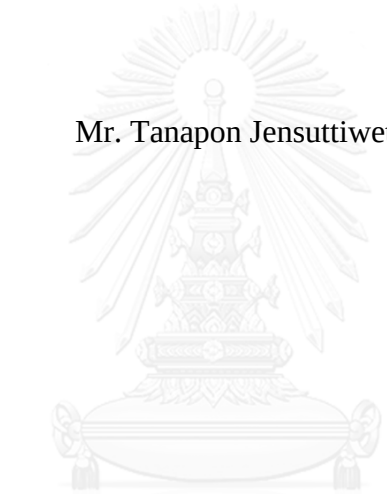
CREATING SOCIAL VALUE: THE EFFECTS OF INTERNET SOCIAL CAPABILITY, BRAND STATUS AND SOCIAL VISIBILITY

Mr. Tanapon Jensuttiwetchakul



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การสร้างมูลค่าทางสังคม: ผลของความสามารถทางสังคมของอินเตอร์เน็ต, สถานะตราสินค้าและการมองเห็นในสังคม

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรดุษฎีบัณฑิต
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By	Mr. Tanapon Jensuttiwetchakul
Field of Study	Information Technology in Business
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มูลค่าของสินค้าคือสิ่งที่สามารถอธิบายการเลือกใช้สินค้าของผู้บริโภคในภาวะเศรษฐกิจที่มีการแข่งขันกัน โดยมูลค่าของสินค้านี้ได้ถูกแบ่งออกเป็น 5 ด้าน ในงานวิจัยด้านการยอมรับการใช้เทคโนโลยีสารสนเทศ มีเพียงบางด้านของมูลค่าเหล่านี้เท่านั้นที่ได้รับการศึกษา มูลค่าทางสังคมยังคงเป็นส่วนที่ได้รับการศึกษาไม่มากนัก อย่างไรก็ตามการเพิ่มความสามารถทางสังคมผ่านอินเตอร์เน็ตเข้าไปในสินค้าหลายประเภทส่งผลให้มูลค่าทางสังคมของสินค้ามีความน่าสนใจมากขึ้น ประกอบกับในอดีตมูลค่าได้รับการศึกษาผ่านมุมมองของตราสินค้าเพียงอย่างเดียวเท่านั้น จุดประสงค์ของงานวิจัยนี้คือการเสนอทฤษฎีที่มีการรวมเอาตราสินค้าและความสามารถทางสังคมผ่านอินเตอร์เน็ตเข้าด้วยกัน ในการตอบจุดประสงค์ข้างต้นงานวิจัยนี้จึงได้เสนอและทดสอบสมมติฐานนี้ในสินค้าด้านเทคโนโลยีสารสนเทศหลายชนิด

แบบสอบถามออนไลน์ถูกนำมาใช้เพื่อเก็บข้อมูลในการทดสอบสมมติฐาน นักศึกษา 656 คนจากมหาวิทยาลัยชั้นนำสองแห่งในประเทศไทยได้ตอบแบบสอบถาม ข้อมูลที่รวบรวมได้ถูกนำไปวิเคราะห์ผ่านแบบจำลองสมการโครงสร้าง 3 แบบจำลองเพื่อตอบสมมติฐานงานวิจัย ผลที่ได้ชี้ให้เห็นว่าความสามารถทางสังคมผ่านอินเตอร์เน็ตและตราสินค้ามีส่วนสำคัญในการสร้างมูลค่าทางสังคม โดยตราสินค้ายังคงมีส่วนในการอธิบายมากกว่า นอกจากนั้นผลที่ได้นี้ไม่พบข้อแตกต่างอย่างมีนัยสำคัญสำหรับสินค้าด้านเทคโนโลยีสารสนเทศต่างชนิดกัน สิ่งที่ค้นพบนี้มีความสำคัญต่อทั้งเชิงวิชาการและเชิงปฏิบัติ ในเชิงวิชาการการศึกษานี้ขยายการศึกษาเกี่ยวกับมูลค่าทางสังคมในงานวิจัยด้านการยอมรับการใช้เทคโนโลยีสารสนเทศ โดยได้เสนอกรอบแนวคิดที่รวมเอาความสามารถทางสังคมผ่านอินเตอร์เน็ตเข้ากับตราสินค้า สำหรับเชิงปฏิบัตินั้นผลที่ได้ชี้ให้เห็นว่าตราสินค้ายังคงมีความสำคัญอย่างมากในการสร้างมูลค่าทางสังคม อย่างไรก็ตามองค์กรสามารถเพิ่มมูลค่าทางสังคมของสินค้าได้อย่างมีประสิทธิผลโดยการเพิ่มความสามารถทางสังคมของอินเตอร์เน็ตเข้าไปในสินค้า

สาขาวิชา เทคโนโลยีสารสนเทศทางธุรกิจ ลายมือชื่อนิสิต .....

ปีการศึกษา 2558 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

5383164626 : MAJOR INFORMATION TECHNOLOGY IN BUSINESS
KEYWORDS: SOCIAL VALUE / SMART DEVICES / INTERNET SOCIAL CAPABILITY / CONSUMER-PERCEIVED VALUE

TANAPON JENSUTTIWETCHAKUL: CREATING SOCIAL VALUE: THE EFFECTS OF INTERNET SOCIAL CAPABILITY, BRAND STATUS AND SOCIAL VISIBILITY. ADVISOR: ASST. PROF. BURAJ PATRAKOSOL, Ph.D., 104 pp.

The product's value is what explains its adoption in a competitive economy. This value is theoretically partition into five smaller values. In information technology adoption study, some of these values have received more attention than others. Social value is one of the lesser ones. However, the invention and the expansion of Internet social capability in products have changed the momentum of the social value. The value has traditionally been studied through the lens of branding. The objective of this study is to propose a theoretical integration between Internet social capability and branding. In doing so, this study proposes a set of hypotheses elucidating sources of social value across various types of IT-oriented artifacts based on the Internet social capability and branding.

An online survey with well-designed instrument was conducted to test the hypotheses. A total of 656 students from two leading universities in Thailand participated in the survey. The collected data was fed into three structural models to ascertain the validity and reliability of the hypotheses. The results indicate that Internet social capability and brand are important in explaining the social value, with brand taking the leading position. Furthermore, their importance does not vary across the types of IT-oriented artifacts. This sets a precedence for both academics and practitioners. For academics, this study broadens the study of social value in IT adoption. It provides an integration framework of Internet social capability and branding. For practitioner, these results show that branding of the product is still very much relevant in creating social value. Furthermore, organizations can effectively increase social value by incorporating Internet social capability into their products.

Field of Study: Information Technology in Business Student's Signature .....
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Introduction

1.1 Introduction

Consumption value theory explains five values affecting consumers' product adoption's decision making (Sheth, Newman, & Gross, 1991). First, functional value reflects quality and performance of the product. Social value expresses competency of a product to heighten consumers' social self-concept. Third, emotional value is involved with products' capability to induce affective states of the consumer. Epistemic value is the product's ability to stimulate curiosity or novelty-feeling for the consumer. Finally, situational value expresses the capability of a product to generate contingency benefits when the product is utilized in a particular situation.

These consumer values play important roles in creating and sustaining competitive advantage for organization. Woodruff (1997) argued that inward oriented strategy (i.e., quality management, internal process restructure) is not enough to sustain competitive advantage. Outward oriented strategy (i.e., consumer value delivery) is needed and gaining recognitions by the fact that the strategy can create competitive advantage by matching customers' need with product values (Woodruff, 1997; Zeithaml, 1988). Hence, sources of these values are strategically important.

In the area of information technology, the sources of each value have been separately explored in various streams. First, sources of functional value have been studied through the lens of the technology acceptance model (TAM). TAM argues that a consumer makes the decision to adopt an technology based on its performance which is partitioned into perceived ease and perceived usefulness (Davis, 1989). Sources of epistemic value have been studied through the lens of innovation diffusion theory. This theory suggested characteristics of a product influencing consumer to adopt an innovated IT artifact (Rogers, 1995). Sources of emotional value have been studied through the lens of hedonic consumption. Hedonic consumption argued that perceived enjoyment is the major source of affective states and, thus, induces emotion. (Van der Heijden, 2004). Source of situational value has not been recognized in the area of information technology (Jillian C. Sweeney & Soutar, 2001).

Last and the locus of this study, sources of social value, which is the focus of this study, have been studied through the lens of computer-mediated communication (Ahn, 2012; Ellison, Steinfield, & Lampe, 2007). This value has generally been studied in term of social relationship support. Interpersonal communication is the main mechanism for creating the social relationship (Ahn, 2012; Ellison et al., 2007). However, these studies reflect only one dimension of social value (Kim, Gupta, & Koh, 2011).

The other dimension is social self-image expression. It rests on studies in the field of Marketing and is primary studied through the lens of luxury consumption (Husic & Cicic, 2009). Luxurious consumption argues that brand is the major source of social self-image expression because it postulates an image of the product owner in the eyes of others. Brand has been showed to have positive relationship with social value in various traditional products. Shukla (2008) illustrated that brand plays an important role in automobiles. Eastman and Goldsmith (1999) show the relationship in clothing, personal care, and electronics.

Both dimensions of social value have separately established in both IT and Marketing fields. However, this separation is about to change. The internet of things is a new form of IT artifacts where Internet capability is integrated into traditional products making these products IT-related artifacts. Furthermore, Internet social platforms are mature. In past decades, the social communication through Internet gained important recognitions from users. A report by PEW Internet & American Life found that the number of adult users who used social networking platforms grow from 8% in 2005 to 76% in 2015. The platforms have increasingly been integrated into IT-related artifacts and this integration gives the Internet social capability to the artifacts.

The arrival of the Internet of things challenges the traditional investigation paradigms of social value. IT artifacts have move beyond computing centric nature to non-computing one. Cross-fertilization between the field of Information Technology and Marketing is the opportunity. The separation is no longer necessity but choice. This study chooses to simultaneously take both dimensions into account and post research direction.

To provide a theoretical framework for the integration effects of brand and Internet social capability on social value and investigate the effects across various types IT-related artifacts.

1.2 Research Questions

To fulfill the direction, two research questions are posted.

RQ 1: Does brand status affect social value in the context of IT-related artifacts?

RQ 2: Does Internet social capability affect the social value in the context of IT-related artifacts?

A total of four hypotheses are formulated to address the research questions. Four constructs are at the center of interest: Internet social capability, brand status, social visibility, and social value.

1.3 Methodology

This study developed a double-translated 29-items instrument to capture variance of the four constructs. Sixteen products were selected to represent a wide range of phenomenon associated with the research questions. Each product received tailor-fit with the instrument. Hence, there were sixteen different sets of instrument. To deploy these sets, this study utilized online questionnaire. Participants were students in two leading Thai university. A convenience sampling was used.

The four hypotheses are best handled by a series of structural equation models. First, confirmatory factor analysis was conducted to ascertain the reliability and validity of the instrument. Items loading and average variance extracted (AVE) were used for testing convergent validity, while pairwise discriminant analysis was used to test for discriminant validity. Construct reliability was determined by composite reliability (CR). Last, research hypotheses were investigated through path analysis.

1.4 Dissertation Outline

This study consists of five chapters. The first chapter provides the brief research background, research questions, and brief research methodology. Chapter 2 illustrates the theoretical background, research hypotheses, and the study model. Related research areas are first discussed. Six theories are further explained, and are adopted as theoretical foundation. Later, four research hypotheses are developed. Finally, the research hypotheses are illustrated in the study model.

Chapter 3 describes the instruments and research methodology. The measurement items are adopted from the related literature, and slightly modified to fit the study context. Later, research methodology is explained. Sample size, sampling method, and statistical analysis are illustrated, consecutively.

Chapter 4 discusses the findings from statistical analysis. The measurement items are investigated for univariate normality. Reliability and validity of a construct are examined through confirmatory factor analysis. Research hypotheses are verified by path analysis in structural equation modeling.

Chapter 5 summarizes this research. The statistical conclusions are discussed in related with the research questions. Later, the implications for academics and practitioners are described. Lastly, limitations and future research directions are provided.

Chapter 2
Research Areas, Theoretical Foundation, and Hypotheses

2.1 Chapter Outline

This chapter has four objectives. First, research areas related to this study are elucidated. They are: (1) Consumer perceived value; (2) Luxury consumption; (3) Computer-mediated communication; and (4) Internet of Things. Second, relevant theoretical basis relevant to the research areas are discussed. Third, this chapter proposed hypothesis based on the theoretical foundation. the final objective is to layout research model necessity to address the hypotheses. These four objectives are discussed respectively below.

2.2 Related Research Areas

2.2.1 Consumer Perceived Value

Consumer perceived value is a research area that emphasizes on value in product transferred to consumers. It is increasingly recognized by organizations as an important factor in strategic management (Mizik & Jacobson, 2003; Spiteri & Dion, 2004). Wang, Po Lo, Chi, and Yang (2004) argued that creating value for the customer has become a strategic imperative in building and maintaining a competitive advantage.

According to Sánchez-Fernández and Iniesta-Bonillo (2007), research on consumer perceived value can be divided into two major views: (1) One-dimensional value model; and (2) Multi-dimensional value model.

For the one-dimensional value model, perceived value is considered as one-dimensional construct that can be measured by a self-report item, or a set of items. The item(s) evaluate consumers' perception of value (e.g., Agarwal & Teas, 2002; Brady & Robertson, 1999; Dodds, 1991; Julian C Sweeney, Soutar, & Johnson, 1999). According this view, the concept of perceived value is derived from the utilitarian perspective. The expected economic utilizations and cognitive reasoning associate benefit and cost (Sánchez-Fernández & Iniesta-Bonillo, 2007). Value is expressed by the benefit. Examples of theories in this view are price-based studies (Monroe, 1990) and mean-end theory (Gutman, 1982).

The another view is the multi-dimensional value model. Value is considered as multi-dimensional construct which consists of numerous interrelated attributes. It can reflect the complexity of consumers' perception on value (e.g., Babin, Darden, & Griffin, 1994; Morris B. Holbrook, 1996; Sheth et al., 1991; Woodruff, 1997). Examples of studies in this perspective are the consumer value hierarchy (Woodruff,

1997), utilitarian and hedonic value (Babin et al., 1994), typology of consumer value (Morris B. Holbrook, 1996), and consumption value theory (Sheth et al., 1991).

This research follows the latter view because its comprehensiveness. The details of consumption value theory and social value are further explained in 2.3.1 and 2.3.1.2, respectively.

2.2.2 Luxury Consumption

Research on luxury consumption attempts to identify why consumers are willing to spend large amounts of money for luxury products. Luxury products or status products have been defined as "goods for which the simple use or display of a particular branded product brings esteem for the owner" (Grossman & Shapiro, 1986; Wiedmann, Hennigs, & Siebels, 2007).

There are five distinctive approaches concerning luxury consumption: (1) The Veblen effect; (2) The snob effect; (3) The bandwagon effect; (4) The hedonic effect; and (5) The perfectionist effect (Vigneron & Johnson, 1999). These five approaches were developed from different personal motivations.

First, the Veblen effect explained that the Veblen consumers purchase the luxury product because they need to display their wealth and power to others, and price is a good indicator of luxury (Vigneron & Johnson, 1999). Second, the snob effect described that the snob consumers does not concern only the price of the product, but also concern the number of its consumers. They aim to purchase only high price product with limited consumers to show their exclusivity (Leibenstein, 1950). Third, the bandwagon effects illustrated that the bandwagon consumers purchase the luxury product because they need to be perceived as a prestige group (Vigneron & Johnson, 1999). Fourth, the Hedonic effect explained that the hedonic consumers purchase the prestige product only to fulfill their own thought and feelings (Morris B Holbrook & Hirschman, 1982). Finally, the Perfectionism effect argued that the perfectionist consumers purchase the luxury product because of its superior quality (Rao & Monroe, 1989).

From the underlying motivation, it can summarize that in the Veblen, snob and bandwagon effects, consumers considered price as an important factor to display their prestige. Higher product's price indicates greater owner's prestige. In the hedonic and perfectionism effects, consumers prefer the pleasure obtained from using the luxury product to the price of the product.

The Veblen effect is adopted for further study. Furthermore, conspicuous consumption and status consumption which have basic foundation from this effect are further illustrated in 2.3.1.2.

2.2.3 Computer-Mediated Communication

Computer-mediated communication refers to "any human communication that occurs through the use of two or more electrical devices." It includes various formats of communication such as text-based communication, voice-based communication, or

video-based communication. Studies on computer-mediated communication can be found in various disciplines such as sociology, and psychology.

According to Oni (2013), computer-mediated communication studies can be divided into two main research streams: 1) Online interaction studies; and 2) Communication technology adoption.

In online interaction studies, researchers have emphasized on comparative studies between the context of computer-mediated communication and face-to-face communication (Oni, 2013). There are numerous theories existing in this research stream. For example, media richness theory (MRT) suggests that task performance is better when the richness of the media is matched with the task uncertainty. The theory further explains that performance of ambiguous task is better when using rich media. Face-to-face communication is considered the richest communication medium. Furthermore, social information processing (SIP) theory addresses the role of online communication to form impressions and to develop interpersonal relationships. Walther, Anderson, and Park (1994) indicated that when users have enough time to communicate in online channels, they can reach levels of impression and relational development comparable with face-to-face communication.

In communication technology adoption, researchers examine why people adopt or accept information and communication technology. There are various theories supporting this research stream. For example, the technology acceptance model (TAM) is used to identify key factors influencing users to adopt the information and communication technology (Davis, 1989). Furthermore, user and gratification theory has explained why and how people use entertainment media (Oni, 2013). The theory emphasizes on users' motivation and explains that the motivation is the important driver to increase behavioral intention to use a media, and is driven from needs or individual differences.

Recently, sociability is recognized as an important success factor for various computer-mediated communication systems (Gao, Dai, Fan, & Kang, 2010; Kreijns, Kirschner, Jochems, & van Buuren, 2007). This study adopts the concept of sociability and applies it to measure sociability of an IT artifact, called Internet social capability. Details of sociability and Internet social capability are explained in 2.3.2 and 2.3.2.2, respectively.

2.2.4 Internet of Things

Recently, the Internet of Things is an important research area examining how to create an environment for things to communicate with each other via the Internet. According to Atzori, Iera, and Morabito (2010), there are three major perspectives existing in research on the Internet of Things: (1) Things-oriented perspective; (2) Internet-oriented perspective; and (3) Semantic-oriented perspective. The perspectives are displayed in Figure 2.1.

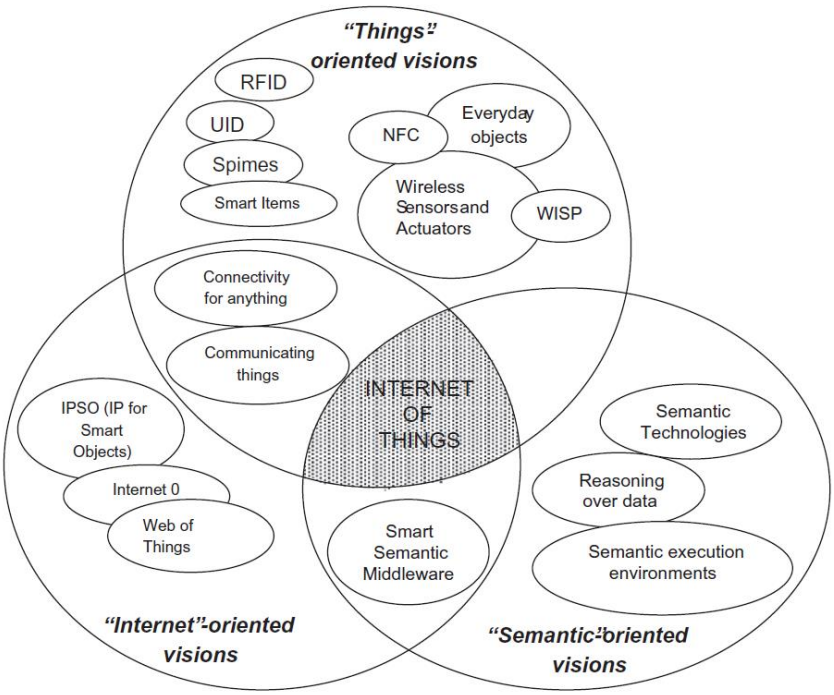

Figure 2.1: Perspectives of Internet of Things (Atzori et al., 2010)

The first perspective, things-oriented vision, examines how to enable devices to communicate with each other. Wireless communication equipment (i.e., RFID, NFC, and Wireless Sensors) takes an important role in this perspective (Presser & Gluhak, 2009). The equipment is necessary for generating or transferring data from one device to another device. It can enable a disruptive environment where any devices have a high degree of autonomous data capture, event transfer, network connectivity, and interoperability.

