The Investigation of New Product Performance Measurement and New Product Idea Screening Criteria in New Consumer Product Development in Thailand

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งานวิจัยชิ้นนี้มีวัตถุประสงค์เพื่อที่จะศึกษามาตรวัดความสำเร็จของผลิตภัณฑ์ใหม่ (New product performance measurement) และเกณฑ์การกลั่นกรองแนวคิดผลิตภัณฑ์ใหม่ (New product ideas screening criteria) ที่ใช้ในกระบวนการพัฒนาผลิตภัณฑ์ใหม่ของสินค้าอุปโภคบริโภค (New consumer product development: NCPD) เนื่องจากงานวิจัยที่ผ่านมาของนักวิชาการมุ่งเน้นศึกษาเฉพาะกรณีประเภทสินค้าอุตสาหกรรม (Industrial product) ซึ่งมีลักษณะที่แตกต่างจากสินค้าอุปโภคบริโภค (Consumer product)

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งานวิจัยชิ้นนี้ใช้ระเบียบวิธีวิจัยแบบผสม (Mixed methods research) มีการทำการวิจัยเชิงปริมาณ (Quantitative research) โดยการใช้แบบสอบถาม (Questionnaires) วัตถุประสงค์เพื่อศึกษามาตรวัดความสำเร็จของผลิตภัณฑ์ใหม่ (New product performance measurement) และเกณฑ์การกลั่นกรองแนวคิดผลิตภัณฑ์ใหม่ (New product idea screening criteria) ที่ถูกนำมาใช้ในกระบวนการพัฒนาผลิตภัณฑ์ใหม่ของบริษัทผู้ผลิตสินค้าอุปโภคบริโภคของประเทศไทย (Thai's consumer industries) และการวิจัยเชิงคุณภาพ (Qualitative research) โดยการสัมภาษณ์เชิงลึก (Indepth interviews) ผู้จัดการผลิตภัณฑ์ (Product managers) ในบริษัทผู้ผลิตสินค้าอุปโภคบริโภค (Consumer product companies)

คำสำคัญ : เกณฑ์การกลั่นกรองแนวคิดผลิตภัณฑ์ใหม่ ความสำเร็จของผลิตภัณฑ์ใหม่ สินค้า อุปโภคบริโภค กระบวนการพัฒนาผลิตภัณฑ์ใหม่ของสินค้าอุปโภคบริโภคประเทศไทย

ผลจากการวิจัยพบว่า ความพึงพอใจของลูกค้า (Customer satisfaction) กำไรสุทธิ (Net profit margin) และยอดขาย (Volume of sale) เป็นสามตัวชี้วัดหลักที่ใช้ในการวัดความสำเร็จของผลิตภัณฑ์ใหม่ในกลุ่มอุตสาหกรรมสินค้าอุปโภคบริโภคของประเทศไทย (Thai's consumer industries) ในขณะที่เกณฑ์การกลั่นกรองแนวคิดผลิตภัณฑ์ใหม่ (New product ideas screening criteria) ที่สำคัญในการกลั่นกรองแนวคิดผลิตภัณฑ์ใหม่สามลำดับแรก คือ เกณฑ์ทางด้านความสอดคล้องกับยุทธศาสตร์ (Strategic fit criteria) เกณฑ์ทางด้านผลิตภัณฑ์และบรรจุภัณฑ์ (Product and packaging criteria) และเกณฑ์ทางด้านราคา (Pricing criteria)

เนื่องจากงานวิจัยที่ผ่านมาที่เกี่ยวข้องกับการศึกษามาตรวัดความสำเร็จของผลิตภัณฑ์ใหม่และเกณฑ์การกลั่นกรองแนวคิดผลิตภัณฑ์ใหม่มุ่งเน้นศึกษาเฉพาะสินค้าประเภทอุตสาหกรรม (Industrial product) คุณค่าทางวิชาการของงานวิจัยชิ้นนี้ คือ มุ่งเน้นการศึกษาในกลุ่มสินค้าอุปโภคบริโภค (Consumer product) ซึ่งเป็นกลุ่มสินค้าที่สร้างมูลค่ามหาศาลสำหรับเศรษฐกิจไทย เพื่อสร้างองค์ความรู้ใหม่อันก่อให้เกิดประโยชน์ต่อการพัฒนาผลิตภัณฑ์ใหม่ของประเทศไทย

