

Relationship Between Electronic Word-of-Mouth and New Product Development: A Thailand Food Industry Case

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ABSTRACT

The development and introduction of new products can be an important determinant of sustained business performance. The success of new product development (NPD) depends on how effectively new products satisfy the needs of customers and lead to purchases of those products. Preferably, new products offer unexpected value and benefits beyond customers' initial expectations. It is vital for a new product development team to truly recognize and understand customer needs. In the present generation, communication channels have expanded and developed extensively. Electronic communication plays an important role in people's daily lives and influences their lifestyles. Therefore, electronic word of mouth (eWOM) has become a public means of conversation that is a highly useful channel for viral marketing. eWOM can also be a valuable platform to garner knowledge of customers' opinions, experience, likes, dislikes, and needs for the development of new products. The main objective of this study was to describe the relationship between eWOM and NPD by proposing a framework to help developers generate ideas for NPD from eWOM messages. The first part develops a "keyword discovering instrument" that extracts words from eWOM messages to generate new product ideas. The main advantage of this tool is generating ideas for new product development through the real-time discovery of keywords. Eventually, this tool will play an important part in the new product development process by accelerating the creation of new products and increasing the competitiveness of the industry. This research explores the relationship between eWOM and NPD. It takes a qualitative approach by conducting a focus group discussion plus 10 in-depth interviews with opinion leaders in the Thailand food industry. A case study of the Thai food industry was conducted to investigate relevant aspects of eWOM for use in NPD. Analysis of the eWOM characteristics and messages was conducted to identify the features of the keyword discovering instrument. Finally, a research framework was designed consisting of two portions: NPD Process and Discovering Keywords.

Keywords: electronic word-of-mouth, new product development, relationship, discovering keywords, Thailand food industry

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บทคัดย่อ

กระบวนการพัฒนาผลิตภัณฑ์ใหม่มีความสำคัญอย่างยิ่งต่อความสำเร็จของธุรกิจ โดยเฉพาะในช่วงการเริ่มต้นพัฒนาผลิตภัณฑ์ใหม่ ผลิตภัณฑ์ที่สามารถตอบสนองได้ตรงตามความต้องการของลูกค้า หรือสามารถตอบสนองความต้องการของลูกค้าได้เกินความคาดหมาย ส่งผลให้ลูกค้าเกิดการยอมรับและตัดสินใจซื้อ ก่อให้เกิดความสำเร็จและความมั่นคงกับธุรกิจ ความสามารถในการเข้าใจและเข้าถึงความต้องการที่แท้จริงของลูกค้าจึงมีความจำเป็นอย่างยิ่งสำหรับการพัฒนาผลิตภัณฑ์ใหม่ ในปัจจุบัน ช่องทางการสื่อสารที่มีอยู่หลากหลายและพัฒนาการด้านเทคโนโลยีเปลี่ยนแปลงวิวัฒนาและวิธีการสื่อสารของคนในยุคนี้ให้เป็นแบบอิเล็กทรอนิกส์ การเปลี่ยนแปลงด้านเทคโนโลยีส่งผลให้การสื่อสารปักต่อปักที่เดิมเป็นการพูดคุยระหว่างบุคคลเปลี่ยนเป็นการสื่อสารปักต่อปักผ่านช่องทางอิเล็กทรอนิกส์ ซึ่งสื่อสารกับได้คนหมู่มาก การสื่อสารปักต่อปักแบบอิเล็กทรอนิกส์จึงเป็นช่องทางการสื่อสารที่นักการตลาดนิยมใช้ทำการตลาดแบบไวรัส ความสำคัญอีกประการหนึ่งของการสื่อสารปักต่อปักแบบอิเล็กทรอนิกส์ คือ การเป็นแหล่งข้อมูลจากลูกค้า อาทิ ความคิดเห็น ประสบการณ์ ความพึงพอใจของลูกค้า เป็นต้น เหล่านี้ล้วนเป็นข้อมูลสำคัญที่ใช้สำหรับการพัฒนาผลิตภัณฑ์ใหม่ การศึกษาในครั้งนี้เป็นส่วนแรกของงานวิจัยการพัฒนาเครื่องมือสำหรับค้นหาคำสำคัญจากการสื่อสารปักต่อปักแบบอิเล็กทรอนิกส์ เพื่อใช้สำหรับการพัฒนาผลิตภัณฑ์ใหม่ โดยงานวิจัยนี้มีวัตถุประสงค์หลัก เพื่อศึกษาและเสนอโครงสร้างงานของความสัมพันธ์ระหว่างการสื่อสารปักต่อปักแบบอิเล็กทรอนิกส์และการพัฒนาผลิตภัณฑ์ใหม่ เพื่อใช้ประโยชน์ข้อมูลจากการสื่อสารปักต่อปักแบบอิเล็กทรอนิกส์ในการตั้งต้นความคิดและเป็นแนวทางในการพัฒนาผลิตภัณฑ์ใหม่ ซึ่งจะพัฒนาเป็นเครื่องมือในลำดับต่อไป คุณ