The second perspective, Internet-oriented vision, examines how to create Internet connection capability for any devices. IP protocol takes an important role to drive this perspective (Atzori et al., 2010). The new IP protocol is necessary for embedded devices that are run on small CPU and tiny battery (Dunkels & Vasseur, 2008). According to Atzori et al. (2010), IPSO and Internet Ø can now be applied for any objects and facilitate the objects to be addressable and reachable.

The third and last perspective, semantic-oriented vision, examines "how to represent, store, interconnect, search, and organize information generated by the Internet of Things" (Atzori et al., 2010, p. 2790). Semantic technology takes an important role to drive this perspective. The technology is effective in exploiting appropriate modeling solutions, reasoning over data, and sorting scalable data (Toma, Simperl, & Hench, 2009).

The objective of this research is to study the effect of social communication embedded in IT artifacts on consumer perceived value. This objective is relevant with the second perspective, Internet-oriented vision. However, this study does not emphasize on technical issue, but focuses on users' perception issue.

2.3 Theoretical Foundation

This study aims to provide a theoretical framework which can explain how brand and Internet social capability influence on social value, and investigate the effect in different types of IT-related artifact.

To achieve the research objective, seven relevant theories from three major research areas are selected as a basis to develop the theoretical framework. The three research areas consist of marketing research, Information system research, and psychology research. They play an important role to explain the integration effects of brand and Internet social capability in context of IT-related artifact.

Theories from marketing research can help to explain the effects of brand on social value in context of non-IT product (i.e., clothes). In contrast, theory from Information system research is capable of illustrating the effects of Internet social capability on social value in context of pure-IT product (i.e., social software). However, the context of IT-related artifact is different from the two. It not only remains basic usage of the non-IT product, but also adds ability of the pure-IT product. Theories derived from the two ends may not be enough to explain the relatively new phenomenon. Theories from psychology area are drawn to handle this situation. The importance of these research areas is elaborated in Figure 2.2.

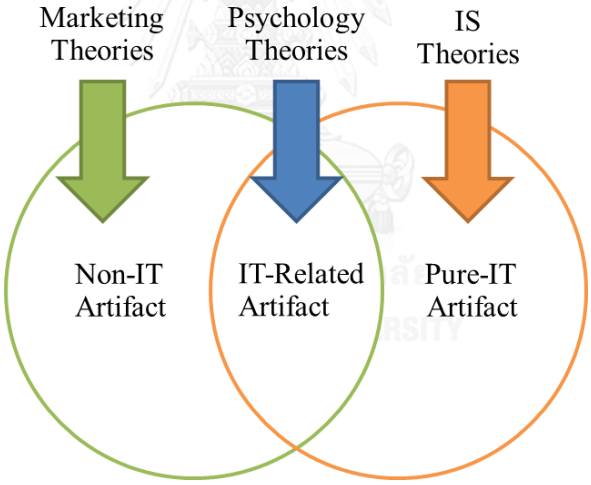

Figure 2.2: Theoretical Foundation

This study chooses seven theories relevant with this context to explain the integration effects of brand and Internet social capability on social value in context of IT-related artifact. The first three theories come from marketing research. They are adopted to explain the relationship between brand and social value. Moreover, a theory from information system research is adopted to explain the link between Internet social capability and social value. Finally, three psychological theories help to explain the integration effects of the brand and the Internet social capability in the context of IT-related artifacts. These theories are shown in Table 2.1, and further explained in 2.3.1 - 2.3.3.

Table 2.1: Selected Theories

Research Area	Selected Theories
Marketing	• Consumption Value Theory • Status Consumption Theory • Product Symbolism
Information System	• Sociability/ Computer-Mediated Communication
Psychology	• Self-presentation Theory • Signaling Theory • Social Capital

Before explaining the detail of the theories, the following paragraphs were developed to explain the relationship among the theories. These theories are combined to explain how IT-related artifact can affect a consumer's perception on a products' social value. The explanation divided into three levels: (1) product level; (2) individual level; and (3) relationship level. Two theories are adopted to explain at the product level. Another one is theory at the individual level. Finally, the other four are theories which can explain the relationship between the product level and the individual level.

At the product level, product symbolism and sociability are used to elaborate how different product attributes can create different human perception. Product symbolism is relevant to elucidate the brand perception, while sociability is pertinent to clarify the Internet social capability perception.

At the individual level, consumption value theory is adopted to explain how people evaluate the worth of a product. Before the evaluation happens, it is imperative for people to perceive the product attributes (i.e., brand). Furthermore, this study aims at social value that is highly related with social self-image expression and social relationship support. The brand symbolism is likely to have a direct influence on social self-image expression, while sociability tends to affect social relationship support.

However, in IT-related artifact context, both brand and Internet social capability tend to simultaneously appear at the eyes of consumers. The link between brand status and social relationship support, and the link between Internet social capability and social self-image expression need the explanation. The theories at relationship level take part to explain these links.

The relationship between the product level and the individual level can be explained by four theories. First, status consumption theory is adopted to explain the relationship between brand status and social self-image expression. Second, the relationship between brand status and social relationship support is elaborate through

costly signaling theory. Third, online self-presentation is used to elucidate the link between Internet social capability and social self-image expression. Lastly, social capital is used to explain how Internet social capability can support social relationship. The relationship of these theories in developing the research model is illustrated in Figure 2.3. The details of these theories are elaborated in the followings sections.

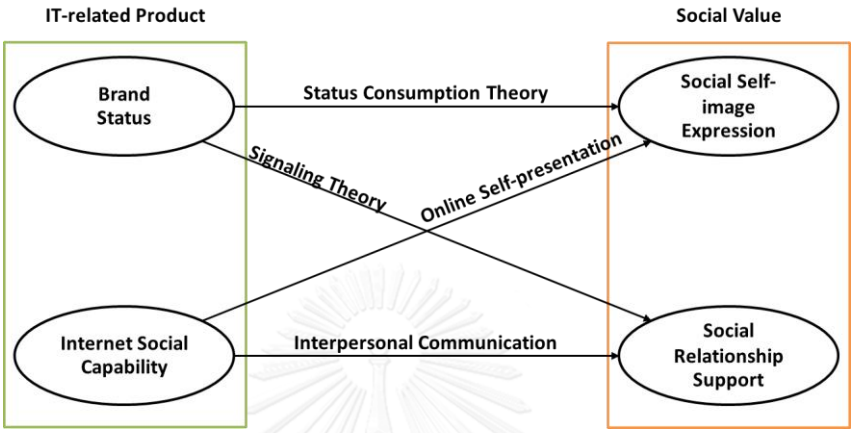

Figure 2.3: Relationship of the Theories

2.3.1 Theories from Marketing Research

This study adopts three theories from marketing research. They were used to explain two research constructs that are social value and brand status. Consumption value theory is the starting point of the social value. Status consumption and product symbolism are utilized to elaborate brand status.

2.3.1.1 Consumption Value Theory

Consumption value theory explains dimensions of value that influence a consumer buying decision (Sheth et al., 1991). This theory argued that there are five dimensional values existing in a product. These values are functional value, social value, emotional value, epistemic value and situational value. First, functional value is expressed in terms of quality and performance of the product. Second, social value represents capability of the product to enhance consumers' social self-concept. Third, emotional value takes into account products' ability to generate affective states for the consumer. Fourth, epistemic value is largely determined by product's capability to arouse curiosity or to evoke novelty-feeling in the consumer. Finally, situational value marks the importance of the capability to generate benefits when product is used in a particular situation. The concept of the consumption value theory is shown in Figure 2.4.

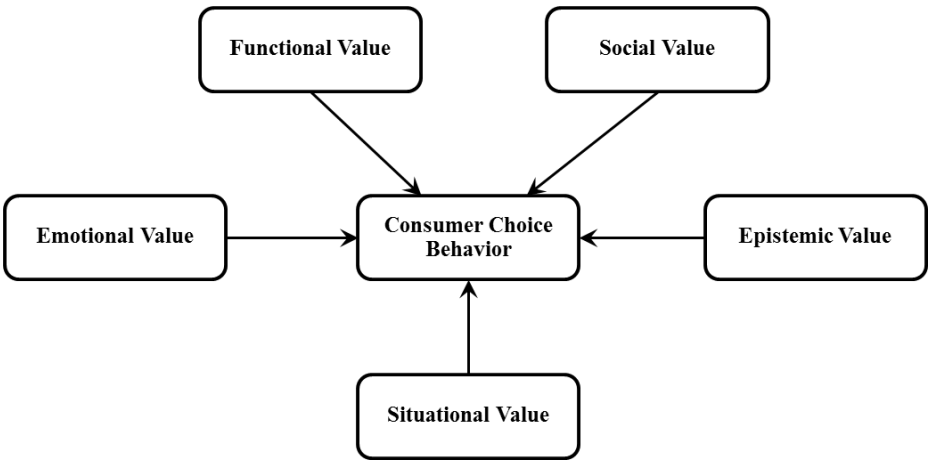

Figure 2.4: Five Consumption Values (Sheth et al., 1991)

An objective of this research is to provide a theoretical framework for the integration effect of brand and Internet social capability on social value in the context of IT-related artifact. The consumption value theory plays a key role in providing the explanation of social value. The social value is further described in 2.3.1.2.

2.3.1.2 Social Value

According to consumption value theory, social value is first defined as the utility of a product to associate users with some social groups (Sheth et al., 1991). Based on the definition, it implied that social value is involved with significant of others more than its functional performance. Later, researchers attempted to clarify the definition of social value as shown in Table 2.2.

Table 2.2: Previous Definitions of Social Value

Author(s)	Definitions of social value
W. Bearden and Netemeyer (1999)	Social value related to social approval and the enhancement of self-image among other individuals.
Jillian C. Sweeney and Soutar (2001)	Social value refers to the utility derived from the product's ability to enhance social self-concept.

The definition from Jillian C. Sweeney and Soutar (2001) is widely accepted from researchers, and their measurement scale is widely used in consumer value research. Turel, Serenko, and Bontis (2007) studied the effect of social value on users acceptance on wireless short message service. Sánchez, Callarisa, Rodríguez, and Moliner (2006) also adopted their instrument to measure social value in tourism product.

However, the definition of social self-concept from Jillian C. Sweeney and Soutar (2001) measures only social self-image expression. The measurement scale can

effectively capture the social value of non-IT artifact, but may not relevant with the context of IT-related artifact.

Recently, studies relating to the social self-concept have extended with another dimension, the social relationship support (Horowitz et al., 2006; Kim et al., 2011). This second dimension indicates the capability of product to enable its users to interact with other individuals. This two dimensional concept of social value is more suitable to capture the social value in context of IT-related artifact.

Thus, this study defines social vale as the ability of product to enhance consumers' social self-image expression and social relationship support.

2.3.1.3 Conspicuous Consumption and Status Consumption

Veblen (1899) first proposed the concept of conspicuous consumption in his famous book, *The Theory of the Leisure Class*. The concept was derived from his view on people as irrational actors who seek for social status and prestige in society more than their own happiness. Conspicuous consumption indicated that consumers in upper social class are willing to display their great wealth by simply spending much time in public places such as restaurant, engaging leisure activities, and spending much money to consume luxury goods and services (Trigg, 2001). Figure 2.5 displays the social class.

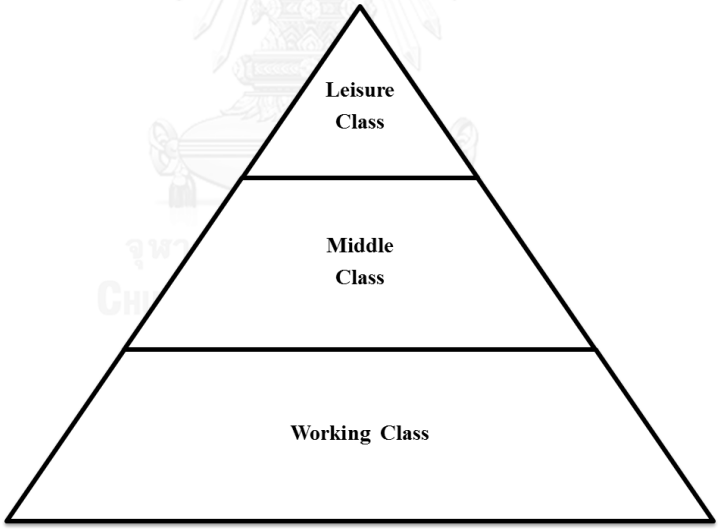

Figure 2.5: Social Class

Status consumption has basic foundation from the theory of conspicuous consumption. Conspicuous consumption is based on the evolution of a leisure class. Members of the class were not required to work, but are needed for surplus properties produced by the working class (Veblen, 1899). When society started to produce a surplus, the relationship between the number of private properties and status is increasingly important (Trigg, 2001). Thus, it became necessary for the members of the leisure class to collect properties in order to retain and display their social status. Based on the theory, Veblen (1899) indicated that there were two ways for an

individual to display wealth: 1) through extensive leisure activities; and 2) through lavish expenditure on consumption and services. However, he argued that display wealth through consumption of goods was more important than the display of the leisure.

Status consumption argues that people can acquire social status through product possession (Eastman & Goldsmith, 1999; Packard, 1959). It suggests that any products have some symbolic meanings (Levy, 1959) and people consume products to demonstrate a superior level of status both to themselves and to their friends (Packard, 1959). Moreover, Scitovsky (1992) extended that status consumption not only creates social recognition but also creates sense of belonging within social group.

This theory contributes to the context of this study by describing the relationship between status display and social self-image expression. The status display is further explained in the form of brand symbolism.

2.3.1.4 Product Symbolism

Symbolic interaction theory maintains that human is a social entity that communicate with each other via symbolic world (Aksan, Kısac, Aydın, & Demirbuken, 2009). For example, human can communicate to each other using languages and gesture. This theory is applied in consumer behavior studies under the name product symbolism (O'Cass & Frost, 2002). The product symbolism explained that any products possess some symbolic meanings (Levy, 1959). The meanings are important information sources including image and abstract idea for others to draw an inference about the products' owner (Russell W. Belk, 1978; Holman, 1980; Rosenfeld & Plax, 1977). Solomon (1983) exemplified that product cues can particularly provide information about an individual's social roles such as political, religious, and so on.

Furthermore, researchers also illustrated the importance of symbolic meanings of product to signal social status. Russell W Belk, Bahn, and Mayer (1982) explained that a product, which majority of individuals in society agreed that was specifically used by people in upper social class, possesses a symbol of status. Other people who acquired these kinds of product also gained the same recognition from the society as the people in upper social class. For example, gold are more expensive than stainless steel, so people who wear golden necklace were assumed by others that they have superior status to those who wear stainless necklace. Thus, gold acts as a symbolic status.

This theory contributes to the context of this study by elaborating how symbolic meanings of product can signal owner's social status. This explanation aids better understanding of the relationship between brand and brand status.

2.3.1.5 Brand Status

According to status consumption theory, peoples can display their preferred social status through collecting valuables. For example, wealthy persons can express their wealth by collecting precious materials such as gold or diamond.

Recently, the concept has been extended to other products through the lens of brand symbolism (Miller & Mills, 2012). It is the concept where brands, trademarks, logos, and names appearing on products associate their consumers with preferred social status (Levy, 1959; Packard, 1959). The association is communicated by the price and quality of the products. For example, individuals who are able to acquire above normal price and superior quality products are presumed by others to have association with higher social status.

However, the perception on the price and quality of a product or a brand is different among individuals. To capture the different perception, O'Cass and Frost (2002) presented the term brand status. They further defined brand status as consumer's perception on the quality, prestige, price of a brand and its capability to act as a status or success symbol (O'Cass & Choy, 2008). Luxury brand have higher brand status than commodity brand. Acquiring a product with high brand status is signaling the preference for high social status (Van Kempen, 2004).

This study borrows the definition from O'Cass and Choy (2008) and define brand status as the perception on the quality, prestige, price of a brand and its capability to act as a status or success symbol.

2.3.2 Theory from IS Research

This study adopts sociability from information system research to explain Internet social capability.

2.3.2.1 Sociability

Kreijns, Kirschner, and Jochems (2002) first proposed the concept of sociability. They further defined sociability as "the extent that the environment is perceived to be able to facilitate the emergence of a sound social space (Kreijns, Kirschner, Jochems, & Van Buuren, 2004, p. 157)." The sound social space can enable users to gain numerous social benefits such as respect and belongings. The sociability is an imperative characteristic of the system in creating this sound social space. The sociability represents the system's ability to create users' online social interaction.

This concept is later applied to the context of social software. Gao et al. (2010) defined sociability is "the extent to which the computer-supported communication environment is perceived to facilitate social interaction and to enhance social connectivity (Gao et al., 2010, p. 1847)." They argued that the sociability environment is important for the success of any social software. They also found numerous underlying factors that can create the sociability environment for users. The support for online self-presentation and formal interactions are the two of them.

This study adopted this concept and defined Internet social capability of IT artifact as the extent to which the computer-supported communication environment of a product is perceived to facilitate online social interaction. The details of Internet social capability is in 2.3.2.2.

This theory contributes to the context of this study by explaining how Internet social capability can facilitate online social interaction. This online social interaction can better support social relationship.

2.3.2.2 Internet Social Capability

This study applied sociability to the context of IT-related artifact. The importance of sociability has two folds. First, it was used for defining Internet social capability. Second, it was used to determine important characteristics of IT-related artifact.

First, this study borrows the concept of sociability to define Internet social capability. The definition of sociability is defined in different contexts as shown in Table 2.3.

Table 2.3: Definitions of Sociability

Author(s)	Definitions of Sociability	Context
Kreijns et al. (2002)	the extent that the environment is perceived to be able to facilitate the emergence of a sound social space	Computer-Supported Collaborative Learning
Gao et al. (2010)	the extent to which the computer-supported communication environment is perceived to facilitate social interaction and to enhance social connectivity	Social Software

In the context of IT-related artifact, this study defines Internet social capability as "ability of a product in facilitating social interaction over the Internet for its user". When this capability is high, the user can conduct the social activities with latitude. On the contrary, low Internet social capability obstructs the user's online-social activities. Lastly, the user is not able to conduct any Internet-oriented social activities when a product has no Internet social capability.

Second, in context of social software, Gao et al. (2010) revealed that self-presentation and support for formal interaction have positively effect on users' perceived sociability. When considering in term of IT-related artifact, this study concerns two components: (1) Internet connectivity; and (2) social software availability. First, Internet connectivity is expressed in terms of various connection media and speed of the media. Examples of the media are wired LAN, WIFI, and cellular network. Second, social software is referred to any software that can enable a group of people to conduct social-activities over the internet (Boyd, 2007; Gao et al., 2010). Some examples are instant messaging, and social networking platforms.

Both components are conditional among themselves. Having one is necessary but not sufficient. Expressing this capability requires a combination of both

components. A product with high Internet social capability is well equipped with both dimensions. It may have various Internet connection media and numerous kinds of social software to support its user. Low Internet social capability represents another opposite end. A product with this level of capability often has only one low-speed Internet connectivity and is absent of support from social software.