Abstract

Purpose – The purpose of this paper is to investigate new product performance measurement and new product idea screening criteria for new consumer product development (NCPD). Since the nature and characteristics of consumer products heavily differ from industrial products, they require the specific customized set of screening criteria for the new idea screening decision making in NCPD and new product performance measurement for an evaluation of new product performance.

Design/methodology/approach – This paper uses mixed methods research. The quantitative research is utilized via questionnaires to investigate how consumer product companies in Thailand measure their new product performance and also examine the new product idea screening criteria used to screen their new product idea during a new product development process. The qualitative research is also conducted by using indepth interviews to firms' product managers closet to the new idea screening decision in consumer industries.

Findings – Customer satisfaction, net profit margin, and volume of sale are the most three important new product performance indicators for evaluating the degree of new product success for Thai's consumer industries. During the new product development process, strategic fit criteria and product and packaging criteria, and pricing criteria are the most important criteria used to evaluate new product ideas in consumer product companies in Thailand.

Originality/value – Previous researches concerning with new product performance measurement and new idea screening criteria in new product development (NPD) concentrated on new industrial product development and there has been little effort to clarify the new product performance measurement in consumer industries and the specific customized new idea screening criteria for consumer products. This study attempts to advance knowledge both about the new product performance measurement and the set of new product idea screening criteria used in NCPD. Many theories suggest that characteristics of NPD processes vary depending on types of products since natures and characteristics of consumer products heavily differ from industrial products. It means that new product performance measurement and new idea screening criteria for consumer product development will be different from those applied to industrial products.

Keywords : New idea screening criteria, New product performance, Consumer product, New Consumer Product Development (NCPD), Thailand

Paper type : Mixed methods research

Introduction

The success of new product development (NPD) is the most important strategy for many firms (Barcey and Benson, 1987; Cooper, 2000; de Brentani, 1986; Griffin, 1997; Urban and Hauser, 1993). Successful new products help firms to prosper and gain more competitive advantage beyond their competitors. However, most of new product development projects seem to fail and the number of new product success rate is quite low. New product development processes are the risk activities (Cooper, 1990; De Brentani, 1986; Urban and Hauser, 1993) and the cost of failure is high (Cooper, 2000). The success rate of new product development projects is less 15 percent and approximately 50 percent of firm's resource involve with unsuccessful projects (Cooper, 2001).

Many scholars perceive new product development (NPD) as the processes which consist of many activities (Cooper and Kleinschmidt, 1990; Kolter, 2004). New product success or failure is decided in the initial stage of a project (Cooper and Kleinschmidt, 1994). Therefore, new idea screening activity in early stage of NPD plays the important role as the determinant of success and failure of new product development projects (Chin et al., 2008). The effective and efficient new product idea screening decision making helps firms to reduce cost since the accumulative cost of new product development project dramatically increases as projects move forward (Cooper and Kleinschmidt, 1986, 1990, 1994) and managers find it difficult to terminate projects when projects continuously progress.

New product development should be treated differently depending on types of product (Cooper and Kleinschmidt, 1994) and the key success factors of NPD may vary based on countries (Karakaya and Kobu, 1994; Mishra et al., 1996). Consumer product and industrial product are different in many dimensions. Most of researches concern with Go/No go criteria and new idea screening criteria do not take those differences into account. They concentrate on industrial product studies than consumer product (Stag et al., 2002).

The objective of this paper is to investigate new product performance measurement and new product idea screening used in consumer product industries of Thailand. Because the lack of researches in new product performance and new product idea screening particularly in consumer industries, this study aims to enhance the understanding of new product development process and its implication of consumer product industries.