ประโยชน์สำคัญที่ได้รับจากการใช้เครื่องมือ คือ การค้นหาแบบทันทีเพื่อให้ได้ผลลัพธ์เป็นคำสำคัญที่สามารถใช้ตั้งต้นความคิดในการพัฒนาผลิตภัณฑ์ใหม่ โดยการใช้เครื่องมือนี้จะมีส่วนช่วยให้กระบวนการพัฒนาผลิตภัณฑ์ใหม่มีประสิทธิภาพเพิ่มขึ้นในการแบ่งขั้นให้กับธุรกิจ งานวิจัยนี้ใช้วิธีการวิจัยเชิงคุณภาพโดยการสัมภาษณ์กลุ่มและสัมภาษณ์เชิงลึกกับผู้นำทางความคิดและบุคคลที่เกี่ยวข้องในอุตสาหกรรมอาหารประเทศไทยจำนวน 10 ราย เพื่อศึกษา วิเคราะห์ และสร้างโครงสร้างงานของความสัมพันธ์ระหว่างการสื่อสารปักต่อปักแบบอิเล็กทรอนิกส์และการพัฒนาผลิตภัณฑ์ใหม่ โดยผลของงานวิจัยสรุปองค์ประกอบของโครงสร้างงานฯ เป็น 2 ส่วนหลัก คือ ส่วนของกระบวนการพัฒนาผลิตภัณฑ์ใหม่ และส่วนของการค้นหาคำสำคัญ

คำสำคัญ: การสื่อสารปักต่อปักแบบอิเล็กทรอนิกส์ การพัฒนาผลิตภัณฑ์ใหม่ ความสัมพันธ์ การค้นพบคำสำคัญ อุตสาหกรรมอาหาร ไทย

INTRODUCTION

Digital technology has opened up new paradigms for communication; electronic communications such as discussion boards and chat rooms now play an important role in people's lives and influence their lifestyles as millions share information online every day. These online conversations contain opinions regarding peoples' experiences of products and services. Online conversations among people are the nature of electronic word-of-mouth (eWOM). eWOM communication has interested both academia and business for decades (De Bryun & Lilien, 2008). Information exchange between customers represents a significant influence on purchasing decisions. Positive and negative personal evaluations of products and services influence consumer decision making. Information from eWOM is garnered from

customers' knowledge and reveals their real needs and concerns.

Marketing is a key for innovating products. Information concerning customer needs is valuable for marketers and product developers to generate ideas for developing new products with market potential. Therefore, attaining information on the customers' needs is very important for new product development (NPD). NPD increases marketing opportunities for the business sector. Success in NPD derives from the capacity of goods or products to fulfill the needs and requirements of customers.

The Thailand food industry was selected for this research because it is the main industry in an agricultural country; the food industry plays an important role that affects the national GDP. This study focuses on the 'ready-to-eat' food business which has continuously expanded its market for five years (CPF, 2012). The case study for this research is Charoen Pokphand Food (CPF) PCL, the leading food producer in Thailand. CPF (2012) states that their sales will increase by up to 50 percent from 2011. This represents a good opportunity to create new ready-to-eat products to promote market expansion. The development of new ready-to-eat products will also increase the competitiveness of the Thai food industry in the international market.