2.3.3 Theories from Psychology Research

This study adopts three theories from psychology research. They were used to explain the social visibility. Self-presentation theory and signaling theory are utilized to elaborate social visibility. Social capital is adopted to explain the relationship between social visibility and social value.

2.3.3.1 Self-Presentation Theory

According to Baumeister and Hutton (1987), self-presentation theory is referred to any behaviors that attempts to broadcast some message about oneself or some image of oneself to other individuals. Motivations that have been recognized as important drivers for the manners are "audience pleasing" and "self-construction" motive (Baumeister, 1982; Baumeister & Hutton, 1987). The audience pleasing motive enables individuals to behave corresponding to audiences' expectation, or preference. In contrast, the self-construction motive enables individuals to behave from their own "ideal self".

Jones and Pittman (1982) further refined the fundamental concept of audience pleasing, and suggested that people behave in the way to create a particular image or useful impression on other individuals, in order to influence or manipulate the audience to benefit the self-presenter. For example, human social interaction, and social rewards and punishments are results from the self-presentation strategies (Baumeister & Hutton, 1987).

The importance of this theory to this research has two folds. First, online self-presentation helps to explain the relationship between Internet social capability and online social self-image expression. Second, self-presentation theory helps to determine the different level of social visibility of product.

2.3.3.2 Signaling Theory

According to Connelly, Certo, Ireland, and Reutzel (2011), signaling theory consists of three main components: (1) sender; (2) signal; and (3) receiver. The signaling theory attempts to explain the mechanism that happens between the two actors. This mechanism starts from the sender. First, the sender or signaler is an actor who has precious information, and can determine which part of information should be delivered to other individuals. This part of information is called the "signal", which may not be the same as the original information. Finally, the receiver is an actor who obtains the part of information or signal. After the information is received, the receiver

may have some feedbacks on signaler. Positive signal normally yields positive feedback.

The signal plays a key role in signaling theory. The characteristics of an effective signal are composed of "signal observability" and "signal cost" (Connelly et al., 2011; Lee, Ko, & Megehee, 2015). The signal observability refers to the extent to which the signal can be observed by other individuals. The signal cost refers to resources (i.e., time, money) that the signaler needs to spend in order to send the signal to the receiver.

The importance of this theory to this research has two folds. First, it helps to explain the link between brand status and support social relationship. Second, it also helps to determine the different level of social visibility of product.

2.3.3.3 Social Capital

Social capital is referred to "the resources accumulated through the relationships among people (Coleman, 1988; Ellison et al., 2007)." The social capital can yield benefits to the individuals. These benefits derive from information, influence, and reinforcement (Adler & Kwon, 2002; Lin, 1999). First, the social capital can increase channels for receiving information, which is likely to create more opportunities. Researchers have demonstrated that social ties can further aid the individuals to access more information about job opportunities (Fernandez & Weinberg, 1997), and about innovations (Rogers, 1995). Second, the social capital can enhance power of social influence. Adler and Kwon (2002) illustrated the unbalance of social power. Some social actors (i.e., politicians, managers) in the individuals' network may have more power to influence decision making of other actors in society. With this superior power of influence, it is much easier for the individuals to achieve their goals. Finally, the social capital can reinforce the individuals' identity and recognition. Lin (1999) explained that individuals' mental can be reinforced when they were recognized that they belong to a social group.

These benefits do not exist for all individuals. Like other capitals, it is necessary to invest in social relations to gain the social benefits. Social interaction is the important mechanism to create social capital. Ellison et al. (2007) argued that the social interaction can create a weak tie among strangers, and reinforce a strong tie among friends, which lead to social capital.

This theory contributes to the context of this study by illustrating how social interaction can enhance social relationship. This mechanism can further elaborate the link between brand status and social relationship support, and also illustrate the connection between social visibility and social value.

2.3.3.4 Social Visibility

This study adopts the self-presentation theory and the signaling theory to explain the concept of social visibility.

The self-presentation theory contains that humans have motivation to display the self to others in order to gain benefits from the audience. Signaling theory further explains that it requires two components to present the self. First, the self needs to be observable. The second component involves the number of audience. Product is capable to address both components. On the first component, the owner's self can be observed through the product symbolism (see 2.3.1.4). On the other component, product type is responsible for the number of audience.

In previous study, W. O. Bearden and Etzel (1982) argues that the product types can be categorized into public and private products. The definitions of the public and private products are illustrated in Table 2.4.

Table 2.4: Definition of Public and Private Products

Product Types	Definitions
Pubic product	the product that other people are aware you possess and use. If they want to, others can identify the product with little or no difficulty.
Private product	the product used at home or in private at some location. Except for your immediate family, people would be unaware that you own or use the product.

Base on the definition, the difference between them depends on where consumers can use the product. Public products were used in public locations (i.e., automobile, wristwatch), while private products were used in private locations (i.e., pool table, refrigerator) (W. O. Bearden & Etzel, 1982). The difference in the product types can lead to difference in number of observers.

This study concerns the number of observers because it is highly related with the chance of a person to create social interaction and may further create the social relationship. Hence, this study adopts the concept of public and private products to explain social visibility, and social visibility is defined as "the degree to which a product can be observed by others".

To approximate the number of observation, characteristics of the places where the product can be used are considered. This study considers two characteristics. The first characteristic is level of public, while the second characteristic is the size of area. The level of public indicates level of accessibility by people. The higher the level of public the place has, the more accessible the place is to people. Furthermore, size of area illustrates capability of the place to support people at a time. The topology of place and size is display in Figure 2.6.

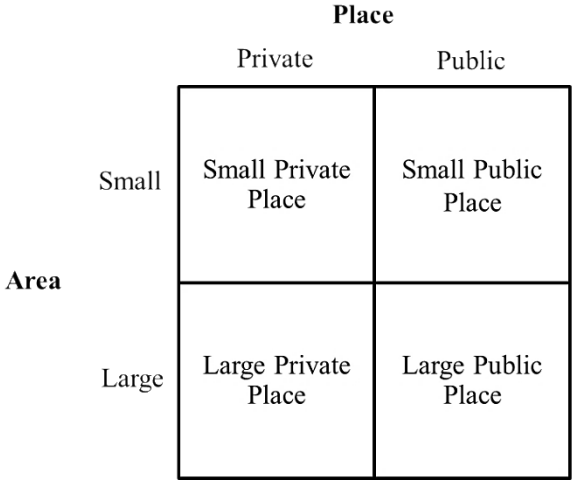

Figure 2.6: The Concept of Social Visibility

The typology in Figure 2.6 implies different proportional number of people who can observe the use of the product. The small private place tends to have the least proportional number of people because it is limited for both permission and area. For example, only a few persons are allowed to enter a bedroom in a house. In contrast, the large public place tends to have the most proportional number of people because it is open for access and its area is large. For example, numerous persons can easily get into a shopping mall. The small public place tends to have more proportional number of people than the large private place. For example, the number of people in a small restaurant tends to more than those in a living room.

2.4 Hypotheses

2.4.1 Brand Status and Social Value

This study investigates the relationship between brand status and social value through both social self-image expression and social relationship support. Status-driven consumption and costly signaling theory are adopted to explain the relationship.

This study uses status consumption theory to explain the relationship between brand status and self-image expression. Status consumption theory marks the importance of product symbolism, namely that product is a symbolic expression of its consumer. It expresses a preferred social-status by the consumer (Russell W. Belk, 1978; Levy, 1959). This status embodies feeling, thought, and types of expected social relationships between the consumer and others (Russell W. Belk, 1988; Braun & Wicklund, 1989). For example, gold is an expensive metal. According to the theory, consumer who wears gold necklace aims to express superior social status and expects superior social relationship than other consumer who wears less expensive necklace.

Similarly, brand also contains symbolic meaning of status, called brand status. Product with high brand status often associates with high quality and high price. Through the mechanism of status consumption theory, brand status can express a

preferred social-status. Van Kempen (2004) discovered the importance of brand status from consumer's perception. A poor person is willing to spend a large amount of money to acquire products with high brand status. For example, people who use branded name bag (i.e., Louis Vuitton) can express the superior status to others. With the superior status, product's owner gains high recognition (Dawson & Cavell, 1987), which reflects the financial success, leading to high social self-image. In addition, field experiment by Nelissen and Meijers (2011) confirmed that people using high brand status products are having more impressive social self-image than those using low brand status products.

This study adopts costly signaling theory to explain the relationship between brand status and social relationship support. The costly signaling theory suggests that both animals and humans involve with costly signaling behaviors. They invest a lot of their resources (i.e., time, or money) to draw attraction from others (Lee et al., 2015). This attraction can yield further benefits to the signaler. A famous example is the peacock effect. The peacock effect illustrates that a peacock attempt to draw the attention from other peahens. It spends a lot of time to display his colorful tail, called signal. When the signal is perceived as reliable trait by a peahen, the interrelation may happen.

Similar to human society, the attractive signal is also important to create social interaction (Lee et al., 2015). According to Godoy et al. (2007), financial status or wealth is recognized as a worthy signal in social interactions among humans. These social interactions are essential in creating weak tie among strange people, and strengthen the tie between familiar people (Ellison et al., 2007), which can strengthen individuals' social capital. Furthermore, Nelissen and Meijers (2011) also suggest that persons who display wealth gain high social capital through the formation of alliances, which may lead to the protection, care, cooperation, or even marriage among those members.

Based on the discussion above, brand status positively affects both dimensions of the social value. Hence, the first Hypothesis is proposed.

H1: Brand status has a positive relationship with social value.

2.4.2 Internet Social Capability and Social Value

This study also explores the relationship between Internet social capability and social value through both social self-image expression and social relationship support. Online self-presentation and interpersonal communication are adopted to illustrate the relationship.

This study adopts self-presentation theory to explain the relationship between Internet social capability and social self-image expression. According to Lampel and Bhalla (2007), self-presentation online plays an key role for status seeking in online communication. Self-presentation refers to "behavior that attempts to convey some

information about oneself or some image of oneself to other people (Baumeister & Hutton, 1987, p. 71)." Status consumption is a form of self-presentation in the real world. It illustrates that people attempt to display their preferred status by collecting or displaying product with high status, leading to users' high social self-image. In contrast, one's online self-presentation depends on his or her information shared in online communities. Previous studies claimed that people could create their preferred identities through manipulation of texts, images, and icons in online communities (Lampel & Bhalla, 2007; D. C. Li, 2011; Nguyen & Jon, 1996). These studies further explained that people could be recognized in online community when the information they shared yield benefits to other people in virtual community (McLure Wasko & Faraj, 2005). Recently, with the advance technology, people can share their photos or even their recent locations through numerous online channels. This can replicate the sense of available time of high social class as explained in status-driven consumption theory (Veblen, 1899).

Internet social capability tends to affect social self-image expression due to the online self-presentation capability. Products with high Internet social capability can offer numerous online channels for users to express their identities, while products with low Internet social capability can offer no or limited online channels for users to express their identities. More channels imply more opportunities for users to gain some social recognition. Thus, products with high Internet social capability tends to facilitate consumers to gain more impressive image than those with low Internet social capability.

Furthermore, interpersonal communication is an important mechanism to explain the link between Internet social capability and social relationship support. The interpersonal communication is recognized as a key driver for social relationship. With advanced technology, social-communication on Internet can better support the social relationship in two ways. First, it provides multiple channels of communications. There are numerous ways to conduct interpersonal communications over the Internet. Social networking platforms, instant messaging applications, video conferencing applications are prime examples. These channels of interpersonal communication foster better social relationships (Ahn, 2012).

Second, Internet social-communication supports both strong and weak ties. Strong ties exist between friends and family members and weak ties exist between strangers (Jin, Li, Zhong, & Zhai, 2015). Ellison et al. (2007) found that using social network platform among college students strengthens the strong-tie relationships and enable them to create and to maintain weak-tie relationships. Both ties benefited from the Internet social-communication because it reduces communication barriers, increases communication frequency, and enable parties to hold on to relationships in new meaningful ways (Pan et al., 2015).

Based on the discussion above, Internet social capability tends to have an effect on both dimensions of social value. Hence, the second Hypothesis is proposed.

H2: Internet social capability has a positive relationship with social value.

2.4.3 Moderating Effect of Social Visibility

2.4.3.1 Main effect of social visibility

High social visibility products (i.e., public products) can be seen by more people than low social visibility products (i.e., private products). Sights from others increase opportunities to receive social interactions, creating social capital for the owner and lead to higher social value of the product. These opportunities rest on social self-image expression and social relationship support mechanisms.

Highly visible products have more chances to be seen by others. Likewise, an owner of such products enjoys more chances to express his/her self-image. This situation leads to more people whom can perceive social image of the owner. Thus, the social value of high visible product is naturally enhanced. Arguments can be formulated from the other side for low visible products. Owner of these products realize that the products have less chance to be seen by the others. It follows that the chances to express one's self-image by the products are also reduced. The social value of low visible products is inherently decreased.

High visibility products have higher observable frequency than that of low visibility products. This frequency supports the social interactions. According to the costly signaling theory, an actor is broadcasting signal to others to gain social interactions. Using a product that can be frequently observed by others generates more signals. This increased frequency results in communication cost reduction because communication frequency is increased without users putting efforts. For example, cellphone is a high visibility product when compared to television. If an actor wants to make television to be as highly visible as cellphone, the actor must invest much higher degree of efforts in doing so. Therefore, cellphone cost of signaling is lower than television. This lowering cost supports social relationship and hence social value.

2.4.3.2 Effect on relationship between brand status and social value

Brand status is expected to have a positive relationship with social value of the product (see 2.4.1). Here, this study proposes that the strength of this relationship is modified by the visibility of the product. The mechanisms of self-image expression and social relationship support are changed by the social visibility as explain earlier. The change affects the obviousness of brand status. High brand status is anticipated to receive more impact because society place mores importance on the status.

Therefore, social visibility of the product is believed to have moderating effect on the relationship between brand status and social value. When a high social visible product is paired with high brand status, the effect on social value of the product should be more than a high social visibility produced paired with low brand status. On the same token, a low social visible product with high brand status is expected to have more effect on social value than a low social visible with low brand status. In other words, the magnitude of the relationship is varied by the magnitude of social visibility. The third hypothesis is expressed.

H3: Social visibility moderates the relationship between brand status and social value. The relationship is stronger when social visibility is high than when social visibility is low.

2.4.3.3 Effect on relationship between internet social capability and social value

On the same token as the brand status, the moderating effect of social visibility on the relationship between Internet social capability and social value is explored through social self-image expression and social relationship support mechanisms.

This study argues that a product with high social visibility complements online socialization of its owner. Self-image expression is more rounded. Internet social ability offers ways to complete online self-image expression and product visibility enhance offline self-image expression. Furthermore, online social relationship support can be experienced by the internet social ability and offline social relationship support is improved by help of social viability. Socialization in offline community can aid users to gain more audiences in online communities. The additional audiences happen when users exchange contacts with others. The socialization can broaden out the user's social network. Thus, the social value is increased.

Hence, product with high Internet social capability and high social visibility tends to greatly enhance owners' opportunity to broaden out their online social exchanges. While product with high Internet social capability but low social visibility is likely to limit the owners' opportunity to expand their online social activities. However, high social visibility product with low Internet social capability can somewhat enhance its owner online social interactions because offline socialization complements online social socialization. The worst scenario is when a product has low social visibility and low Internet social capability.

Based on the discussion above, social visibility should to have a moderating effect on the relationship between Internet social capability and social value. Hence, the fourth hypothesis is proposed.

H4: Social visibility moderates the relationship between Internet social capability and social value. The relationship is stronger when social visibility is high than when social visibility is low.

2.5 Research Model

The research model is summarized in Figure 2.7, hypotheses are provided in Table 2.5, and conceptual definitions are summarized in Table 2.6.

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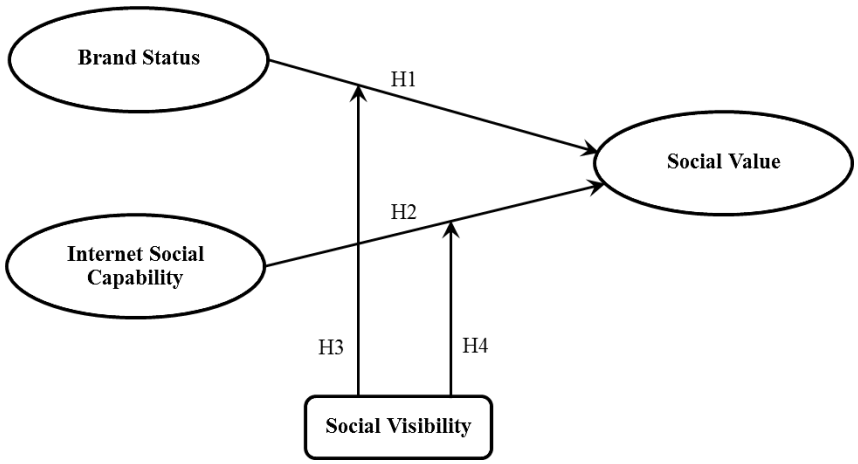


Figure 2.7: Research Model

Table 2.5: Sumary of Hypotheses

#	Hypotheses
H1:	*Brand status has a positive relationship with social value*
H2:	*Internet social capability has a positive relationship with social value*
H3:	*Social visibility moderates the relationship between brand status and social value. The relationship is stronger when social visibility is high than when social visibility is low.*
H4:	*Social visibility moderates the relationship between Internet social capability and social value. The relationship is stronger when social visibility is high than when social visibility is low.*

Table 2.6: Conceptual Definitions

Variables	Conceptual Definitions
Social Value	the ability of a product to enhance consumers' social self-image expression and social relationship support
Brand Status	the quality, prestige, price of a brand and its capability to act as a status or success symbol
Internet social capability	the ability of a product in facilitating social interaction over the Internet for its user
Social visibility	the degree to which a product can be observed by others.

Chapter 3
Methodology

3.1 Chapter Outline

This chapter has four objectives. The first objective is to elaborate how variables are measured. The variables are social value, Internet social capability, brand status, and social visibility. Second, the criteria of respondent selection and target sample size are explained. The third objective is to discuss about the data collection method. Product selection criteria are explained. Convenience sampling is deployed. Online survey is the main procedure in collecting data. The discussion about statistical conclusion method is the last objective. Structural equation modeling is conducted for statistical test, and mean centering approach is used to test the moderating effect.

3.2 Measures

This study aims to provide a theoretical framework for the integration effect of brand and Internet social capability on social value, and to investigate the effect in different types of IT-related artifact. To achieve the objective, this study concerns four variables: (1) Social Value; (2) Brand Status; (3) Internet social capability; and (4) Social Visibility. The operational definitions of each variable are expressed in Table 3.1, and the measurement items are displayed in 3.2.1- 3.2.4.

Table 3.1: Operational Definitions

Variables	Operational Definitions
Social Value	Perceived ability of a product to improve its users' image and to support, create, maintain, and increase interpersonal relationship.
Brand Status	Perceived level of quality, prestige, price of a brand.
Internet social capability	Perceived ability of a product to facilitate online social interaction.
Social visibility	The logarithm of the proportional number of people who can see the use of the product.

3.2.1 Social Value

The instrument by Kim et al. (2011) is adopted and slightly modified for the context of this study. The measurement items are shown in Table 3.2 and Table 3.3.

Table 3.2: Social Self-Image Expression Items

Social Self-Image Expression
1. When I use this product, it enhances my self-image to others.
2. When I use this product, it improves my self-expression to others.
3. When I use this product, it makes a good impression on other people.
4. When I use this product, it improves the way I am perceived.