New Product Idea Screening

New product idea screening is the important activity in early stage of a new product development process; however, new product idea screening is a complex and difficult decision. Cooper and Kleinschmidt (1986) found that the initial product idea screening activity had the highest correlation with new product performance compared with other new product development activities. Lin and Chen (2004) stated that new product idea screening may be the most critical step in the new product development process.

Although new product idea screening is a critical step that can decide whether those new products will succeed or not, most of managers in firms still use intuitive and informal approaches to screen new product rather than formal and systematical approaches (Calantone et al., 1999; Baker and Albaum, 1986; Chui, 2009)

Many scholars have studied the set of appropriated criteria for new product idea screening (Cooper and de Brentani, 1984; Ronkainen, 1985; Baker and Albaum, 1986; De brentani and Droge, 1988; Calantone et al., 1999; Carbonell et al., 2004; Stagg et al., 2002; Saunder et al., 2005; Chui, 2009). Some researches focused on industrial product industries (Cooper and de Brentani, 1984; de Brentani, 1986; de Brentani and Droge, 1988; Chui, 2009), and high technology firms (Ronkainen, 1985). Since consumer product and industrial product are different in many dimensions (Stag et al., 2002; Saunders et al., 2005), the objective of this study aims to concentrate on the investigation of new product idea screening of consumer products. The other exceptional criteria that are relevant to evaluating new consumer product ideas such as branding, channel of distribution, as well as promotion and communication will be taken into account for the investigation of this research.

After the comprehensive literature review relevant to new product idea screening researches, the criteria used as proposed criteria can be summarized in Table 1.

Table 1 : New product screening criteria and indicators

Criteria for new product idea screening	Indicators	Researchers
Strategic fit criteria	Alignment with firm's strategy and business goals/ Corporate synergy	Carbonell-Foulquie et al. (2004); Chui (2009); Cooper and de Brentani (1984); de Brentani (1986); de Brentani and Droge (1988); Lin (2007)
	Senior management endorsement	Ronkainen (1985)
	Synergy with other product/business within company	de Brentani and Droge (1988) ; Lin (2007)
Market structure criteria	Expected market share	Carbonell et al. (2004) ; Tzokas et al. (2004)
	Expected sales growth	de Brentani and Droge (1988)
	Total market size	Chui (2009); Cooper and de Brentani (1984); de Brentani (1986); Baker and Albaum (1986); Ronkainen (1985) ; Lin (2007)
	Growth rates of markets/Demands	Baker and Albaum (1986) ; Ronkainen (1985) ; Lin (2007)
Financial performance criteria	Payback/Break-even time	Tzokas et al. (2004); Baker and Albaum (1986); Ronkainen (1985)
	High expected ROI or high profit potential	Carbonell et al. (2004) ; Tzokas et al. (2004); Baker and Albaum (1986) ; de Brentani and Droge (1988); Ronkainen (1985); Chan and Ip (2010)
	Expected margin rate	Carbonell et al. (2004) ; Tzokas an det al. (2004)
	Expected expenditure	Chin et al. (2008); Baker and Albaum (1986)
Technology and production criteria	Engineering fits and design skills and resources	Chui (2009); Cooper and de Brentani (1984); de Brentani (1986); Lin (2007)
	Excellent fit with current production facilities	de Brentani and Droge (1988); Chan and Ip (2010)
	Degree of fitting R&D skills/resources	de Brentani and Droge (1988) ; Lin (2007)
	Technical feasibility	Carbonell et al. (2004) ; Tzokas et al. (2004); Baker and Albaum (1986)
Branding criteria	Excellent fit with organizational image	Stagg et al. (2002); Saunder et al. (2005)
	Clearly identified brand strategy	Stagg et al. (2002); Saunder et al. (2005)
	Low brand loyalty in competitors' products	Stagg et al. (2002); Saunder et al. (2005)
	Brand fit	Stagg et al. (2002); Saunder et al. (2005)

