.745
Perceived Difference (PD)	0.765
Substitute Goods (SG)	0.730
Product Innovation (PI)	0.762
Product Differentiation (DP)	0.761
Competing Capability (CC)	0.719

Source: Compiled by the author team

4.4. Reliability scale Reliability & Convergence

Two main indicators are Cronbach's Alpha and Composite Reliability used to assess the reliability of the scale on SMARTPLS.

Table 5: Construct reliability and validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
CC	0.883	0.885	0.907	0.551
DP	0.829	0.830	0.880	0.594
DT	0.857	0.858	0.894	0.583
MO	0.905	0.905	0.921	0.540
PD	0.864	0.865	0.898	0.596
PI	0.853	0.854	0.895	0.630
RD	0.887	0.887	0.910	0.557
SG	0.884	0.885	0.908	0.553

Source: Compiled by the author team

From the results in the table 5, we see that the variables CC, DP, DT, MO, PD, PI, RD, SG all have high reliability and convergence when the Cronbach Alpha and Construct Reliability indexes are both greater than 0.7, Thus, the scales are reliable for inclusion in subsequent analyzes (DeVellis, 2012; Hair et al., 2010; Chin, 1998; Bagozzi & Yi, 1988).

In addition, based on the table 5, it can be seen that the variables CC, DP, DT, MO, PD, PI, RD, SG all have AVE values greater than 0.5, so the scales are all convergent and suitable. included in the subsequent analysis (Hock & Ringle, 2010).

4.5. Discriminant

Fornell and Larcker (1981) recommend that discriminability is guaranteed when the square root of the AVE for each latent variable is higher than all correlations between the latent variables.

The results of the Fornell and Larcker table are shown in the table 6. The numeric part at the top of each column is the square root value of AVE (0.763, 0.804, 0.772, 0.775, 0.773, 0.801, 0.919, 0.781, 0.788, 0.860, 0.922, 0.776), and the lower part is the correlation between the numbers. latent variable.

Table 6: Discriminant validity - Fornell and Larcker criterion

	CC	DP	DT	MO	PD	PI	RD	SG
CC	0.742							
DP	0.688	0.771						
DT	0.621	0.582	0.764					
MO	0.594	0.323	0.412	0.735				
PD	0.539	0.608	0.335	0.362	0.772			
PI	0.783	0.589	0.541	0.626	0.427	0.793		
RD	0.599	0.316	0.432	0.458	0.268	0.662	0.747	
SG	-0.408	-0.497	-0.114	-0.131	-0.279	-0.245	-0.120	0.743

Source: Compiled by the author team

According to the results in the table 6, the square root of AVE (the top value of each column) is larger than the correlations between latent variables (correlation coefficient is located below the first value of the column), so calculating guaranteed discrimination (Fornell and Larcker, 1981)

However, Henseler et al. (2015) provide convincing evidence that the proposed method of Fornell and Larcker (1981) will not really assess the "discriminatory value" of a scale (eg. : lack of background in inferential statistics...). Therefore, the HTMT index is preferred to use.

Table 7: Discriminant validity – Heterotrait-monotrait ratio (HTMT)

	CC	DP	DT	MO	PD	PI	RD	SG
CC								
DP	0.799							
DT	0.712	0.689						
MO	0.659	0.369	0.467					
PD	0.616	0.716	0.386	0.409				
PI	0.699	0.697	0.632	0.709	0.495			
RD	0.673	0.365	0.495	0.510	0.304	0.760		
SG	0.459	0.579	0.130	0.151	0.317	0.280	0.137	

Source: Compiled by the author team

According to the results in the table 7, all HTMT values are less than 0.85, so the discriminant is guaranteed (Henseler et al., 2015).

4.6. Evaluation of collinear/multicollinearity

We will use Inner Collinearity Statistics (VIF) to view the VIF results. Evaluate multicollinearity among latent variables. This is the most important item, because multicollinearity between independent latent variables is a serious problem.