Table 3.3: Social Relationship Support Items

Social Relationship Support
1. When I use this product, it better enables me to form interpersonal bonds with others.
2. When I use this product, it helps me maintain my social relationships with others.
3. When I use this product, it helps me make new friends.
4. When I use this product, it enhances my social relationships with others.

3.2.2 Brand Status

The measurement of the brand status is adopted from O'Cass and Choy (2008). It is slightly modified for the context of this study. The instrument items are shown in Table 3.4.

Table 3.4: Brand Status Items

Brand Status
1. This brand is a symbol of prestige
2. This brand is a symbol of success
3. This brand is a symbol of wealth
4. This brand is exclusive
5. This brand is distinctive
6. This brand is high esteem
7. This brand is sophisticated

3.2.3 Internet Social Capability

To measure the Internet social capability, the measurement items from Kreijns et al. (2007) are adopted and slightly modified for the context in this study. The measurement items are displayed in Table 3.5.

Table 3.5: Internet Social Capability Items

Internet Social Capability
1. These online communications enables me to easily contact my friends
2. I do not feel lonely with these online communications
3. These online communications enable me to get a good impression of my friends
4. These online communications allows spontaneous informal conversations
5. These online communications enable me to develop good work relationships with my friends
6. These online communications enable me to identify myself with my friend
7. I feel comfortable with these online communications
8. These online communications allow for non-task-related conversations
9. These online communications enables me to make close friendships with my contacts

3.2.4 Social Visibility

To measure social visibility of a product, the concept of public and private product from W. O. Bearden and Etzel (1982) are applied. This study extends the concept by including the number of a product's observers into consideration. The process to calculate the social visibility score consists of two steps.

First, participants are allowed to select for places where they expect to use the product. Respondents can select more than one place. These places can reflect number of people who can observe the use of the product. The places are provided in Table 3.6.

Table 3.6: List of Places

Places	
1. Rest Room	9. School/Collage
2. Bed Room	10. Restaurant
3. Kitchen	11. Religious Place
4. Living Room	12. Museum
5. Other places in resident area	13. Department Store
6. Private car	14. Public Park
7. Bus	15. Amusement Park
8. Workplace	16. Airport

Later, before calculating the social visibility score, the places are rearranged based on the topology of place and size as shown in Figure 2.6. The groups of places are shown in Table 3.7.

Table 3.7: Group of Places

	Private Place	Public Place
Small	- Rest Room - Bed Room - Kitchen - Private car	- Bus - Workplace - Restaurant - Religious Place - Museum
Large	- Living Room - Other places in resident area	- School/Collage - Department Store - Public Park - Amusement Park - Airport

These groups indicate difference in the number of observers who can see the use of the product at the same time. To reflect the difference in social visibility, the rated items are multiplied by different numbers.

In small private place, the rated items are multiplied by 5, while in large private place the rated items are multiplied by 10. Moreover, in small public place, the rated items are weight by 50, while in large public place the rated items are weight by 100. The different multiplied numbers come from the different proportional number of people who can see the use of the product at the same time. This study assumes that if the product can be used in small private place, about 5 persons can observe the use of the product in the meantime. In contrast, if the product is available to use in large public place, about 100 people can observe the use of the product at the same time.

Moreover, the social visibility score cannot be directly put into structural equation modeling because the calculated score is likely to exponentially decrease across the products from public to private. This violates the linearity assumption. Thus, this study follows H. Li, Fang, Wang, Lim, and Liang (2015), and used the logarithm of social visibility score instead.

3.2.5 Instruments

This study aims to collect data from Thai people. In general, Thai people are not well versed with English language. Using original items in English may result in reliability problem. Thus, the original items are translated to Thai.

Standard double translation protocol was adopted in the translation procedure. The protocol explained that the original items in English were first translated into Thai, and the transformed items in Thai were later translated back to English without change of their original meanings. Finally, five experts in field of information technology were asked to investigate the inconsistency between the original version and the translated version. If no major inconsistency found, the Thai version are further implemented in the online questionnaire. List of the experts is shown in Appendix D.

All translated items were compiled into the online questionnaire. Social value, Brand status, and Internet social capability were measured on a 7-point Likert scale. The seven-point scale was used because it is an optimum point for the Likert scale (Green & Rao, 1970). Social visibility was measured in a ratio scale by allowing participants to select places where they can use the product. Finally, demographic questions such as gender, and age were included to give a contextual understanding of the respondents. List of variables and scale of measurement were summarized in Table 3.8 , and details of questionnaire items are shown in Appendix B.

Table 3.8: List of Variables and Level of Measurement

Variables	Level of Measurement	Value	Source
Social Value	Interval	7-point Likert Scale	Kim et al. (2011)
Brand Status	Interval	7-point Likert Scale	O'Cass and Choy (2008)
Internet Social Capability	Interval	7-point Likert Scale	Kreijns et al. (2007)
Social Visibility	Ratio	Logarithm of Social Visibility Score	W. O. Bearden and Etzel (1982)

3.3 Sample

3.3.1 Target Population

Target population of this study is people in age between 18 and 40. The target population is determined from previous literature in the area of brand perception (Piacentini & Mailer, 2004) and computer-mediated communication (Ahn, 2012; Huang & Yen, 2003).

In computer-mediated communication, people at this age tend to be familiar with social communication on the Internet such as social network services (Ahn, 2012), or instant messaging (Huang & Yen, 2003). The familiarity helps them to better evaluate the social value of a product. Furthermore, this group of people is likely to be interested in brands. Piacentini and Mailer (2004) further explained that adolescents highly care about one's self-image and brand can help them to improve their self-monitoring and self-expression.

3.3.2 Target Sample Size

Sample size is another important issue for hypothesis testing. Inappropriate, inadequate, or excessive sample sizes can affect the quality and accuracy of research (Bartlett, Kotrlik, & Higgins, 2001). Sample size depends on acceptable level of significance (α), statistical power, and expected effect size. The acceptable level of significance, or Type I error, is the probability of rejecting the null hypothesis (H_0)

when it is true. The statistical power is the probability of accepting the alternative hypothesis (H1) when it is true. The expected effect size determines how large the independent variable affects the dependent variable. Furthermore, in Structural Equation Model (SEM), the number of observed variables and latent variables are considered.

Ryan (2013, p. 348) explained a procedure to determine a target sample size in structural equation modeling. It requires five parameters (the expected effect size, statistical power, significance level, number of latent variables, and number of observed variables) from researchers. These parameters are entered into equation developed by Christopher Westland (2010), and the target sample size can be calculated. The equation consists of three formulas: (1) Error function; (2) Normal distribution cumulative distribution function; and (3) Lower bound sample size for a structural equation model function. The details of the formulas are illustrated in Equation 3.1 – 3.3.

Error function:

$$erf(x) = \frac{2}{\sqrt{\pi}} \int_0^x e^{-t^2} dt. \tag{3.1}$$

Normal distribution cumulative distribution function:

$$F(x; \mu, \sigma^2) = \frac{1}{2}\left[1 + erf\left(\frac{x-\mu}{\sigma\sqrt{2}}\right)\right] \tag{3.2}$$

where μ is the mean, σ is the standard deviation, and erf is the error function.

Lower bound sample size for a structural equation model function:

$$n = max(n_1, n_2) \tag{3.3}$$

where

$n_1 = \left[50\left(\frac{j}{k}\right)^2 - 450\left(\frac{j}{k}\right) + 1100\right]$,

$n_2 = \left[\frac{1}{2H}\left(A\left(\frac{\pi}{6} - B + D\right) + H + \sqrt{\left(A\left(\frac{\pi}{6} - B + D\right) + H\right)^2 + 4AH\left(\frac{\pi}{6} + \sqrt{A} + 2B + C - 2D\right)}\right)\right]$,

$A = 1 - \rho^2$,

$B = \rho\ arcsin\left(\frac{\rho}{2}\right)$,

$C = \rho\ arcsin(\rho)$,

$D = \frac{A}{\sqrt{3-A}}$,

$H = \left(\frac{\delta}{z_{1-\alpha/2} - z_{1-\beta}}\right)$

where j is the number of observed variables, k is the number of latent variables, ρ is the estimated Gini correlation for a bivariate normal random vector, δ is the

anticipated effect size, α is the Sidak-corrected Type I error rate, β is the Type II error rate, and z is a standard normal score.

However, due to the complexity of the equations, it is difficult to calculate the target sample size by hand. Soper (2016) developed an online software based on the equation to help researchers in calculating the sample size. The website is www.danielsoper.com/statcalc. It was used for calculating target sample size for this study.

This study follows traditional guideline in specifying the significance level, the statistical power, and the expected effect size. First, the significance level is 0.05, that means this study accept 5% chance of falsely rejecting the null hypothesis. Second, statistical power is 0.80, i.e., this study have 80% chance to have correct inference on alternative hypothesis. Third, the expected effect size for the medium effect size is 0.3, the value which Cohen (1992) recommended when there is no established effect size from previous studies.

Furthermore, number of latent variables and observed variables can be counted from the research model. This research studies the relationship among three latent variables which may be moderated by an observed variable as shown in Figure 2.7. For main effect, Social value, Brand status, and Internet social capability consist of 8 items, 7 items, and 9 items, respectively. For moderating effect, two interaction terms of (1) Brand status and Social visibility, and (2) Internet social capability and Social visibility are created. Their items derived from multiplication terms of interaction variables. Thus, it generates 2 more latent variables and 7 more items, and 9 more items, respectively. Therefore, this study has 5 latent variables, and 41 items. These parameters are used to calculate target sample size. It yields a recommend sample size of 772.

3.4 Data Collection Method

This study explores integration effects of brand status, Internet social capability, and social visibility on social value of IT related artifacts. To cover a wide range of phenomenon under the study, a variety of product's attributes is needed. This variety includes different sizes, brands, Internet capabilities, and supported social platforms. These four attributes are driven by the close associations between former three constructs and product's characteristics. Brand status is related to brand of the product, Internet social capability is associated with Internet connectivity and supported social platforms by the product, and social visibility is related with size of a product. This study explains product selection in greater detail in section 3.4.1.

Online survey was the data collection method. A survey questionnaire is an implementation of the instrument with a selected product. Each questionnaire is designed to reduce external interference by enabling a subject to focus only relevant information related to the measurement items. The data collection procedure is explained in 3.4.2, and sampling method is in 3.4.3.

3.4.1 Product Selection Criteria

The criteria for product selection start with category selection. There are various product categories of IT related artifacts such as automotive, household, and consumer electronics. The researcher argues for the consumer electronics as the suitable category for this study because this category offers a large variety of product's attributes. First, it consists of a wide range of brand status from high status (i.e., Sony) to low status (i.e., i-mobile). Second, it consists of wide range of size from a large size (i.e., refrigerator) to a small size (i.e., mobile phone). Finally, it consists of wide range of Internet social capability from traditional product (i.e., traditional television) to more technologically advanced product (i.e., Internet television).

The first criterion is involved with Internet social capability. To capture the variance of Internet social capability, it is imperative that the selected products have to consist of high and low Internet social capability. The Internet social capability can be assessed by the number of Internet connection media and the number of social software in a product. Products with numerous connection media (i.e., Wi-Fi, 3G) and various social software programs (i.e., facebook, line) are considered as high Internet social capability. In contrast, products with limited connection media and social software programs are considered as low Internet social capability. Five Internet connection media and sixteen channels of social software are taken into account. The Internet connection media consists of Wi-Fi, GPRS, Edge, 3G, and 4G-LTE. The social software programs are chosen based on their popularity among people in the survey research from Global Web Index in Q1, 2013 in website www.globalwebindex.net/reports. The list of social software is displayed in Table 3.9.

Table 3.9: List of Social Software

List of Social Software	
1. Facebook	9. Facebook messenger
2. Google +	10. WhatsApp
3. Twitter	11. Skype
4. Instagram	12. WeChat
5. Foursquare	13. Line
6. Shazam	14. Kakao Talk
7. Flickr	15. Snapchat
8. Vine	16. Kix Messenger

The second criterion is related to social visibility. To capture the variance effect of social visibility, it is necessary to select products that can represent high and low social visibility. The social visibility is highly associated with a product's size. Small products can more facilitate their owner to use in public place than large products. However, the products are not too small to hinder the observation from others in order to create high social visibility. Four products were selected to be the representative of high and low social visibility products. Mobile phone and camera are

selected to represent the high social visibility products, while television and refrigerator are chosen to represent the low visibility product.

Finally, the third criterion is involved with brand status. To capture the variance effect of brand status, it is imperative that the select products have to consist of high and low brand status. The brand status is primarily assessed based on their recognition. Brands with high recognition are assumed containing high brand status, while brands with low recognition are assumed containing low brand status.

This study addressed the difference in brand recognition by following the results from survey in the website campaignasia.com in title "Asia Top 1000 Brand, 2015". The survey collected data concerning consumer brand perception in 13 markets: Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, the Philippines, Singapore, South Korea, Taiwan, Thailand and Vietnam. There were 400 participants for each market, except for India and China with 800 and 1,200 participants respectively. The result can display rank of brand recognition for all markets, or separate market. However, this research emphasizes on brand status in Thailand, so the rank from Thailand market is used. Examples of the rank of brand recognition in Thailand were illustrated in Figure 3.1.

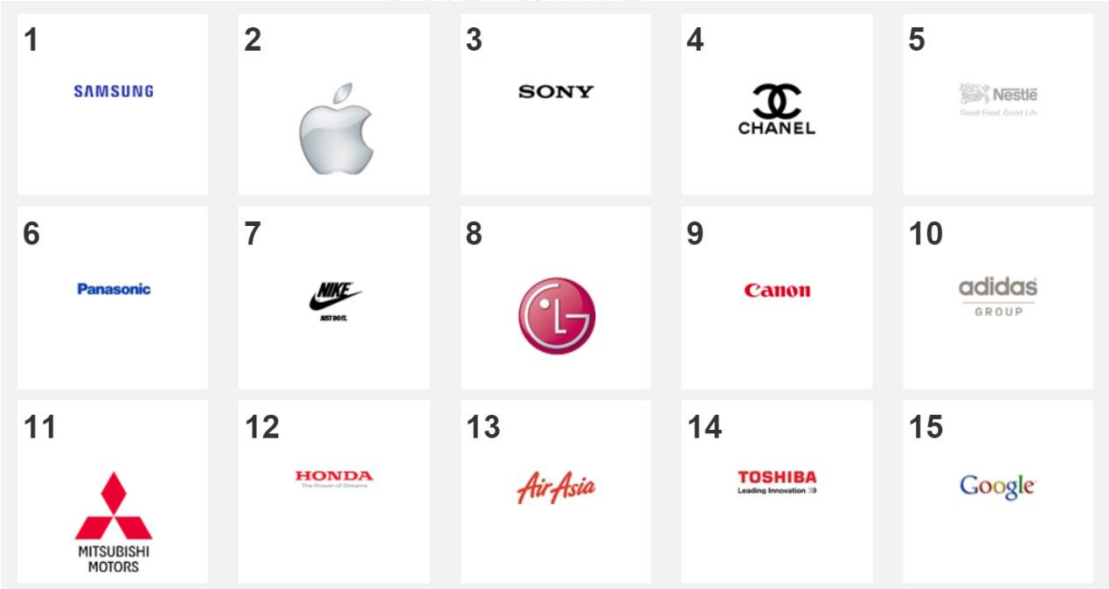


Figure 3.1: Rank of Brand Recognition in Thailand

Brand status is considered high if the brand of a product rests in top ten from the brand survey, while it is considered low if it rests in other positions.

According to the product selection criteria, sixteen treatments are created. The treatments consist of two levels of Internet social capability, four product types, and two brand statuses (2x4x2). Moreover, sixteen products in consumer electronics were chosen as representatives of the sixteen treatments. The details of the sixteen products are illustrated in Table C1 – C4 in Appendix C.

Furthermore, sixteen online questionnaires are created from the measurement items along with the sixteen different product details. One of the online questionnaires was randomly assigned to a subject. List of the questionnaires are shown in Table 3.10, and an example of an online questionnaire is provided in Appendix C.

Table 3.10: List of Questionnaires

Product Type		High Brand Status	Low Brand Status
Mobile	High Internet Social Capability	Questionnaire #1	Questionnaire #3
	Low Internet Social Capability	Questionnaire #2	Questionnaire #4
Camera	High Internet Social Capability	Questionnaire #5	Questionnaire #7
	Low Internet Social Capability	Questionnaire #6	Questionnaire #8
Television	High Internet Social Capability	Questionnaire #9	Questionnaire #11
	Low Internet Social Capability	Questionnaire #10	Questionnaire #12
Refrigerator	High Internet Social Capability	Questionnaire #13	Questionnaire #15
	Low Internet Social Capability	Questionnaire #14	Questionnaire #16

3.4.2 Data Collection Procedure

This study chose online survey as data collection method and created sixteen sets of online questionnaire. All sixteen sets are posted at www.thairesearch.net. One of these sets is randomly assigned to a respondent when he/she arrived at the Internet address. To reduce the effect from nuisance variables, a respondent is allowed to receive only a product's detail that relevant to the questionnaire items. The survey is divided into five sections: (1) personal information; (2) Internet social capability; (3) social visibility; (4) brand status; and (5) social value.

In each section, respondents received some parts of a product's detail that relevant with the topic, and are asked to answer the questionnaire items. Once they go to the next section, they could not go back. The data collection sequence is illustrated in Figure 3.2.

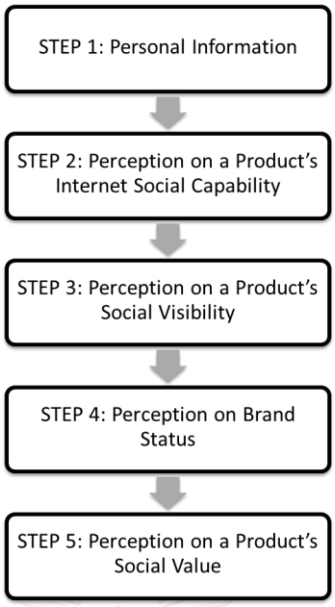


Figure 3.2: Data Collection Sequence

In step 1, respondents were asked to provide their personal information about gender and age. Furthermore, they also asked to answer about their preference on brand selection and their preference on the type of online communication.

In step 2, respondents received a product's detail involved with Internet social capability that are Internet connectivity (i.e., Wi-Fi, 3g, 4g), and social software availability (i.e., facebook, instagram, line, twitter). Later, they were asked to rate for a product's Internet social capability. Example of the product's detail for Internet social capability is illustrated in Figure 3.3.

Internet Connectivity	Wifi			
	GPRS		G	
	EDGE		E	
	3G		3G	
	4G LTE		4G	
Social Software Availability	Facebook		Facebook Messanger	
	Google +		WhatsApp	
	twitter		Skype	
	Instagram		WeChat	
	Foursquare		Line	
	Shazam		Kakao Talk	
	Flickr		Snapchat	
	Vine		Kik Messenger	

Figure 3.3: The Product's Detail for Internet social capability

In step 3, subjects received a product's detail involved with social visibility that is the product's size. Later, they were asked to select places where they are expected to use the product (see Table 3.6). Example of the product's detail for social visibility is illustrated in Figure 3.4.

Figure 3.4: The Product's Detail for Social Visibility

In step 4, participants received a product's detail involved with brand status that is the brand of the product. Later, they were asked to rate for status of the brand. Example of the product's detail for brand status is illustrated in Figure 3.5.

Figure 3.5: The Product's Detail for Brand Status

Finally, in step 5, subjects received all of the product's detail, and were asked to rate for social value of the product. Example of the product's detail for social value is illustrated in Figure 3.6.