Criteria for new product idea screening	Indicators	Researchers
Product and packaging criteria	Clear product definition	Stagg et al. (2002); Saunder et al. (2005)
	New product differentiated from competitive products	Lin and Chen (2004) ; Huynh and Nakamori (2009)
	Correspondence with desired entry timing needed by target segments	Tzokas et al. (2004); Chin et al. (2008) ; Lin (2007)
	Attractive packaging	Stagg et al. (2002); Saunder et al. (2005)
Pricing criteria	Tproduct matches the target price level for our target segment	Chin et al. (2008)
	Product selling price relative to competition	Calantone et al. (1999); Baker and Albaum (1986); Stagg et al. (2002); Saunder et al. (2005); Lin and Chen (2004)
Channel of distribution and saleforces criteria	Product fits with our logistics and distribution strengths	Chin et al. (2008) ; de Brentani and Droge (1988) ; Ronkainen (1985) ; Chan and Ip (2010) ; Lin (2007)
	Distribution: cost of distribution channels	Baker and Albaum (1986)
	Current distribution fits and sales resources/ Conformity to salesforce strengths	Chin et al. (2008) ; Lin (2007)
	Strong trade support	Stagg et al. (2002); Saunder et al. (2005)
Promotion and communication criteria	Promotion: cost to communicate benefits	Baker and Albaum (1986)
	Visibility: difficulty in communicating benefits	Baker and Albaum (1986)
	Clearly defined promotion plan	Stagg et al. (2002); Saunder et al. (2005)
	Use of current sales promotion technique	Stagg et al. (2002); Saunder et al. (2005)
Risk and uncertainty criteria	Organizational risk	Chin et al. (2008) ; Chan and Ip (2010) ; Lin (2007)
	Technical uncertainty risk	Chin et al. (2008) ; Chan and Ip (2010) ;Lin and Chen (2004) ; Huynh and Nakamori (2009) ; Lin (2007)
	Competitive risk	Chin et al. (2008) ; Ronkainen (1985) ; Chan and Ip (2010) ;Lin and Chen (2004) ; Huynh and Nakamori (2009) ; Lin (2007)
	Little damage to company's reputation in case of failure	Stagg et al. (2002); Saunder et al. (2005)

New product performance

Measuring new product performance is difficult since it is multidimensionality and requires different level of analysis (Griffin and Page, 1993; Palmberg, 2006). Many studies attempt to identify the factors for measuring new product performance (Cooper, 1979; Cooper and Kleinschmidt, 1987, 1993; Maidque and Zirger, 1984; Huang, Soutar and Brown, 2004). Molina-Castillo and Munuera-Aleman (2009) summarized new product performance dimension into three level of analysis; namely, performance at firm level, at program level, and at project level. Griffin and Page (1993) studied measures of product development success and failure. Five independent dimensions of success and failure performance were identified: firm level measure, program level measure, product level measure, measure of financial performance and customer performance (Griffin and Page, 1993). The definition of new product success may vary depending on the objectives of companies' new product projects and can produce different results (Craig and Hart, 1992).

The recent studies (Huang et al., 2004; Lee and O'Connor, 2003; Molina-Castillo and Munuera-Aleman, 2009) demonstrated the three new product performance dimensions recognized by academics and managers for measuring new product performance; market-based performance, customer-based performance and financial based performance. We utilize these three new product performances for our study.

Table 2 : New product success dimension and indicators

New product success dimension	New product success indicators	Researchers
Market-based performance	▪ Market share ▪ Volume of sales ▪ Rate of market penetration	Atuahene-Gima et al. (2006); Carbonell et al. (2004); Cooper and Kleinschmidt (1987); Huang et al. (2004); Langerak et al. (2004); Lee and O'Connor (2003); Song and Parry (1999); Storey and Easingwood (1999); Talke (2007)
Customer-based performance	▪ Customer acceptance ▪ Customer satisfaction ▪ Customer loyalty	Carbonell et al. (2004); Griffin (1993); Huang et al. (2004); Langerak et al. (2004); Lee and O'Connor (2003)
Financial-based performance	▪ Net income ▪ Net profit margin ▪ Return on Investment (ROI)	Carbonell et al. (2004); Cooper and Kleinschmidt (1995); Griffin (1993); Hart (1993); Huang et al. (2004); Langerak et al. (2004); Lee and O'Connor (2003); Song and Parry (1999); Storey and Easingwood (1999); Talke (2007)