Table 8: Collinearity statistics (VIF) – Inner model

	CC	DP	DT	MO	PD	PI	RD	SG
CC								
DP	1.214					1.162		
DT	1.894	1.127						
MO	1.774					1.325		
PD	1.694	1.207						
PI	1.141							
RD	1.881					1.318		
SG	1.424	1.085						

VIF table layout in matrix form. In the dependent part, we see 3 variables with the results CC, DP, PI because in the SEM model being evaluated, only these 3 variables are dependent and need to consider multicollinearity between the independent variables affecting each variable. this dependency.

- Dependent variable CC: there are 7 independent variables affecting it, including DP, DT, MO, PD, PI, RD, SG, so the CC column has 7 values.
- Dependent variable DP: there are 3 independent variables affecting it, including DT, PD, SG, so the DP column has 3 values.
- Dependent variable PI: there are 3 independent variables affecting it including DP, MO, RD, so the PI column has 3 values.

According to the table 8, the resulting VIF coefficients are all less than 3, so there is no multicollinearity in the model (Hair et al., 2011). The structures in the SEM model above are all reflective.

4.7. Evaluation of impact relationships

To evaluate impact relationships, we will use the results of the Bootstrap analysis.

Table 9: Path coefficients – Mean, STDEV, T values, p values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
DP -> CC	0.145	0.144	0.056	2.592	0.010
DP -> PI	0.357	0.356	0.040	8.827	0.000
DT -> CC	0.183	0.185	0.041	4.481	0.000
DT -> DP	0.418	0.418	0.037	11.246	0.000
MO -> CC	0.137	0.138	0.043	3.149	0.002
MO -> PI	0.327	0.328	0.038	8.725	0.000
PD -> CC	0.115	0.113	0.037	3.128	0.002
PD -> DP	0.371	0.370	0.041	9.063	0.000
PI -> CC	0.328	0.329	0.066	4.994	0.000
RD -> CC	0.144	0.142	0.039	3.721	0.000
RD -> IP	0.400	0.400	0.034	11.758	0.000
SG -> CC	-0.168	-0.169	0.035	4.823	0.000
SG -> DP	-0.346	-0.347	0.036	9.550	0.000

Source: Compiled by the author team

According to table 9, the above results show that all P Values of the effects are < 0.05, so these effects are statistically significant.

There are 7 factors affecting CC variables. In which, there are 6 positive factors in order from strong to weak: PI (0.328); DT (0.183); DP (0.145); RD (0.144); MO (0.137); PD (0.115). In addition, there is one negative factor that is SG (-0.168).

There are 3 factors affecting the variable DP. In which, there are 2 factors with positive impact in order from strong to weak: DT

(0.418); PD (0.371). Besides, there is one negative factor that is SG (-0.346).

There are 3 factors affecting the variable DP. In which, all 3 factors have a positive impact in order from strong to weak: RD (0,400); DP (0.357); MO (0.327).

4.8. Level of explanation of the independent variable for the dependency (R squared)

Table 10: R-square

	R-square	R-square adjusted
CC	0.768	0.763
DP	0.641	0.638
PI	0.680	0.677

Source: Compiled by the author team

From the results in the table 10, we see that R^2 adjusted for dependent variable CC is 0.763. Thus, the independent variables explain 76.3% of the variation of the CC variable.

R^2 adjusted for dependent variable DP is 0.638. Thus, the independent variables explain 63.8% of the variation of the DP variable.

R^2 adjusted for dependent variable PI is 0.677. Thus, the independent variables explain 67.7% of the variation of the PI variable.

4.9. Effect size value (f squared)

Table 11: Value of f square

	CC	DP	DT	MO	PD	PI	RD	SG
CC								
DP	0.028					0.342		
DT	0.077	0.432						
MO	0.045					0.253		
PD	0.033	0.318						
PI	0.148							
RD	0.047					0.379		
SG	0.085	0.307						

Source: Compiled by the author team

Based on the results in the table 11, Effect Size: f Square shows that DT, PD, SG have a very strong influence on DP; DP, RD have strong influence on PI; MO has a moderate effect on PI. The degree of influence of the remaining relationships is small and very small (Cohen, 1988).