Figure 3.6: The Product's Detail for Social Value

3.4.3 Sampling Method

According to Babbie (2010, Ch. 7), there are two major types of sampling method: (1) probability sampling; and (2) nonprobability sampling. The fundamental concept of probability sampling is to ensure that a selected sample is a representative of the study population. This can facilitate researchers to make statistical inferences from the sample. To get the ideal sample, the probabilistic method is used to create an equal chance for a unit to be selected into a sample. To create the equal chance, a list of the study population must be achievable and the sampling frame must be the same as the study population. There are three types of probability sampling techniques: (1) simple random sampling; (2) systematic random sampling; and (3) stratified random sampling, which were adopted in different situations (Babbie, 2010).

In contrast, nonprobability sampling techniques selected a sample based on the subjective judgment of the researcher, rather than random selection, which is the foundation of probability sampling techniques. The nonprobability sampling is conducted in situation where the study population is difficult to achieve (Babbie, 2010). Furthermore, Babbie (2010) suggested four types of nonprobability sampling techniques: (1) convenience sampling; (2) purposive sampling; (3) snowball sampling; and (4) quota sampling.

Convenient sampling is adopted as data collection procedure, and students from two leading universities in Thailand were used as a sample. Advantages of using this convenient sample have two folds. First, when studies are emphasized on testing psychological process, volunteer students are suitable subjects (Kardes, 1996). Second,

when researchers emphasize on theoretical testing, students are adequate sample (Lucas, 2003). These are congruent with the objective of this study.

3.5 Statistical Method

3.5.1 Structural Equation Modeling

This study used Structural Equation Modeling (SEM) to validate the adopted instrument and test the proposed hypotheses. Researchers explained the advantages of SEM over traditional statistical method, like multiple regression analysis (Byrne, 2009, pp. 3 - 4; Gefen, Straub, & Boudreau, 2000; Ullman & Bentler, 2012, Ch. 23). However, the primary reasons why this study chose this method are the followings. First, SEM can deal with the study model, which consists of various kinds of variables such as continuous variable, latent variable, and observed variable (Ullman & Bentler, 2012, p. 661). Second, SEM can estimate parameters for measurement model and structural model simultaneously. This can reduce measurement error (Byrne, 2009, p. 3; Gefen et al., 2000; Ullman & Bentler, 2012, p. 663) and avoid faulty statistical conclusion from level of data mismatched (Ullman & Bentler, 2012, p. 663). Finally, SEM can handle the complex study model with moderation variable (Ullman & Bentler, 2012, p. 663).

There are two methods of SEM analysis: (1) Covariance-based SEM; and (2) Partial Least Square SEM (PLS-SEM). They are different in three important ways. First, their underlying objectives are different. The covariance-based SEM has the objective to evaluate whether the proposed research model is plausible, while the PLS-SEM has the objective to evaluate the R^2 and the significant t-value (Barclay, Higgins, & Thompson, 1995).

Second, there is difference in abilities to evaluate unidimensionality. Segars (1997) defined the unidimensionality as "the degree to which items load only on their respective constructs without having parallel correlational pattern(s)." The covariance-based SEM is able to evaluate unidimensionality, while PLS-SEM cannot assess the unidimensionality (Gerbing & Anderson, 1988; Segars, 1997).

Third and the last difference is the analytical technique. For covariance-based SEM, model fitting is conducted to compare the covariance structure of the proposed model with that of the best possible model. A maximum likelihood technique is applied for estimating parameters. A multivariate normal distribution of observed variables is necessary (Hair, 1998). In contrast, PLS-SEM relies on an iterative sequence of ordinary least square (OLS) and multiple linear regressions (Barclay et al., 1995). A multivariate normal distribution of observed variables is less necessary (Barclay et al., 1995).

The objective of this study is to investigate the plausibility of the proposed research model. According to this objective, covariance-based SEM is more suitable than PLS-SEM, and it is chosen as statistical method.

3.5.2 Moderation Analysis

According to Little, Bovaird, and Widaman (2006), moderation analysis relies on multiple regression technique which a dependent variable depends on three components: (1) the independent variable; (2) the moderating variable; and (3) the interaction term. The concept is illustrated in Figure 3.7 and in Equation 3.4.

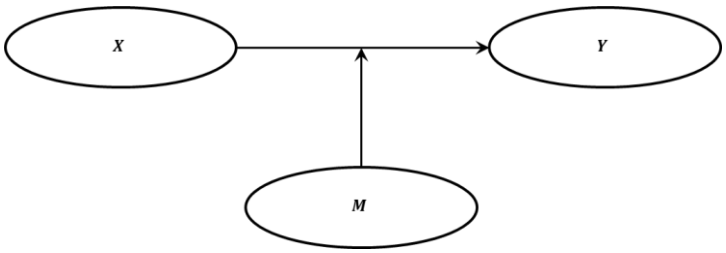


Figure 3.7: Moderation Effect

$$Y = \beta_1 X + \beta_2 M + \beta_3 MX + e \quad (3.4)$$

where *Y* is a dependent variable, *e* is the error term, *X* and *M* is the predictor variables, and *MX* is the product term which represent interaction effect.

However, the model may suffer from multicollinearity problem. Multicollinearity occurs when the predictor variables are highly correlated with one another. In this case, the product term is the result from multiplication between the independent variable and the moderating variable. Researchers suggested two methods to reduce multicollinearity: (1) mean centering approach (Cohen, 1978; Cronbach, 1987); and (2) residual centering approach (Lance, 1988).

Mean centering approach transforms the raw data by subtracting the variable mean from all observations before creating the interaction term. Researchers (Cohen, 1978; Cronbach, 1987) agreed that this technique can mitigate the multicollinearity problem. Figure 3.8 illustrates the mean centering approach.

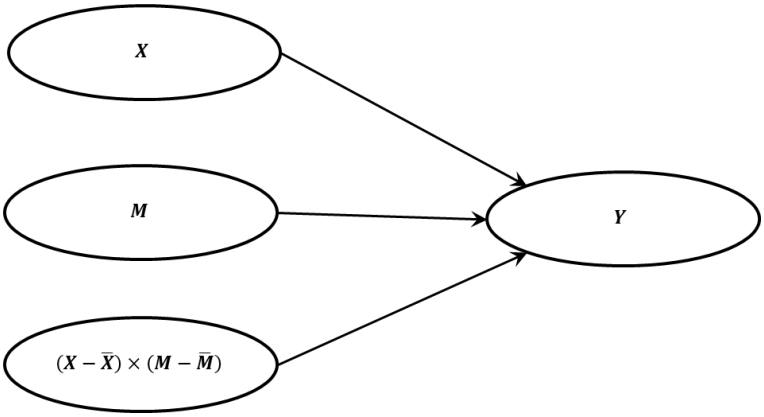


Figure 3.8: Mean Centering Approach

Residual centering approach is more complicated. The interaction term results from a two-step regression technique (Lance, 1988; Little et al., 2006). First, the

product term is regressed on its related predictive variables, $MX = b_1X + b_2M + d$. Second, the residual of the regression are used as representative of the interaction effect. Figure 3.9 exemplifies the residual centering approach.

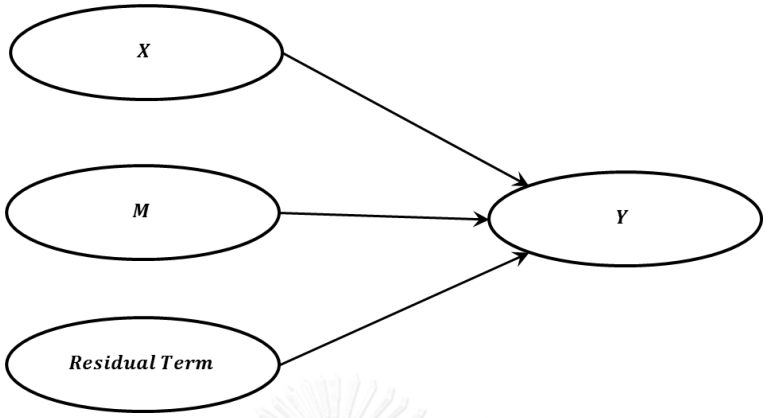


Figure 3.9: Residual Centering Approach

This study accepts some degree of correlation between the predictive variables, and adopts the mean centering technique for studying moderating effect.

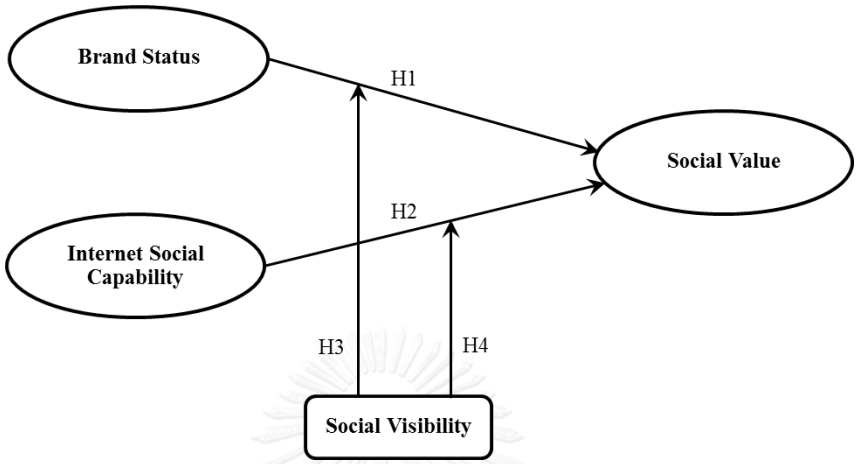
3.5.3 Instrument Properties

This study chose covariance-based SEM to validate the adopted instrument. Confirmatory Factor Analysis (CFA) was used to test for reliability and validity of the constructs. There are two types of factor analysis which can be used for identifying dimensions, or factors underlying the groups of observed variables. However, they were applied in different situations. On the one hand, Exploratory Factor Analysis (EFA) is normally applied in exploratory research, which researchers need to discover the underling dimensions among items without theoretical support. On the other hand, CFA is suitable when scholars need to confirm the underling dimensions based on previous studies. It can be applied before testing hypotheses. This study adopted items from previous research, so Confirmatory Factor Analysis is applicable.

This study applied Confirmatory Factor Analysis for examining both convergent and discriminant validity. For convergent validity, the measurement model in CFA was revised by dropping the items which shared high degree of residual variance with other items (Gefen et al., 2000; Gerbing & Anderson, 1988). Moreover, the items, which showed high cross loadings with others constructs, were also dropped from this study. Various fit indices were examined for acceptable model fit. In addition, discriminant validity of constructs was further evaluated by comparing the χ^2 of the original CFA model against other CFAs with possible combination of two constructs (Byrne, 2009, pp. 53 - 95). If the χ^2 of the original CFA is significantly better than any possible combination of any two latent variables, it indicates discriminant validity.

3.5.4 Hypothesis Testing Protocol

Covariance-based SEM is chosen to test the proposed hypotheses. The research model below is re-illustrated from Figure 2.7. The first two hypotheses test the main effects, while the others capture the moderating effects.



To test these hypotheses, this study follows Little et al. (2006), and conducted three structural equation models which investigate the different effects. The first model investigates the main effect from brand status and Internet social capability. The second model examines the direct effect from social visibility. The last model explores the effects from the two interaction terms: (1) the interaction between brand status and social visibility; and (2) the interaction between Internet social capability and social visibility. Equations 3.5 – 3.7 represent these models, respectively.

$$SV = \beta_1 BS + \beta_2 ISC + e \quad (3.5)$$

$$SV = \beta_1 BS + \beta_2 ISC + \beta_3 VS + e \quad (3.6)$$

$$SV = \beta_1 BS + \beta_2 ISC + \beta_3 VS + \beta_4 (BS \times VS) + \beta_5 (ISC \times VS) + e \quad (3.7)$$

where SV is social value, BS is brand status, ISC is Internet social capability, VS is social visibility, and e is error term.

For the first model, Social value, Brand status, and Internet social capability were created as latent variables with their related items. Confirmatory Factor Analysis was conducted to assess both convergent and discriminant validity. The items which shared high degree of residual variance with other items were eliminated from the model (Gefen et al., 2000; Gerbing & Anderson, 1988). Straub, Boudreau, and Gefen (2004) indicated that instrument validation is imperative for researchers before testing the hypotheses. They further illustrated that if instrument is invalid, statistical conclusion is inevitably invalid.

After instrument validation, there are two steps for testing hypotheses. First, a structural model is created in SEM. Numerous model fit indices are investigated to illustrate that the proposed research model is plausible (Gefen et al., 2000). Second, all paths between constructs were analyzed. The significance in path analysis indicated that the related hypothesis is supported.

For the second model, social visibility is added into the first model. Model fits are examined, and path analysis is explored. The importance of this model is to discover the direct effect from social visibility on social value. The statistical significance of this link indicates that social visibility initiates some effects on the model.

For the last model, the two interaction terms are further added into the second model. The model fits, and path analysis are investigated to detect any interaction effect.

Chapter 4
Results

4.1 Chapter Outline

This chapter has four objectives. First, sample characteristics are described. Second, construct validity and reliability are addressed. Third, research hypotheses are tested. Finally, the results of this study are discussed.

4.2 Sample Characteristics

Students form two leading universities in Thailand were asked to participate in the data collection from August, 2015 to December, 2015. There are 1,061 students participated during the period. However, only 854 participants fully completed the questionnaire (80% response rate). Data from these participants were further examine to ensure that they follows the criteria of target population (see 3.3.1), and do not violate the normality assumption.

First, the participant characteristics are investigated. The participants who are older than thirty years old are eliminated. The participant characteristics are shown in Table 4.1. The descriptive results indicated that 193 participants are older than 30 years old and are not correspondent with the criteria of the target population. Their data are eliminated from this study, bringing the useable responds to 661 participants.

Table 4.1: Participant Characteristics

Measure	Items	Frequency	Percentage
Gender	Feale	508	59.5
	Male	346	40.5
Age	< 20 years old	223	26.1
	21-30 years old	438	51.3
	31-40 years old	136	15.9
	41-50 years old	34	4
	51-60 years old	20	2.3
	> 60 years old	3	0.4
Total		854	100

Later, the normality assumption of each item is investigated for each set of questionnaire. This investigation was conducted to eliminate the outliers. This study follows the guideline from George and Mallery (2016) in investigating the normality assumption. George and Mallery (2016) argued that items with skewness and kurtosis values between -2 and +2 are acceptable range to certify normal univariate distribution.

The primary investigation indicated normality problem in set 1 and set 3 of the questionnaire, and another 5 participants were eliminated from the study. Numbers of respondents for each set of questionnaires are showed in Table 4.2.

Table 4.2: Numbers of Participant

Questionnaire	Numbers of Participant		
	All	Target Population	Normality
Set 1	55	45	41
Set 2	55	45	45
Set 3	66	52	51
Set 4	58	43	43
Set 5	50	41	41
Set 6	38	30	30
Set 7	55	44	44
Set 8	55	43	43
Set 9	56	41	41
Set 10	54	46	46
Set 11	50	35	35
Set 12	52	37	37
Set 13	58	40	40
Set 14	56	42	42
Set 15	57	49	49
Set 16	39	28	28
Total	854	661	656

The descriptive statistics of the sample for each set of questionnaires are shown in Appendix A. The sample characteristics of this study are shown in Table 4.3.

Table 4.3: Sample Characteristics

Measure	Items	Frequency	Percentage
Gender	Female	402	61.3
	Male	254	38.7
Age	< 20 years old	220	33.5
	21-30 years old	436	66.5
Total		656	100

The sample characteristics indicated that female respondents made up 61.3% of the sample. Furthermore, the majority of the respondents (66.5%) are between 21 and 30 years old.

4.3 Construct Validity and Reliability

4.3.1 Normality Assumption

This study selects covariance-based SEM for statistical analysis. It is conducted for evaluating construct validity and testing hypotheses. Furthermore, this research adopts the maximum likelihood technique as model estimator. Hence, multivariate normality of observed constructs is essential (Hair, 1998). To test the normality assumption, skewness and kurtosis values are investigated. The results in Table 4.4 showed that skewness and kurtosis values are between -2 and +2 that suggested no multivariate normality problem.

Table 4.4: Descriptive Statistic for each item

Items	N = 656			
	Mean	SD	Skewness	Kurtosis
ISC1	4.29	2.258	-0.262	-1.426
ISC2	4.25	1.865	-0.261	-1.03
ISC3	4.11	1.767	-0.317	-0.845
ISC4	4.23	2.078	-0.276	-1.286
ISC5	4.25	1.817	-0.34	-0.93
ISC6	4.21	1.789	-0.291	-0.921
ISC7	4.47	1.978	-0.467	-1.029
ISC8	4.49	2.069	-0.444	-1.161
ISC9	4.39	1.861	-0.42	-0.904
BS1	3.86	1.499	-0.155	-0.479
BS2	4.21	1.505	-0.345	-0.359
BS3	3.94	1.464	-0.222	-0.438
BS4	3.65	1.45	-0.031	-0.426
BS5	3.77	1.571	-0.012	-0.635
BS6	4.24	1.52	-0.318	-0.432
BS7	3.93	1.518	-0.207	-0.41
SV1	3.89	1.457	-0.207	-0.4
SV2	3.80	1.502	-0.107	-0.599
SV3	3.88	1.464	-0.148	-0.455
SV4	3.73	1.476	-0.1	-0.485
SV5	3.92	1.578	-0.168	-0.722
SV6	3.89	1.598	-0.098	-0.665
SV7	3.84	1.726	-0.084	-0.932
SV8	3.84	1.648	-0.109	-0.745
VS	1.74	0.822	0.053	-1.66

4.3.2 Construct Validity and Reliability

Straub et al. (2004) cautions that it is crucial for researchers to validate their instrument before testing hypotheses. Based on guidelines from Straub et al. (2004), this study evaluates 1) content validity, 2) construct validity, and 3) reliability.

First, content validity is "the extent to which an instrument (e.g., measurement items) can represent all facets of a given construct" (Cronbach & Meehl, 1955, p. 282). It can be established through literature review and expert judge (Straub et al., 2004). This study addresses content validity by the adoption of previous measures in the relevant literatures.

Second, construct validity is "the degree to which the instrument of a construct can measure what it claims, or purports, to be measuring" (Cronbach & Meehl, 1955, p. 282). To demonstrate the construct validity, convergent and discriminant validity are assessed. Convergent validity indicates the degree to which the items supposed to measure a construct illustrate high correlation with each other (Straub et al., 2004). Average variance extracted (AVE) is used to determine convergent validity. According to Afthanorhan (2013), the AVE can be calculated from Equation 4.1.

$$\frac{\sum(\text{standardized loading})^2}{\sum(\text{standardized loading})^2 + \text{measurement error}} \quad (4.1)$$

AVE value of 0.5 and above is recommended for sufficient convergent validity (Fornell & Larcker, 1981). This value indicated that the latent variable can explain more than half of its indicators' variances.

Discriminant validity, in contrast, indicates the degree to which the measurement items of different constructs show low correlation with each other (Straub et al., 2004). Pairwise discriminant analysis is used to test discriminant validity. According to Byrne (2009, pp. 53 - 95), discriminant validity between any two constructs can be addressed by comparing chi-square of the original CFA model against other CFAs with possible combination of two constructs. If the chi-square of the original CFA is significantly better than that of any possible combination, it indicates discriminant validity.

Finally, reliability is concerned on internal consistency and is defined as "the extent to which the respondent can answer the same questions or close approximations the same way each time (Straub et al., 2004, p. 400)." This study chose composite reliability (CR), which is more rigorous than Cronbach's alpha (Dinev & Hart, 2006), to assess reliability of the constructs. . According to Afthanorhan (2013), the CR can be calculated from Equation 4.2.

$$\frac{(\sum \text{standardized loading})^2}{(\sum \text{standardized loading})^2 + \text{measurement error}} \quad (4.2)$$

CR value of 0.7 and above is recommended for sufficient reliability (Afthanorhan, 2013; Straub et al., 2004).