Methodology

Data collection and sample

In order to test the hypotheses, we used survey methodology. Our research population consisted of 227 firms in accordance with the list of members of food processing industry club of Thailand. They were selected because we aim to study in consumer product industries in Thailand and they depend on new products for their continued growth and presented high innovation rates according to several reports. We used telephone and mail pre-survey to contact the firms. The questionnaire was first tested with five companies and five academics, after which it was sent to the product managers of the firms. Each firm received 2 questionnaires. This is because we expected each firm to choose to one success and one failure project to response our questionnaires. Therefore, 454 questionnaires were sent out to firms. We expect that the respondents were project managers or project leaders of each new product development project. The respondents were asked to select two innovative products that was developed and introduced to the market in the last 5 years. The mailing contained a cover letter and the questionnaires. After 4 weeks, Non-respondents were asked if they had received the questionnaire and were reminded of the importance of their cooperation. In all, 218 questionnaires were returned. Twelve of the questionnaires were incomplete, which means that the final sample size was 206.

Measures

For the new product performance part, based on the previous study by Huang et al. (2004), Lee and O'Conno (2003), Molina-Castillo and Munuera-Alema (2009), three new product performance dimensions were recognized for measuring new product success; market-based performance, customer-based performance and financial based performance. Each dimension consists of three indicators, and there are nine indicators; namely, Market share, Volume of sales, Rate of market penetration, Customer acceptance, Customer satisfaction, Customer loyalty, Net income, Net profit margin, and Return on Investment (ROI). Respondents were also asked to rate the importance of each performance indicator by using a five-point scale that ranged from "not very important" to "Very important.". Respondents were also asked about their perception of the product's overall success (ranging from 1, very unsuccessful to 5, very successful).

For the new product idea screening part, we study previous researches (Cooper and de Brentani, 1984; Ronkainen, 1985; Baker and Albaum, 1986; De brentani and Droge, 1988; Calantone et al., 1999; Carbonell et al., 2004; Stagg et al., 2002; Saunder et al., 2005; Chui, 2009) and create the set of new product idea screening criteria which contain of 10 new product idea screening criteria; namely, Strategic fit, Market structure, Financial performance, Technology and production, Branding, Product and packaging, Pricing, Channel of

distribution and saleforces, Promotion and communication, and Risk and uncertainty criteria. Those criteria totally contain of 37 screening questions. Using the retrospective method, respondents were asked to recall when the product they previously evaluated still was a new product idea. Respondents were also asked to rate the importance of each new product idea screening criteria using a five-point scale that ranged from "Not very important" to "Very important".

Result

Based on the list of members of food processing industry club, 454 questionnaires were sent to product managers in member firms of food processing industry club in February 2011. This was followed by phone calls to motivate them to return the questionnaire and explain the benefit of this study for academics and practitioners. We also went to those companies in case that they were willing to have a meeting with us.

218 questionnaires were returned to us. After checking the completion of detail in questionnaires, 206 questionnaires were usable for further analysis.

For the degree of success question, managers were asked to evaluate the project themselves whether it is a success or failure new product development project. There were 113 new product development projects which were success projects and 93 new product development projects which were considered as failure projects.

Table 3 : Degree of project success

Degree of project success	numbers	percentage
Success new product development project	113	54.9
Failure new product development project	93	45.1
Total	206	100.0

For the question degree of product newness, managers were asked to rate the degree of product newness of the new product development project that they used as the case study to answer the questionnaires.