Based on a review of related literature, no tool for searching customers' needs for specific products has been developed (Park & Kim, 2008; Chen, 2009; Li & Du, 2011; Sung, Chiu, Hsieh, & Chou, 2011). The current research argues that purposefully collected eWOM can be used in the generation of new product development briefs. This research presents a framework for the relationship between eWOM and NPD to evaluate keywords for developing NPD.

LITERATURE REVIEW

Antecedents of electronic word-of-mouth

Hennig-Thurau, Qwinner, Walsh and Grempler (2004) define eWOM as "any positive or

negative statement made by potential, actual or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet." Nowadays, eWOM is an important communication channel and encourages people to share their knowledge and opinions. Four types of motives drive customers to participate online; self-involvement, customer empowerment, new social involvement, and site administration. These motives influence communication behavior and purchasing decisions (Khammash & Griffiths, 2010). Research by Brown and Reingen (1987) also shows that traditional WOM shaped customer attitudes and behaviors.

Trusov, Buckin, and Pauwels (2009) also conducted a feasibility study for eWOM marketing compared with traditional marketing. The study shows that eWOM marketing was substantially more effective than traditional marketing actions in both the short term and the long term.

eWOM is a more credible source of information than other types of media such as advertising and newspapers. Information gathered from customers' experiences with products or services is more reliable than other channels of information. Several researchers have studied eWOM in sales and marketing. A case study of eWOM at CIAO.com was conducted to determine customers' motives and behavior on online opinion platforms (Khammash & Griffiths, 2010). The study revealed that both positive and negative eWOM strongly impact buying behavior by reducing the time and risk when customers decide to buy. A unique difference was revealed depending on the role of the communicators; customers relied on non-expert opinion for positive information but looked for unique customer experiences for negative eWOM. Meanwhile, in customer-employee relationships, positive eWOM enhances customer trust. Research shows that customer trust increases through communication with a specific employee, with positive communication increasing with three interpersonal characteristics: connection, care, and

familiarity (Gremler, Gwinner, & Brown, 2001).

Online reviews do not always affect revenue. Duan, Gu, and Whinston (2008) showed that user rating reviews have no significant role in driving revenue. Nevertheless, sales are influenced by the amount of online messages that recommend a product or service.

Customer personality influences the relationship between eWOM and shopping websites. Chen (2011) reviewed the attitudes of introverted and extroverted customers as expressed through eWOM: Extroverted customers are early adopter types who easily accept new products or services. They are willing to communicate with others and influence them to make a purchase. Introverted customers behave in the opposite manner because they are follower types.

As previous research demonstrates, eWOM communication plays an important role in sales and marketing. Viral marketing via eWOM is a popular marketing communication tool that can rapidly spread a message with a single posting. Messages are spread among online communities where market analysts examine indicators to forecast product sales. eWOM also contains highly useful information about customers. In addition, it plays a role in other fields such as new product development and academia.

Consequences of electronic word-of-mouth

Most research analyzes eWOM in units of message (Cheung & Thadani, 2010). An eWOM message consists of precious customer information such as personal data, attitudes, satisfaction, opinions, and behavior. The present study reviews the literature in terms of eWOM analysis and eWOM retrieval.

Analysis of eWOM comprises eWOM itself and the impact of eWOM on environments. Bajenaru (2010) showed several factors that influence eWOM including strength of ties, demographic similarity, trust, perceptual affinity, and perceived value. The high level of these factors

generates positive eWOM that affects people's awareness. Svensson (2011) interviewed Facebook users to find out how eWOM influenced customers. He found that Facebook was an ideal communication channel for eWOM. It increases the desire for information from everyone in the network. Facebook eWOM serves as news from users, allowing people in a network to get to know each other more than in their real-world daily lives. Increased familiarity further influences users to interact with eWOM communication. Lindholm, Kaptein, and Parvinen (2012) explored the connection between online consumption and the community. They found that customers trade off their actual consumption with online community activities. In summary, eWOM messages provide valuable information to understand customer behavior. It would be beneficial to explore customer information from eWOM to discover key elements for clarifying customer needs.