This research follows Straub et al. (2004), and adopts confirmatory factor analysis (CFA) for assessing the convergent validity, the discriminant validity, and the composite reliability. This study creates the CFA model on Amos 18.0 software (Arbuckle, 2009) with maximum likelihood estimator. Before the model estimation, all items were investigated for the univariate normality assumption, and the results indicated no problem. Furthermore, this study follows the suggestions from Gefen et al. (2000), Hair (1998), and Hu and Bentler (1999) in evaluating model fit. They suggested that GFI, CFI, and NFI are best if above 0.90, AGFI above 0.80, RMSEA below 0.060, SRMR below 0.060, and normed Chi-square below 3.0.

The initial CFA model which consists of the three psychological constructs is investigated. The investigation aims to ensure that the items belong to their underlining construct. The details of items, factor loading and factor score weights are illustrated in Table 4.5. Factor loadings indicated how much the items associate with the unobserved variables, while factor score weights illustrated how much the items account for predicting the unobserved variables. The results indicated the problems in items SV7 and ISC2. Both items provide the lowest factor loading on the underlining constructs that are 0.574 and 0.662, respectively. Moreover, factor score weights indicated that SV7 and ISC2 are better at predicting constructs other than their underlying constructs. Thus, the items are dropped for the study.

Table 4.5: Factor loading, and Factor Score Weights of Initial CFA Model

Construct	Items	Factor loading	Factor Score Weights		
			Social Value	Brand Status	Internet Social Capability
Social Value	SV1	0.839	0.131	0.011	0.001
	SV2	0.866	0.22	0.018	0.002
	SV3	0.886	0.189	0.016	0.002
	SV4	0.884	0.254	0.021	0.003
	SV5	0.74	0.065	0.005	0
	SV6	0.692	-0.021	-0.002	-0.002
	SV7	0.574	0.001	0.001	0.005
	SV8	0.678	0.033	0.002	-0.002
Brand Status	BS1	0.831	0.012	0.239	0
	BS2	0.747	0	-0.005	0
	BS3	0.849	0.011	0.228	0
	BS4	0.828	0.009	0.176	0
	BS5	0.673	0.002	0.039	0
	BS6	0.717	0.003	0.068	0
	BS7	0.761	0.008	0.157	0
Internet Social Capability	ISC1	0.805	-0.001	0.001	0.025
	ISC2	0.662	0.008	-0.007	-0.008
	ISC3	0.854	0	0.002	0.192
	ISC4	0.853	0.002	-0.001	0.081
	ISC5	0.88	0.002	0	0.177
	ISC6	0.779	0.002	0	0.166
	ISC7	0.825	0.001	0	0.053
	ISC8	0.922	0.003	0.001	0.346
	ISC9	0.82	0.001	0	0.035

After dropping items, the CFA showed acceptable model fit: normed Chi-square = 2.056; GFI = 0.948; AGFI = 0.930; NFI = 0.969; CFI = 0.984; SRMR = 0.0537; and RMSEA = 0.040. The details of items, factor loading, composite reliability and AVE are illustrated in Table 4.6.

Table 4.6: Factor loading, reliability, and AVE

Construct	Items	Factor loading	Composite Reliability	AVE
Social Value	SV1	0.839	0.926	0.644
	SV2	0.867		
	SV3	0.886		
	SV4	0.884		
	SV5	0.74		
	SV6	0.694		
	SV8	0.678		
Brand Status	BS1	0.832	0.913	0.600
	BS2	0.748		
	BS3	0.849		
	BS4	0.827		
	BS5	0.673		
	BS6	0.717		
	BS7	0.761		
Internet Social Capability	ISC1	0.802	0.952	0.711
	ISC3	0.855		
	ISC4	0.849		
	ISC5	0.881		
	ISC6	0.781		
	ISC7	0.82		
	ISC8	0.93		
	ISC9	0.818		

The results from Table 4.6 indicated that the measurement has convergent validity and reliability. All AVEs exceed the recommend values of 0.5 (Fornell & Larcker, 1981), which signifies the convergent validity of the constructs. Furthermore, all values of composite reliability is larger than the recommend score of 0.7 (Afthanorhan, 2013; Straub et al., 2004), which shows sufficient reliability. Furthermore, the descriptive statistics and correlation among constructs are provided in Table 4.7.

Table 4.7: Descritive Statistics and Correlation

	Mean	S.D.	SV	BS	ISC
SV	3.843	1.540	0.802		
BS	3.937	1.523	0.587	0.775	
ISC	4.297	1.967	0.323	0.150	0.843

Note: The square root of AVE is shown on the diagonal.

In addition, discriminant validity of constructs is further evaluated by pairwise discriminant analysis which compares the Chi-square of the original CFA with its three latent variables against other CFAs with only two variables where every possible combination of two constructs was examined (Byrne, 2009). In case that the Chi-square of original CFA is better than the others, it can be assumed that three construct model is more suitable than combination of any two constructs, which supports for discriminant among the three constructs. The details of pairwise discriminant analysis are provided in Table 4.8.

Table 4.8: Pairwise Discrimnant Analysis

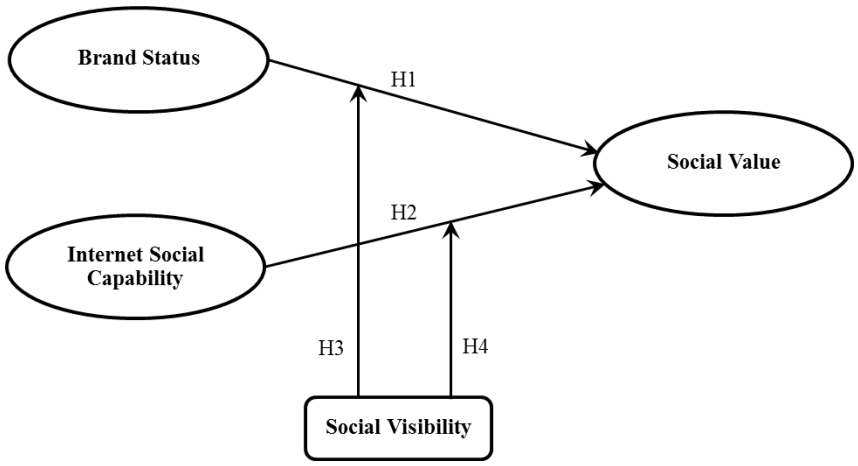
Model	χ^2_{df}
Original Model	χ^2_{187} = 384.517
Combining Social Value with Brand Status	χ^2_{189} = 1,422.541
Combining Social Value with Internet Social Capability	χ^2_{189} = 2,416.883
Combining Brand Status with Internet Social Capability	χ^2_{189} = 2,139.993

The Chi-square values from Table 4.8 come from each model. The Chi-square difference test ($\Delta\chi^2$) is conducted to examine whether there is significant difference between the two models. One is the original CFA model, while the other comes from one of the combination models. The results of Chi-square tests are as follow. First, the Chi-square difference between the original model and the combining Social Value with Brand Status model is 1,038.024 ($p < 0.001$). Second, the Chi-square difference between the original model and the combining Social Value with Internet Social Capability model is 2,032.366 ($p < 0.001$). Finally, the Chi-square difference between the original model and the combining Brand Status with Internet Social Capability model is 1,755.476 ($p < 0.001$). These results illustrate that the original CFA model is significantly better than the other combination models. Therefore, it supports for discriminant validity among the three constructs.

The results indicated that the study constructs have convergent validity, discriminant validity, and reliability, and ready for hypothesis testing.

4.4 Hypothesis Testing

This study has four hypotheses which are shown below. The figure is re-illustrated from Figure 2.7.



This study follows Little et al. (2006), and conducted three structural equation models which investigate the different effects. The first model investigates the main effect from brand status (H1) and Internet social capability (H2) on social value. The second model examines the direct effect from social visibility on social value. The last model explores the moderating effect from social visibility on the relationship between brand status and social value (H3), and the moderating effect from social visibility on the relationship between Internet social capability and social value (H4).

4.4.1 The First Model

The first model or main effect model is created in Structural Equation Modeling. It consists of three constructs that are brand status, internet social capability, and social value as illustrated in Figure 4.1.

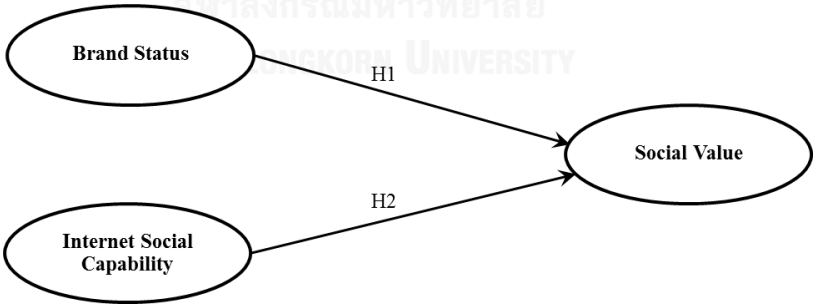


Figure 4.1: The First Model

Social value is the dependent variable, while Brand status and Internet social capability are the independent variables. Social value consists of 7 items (see Table 4.6), because SV7 is dropped from this study. Brand status consists of 7 items; while Internet social capability has 8 items (see Table 4.6), because ISC2 is dropped from this study.

To test for the first two hypotheses in the main effect model, there are two steps. First, the model fit is investigated by numerous fit indices to ensure the good fit

with the data. Second, paths involving with the hypotheses are analyzed for significance.

The main effect model showed acceptable model fit: normed Chi-square = 2.056; GFI = 0.948; AGFI = 0.930; NFI = 0.969; CFI = 0.984; SRMR = 0.054; and RMSEA = 0.040. Hence, the standardized path coefficients could be used for hypotheses testing.

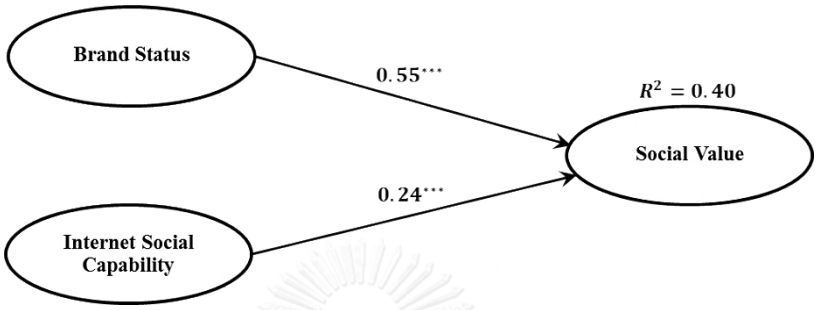


Figure 4.2: The First Model Results

The results, shown in Figure 4.2, indicate that all paths are significant, which support for the first two hypotheses: brand status (H1) and Internet social capability (H2) have significant positive effects on social value. The effect size of brand status is 0.55 ($p < 0.001$), while the effect size of Internet social capability is 0.24 ($p < 0.001$). Moreover, square multiple correlations, or R^2 indicates that forty percent of social value variance is explained by the model.

4.4.2 The Second Model

The objective of this model is to examine the direct effect of the moderating variable on the dependent variable. In this case, this model explores the direct effect from social visibility on social value. This model is illustrated in Figure 4.3.

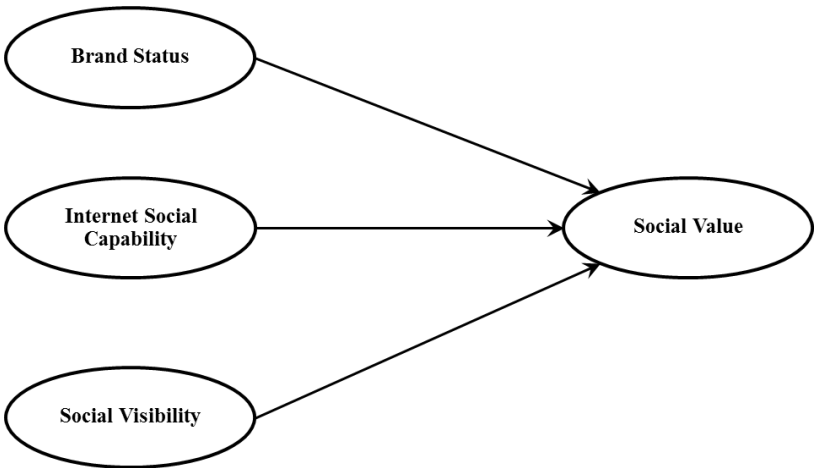


Figure 4.3: The Second Model

Fit indices indicate that the model is good fitted with that data: normed Chi-square = 2.242; GFI = 0.941; AGFI = 0.921; NFI = 0.963; CFI = 0.979; SRMR = 0.054; and RMSEA = 0.044. Hence, the standardized path coefficients could be used for hypotheses testing.

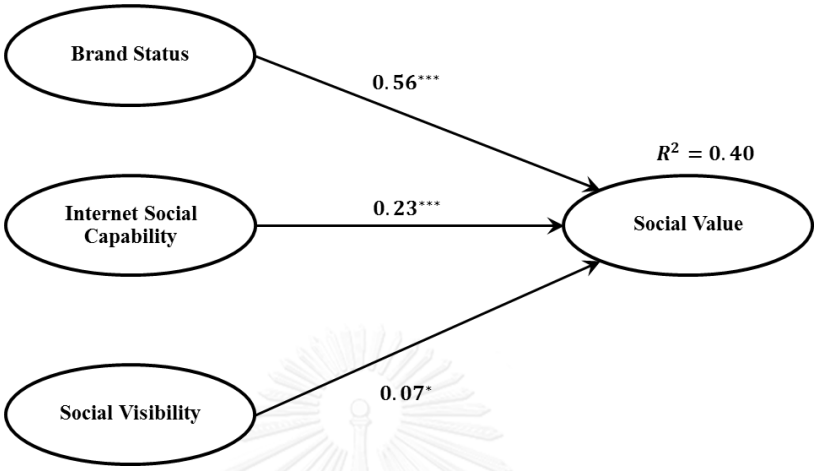


Figure 4.4: The Second Model Results

The results, shown in Figure 4.4, indicate that brand status, Internet social capability, and social visibility have significant positive effects on social value. The effect size of brand status, Internet social capability, and the social visibility are 0.56 ($p < 0.001$), 0.23 ($p < 0.001$), and 0.07 ($p < 0.05$), respectively. R^2 remains similar to the first model. This indicates that the effect of social visibility is weak but not at random.

4.4.3 The Third Model

This model investigates the moderation effect of social visibility on the relationship between brand status and social value, and on the relationship between Internet social capability and social value. The moderation effects can be represented by interaction constructs. Items of these interaction constructs are from multiplying the items between related variables. In this case, the first interaction construct is derived from multiplying items of brand status and items of social visibility, while the second interaction construct is derived from multiplying items of Internet social capability and items of social visibility. However, to avoid multicollinearity, these items are transformed by mean centering approach. The descriptive statistics of the original items and the mean-centered items are displayed in Table 4.9.

Table 4.9: Descriptives Statistic of Items for The Third Model

Variable	Items	Original				Mean Centered			
		Mean	S.D.	Kurt.	Skew.	Mean	S.D.	Kurt.	Skew.
Internet Social Capability	ISC1	4.29	2.26	-0.26	-1.43	0.00	1.00	-0.26	-1.43
	ISC3	4.11	1.77	-0.32	-0.85	0.00	1.00	-0.32	-0.85
	ISC4	4.23	2.08	-0.28	-1.29	0.00	1.00	-0.28	-1.29
	ISC5	4.25	1.82	-0.34	-0.93	0.00	1.00	-0.34	-0.93
	ISC6	4.21	1.79	-0.29	-0.92	0.00	1.00	-0.29	-0.92
	ISC7	4.47	1.98	-0.47	-1.03	0.00	1.00	-0.47	-1.03
	ISC8	4.49	2.07	-0.44	-1.16	0.00	1.00	-0.44	-1.16
	ISC9	4.39	1.86	-0.42	-0.90	0.00	1.00	-0.42	-0.90
Brand Status	BS1	3.86	1.50	-0.16	-0.48	0.00	1.00	-0.16	-0.48
	BS2	4.21	1.51	-0.35	-0.36	0.00	1.00	-0.35	-0.36
	BS3	3.94	1.46	-0.22	-0.44	0.00	1.00	-0.22	-0.44
	BS4	3.65	1.45	-0.03	-0.43	0.00	1.00	-0.03	-0.43
	BS5	3.77	1.57	-0.01	-0.64	0.00	1.00	-0.01	-0.64
	BS6	4.24	1.52	-0.32	-0.43	0.00	1.00	-0.32	-0.43
	BS7	3.93	1.52	-0.21	-0.41	0.00	1.00	-0.21	-0.41
Social Visibility	VS	1.74	0.82	0.05	-1.66	0.00	1.00	0.05	-1.66

Table 4.9 shows items and their descriptive statistics from Internet social capability, brand status, and social visibility. The Internet social capability has only 8 items since ISC2 is dropped from this study. Furthermore, Table 4.9 also illustrates items' mean, kurtosis, and skewness. All items' mean are centered to zero and standard deviation are one. The kurtosis and skewness value also indicate that the distribution of each item does not change after mean centering.

The multiplication between mean centered items of brand status and social visibility are conducted to develop items representing the first interaction construct. It consists of 7 items which are $VS \times BS1, VS \times BS2, VS \times BS3, VS \times BS4, VS \times BS5, VS \times BS6$, and $VS \times BS7$. In the same way, the multiplication between mean centered items of Internet social capability and social visibility are conducted to develop items representing the second interaction construct. It also consists of 7 items that are $VS \times ISC1, VS \times ISC3, VS \times ISC4, VS \times ISC5, VS \times ISC6, VS \times ISC7, VS \times ISC8$, and $VS \times ISC9$. Structural Equation modeling of this moderation model is illustrated in Figure 4.5.

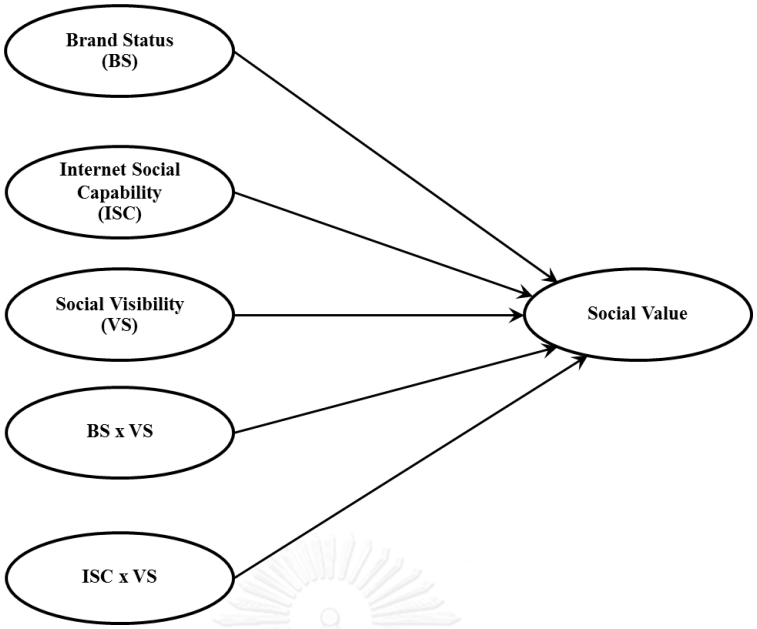


Figure 4.5: The Thrid Model

Fit indices indicate that the model has acceptable fit with the data: normed Chi-square = 1.870; GFI = 0.915; AGFI = 0.899; NFI = 0.945; CFI = 0.974; SRMR = 0.059; and RMSEA = 0.036. Hence, the standardized path coefficients could be used for hypotheses testing.