Table 4 : Degree of product newness

Degree of product newness	numbers	percentage
Modification of existing product	106	51.5
New to the firm product	69	33.5
New to the market product	31	15.0
Total	206	100.0

We investigate degree of importance of new product performance indicators practically used to measure how firms' new products succeed. Managers were asked to rate how importance of each new product performance indicator they use to measure new product performance for their firms. The result is shown in Table 5.

Table 5 : New product success indicators

Importance degrees of new product performance indicators	Mean	S.D	Meaning
Net income	3.95	.638	Quite important
Net profit margin	4.29	.816	Very important
Return on Investment: ROI	4.05	.686	Quite important
Market share	3.72	.598	Quite important
Volume of sales	4.23	.895	Very important
Rate of market penetration	3.62	.923	Quite important
Customer acceptance	4.20	.689	Quite important
Customer satisfaction	4.35	.620	Very important
Customer loyalty	4.09	.773	Quite important

According to the result of the study, the most important new product performance indicator is customer satisfaction (Mean = 4.35, S.D. = 0.620). The second important new product performance indicator is net profit margin (Mean = 4.29, S.D. = 0.816) following by volume of sales (Mean = 4.23, S.D. = 0.895).

According to previous researches, this study also investigates how consumer product companies in Thailand screen their new product ideas. 10 new product idea screening criteria were examined for their degrees of importance by managers and the result is shown in Table 6.

Table 6 : New product idea screening criteria

Importance degrees of new product idea screening criteria	Mean	S.D	Meaning
Strategic fit	4.48	.456	Very important
Market structure	4.05	.470	Quite important
Financial performance	3.92	.577	Quite important
Technology and Production	4.07	.524	Quite important
Branding	3.95	.688	Quite important
Product and Packaging	4.29	.402	Very important
Pricing	4.18	.698	Quite important
Channel of distribution and saleforces	4.10	.392	Quite important
Promotion and communication	3.74	.491	Quite important
Risk and uncertainty	2.99	.663	Fairly important

According to the result of the study, the most important new product idea screening criteria is the strategic fit criteria (Mean = 4.48, S.D. = 0.456). The second important new product idea screening criteria is product and packaging criteria (Mean = 4.29, S.D. = 0.402). The third important criteria is pricing criteria (Mean = 4.18, S.D. = 0.698).

Hypothesis development and testing

According to the previous study by Molina-Castillo and Munuera-Aleman (2009), managers do not give the same level of importance to different performance indicators and the description of new product performance is based on the way new product performance dimensions are developed. Carbonell et al. (2004) also found that the degree of product newness (New to the market, New to the firm, and Modification of existing product) of the new product development projects has the influence on how product managers evaluate their new product ideas at the new product idea screening stage. Based on those previous studies, we developed hypotheses to find linkages which may be useful for Thai product managers especially in consumer product industries, if any.

There are four main hypotheses and the objective of hypothesis testing is to try to find the linkage between degree of project's success of new product and new product success indicators and new product idea screening criteria, and the linkage between degree of product newness and new product success indicators and new product idea screening criteria.

H1: The degrees of importance of new product performance indicators depend on degree of project's success of new product

H2: The degrees of importance of new product performance indicators depend on degree of product newness

H3: The degrees of importance of new product idea screening criteria depend on degree of project's success of new product

H4: The degrees of importance of new product idea screening criteria depend on degree of product newness

We use one way ANOVA to test the hypotheses, and the summary of result is shown in Table 7.