Another field to explore eWOM messages is information retrieval. Online information retrieval requires specific searching and gathering instruments because there are many types of information. Prior research has created various instruments and methods to analyze this information. Park and Kim (2008) investigated online customer reviews with an elaborate likelihood model to examine the level of customer expertise and how it effects eWOM processing. The results show that experts focus on the quality of reviews while novices focus on the quantity of reviews.

Chen (2009) gauged effective text and data mining to analyze complaint forums on consumer report websites. Li and Du (2011) have developed an information retrieval system named BARR for retrieving eWOM from online social blogs to generate a recommendation system, identify topics, and determine marketing strategies. Sung et al. (2011) analyzed hotel customers' comments on web blogs with text mining and revealed useful information concerning customer opinions, perceptions, and experiences that hotels can apply to

future improvements.

This study aims to establish the relationship between eWOM and new product development by designing a qualitative research instrument for discovering keywords from eWOM to use for idea generation in the development of new products. A highly relevant technique was developed by Li and Du (2011). They developed a unique algorithm and framework specific to online social blogs. Their study serves as a guideline for developing an instrument to retrieve eWOM information.

New product development

The success of new product development (NPD) depends on how effectively new products meet the unmet needs of customers. NPD teams create values to raise satisfaction and acceptance that lead to the purchase of their products. The most important phase of the NPD process is called 'fuzzy front end' (FFE) or the pre-development phase (Cooper & Kleinschmidt, 1990; Smith & Remertsen, 1997; Verworn & Herstatt, 2000; Koen et al., 2001). In this phase, developers sparsely research to make decisions for the next stage. The FFE process consists of idea generation, idea selection, concept definition, opportunity identification, and opportunity analysis. The process is non-linear; every step can be switched depending on development conditions. The FFE and NPD processes differ in many dimensions. The present research focuses on the nature of work and process. FFE relies on experimental "Eureka" moments while NPD is more goal oriented. The main activity of FFE research is minimizing risk. Conversely, NPD is mainly concerned with optimizing potential (Koen et al., 2001). The most effective methods, tools, and techniques recommended by Koen et al. include the "ability to execute the strategy or plan effectively and quickly when the environment changes." The present study fine tunes prior methods and techniques to gain productive information for idea generation in the FFE stage.

Information concerning the needs of

customers is essential for generating ideas during FFE. Traditional techniques for gathering data include questionnaires, interviews, focus group discussions, and observation. Questionnaires are economical but lack the richness of data compared to other instruments. Interviews, focus group discussions, and observation yield valuable data but are costly and difficult to conduct without the aid of skilled researchers. Observation enables the extraction of hidden or uncomfortable information. All of these traditional instruments are time consuming and expensive. Effective techniques must be concerned with the number of respondents, directly gain data from the target group, and contain valuable data for analysis. Online data collection has become a popular research method that is accessible and economical. It is important to develop new techniques for gathering online data. In this study of eWOM, emphasis is on gaining rich data, covering a substantial number of respondents, plus overcoming time and cost considerations.

The relationship between eWOM and NPD

Based on literature reviews of eWOM and NPD, customer information is specifically related between eWOM and NPD during the FFE stage. eWOM contains rich customer data which is the key element for developing new products. Light Minds (2005) wrote that three elements required to meet customer needs are desirability, purpose, and positive customer experience. Therefore, the new product must be desirable, have a useful purpose, and provide customer satisfaction. Kraft, Rogers, and Ishmael (2007) have developed a method for measuring the worthiness of new products that involves four steps: minded innovation, concept screening, concept evaluation, and market tracking. These steps were examined with sample clients and yielded a very optimistic response to a new product launch. Liu et al. (2010) examined eWOM for different stages of the new product lifecycle. They found that the number of eWOM messages can be used to predict the success of a product at all stages

of the lifecycle. They also found that the number of sentences in eWOM is significant. Numerous researches above have confirmed that customer information is highly meaningful to new product success. Therefore, it is necessary to discover useful information from eWOM messages to promote NPD effectively.