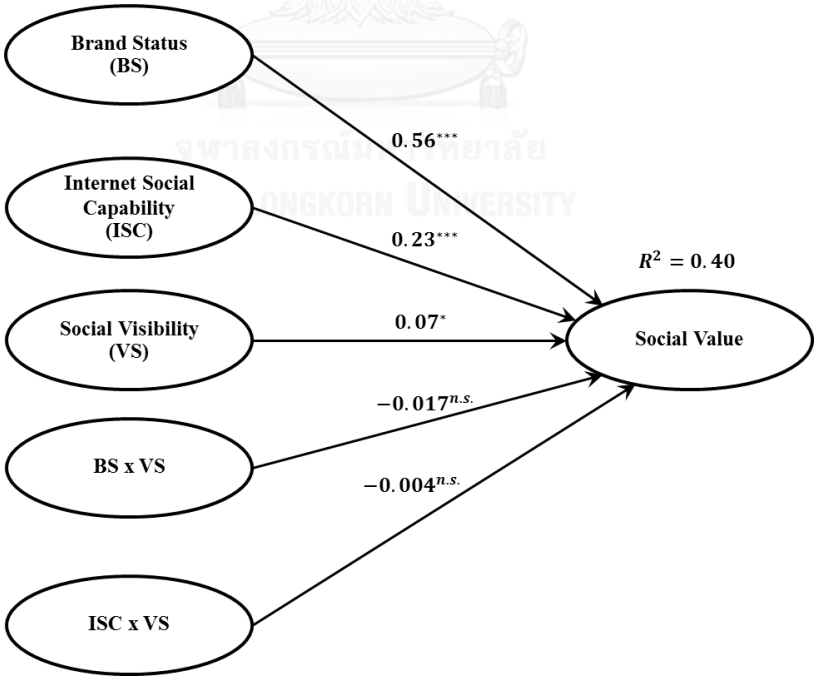


Figure 4.6: The Third Model Results

The results, shown in Figure 4.6, indicate that only brand status, Internet social capability, and social visibility have significantly positive effects on social value,

while the two interaction terms have no significant effect on social value. The effect sizes of brand status, Internet social capability, social visibility, the first interaction term, and the second interaction term are 0.56 ($p < 0.001$), 0.23 ($p < 0.001$), 0.07 ($p < 0.05$), -0.017 ($p = 0.611$), and -0.004 ($p = 0.900$), respectively. Moreover, square multiple correlations, or R^2 indicates that forty percent of social value variance is explained by the third model. This result confirms that the first and second hypotheses are supported, while the third and fourth hypotheses are not supported. However, social visibility has a direct effect on social value.

4.5 Results

The results are summarized in Figure 4.7 and Table 4.10.

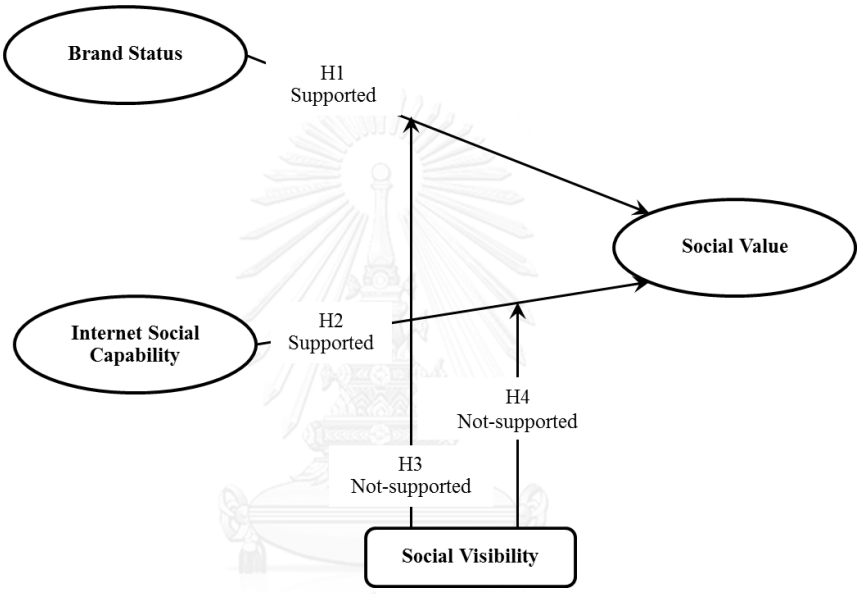


Figure 4.7: Research Model Results

Table 4.10: Hypothesis Testing Results

Hypothesis	Test results
H1:	Supported: Brand status has a positive relationship with social value. Its effect size was 0.56.
H2:	Supported: Internet social capability has a positive relationship with social value. Its effect size was 0.23.
H3:	Not-supported: Social visibility did not significantly moderate the relationship between brand status and social value
H4:	Not-supported: Social visibility did not significantly moderate the relationship between Internet social capability and social value

The statistical analysis in this study sheds light on the relationship among the study variables in context of IT-related artifacts. First, this study confirms the relationship between brand status and social value in the context. Statistical analysis

reveals that brand status is the most important predictors of social value in term of its effect size.

Second, this study sheds light on the link between Internet social capability and social value in context of IT-related artifacts. Statistical analysis unveils that Internet social capability play a role in creating social value.

Moreover, this study also provides the relationship between social visibility and social value in context of IT-related artifacts. Statistical analysis shows that social visibility also has a least positive effect on social value.

Finally, statistical analysis also displays that social visibility did not significantly influence on both the relationship between brand status and social value, and the relationship between Internet social capability and social value. It implies product size of IT-related artifact did not play the moderating role.

Chapter 5
Discussion

5.1 Conclusions

This study aims to provide a theoretical framework for the integration effects of brand status and Internet social capability on social value when social visibility of IT-related artifact is taken in to account. To move this research objective forward, this study asks two questions. Four hypotheses are proposed to answer the questions. Structural equation modeling is conducted to investigate the hypotheses. The statistical analysis from these hypotheses reveals four findings.

First, social value of IT-related artifacts arguably consists of two dimensions. Confirmatory factor analysis found that the items of social self-image expression and social relationship support are loaded on the same construct, social value. It indicated that when studying social value in context of IT-related artifacts two dimensional concept of social value is more suitable. The result is in line with a research by Kim et al. (2011) where studied the social value within social networking communities. However, the results confirm that two-dimensional concept is applicable to context of IT-related artifact.

Second, brand status has a considerable effect on the social value in context of IT-related artifact, which answers the first hypothesis (*H1*). Statistical analysis in the third model indicated that the effect size of brand status on social value is high at 0.56. This result is in line with previous studies on status consumption and costly signaling theory. Status consumption studies mark the importance of the relationship between brand status and social self-image expression. Researchers argued that brand status can help the owners to communicate their preferred social status to others (Van Kempen, 2004). Thus, the owners gain higher social recognition (Dawson & Cavell, 1987), or impressive image from others (Nelissen & Meijers, 2011). Studies on costly signaling theory emphasize on the relationship between brand status and social relationship support. Researchers argued that brand status can help the owners to draw attraction from others (Lee et al., 2015). This attraction can initiate further social interaction (Godoy et al., 2007), leading to social capital (Ellison et al., 2007; Nelissen & Meijers, 2011).

Third, Internet social capability plays a role in creating the social value in context of IT-related artifacts, which answers the second hypothesis (*H2*). Statistical analysis in the third model indicated that the effect size of Internet social capability on social value is 0.23. The result is relevant to previous online self-presentation and interpersonal communication studies. Researchers argued that Internet can help user to broadcast their preferred identities through manipulation of texts, images, and icons in online communities (Lampel & Bhalla, 2007; D. C. Li, 2011; Nguyen & Jon, 1996). With this preferred identity, the user can gain higher social recognition, or impressive

image (McLure Wasko & Faraj, 2005). Studies on interpersonal communication emphasize on the relationship between Internet social capability and social relationship support. Researchers argued that Internet can facilitate user to better participate in online communication (Ahn, 2012). This can both strengthen strong tie and initiate weak tie (Ellison et al., 2007; Jin et al., 2015), which support social relationship. However, the results confirm that the concept is still applicable to context of IT-related artifact.

Finally, social visibility has directly positive effect on the social value in context of IT-related artifacts, and statistical analysis indicates that the effect size of social visibility on social value is 0.07. This effect is though small but not random. Furthermore, social visibility does not have significant effect on the relationship between brand status and social value, and also the relationship between Internet social capability and social value. The findings answer the third (*H3*) and the forth (*H4*) research hypotheses. This is no moderating effect as expected in both hypotheses. Instead, there is a direct effect. With regarding to H3, the finding challenges previous studies on status consumption that implies that social visibility of product may unequally enhance different levels of brand status. With regarding to H4, the finding posts interesting online on previous social capital studies that social visibility may help its users to gain more social interactions to further online social interaction.

The plausible explanation is that a consumer electronics product in high social visibility can create social interaction for its user through other product attributes. This social interaction can create social relationship and also social self-image. For example, main function of camera is to facilitate its user to take a photo. This main function can enable user to socialize with other persons who may need him/her to take a photo for. It can initiate the social relationship. Moreover, the quality of the taken photo can show how professional of the photographer is. It can help him/her to express their social self-image to others. However, this effect is low when compare to the effect of brand status, and Internet social capability.

5.2 Contribution

5.2.1 Theoretical Contribution

This study contributes to consumer value research, and information technology adoption research especially in context of IT-related artifact. The unique characteristic of IT-related artifact is that it does not only remain the basic usage from the non-IT artifact, but also provides additional IT-related function for its users. With this special characteristic, users' perception on the traditional product's value may not be the same. This study aims to investigate the effects of the integration and provides theoretical framework for further study in context of IT-related artifact.

First, this study aims at social value. The social value is not the new concept. It has been studied in context of non-IT artifact, and pure-IT artifact. However, the concept is presented in different viewpoints. On the one hand, in non-IT artifact, social

value is studied in term of social self-image expression (W. Bearden & Netemeyer, 1999; Jillian C. Sweeney & Soutar, 2001). On the other hand, in pure-IT artifact, social value has been extended with another dimension, the social relationship support (Horowitz et al., 2006; Kim et al., 2011). It is imperative to clarify which concept is suitable for studying social value in context of IT-related artifact. Confirmatory factor analysis from this study suggests that the two-dimensional concept of social value is more suitable for context of IT-related artifact. This finding adds body of knowledge to consumer value research.

Second, this study comes up with three antecedent variables of social value in context of IT-related artifact. Basically, previous research in consumption value more emphasized on the consequence effect of social value. For example, Turel et al. (2007) investigated the consequence effect on behavioral intention. Deng, Lu, Wei, and Zhang (2010) examined this consequence effect on customer satisfaction. This study fulfills the gap by suggesting three antecedent variables of social value in context of IT-related artifact. They are brand status, Internet social capability, and social visibility.

Moreover, theorizing Internet social capability and social visibility also enhances body of knowledge to research community. Internet social capability and social visibility are not ready to use in context of IT-related artifact. They need some refinement from other concepts before using in context of IT-related artifact. This study borrows the concept of sociability to define a product's Internet social capability, and also determine important characteristics of IT-related artifact. Furthermore, the concept of public and private product from W. O. Bearden and Etzel (1982) is applied to develop social visibility scale. The refinement of social value includes the dimension of area into consideration.

Finally, this study suggests another influential factor for IT adoption research. According to Sheth et al. (1991), adoption decision depends on consumer perceived value of a product. In previous studies, social value, which is one of the five dimensions of consumer perceived value, does not gain high recognition as functional value, or epistemic value. This neglect may result from the dissonance between brand status and other product features (i.e., perceived ease of use, perceived relative advantage). At the same time, Internet social capability does not diffuses into numerous product categories. Hence, this study introduces a relatively new antecedent for IT adoption model.

5.2.2 Practical Contribution

This study does not only provide theoretical contribution, but also provide practical contribution. The practical contributions are the followings.

First, statistical analysis suggests that brand status is a major source of social value in context of IT-related artifact. This finding harmonizes with the results in luxury consumption studies. It raises the importance of brand prestige in context of IT-related artifact. The finding suggests that brand management strategy is also an

indispensable element for companies in consumer electronics. The companies have to advertise their brand as prestige symbols. This can help to increase consumers' social value perception, and may lead to increase in circulation.

Second, statistical analysis also suggests that Internet social capability is another source of social value in context of IT-related artifact. This finding is in conformity with the results in computer-mediated communication studies. It also raises the importance of the sociability in context of IT-related artifact. Recently, not all the IT-related artifact is capable of connecting user to online social software. Some IT-related products have the additional IT functions in order to support functional usage. The finding suggests that consumer electronics companies should more concern on the sociability of their products. This capability may increase consumers' social value perception, and may lead to increase in circulation.

However, integrating Internet social capability into a product, companies may need to build additional capabilities. First, companies may consider investing in new machine or new technology that can aid their employees to integrate the internet social capability into their existing products. Second, companies may consider recruiting new employees who are capable of handling the embedded technology. Finally, companies may consider exploring the partnership companies that acquaint with integrating the embedded technology into products.

Finally, this study indicates that the effects of brand status and Internet social capability on social value is much more than the effect of social visibility on social value in the context of IT-related artifact. Moreover, the results also indicate that social visibility does not affect the link between brand status and social value, and the link between Internet social capability and social value. This implies that users place the importance on brand status and Internet social capability over the type of product. This can aid executives of consumer electronics companies in launching product strategy. Companies can increase social value of product by integrating Internet social capability into their traditional non-IT product.

5.3 Limitations and Future Research

5.3.1 Limitations

This study has three key limitations. First, the results indicate that about forty percent of social value variance is explained by brand status, Internet social capability, and social visibility. The left-over variance of the predicted variables indicates that there are certain variables which have not been examined in this study.

Second, convenient sampling method is adopted, and universities students in age between 18 and 30 are used as sample for this study. Moreover, four types of consumer electronics are used as representatives of IT-related artifacts. This may limit the generalization of the results to other age interval and other consumer products.

Finally, data collection method is conducted using mainly the self-administered online survey. The method prevents the respondents from using social

software over the Internet on the actual devices. This may result in the effect from Internet social capability on social value deviates from the reality.

5.3.2 Future Research

The objective of this research is to provide a theoretical framework for the integration of brand status and Internet social capability on social value in context of IT-related artifacts. The results suggest that both brand status and Internet social capability have positive influence on social value. This result does not directly mean that brand status and Internet social capability can influence consumer to purchase an IT-related product. The social value may have different effects on adoption intention when considering in different products. Future researches should address this issue.

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APPENDIX

APPENDIX - A
Descriptive Statistics

Table A1: Descriptive statistics of the first set of questionnaire

Items	N = 41			
	Mean	SD	Skewness	Kurtosis
ISC1	6.29	0.955	-1.359	1.848
ISC2	5.56	1.343	-0.69	-0.204
ISC3	5.37	1.24	-0.586	0.091
ISC4	5.85	1.174	-0.872	-0.035
ISC5	5.46	1.38	-0.73	-0.259
ISC6	5.1	1.715	-0.628	-0.57
ISC7	6.1	0.995	-1.164	1.227
ISC8	6.41	0.836	-1.471	1.709
ISC9	5.73	1.285	-0.88	-0.17
BS1	4.17	1.626	-0.546	-0.476
BS2	4.63	1.445	-0.726	0.648
BS3	4.27	1.484	-0.198	-0.03
BS4	3.61	1.339	-0.476	-0.391
BS5	3.78	1.541	-0.043	-0.191
BS6	4.61	1.464	-0.328	-0.132
BS7	4.07	1.679	-0.487	-0.334
SV1	4.51	1.416	-0.442	-0.035
SV2	4.17	1.642	-0.252	-0.699
SV3	4.27	1.533	-0.434	0.103
SV4	4.24	1.655	-0.306	-0.388
SV5	4.63	1.699	-0.772	-0.158
SV6	4.54	1.645	-0.759	-0.088
SV7	5.17	1.745	-0.868	0.087
SV8	4.66	1.726	-0.696	-0.224

Table A2: Descriptive statistics of the second set of questionnaire

Items	N = 45			
	Mean	SD	Skewness	Kurtosis
ISC1	4.58	1.777	-0.515	-0.533
ISC2	4.22	1.565	-0.35	-0.837
ISC3	4.27	1.498	-0.31	-0.434
ISC4	4.73	1.671	-0.413	-0.61
ISC5	4.6	1.558	-0.534	-0.217
ISC6	4.71	1.502	-0.744	0.115
ISC7	5.07	1.468	-0.616	0.052
ISC8	4.93	1.615	-0.666	-0.382
ISC9	4.82	1.336	-0.497	-0.034
BS1	3.67	1.508	-0.148	-0.627
BS2	4.2	1.59	-0.45	-0.707
BS3	4.02	1.574	-0.221	-0.957
BS4	3.31	1.362	0.023	-0.136
BS5	3.24	1.384	0.292	-0.145
BS6	4.22	1.521	-0.07	-0.592
BS7	3.69	1.427	-0.401	-0.175
SV1	3.53	1.272	-0.425	-0.458
SV2	3.71	1.29	-0.093	-0.45
SV3	3.64	1.246	-0.161	0.446
SV4	3.53	1.375	-0.128	-0.476
SV5	3.8	1.217	0.006	-1.037
SV6	3.96	1.224	-0.301	0.14
SV7	4.13	1.375	-0.47	0.329
SV8	3.87	1.325	-0.358	-0.144

Table A3: Descriptive statistics of the third set of questionnaire

Items	N = 51			
	Mean	SD	Skewness	Kurtosis
ISC1	6.47	0.784	-1.326	0.902
ISC2	5.14	1.429	-0.679	-0.072
ISC3	4.86	1.342	-0.722	0.308
ISC4	5.96	0.958	-0.771	0.46
ISC5	5.35	1.339	-0.947	1.205
ISC6	4.9	1.404	-0.451	-0.413
ISC7	5.9	1.005	-0.904	0.409
ISC8	5.92	1.146	-1.003	1.108
ISC9	5.2	1.217	-0.739	0.277
BS1	3.59	1.512	0.095	-0.157
BS2	3.88	1.492	-0.28	-0.468
BS3	3.41	1.388	-0.09	-0.489
BS4	3.41	1.445	-0.065	-0.782
BS5	3.76	1.582	-0.352	-0.774
BS6	3.51	1.419	-0.501	-0.868
BS7	3.22	1.433	0.071	-0.836
SV1	3.45	1.254	0.084	0.319
SV2	3.75	1.412	-0.103	-0.388
SV3	3.61	1.328	-0.242	0.342
SV4	3.43	1.153	-0.599	-0.077
SV5	4.25	1.508	-0.527	-0.184
SV6	4.39	1.443	-0.565	0.172
SV7	4.43	1.591	-0.413	-0.488
SV8	4.22	1.579	-0.085	-0.582

Table A4: Descriptive statistics of the fourth set of questionnaire

Items	N = 43			
	Mean	SD	Skewness	Kurtosis
ISC1	3.77	1.9	0.22	-1.068
ISC2	4.21	1.726	-0.281	-0.706
ISC3	3.93	1.47	0.079	-0.222
ISC4	3.58	1.694	0.362	-0.629
ISC5	3.88	1.621	0.197	-0.184
ISC6	4.21	1.39	-0.059	-0.613
ISC7	4.56	1.548	-0.215	-0.503
ISC8	4.05	1.731	-0.162	-0.884
ISC9	4.07	1.47	-0.173	-0.344
BS1	3.14	1.552	0.117	-0.517
BS2	3.51	1.437	0.077	0.02
BS3	2.88	1.295	-0.326	-1.311
BS4	2.81	1.239	-0.101	-1.005
BS5	3.28	1.501	0.471	0.312
BS6	3.28	1.202	-0.14	-0.247
BS7	2.93	1.203	-0.291	-1.108
SV1	2.84	1.362	0.131	-0.804
SV2	3.23	1.477	-0.05	-1.023
SV3	3	1.363	0	-0.885
SV4	3.02	1.244	-0.202	-0.539
SV5	3.44	1.563	-0.044	-0.626
SV6	3.47	1.609	0.3	-0.513
SV7	4.28	1.791	-0.286	-0.779
SV8	3.53	1.653	-0.064	-0.842