5. CONCLUSION & RECOMMENDATIONS

5.1. Conclusion

The study analyzed the relationship between independent variables, intermediate variables and dependent variables. Hypotheses were accepted at the 5% significance level. Thereby, it can be seen that the competing capability of Vietnamese natural flavoring products is affected by factors such as research and development, market orientation, digital transformation, awareness of difference, goods and services. substitution, product innovation, product differentiation. These factors directly affect product competing capability in the context of digital transformation.

Natural flavoring products have become developed according to the trend of the times because green consumption trends are popular all over the world and they can meet the increasing demand for healthy products that protect health and environmentally friendly - associated with the Sustainable Development Goals (SDG). Therefore, it can be seen that natural flavoring products are strongly competitive in the market. Therefore, it is necessary to have some solutions to improve the competing capability of Vietnamese natural flavor products in the international market, especially in the context of digital transformation. From the research results, a few recommendations are proposed to increase the effectiveness of improving the competing capability of Vietnamese natural flavor products.

5.2 Recommendations

5.2.1. Recommendations to state management agencies

Through analyzing the experience of China and Malaysia in improving the competing capability of products, Vietnam needs to perfect policies to encourage the production and export of natural flavoring products. Thereby improving the competing capability of Vietnam's export products in the coming time such as:

First, to encourage the production of agricultural products: To complete the agricultural development planning, to encourage enterprises to invest in production; Promulgate policies to support agricultural production in the direction of force linkage. Actively adopt appropriate countermeasures against trade protectionist policies.

Second, synchronously developing infrastructure systems with supporting services to promote sustainable export: Investing in construction in large-scale manufacturing and processing industrial parks, ensuring the balance of supply and demand and ensuring stable jobs for workers.

Third, synchronize the system of policies and laws: it is necessary to have a thorough review to quickly consolidate and complete resolutions and policies related to export activities, and quickly deal with urgent issues that arise.

Fourth, financial, credit and investment policies to develop production and export of flavoring products: Continue to implement policies to stabilize the macro-economy in a timely, flexible and reasonable manner.

Fifth, promoting sustainable exports through extensive marketing strategies to international markets. Vietnam needs to step up cooperation with intermediary countries, which are favorable politically, culturally and economically, so that they can distribute goods to European countries with long-term strategies and policies. ensure the stability in export of agricultural products, build a reputation in the international market.

Fifth, human resource training and development: Due to Vietnam's backward agricultural production, farming still faces many difficulties, while the world has made great progress with advanced science and technology. The training of highly qualified human resources to develop agriculture is an urgent requirement in the current situation.

5.2.2. Recommendations for businesses

From the research results combined with the experience of improving product competing capability of enterprises in the world, the authors will make some recommendations for businesses as follows:

First, manufacturers and traders are small and medium enterprises that need to build a formal foundation from the smallest stage such as convenient production premises, always up-to-date technology such as big data, smart data and artificial intelligence, proactive in raw materials, creative in business, and always have highly skilled human resources.

Second, production to serve the market, in addition to the requirement to ensure quality in accordance with consumer protection standards for the domestic market, we also need to take into account the production demand for the export market. export.

Third, establishing large corporations or linking small-scale companies to produce and export key products on a large, highly competitive production scale, creating a good supply of goods. stable and long-term export goods, meeting the fast order needs of partners. Each enterprise needs to prioritize the goal of improving quality, thereby improving the competing capability of goods. Along with the improvement of quality is the reduction of costs, diversification of models, improvement of packaging ... to suit consumer tastes, in accordance with national customs and practices.

Fourth, develop technical standards for each specific flavoring to meet the standards of imported goods of "fastidious" markets. Paying attention to crossbreeding and using high-yield, high-quality and valuable plant varieties and offspring. Promote post-harvest technologies, introduce new technologies

into production, harvesting, preservation, processing, transportation and consumption of agricultural products, application of clean technologies in the cultivation and processing of fruits and vegetables, food products. Minimize the use of chemicals in agriculture.

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