Discovering keywords

To develop a novel approach to discover valuable keywords from eWOM, suitable techniques must match the data source. The present study reveals natural language processing together with information retrieval as the most suitable techniques for Thai language eWOM. The discovery process comprises collecting eWOM messages, summarizing messages, dividing messages into threads, and developing specific techniques to discover keywords.

The most important step involves the techniques used to discover keywords, for which this study develops a unique technique. A considerable concern in this step is the method used to calculate the weight of significant words in eWOM. The standard method for measuring the weight of a term found in messages is called “term frequency inverse document frequency” (TFIDF) which measures the importance of each term based on its frequency. TFIDF has been used for measuring text weight for various purposes such as studying hierarchical relations (Saito & Yukawa, 2010) and tracking literature on the web (Bollacker, Lawrence, & Giles, 2007). The present study employs a novel technique based on TFIDF named “Modified-TFIDF” (M-TFIDF) which will be explored in upcoming research.

The scope of the present study is to establish keywords for each eWOM topic. Most of the data is in the Thai language, which is a tonal and analytic language. Thai is written without word boundaries, causing numerous difficulties in Thai language processing. Thai sentence structure does not have definite ending points such as the full stop (.) in

English and other Western languages. The word order is subject-verb-object, although the subject is often omitted. Particles are often untranslatable words added to the end of a sentence to indicate respect, a request, encouragement, or to vary the level of formality. Although particles are not usually used in written Thai, eWOM is written informally and includes many “spoken” particles. The Thai language challenges researchers to develop unique techniques for extracting core keywords from eWOM.

A proper framework needs to be designed to handle the special characteristics of Thai eWOM. Aciar, Zhang, Simoff, and Debenham (2006) created a text mining approach to control vocabulary and its relationship to consumer reviews. To serve marketing research, Nagano, Inaba, Mizoguchi, Iida, and Kawamura (2008) generated an eWOM Scouter for illustrated analysis of customer opinions. The method applies product terms from web blogs into natural language. More recently, Li and Du (2011) have identified opinion leader recommendations in online social blogs as part of their BARR developing instrument.

In conclusion, discovering keywords from Thai eWOM must employ specific methods and processes to fulfill the research objective of finding information on customers’ needs from eWOM. This will reveal the relationship between eWOM and NPD for use as a marketing research tool for generating ideas in the product development process.

METHODOLOGY

This research selected the ready-to-eat food business in Thailand as a case study for two key issues; the market opportunities and eWOM category ranking. First, the food business’ growth rate in Thailand has continuously increased over the past ten years. The growth rate of the ready-to-eat food market reached 12 percent in 2011. The selected company for this study—Charoen Pokphand Food (CPF), the world’s third biggest

food producer and the leading food producer in Thailand—states that CPF sales will increase 50 percent from 2011 (CPF, 2012). Hence, ready-to-eat food has strong potential to expand to new market segments and it is vital to develop new products to serve this new market. Second, food is the most mentioned category on eWOM; 80 percent of eWOM conversations are about food and dining (Keller Fay Group, 2006; Keller, Fay, & Berry, 2007). Therefore, gathering information on customers' needs from eWOM is viable in the outlining of NPD.

In order to gain insights and opinions for the relationship of eWOM and NPD, a literature review, in-depth interviews, and focus group discussion were used to identify eWOM characteristics and the NPD brief to determine their relationship. Qualitative research using semi-structured interviews was chosen to collect data to explore the relation and applying eWOM to NPD to lead to significant research finding (Saunders, Lewis, & Thornhill, 2000). To obtain a complete picture based on all the information, the interviewees were selected by replicating the in-depth interview guideline from the Boyce and Neale (2006) study that considered a sample that best represents the diverse stakeholders and opinions of those stakeholders to provide the complete information. Ten in-depth interviews were conducted to gain important information for qualitative research (Griffin & Hauser, 1993). A focus group discussion with selected target users from concerned NPD functions of CPF was proposed to support and confirm data gathering with in-depth interviews. Each semi-structured in-depth interview took 90–120 minutes and the focus group discussion took 150 minutes.