Table 7 : Summary of hypothesis H1 testing

H1: Importance degrees of new product success indicators depend on degree of project's success of new product	F-Value	Sig.	Result
H1-1: Importance degrees of net income indicator depend on degree of project's success of new product	0.968	.326	Not Supported
H1-2: Importance degrees of net profit margin indicator depend on degree of project's success of new product	1.934	.166	Not Supported
H1-3: Importance degrees of return on Investment indicator depend on degree of project's success of new product	0.366	.546	Not Supported
H1-4: Importance degrees of market share indicator depend on degree of project's success of new product	0.029	.864	Not Supported
H1-5: Importance degrees of volume of sales indicator depend on degree of project's success of new product	0.434	.511	Not Supported
H1-6: Importance degrees of rate of market penetration indicator depend on degree of project's success of new product	1.200	.275	Not Supported
H1-7: Importance degrees of customer acceptance indicator depend on degree of project's success of new product	0.038	.846	Not Supported
H1-8: Importance degrees of customer satisfaction indicator depend on degree of project's success of new product	0 .012	.911	Not Supported
H1-9: Importance degrees of customer loyalty indicator depend on degree of project's success of new product	0.779	.379	Not Supported

According to the hypothesis 1 (H1), we found that the degrees of importance of new product performance indicators do not depend on degree of project's success of new product in all nine success indicators.

Table 8 : Summary of hypothesis H2 testing

H2: Importance degrees of new product success indicators depend on degree of product newness	F-Value	Sig.	Result
H2-1: Importance degrees of net income indicator depend on degree of product newness	2.665	.072	Not Supported
H2-2: Importance degrees of net profit margin indicator depend on degree of product newness	11.555	.000	Supported
H2-3: Importance degrees of return on Investment indicator depend on degree of product newness	14.519	.000	Supported
H2-4: Importance degrees of market share indicator depend on degree of product newness	2.943	.055	Supported
H2-5: Importance degrees of volume of sales indicator depend on degree of product newness	24.656	.000	Supported
H2-6: Importance degrees of rate of market penetration indicator depend on degree of product newness	50.958	.000	Supported
H2-7: Importance degrees of customer acceptance indicator depend on degree of product newness	29.998	.000	Supported
H2-8: Importance degrees of customer satisfaction indicator depend on degree of product newness	16.869	.000	Supported
H2-9: Importance degrees of customer loyalty indicator depend on degree of product newness	0.653	.522	Not Supported

According to the hypothesis 2 (H2), we found that the degrees of importance of new product performance indicators depend on degree of product newness in seven performance indicators; namely, net profit margin, return on investment, market share, volume of sales, rate of market penetration, customer acceptance, and customer satisfaction indicator. There are two hypothesizes that are not supported, which are H2-1 and H2-9. The degrees of importance of net income indicator and customer loyalty do not depend on degree of product newness.

Table 9 : Summary of hypothesis H3 testing

H3: Importance degrees of new product idea screening criteria depend on degree of project's success of new product	F-Value	Sig.	Result
H3-1: Importance degrees of Strategic fit criteria depend on degree of project's success of new product	0.190	.663	Not Supported
H3-2: Importance degrees of Market structure criteria depend on degree of project's success of new product	0.287	.593	Not Supported
H3-3: Importance degrees of Financial performance criteria depend on degree of project's success of new product	0.001	.969	Not Supported
H3-4: Importance degrees of Technology and Production criteria depend on degree of project's success of new product	0.286	.593	Not Supported
H3-5: Importance degrees of Branding criteria depend on degree of project's success of new product	0.077	.781	Not Supported
H3-6: Importance degrees of Product and Packaging criteria depend on degree of project's success of new product	0.708	.401	Not Supported
H3-7: Importance degrees of Pricing criteria depend on degree of project's success of new product	0.000	.989	Not Supported
H3-8: Importance degrees of Channel of distribution and saleforces criteria depend on degree of project's success of new product	0.029	.864	Not Supported
H3-9: Importance degrees of Promotion and communication criteria depend on degree of project's success of new product	0.467	.495	Not Supported
H3-10: Importance degrees of Risk and uncertainty criteria depend on degree of project's success of new product	0.312	.577	Not Supported

According to the hypothesis 3 (H3), we found that the degrees of importance of new product idea screening criteria do not depend on degree of product newness in all 10 new product idea screening criteria.