This research has investigated the relevant aspects to answer the question “What is the relationship between eWOM and NPD?”. The framework factors derived from the literature review and prior research were gathered and divided into

two portions: the NPD process and eWOM information. The NPD process consists of FFE, developing and testing, and product launching. eWOM information is analyzed by content analysis to describe a phenomenon—in this case, the relationship between eWOM and NPD. The semi-structured, in-depth interviews plus the focus group contained questions to determine the existing pattern of NPD of each interviewee and the role of eWOM in their NPD processes. The parameters and unit of analysis were as follows:

1. NPD processes: procedures and steps.
2. Source of NPD data: what and how to gather data for NPD.
3. Role of customer data: importance of customer data in NPD processes.
4. eWOM uses: how to use eWOM for NPD.
5. Achievement: key performance for NPD achievement.
6. User requirements: main characteristics of instrument to be developed.

To analyze the information, the primary data were collected through interviews and the focus group. Open-ended questions were used to establish the parameters. The pattern-matching technique was used for comparing an empirically-based pattern with the predicted pattern (Yin, 2003) in the relationship between eWOM and NPD. If the patterns coincide, the results strengthen the internal validity of a case study (Yin, 2003). The analysis started with summarizing data from the in-depth interviews and the focus group; the data were separated and collected into units of analysis. The data patterns based on familiarity were analyzed by units of analysis. Finally, the relationships between eWOM and NPD were identified based on their concurrence. This technique is beneficial for gaining direct information from study participants without imposing preconceived categories or theoretical perspectives on them (Hsieh & Shannon, 2005).

RESULTS AND DISCUSSION

The results of the in-depth interviews and focus group discussion indicated two key issues: the eWOM and NPD relationship and the user requirements.

1) eWOM and NPD relationship

The interviewees agreed that eWOM could be a primary tool for NPD. A new and more effective tool to replace traditional instruments is desirable especially before a new product launch. eWOM messages represented the facts about product reviews and a customer's evaluation of product quality. Moreover, eWOM can predict new product sales. In summary, the gathered data from both in-depth interviews and the focus group about eWOM characteristics and messages were analyzed to identify information on customers' needs as follows:

Product evaluation: The most mentioned eWOM online conversations were the product judgments by experienced customers; this information is highly useful for product developers to understand the real information on customers' needs. Most interviewees had experience at searching a customer's data from online sources and agreed that online conversation can represent the customer's information.

Customer satisfaction: There were two main views of eWOM—one positive and the other negative. Both are meaningful to the product

developer as they can be used to evaluate the launched product and can generate ideas for new products. A few interviewees commented that negative eWOM gave more information and influence to other customers than positive eWOM.

Customer references: eWOM was referred to as customer background that can be marketing information about the target group. The interviewees need to track back the customer's information to identify gender, age, demography, career, etc. to set their target customer.

This research has focused on the FFE stage in the NPD process. Traditional NPD processes include the pre-development stage (FFE), the developing and testing stage, and the product launching stage (Cooper, 1994; Koen et al., 2001; Ulrich & Eppinger, 2004). Pre-development is the first stage to consider for a new product decision that is highly related to the success of NPD. The value of finding the real information on customers' needs will bring about the new product success (Cooper & Kleinschmidt, 1990; Cooper, 2005; Ogawa & Piller, 2006).

Following the results, eWOM messages were related to some of NPD process such as FFE and the product launching stage. eWOM represented the real customers' information from their daily-life conversations. This study attempts to answer the research question of whether eWOM can be used by an NPD developer to generate new ideas for the NPD process. The relationship of eWOM and NPD is presented in Figure 1.

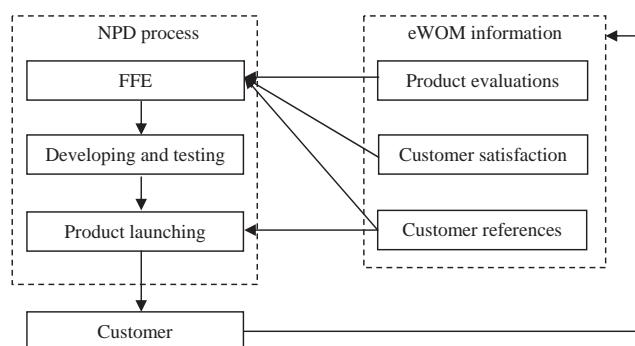


Figure 1 Relationship between eWOM and NPD

2) User requirements

There were two main requirements from the users: the usefulness of the tool and the ease of use. The usefulness was perceived by the relevance of the tool's output; when the user input questions into the tool, the answer should be complete and relevant to the topic of interest. Most importantly, the worthiness of the tool is the brief of the creative ideas for the new product development it can generate. The ease of use was the user friendliness, real time response, and backward tracking to the source of data. This information is used for a basic guideline to design and develop the tool's features and function.

From the results, a key concern about the relationship between eWOM and NPD is how to apply eWOM information in NPD processes. eWOM information contains product evaluation, customer satisfaction, and customer references. The findings conform to several previous research projects. For example, Khammash and Griffiths (2010) revealed that customer satisfaction from eWOM impacts the buying behavior of other customers. Chen (2011) found that customer personality influences the relationship between eWOM and shopping websites. The interviewees unanimously agreed that eWOM provides valuable data to understand customers' needs and behavior. Most of the interviewees had experience at using eWOM information to find customers' opinions and information for generating ideas to develop new products. Similarly, a study by Light Minds (2005) shows that three elements: desirability, purpose, and positive customer experience, are required to meet customers' needs. For applying eWOM into NPD processes, the interviewees mostly used eWOM information during the first step of NPD processes —namely, FFE. This step consists of idea generation, idea selection, concept definition, opportunity identification, and opportunity analysis. Some interviewees used eWOM information, such as customer references, to establish the target group during product launching. Kraft et al. (2007) also

utilized eWOM for measuring the value of new products following similar steps; minded innovation, concept screening, concept evaluation, and market tracking. To gather the essential requirements for developing the instrument, questions concerning user requirements were conducted. User requirements were concluded by reference to two main components of the technology acceptance model (Davis, 1989): usefulness and ease of use. Thus, user requirements from interviewees were summarized and separated into these two components to establish the features of the instrument.

CONCEPTUAL FRAMEWORK

This research proposes a conceptual framework for presenting key issues for the relationship between eWOM and NPD. This helps product developers when making new product decisions. The research framework in Figure 2 consists of the NPD process and the tool for discovering keywords. The NPD process begins with FFE, followed by developing, testing, and product launching. When users have NPD questions at any stage, they can input keywords to produce the outcome from this tool for discovering keywords. This tool finds relevant eWOM based on its language paradigm; it divides eWOM into threads, selects relevant threads, calculates with M-TFIDF, and yields the keywords for NPD.

CONCLUSION

The relationship between eWOM and NPD shows that eWOM information directly concerns NPD processes. eWOM contains valuable information about customers such as their opinions, about product evaluation, or their satisfaction. This input information is very important to an NPD team to generate ideas for developing new products. The results from interviews and focus groups point out