Table 10 : Summary of hypothesis H4 testing

H4: Importance degrees of new product idea screening criteria depend on degree of product newness	F-Value	Sig.	Result
H4-1: Importance degrees of Strategic fit criteria depend on degree of product newness	4.034	.019	Supported
H4-2: Importance degrees of Market structure criteria depend on degree of product newness	22.094	.000	Supported
H4-3: Importance degrees of Financial performance criteria depend on degree of product newness	7.142	.001	Supported
H4-4: Importance degrees of Technology and production criteria depend on degree of product newness	13.355	.000	Supported
H4-5: Importance degrees of Branding criteria depend on degree of product newness	11.289	.000	Supported
H4-6: Importance degrees of Product and packaging criteria depend on degree of product newness	2.135	.121	Not Supported
H4-7: Importance degrees of Pricing criteria depend on degree of product newness	12.927	.000	Supported
H4-8: Importance degrees of Channel of distribution and saleforces criteria depend on degree of product newness	12.671	.000	Supported
H4-9: Importance degrees of Promotion and communication criteria depend on degree of product newness	43.770	.000	Supported
H4-10: Importance degrees of Risk and uncertainty criteria depend on degree of product newness	15.381	.000	Supported

According to the hypothesis 4 (H4), we found that the degrees of importance of new product idea screening criteria depend on degree of product newness in nine criteria namely, Strategic fit, Market structure, Financial performance, Technology and production, Branding, Pricing, Channel of distribution and saleforce, Promotion and communication, and Risk and uncertainty criteria. Only one sub hypothesis (H4-6) is not supported.

Conclusion

New product performance measurement and new product idea screening are the vital activities for new product development processes. However, there are still the needs of researches to fulfill the knowledge in those two areas. This study is the first research in Thailand that tries to fulfill the gaps about knowledge of new product performance measurement and new product ideas screening criteria in consumer industries in Thailand. For new product performance measurement, according to the hypothesis testing, we found that the degrees of importance of new product performance indicators depend on degree of product newness in seven success indicators; namely, net profit margin, return on investment, market share, volume of sales, rate of market penetration, customer acceptance, and

customer satisfaction indicator. This can be inferred that Thai consumer product companies measure new product performance via new product success indicators by considering the degree of product newness. The study also shows that Thai managers perceive customer satisfaction as the most important indicator to evaluate the performance of new products. However, net profit margin and volume of sales are the second and third important indicators used to evaluate new product performance in Thai consumer product companies. For new product ideas screening, the degrees of importance of new product idea screening criteria depend on degree of product newness in nine criteria namely, Strategic fit, Market structure, Financial performance, Technology and production, Branding, Pricing, Channel of distribution and saleforce, Promotion and communication, and Risk and uncertainty criteria. This can be inferred that the importance of each new product idea screening criterion varies on the degree of product newness. The study also shows that managers in Thai's consumer product companies play most important to evaluate the potential of new product idea on whether it is suit with firm's strategic direction. The second most important coriteria is product and packaging criteria. Pricing is the third criteria that managers also consider once they screen new product ideas.

Limitations and future research

There are limitations to this study that need to be addressed. First, we used the list of members of food processing industry club of Thailand as the population of this study because of the limitation of time and budgets. Therefore, the results of this study may not totally be generalized to explain other sub types of consumer products such as convenience products, shopping products, and specialty products. Nevertheless, this study is the good starting point to advance knowledge both about the new product performance measurement and the set of new product idea screening criteria used in NCPD in Thailand. Future researches should address this limitation by focusing on other industries or increasing the variety of firms' characteristic. Second, our study has only measured performance at project level. Therefore, it could be interesting to test these results when measuring performance at program and firm level. Other beneficial ways for future research is to include new dimensions of product performance, such as technical performance, process performance, and strategic performance (Molina-Castillo and Munuera-Aleman, 2009) to contrast the results obtained in our study. Third, this research used a retrospective method to study measures used for NPD. It is still not clear how these measures can be affected by industry cycle and macro-economic environment. For example, if financial measures are used more widely in economic downturn than rapid growth period, the result may be different. A longitudinal study taking into these factors can enhance our understanding in these areas.

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