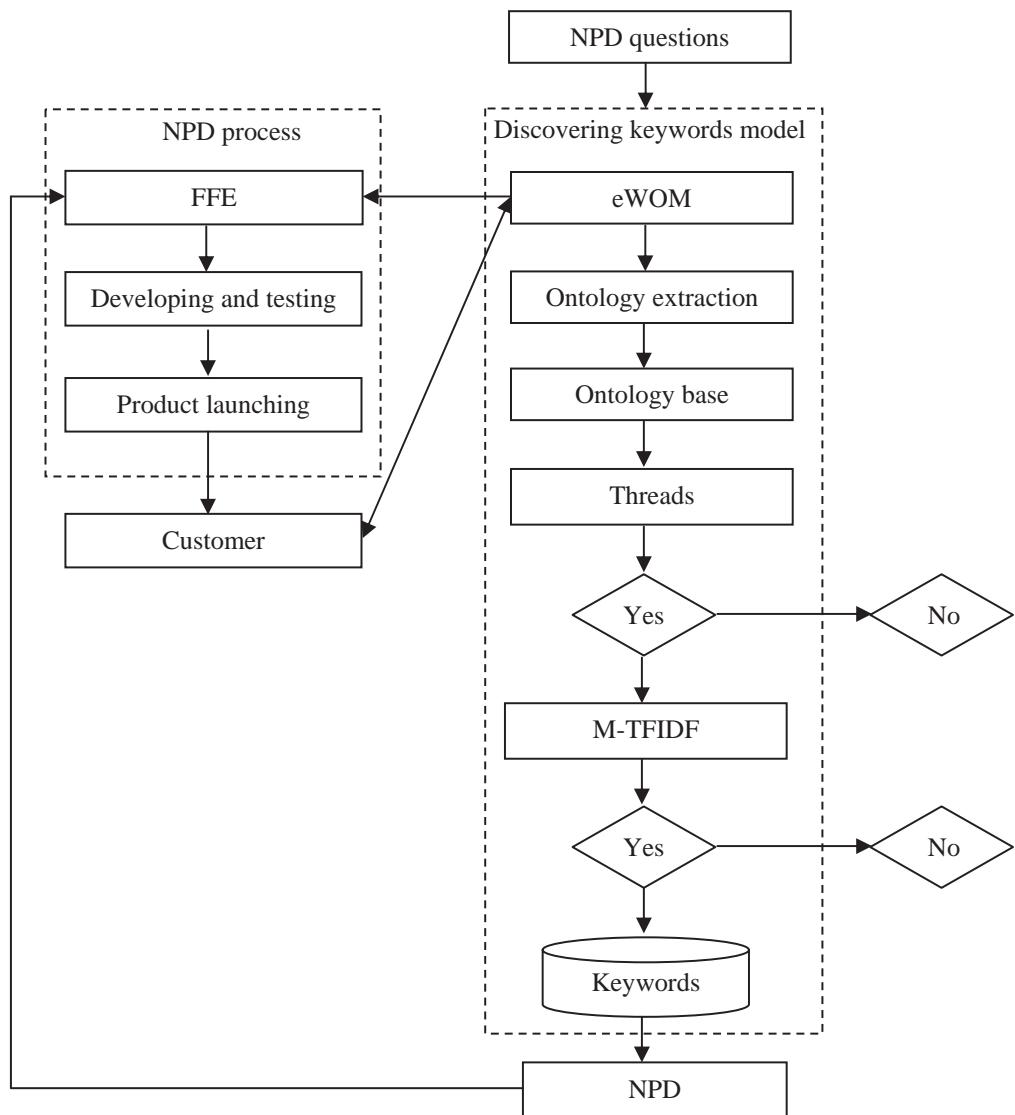


Figure 2 Discovering keywords from eWOM framework

that existing NPD processes regularly use eWOM information through traditional methods but take much more time and are budget consuming. Researchers analyzed how to develop the data gathering instrument from eWOM and by imparting the strengths of all relevant instruments. The limitation of time and budget consumption of each instrument will be eliminated.

This study proposed a framework for a research instrument. eWOM can be used as an open source to gather and detect customer needs to assist the development of new products. Researchers have developed this instrument as an electronic alternative for searching for information relating to customer behavior—in this case, eWOM in Thailand. The develop instrument will help users

follow up customers' behavior, opinions, and preferences regarding products and services. An instrument for searching customers' needs for specific products such as food products has not yet been developed. Significantly, users can use acquired keywords as the basis for the new product development process and for enhancement of business competitiveness.

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