Table A5: Descriptive statistics of the fifth set of questionnaire

Items	N = 41			
	Mean	SD	Skewness	Kurtosis
ISC1	4.85	1.851	-0.421	-0.893
ISC2	4.76	1.625	-0.651	-0.525
ISC3	4.71	1.504	-0.63	-0.448
ISC4	4.66	2.045	-0.563	-1.031
ISC5	4.85	1.526	-0.54	-0.327
ISC6	4.54	1.416	-0.661	0.717
ISC7	4.95	1.532	-0.703	-0.193
ISC8	5.22	1.768	-1.036	0.311
ISC9	5.2	1.647	-1	0.42
BS1	4.15	1.558	-0.547	-0.166
BS2	4.32	1.524	-0.569	0.09
BS3	4.05	1.564	-0.496	-0.374
BS4	3.71	1.487	-0.042	-0.01
BS5	3.85	1.476	0.118	0.296
BS6	4.76	1.463	-0.561	0.216
BS7	4.34	1.407	-0.309	0.5
SV1	4.32	1.35	0.346	-0.057
SV2	4.22	1.294	-0.068	0.428
SV3	4.12	1.382	0.069	0.256
SV4	3.9	1.357	0.248	0.218
SV5	4.56	1.501	-0.217	-0.403
SV6	4.46	1.485	-0.19	-0.219
SV7	3.88	1.487	0.027	-0.319
SV8	4.27	1.533	-0.084	-0.168

Table A6: Descriptive statistics of the sixth set of questionnaire

Items	N = 30			
	Mean	SD	Skewness	Kurtosis
ISC1	2.8	2.156	0.852	-0.698
ISC2	3.27	1.893	0.405	-0.896
ISC3	2.7	1.557	0.598	0.128
ISC4	2.83	1.859	0.744	-0.598
ISC5	2.97	1.712	0.718	-0.425
ISC6	3.2	1.864	0.441	-1.006
ISC7	3.33	1.768	0.296	-1.002
ISC8	3	1.983	0.683	-1.048
ISC9	3.37	1.938	0.475	-1.08
BS1	3.83	1.262	0.335	-0.066
BS2	4.6	1.276	-0.026	0.179
BS3	4.17	1.177	0.335	0.122
BS4	3.9	1.348	0.103	-0.658
BS5	3.8	1.562	0.181	-1.217
BS6	4.57	1.278	-0.478	-0.097
BS7	4.23	1.591	0.14	-0.867
SV1	4	1.39	-0.496	-0.243
SV2	4.03	1.474	-0.338	-0.148
SV3	4.37	1.351	-0.55	0.269
SV4	3.7	1.236	-0.554	-0.05
SV5	4.17	1.464	-0.379	-0.77
SV6	4.07	1.461	-0.55	-0.423
SV7	3.7	1.579	0.027	-0.859
SV8	3.8	1.495	-0.364	-0.992

Table A7: Descriptive statistics of the seventh set of questionnaire

Items	N = 44			
	Mean	SD	Skewness	Kurtosis
ISC1	5.34	1.842	-1.021	-0.132
ISC2	4.89	1.66	-0.451	-0.601
ISC3	4.84	1.656	-0.797	0.26
ISC4	5	1.917	-1.058	0.015
ISC5	5.11	1.513	-0.961	0.379
ISC6	5.09	1.46	-1.01	0.82
ISC7	5.7	1.322	-1.067	0.907
ISC8	5.39	1.573	-0.982	0.424
ISC9	5.07	1.704	-0.88	-0.014
BS1	3.77	1.568	-0.021	-0.196
BS2	3.86	1.593	-0.489	-0.312
BS3	3.77	1.523	-0.134	-0.033
BS4	3.61	1.418	-0.037	-0.071
BS5	4	1.698	-0.328	-0.469
BS6	3.7	1.608	-0.336	-0.578
BS7	3.8	1.608	-0.389	-0.65
SV1	4.25	1.433	-0.811	0.89
SV2	4.48	1.372	-0.94	1.306
SV3	4.57	1.469	-0.901	0.896
SV4	4.11	1.385	-0.433	0.636
SV5	4.59	1.3	-0.708	1.59
SV6	4.3	1.622	-0.231	-0.22
SV7	4.34	1.493	-0.752	0.23
SV8	4.43	1.591	-0.287	-0.248

Table A8: Descriptive statistics of the eighth set of questionnaire

Items	N = 43			
	Mean	SD	Skewness	Kurtosis
ISC1	3.56	2.281	0.287	-1.468
ISC2	4.14	2.054	-0.007	-1.296
ISC3	3.6	1.917	0.109	-1.167
ISC4	3.7	2.166	0.115	-1.483
ISC5	3.67	1.948	0.099	-1.229
ISC6	3.72	1.869	0.06	-1.166
ISC7	3.56	2.292	0.189	-1.628
ISC8	3.65	2.287	0.327	-1.523
ISC9	3.95	2.138	-0.013	-1.384
BS1	3.81	1.452	-0.541	-0.566
BS2	4.23	1.525	-0.329	0.022
BS3	4.12	1.515	-0.335	-0.21
BS4	4	1.512	-0.303	-0.262
BS5	4.23	1.631	-0.567	-0.005
BS6	3.95	1.588	-0.444	-0.447
BS7	4.02	1.551	-0.643	0.088
SV1	3.72	1.315	-0.244	0.234
SV2	3.84	1.413	-0.123	-0.15
SV3	3.91	1.477	-0.065	-0.04
SV4	3.6	1.514	0.028	0.002
SV5	4.26	1.449	-0.225	-0.384
SV6	4.14	1.656	-0.167	-0.686
SV7	4.33	1.584	-0.003	-0.372
SV8	4.05	1.718	-0.075	-0.635

Table A9: Descriptive statistics of the ninth set of questionnaire

Items	N = 41			
	Mean	SD	Skewness	Kurtosis
ISC1	5.46	1.485	-0.961	0.557
ISC2	4.73	1.566	-0.721	-0.312
ISC3	4.78	1.275	-0.403	0.281
ISC4	5.22	1.573	-0.747	-0.104
ISC5	5.24	0.994	-0.202	-0.771
ISC6	4.63	1.428	-0.827	-0.001
ISC7	5.2	1.308	-0.451	-0.617
ISC8	5.44	1.379	-0.979	0.405
ISC9	4.8	1.229	-0.882	1.488
BS1	4.17	1.358	-0.011	-0.758
BS2	4.68	1.35	-0.025	-0.669
BS3	4.63	1.28	-0.164	-0.136
BS4	4.2	1.418	0.245	-0.777
BS5	4.2	1.616	0.041	-0.559
BS6	4.85	1.509	-0.473	-0.44
BS7	4.27	1.225	0.484	-0.139
SV1	4.41	1.414	-0.292	-0.306
SV2	4.02	1.491	-0.281	-0.655
SV3	4.2	1.346	-0.051	-0.041
SV4	3.98	1.557	-0.334	-0.827
SV5	4.17	1.34	-0.262	-0.275
SV6	4.27	1.467	-0.192	-0.5
SV7	4.32	1.474	-0.435	-0.3
SV8	4.29	1.436	-0.173	-0.41

Table A10: Descriptive statistics of the tenth set of questionnaire

Items	N = 46			
	Mean	SD	Skewness	Kurtosis
ISC1	3.11	2.142	0.448	-1.341
ISC2	3.93	1.756	0.104	-0.847
ISC3	3.54	1.656	-0.264	-0.853
ISC4	3.46	1.986	0.04	-1.391
ISC5	3.78	1.618	-0.19	-0.824
ISC6	3.85	1.763	-0.114	-0.729
ISC7	3.37	1.936	0.274	-1.272
ISC8	3.54	1.929	0.125	-1.317
ISC9	4.33	1.851	-0.262	-0.93
BS1	4.11	1.215	-0.372	0.454
BS2	4.57	1.259	-0.294	-0.16
BS3	4.24	1.251	-0.548	-0.129
BS4	3.74	1.341	-0.655	-0.349
BS5	3.78	1.562	-0.207	-0.844
BS6	4.8	1.24	-0.341	0.748
BS7	4.41	1.543	-0.323	0.14
SV1	4.17	1.403	-0.424	-0.297
SV2	4	1.476	-0.173	-0.116
SV3	4.15	1.414	-0.281	-0.291
SV4	4.09	1.427	-0.207	-0.194
SV5	3.61	1.542	0.205	-0.382
SV6	3.85	1.563	0.118	-0.201
SV7	3.2	1.529	0.279	-0.531
SV8	3.43	1.44	0.066	-0.141

Table A11: Descriptive statistics of the eleventh set of questionnaire

Items	N = 35			
	Mean	SD	Skewness	Kurtosis
ISC1	5.49	1.704	-1.354	1.304
ISC2	5.11	1.762	-0.903	0.089
ISC3	4.94	1.392	-0.725	0.775
ISC4	4.77	1.957	-0.859	-0.53
ISC5	5	1.372	-1.015	1.153
ISC6	5.09	1.442	-0.844	0.702
ISC7	5.43	1.441	-1.382	1.971
ISC8	5.37	1.592	-1.212	0.846
ISC9	5.14	1.417	-0.793	0.735
BS1	4.4	1.397	-0.365	-0.317
BS2	4.51	1.687	-0.377	-0.435
BS3	4.09	1.56	-0.101	-1.011
BS4	3.77	1.477	0.07	-0.369
BS5	3.74	1.578	0.166	-0.553
BS6	4.74	1.521	-0.653	-0.075
BS7	4.54	1.336	-0.882	0.671
SV1	4.2	1.431	-0.565	0.038
SV2	4.11	1.491	-0.32	-0.116
SV3	4.29	1.426	-0.668	0.287
SV4	4.31	1.53	-0.201	-0.023
SV5	4.46	1.615	-0.585	-0.335
SV6	4.26	1.462	-0.416	0.255
SV7	4.14	1.648	-0.66	-0.58
SV8	4.26	1.482	-0.472	-0.129

Table A12: Descriptive statistics of the twelfth set of questionnaire

Items	N = 37			
	Mean	SD	Skewness	Kurtosis
ISC1	3.05	2.391	0.731	-1.212
ISC2	3.54	1.938	0.093	-1.256
ISC3	3.54	1.757	0.01	-1.148
ISC4	3.49	1.981	0.203	-1.325
ISC5	3.65	1.767	-0.164	-1.323
ISC6	3.62	1.861	-0.011	-0.985
ISC7	3.62	2.139	0.057	-1.485
ISC8	3.62	2.215	0.072	-1.587
ISC9	3.7	1.898	-0.113	-1.244
BS1	4.27	1.61	-0.214	-0.493
BS2	4.43	1.537	-0.496	-0.274
BS3	4.38	1.534	-0.734	0.129
BS4	3.95	1.452	-0.189	0
BS5	3.81	1.506	0.031	-0.384
BS6	4.76	1.362	-1.065	0.887
BS7	4.54	1.445	-0.465	0.572
SV1	3.95	1.699	-0.163	-0.76
SV2	3.41	1.462	0.028	-0.842
SV3	3.49	1.465	0.028	-0.67
SV4	3.7	1.561	-0.353	-0.87
SV5	3.65	1.798	0.229	-0.814
SV6	3.57	1.642	0.47	-0.088
SV7	3.14	1.653	0.475	-0.519
SV8	3.51	1.805	0.217	-0.65

Table A13: Descriptive statistics of the thirteenth set of questionnaire

Items	N = 40			
	Mean	SD	Skewness	Kurtosis
ISC1	3.65	2.338	0.206	-1.473
ISC2	3.7	1.8	-0.024	-1.038
ISC3	3.8	2.028	-0.179	-1.281
ISC4	3.72	2.375	0.055	-1.68
ISC5	3.58	1.973	-0.044	-1.262
ISC6	3.87	1.937	-0.037	-1.241
ISC7	4.07	2.055	-0.255	-1.248
ISC8	3.83	2.099	-0.037	-1.376
ISC9	3.68	2.153	0.04	-1.568
BS1	4.2	1.488	-0.214	-0.734
BS2	4.6	1.317	-0.548	-0.2
BS3	4.18	1.299	0.028	-0.54
BS4	4.37	1.409	-0.079	-0.744
BS5	4.52	1.552	-0.612	-0.007
BS6	5.05	1.085	-0.611	0.449
BS7	4.45	1.28	-0.23	-0.427
SV1	3.72	1.536	-0.36	-0.729
SV2	3.72	1.724	0.103	-0.798
SV3	3.77	1.561	-0.159	-0.644
SV4	3.68	1.623	-0.35	-1
SV5	3.3	1.698	0.032	-1.171
SV6	3.25	1.706	0.241	-0.77
SV7	3.1	1.865	0.347	-1.171
SV8	3.28	1.768	0.144	-1.004

Table A14: Descriptive statistics of the fourteenth set of questionnaire

Items	N = 42			
	Mean	SD	Skewness	Kurtosis
ISC1	2.93	2.235	0.727	-1.004
ISC2	3.12	1.903	0.424	-0.961
ISC3	3.12	2.002	0.383	-1.15
ISC4	3.12	2.2	0.505	-1.253
ISC5	3.17	1.999	0.432	-1.09
ISC6	3.26	2.073	0.425	-1.177
ISC7	2.95	1.987	0.519	-1.128
ISC8	3.29	2.255	0.362	-1.417
ISC9	3.31	2.03	0.309	-1.101
BS1	3.57	1.61	0.086	-0.529
BS2	4.45	1.533	-0.481	-0.11
BS3	4.05	1.513	-0.306	-0.172
BS4	3.55	1.58	0.181	-0.255
BS5	3.55	1.67	0.111	-0.994
BS6	4.36	1.635	-0.19	-0.845
BS7	4.02	1.569	-0.001	-0.697
SV1	3.81	1.55	-0.203	-0.55
SV2	3.26	1.515	0.238	-0.402
SV3	3.5	1.469	0.024	-1.017
SV4	3.55	1.685	0.026	-0.959
SV5	2.86	1.458	0.409	-0.548
SV6	2.95	1.637	0.57	-0.375
SV7	2.36	1.479	1.196	0.677
SV8	2.79	1.616	0.548	-0.845

Table A15: Descriptive statistics of the fifteenth set of questionnaire

Items	N = 49			
	Mean	SD	Skewness	Kurtosis
ISC1	3.04	1.914	0.348	-1.278
ISC2	3.35	1.762	0.301	-0.874
ISC3	3.18	1.59	0.14	-1.042
ISC4	3	1.671	0.503	-0.755
ISC5	3.1	1.661	0.343	-0.969
ISC6	3.29	1.791	0.547	-0.691
ISC7	3.47	1.894	0.356	-0.938
ISC8	3.51	1.991	0.059	-1.443
ISC9	3.08	1.778	0.475	-0.79
BS1	3.39	1.304	0.051	0.184
BS2	3.45	1.324	-0.222	-0.73
BS3	3.41	1.206	-0.407	-0.917
BS4	3.12	1.218	-0.243	-0.589
BS5	3.35	1.316	0.348	0.219
BS6	3.29	1.155	-0.508	-0.734
BS7	3.22	1.263	-0.443	-0.999
SV1	3.49	1.34	-0.275	-0.603
SV2	3.2	1.443	0.321	-0.624
SV3	3.47	1.43	0.309	-0.452
SV4	3.22	1.279	0.307	-0.599
SV5	3.29	1.369	0.015	-0.863
SV6	3.22	1.418	0.041	-0.997
SV7	3.45	1.659	0.008	-1.286
SV8	3.29	1.581	-0.066	-1.223

Table A16: Descriptive statistics of the sixteenth set of questionnaire

Items	N = 28			
	Mean	SD	Skewness	Kurtosis
ISC1	3.54	2.472	0.295	-1.645
ISC2	4.04	2.202	-0.205	-1.465
ISC3	4.32	1.887	-0.538	-0.649
ISC4	4	2.211	-0.155	-1.506
ISC5	4.14	1.938	-0.25	-0.979
ISC6	4	1.944	0	-0.933
ISC7	3.61	2.25	0.006	-1.71
ISC8	4.11	2.25	-0.27	-1.558
ISC9	4.57	1.971	-0.724	-0.581
BS1	3.71	1.487	-0.123	0.125
BS2	3.79	1.524	-0.286	-0.887
BS3	3.68	1.389	-0.265	-0.39
BS4	3.64	1.638	0.081	-0.685
BS5	3.5	1.644	-0.027	-1.094
BS6	3.96	1.527	0.132	-0.266
BS7	3.57	1.597	0.066	-0.571
SV1	4.25	1.351	0.188	-0.572
SV2	3.75	1.602	0.091	-0.788
SV3	4.07	1.489	0.087	-1.368
SV4	3.82	1.611	-0.146	-0.903
SV5	3.79	1.548	-0.195	-1.073
SV6	3.61	1.571	0.034	-1.166
SV7	3.11	1.641	0.249	-1.014
SV8	3.75	1.624	-0.234	-0.992

APPENDIX – B
Original Questionnaire Items

Original Questionnaire Items

A) Please provide your **personal information**.

Gender	Male ☐ Female ☐
Age	☐ < 20 years old ☐ 21 - 30 years old ☐ 31 - 40 years old ☐ 41 - 50 years old ☐ 51 - 60 years old ☐ > 60 years old

B) The following section is about the **personal attitude**. The scale ranges from strongly disagree (SD) =1, neutral (N) = 4, and to strongly agree (SA) = 7. Please circle the most appropriate number.

	SD			N			SA
1. When I make a decision to purchase product, I prefer to choose brand more than function	1	2	3	4	5	6	7

When I have time available, I will communicate with my friends by using							
	SD			N			SA
1. email	1	2	3	4	5	6	7
2. Instant Messaging such as Line...	1	2	3	4	5	6	7
3. Social Network Service such as facebook...	1	2	3	4	5	6	7

C) The following section is about the **perception on Internet Social Capability**. The scale ranges from strongly disagree (SD) =1, neutral (N) = 4, and to strongly agree (SA) = 7. Please circle the most appropriate number.

	SD			N			SA
1. These online communications enables me to easily contact my friends	1	2	3	4	5	6	7
2. I do not feel lonely with these online communications	1	2	3	4	5	6	7
3. These online communications enable me to get a good impression of my friends	1	2	3	4	5	6	7
4. These online communications allows spontaneous informal conversations	1	2	3	4	5	6	7
5. These online communications enable me to develop good work relationships with my friends	1	2	3	4	5	6	7
6. These online communications enable me to identify myself with my friend	1	2	3	4	5	6	7
7. I feel comfortable with these online communications	1	2	3	4	5	6	7
8. These online communications allow for non-	1	2	3	4	5	6	7

task-related conversations							
9. These online communications enables me to make close friendships with my contacts	1	2	3	4	5	6	7

D) The following section is about the **perception on social visibility**. Please select place where this product can be used. You can choose more than one place.

Places	
1. Rest Room 2. Bed Room 3. Kitchen 4. Living Room 5. Other places in resident area 6. Private car 7. Bus 8. Workplace	9. School/Collage 10. Restaurant 11. Religious Place 12. Museum 13. Department Store 14. Public Park 15. Amusement Park 16. Airport

E) The following section is about the **perception on brand**. The scale ranges from strongly disagree (SD) =1, neutral (N) = 4, and to strongly agree (SA) = 7. Please circle the most appropriate number.

	SD			N			SA
1. This brand is a symbol of prestige	1	2	3	4	5	6	7
2. This brand is a symbol of success	1	2	3	4	5	6	7
3. This brand is a symbol of wealth	1	2	3	4	5	6	7
4. This brand is exclusive	1	2	3	4	5	6	7
5. This brand is distinctive	1	2	3	4	5	6	7
6. This brand is high esteem	1	2	3	4	5	6	7
7. This brand is sophisticated	1	2	3	4	5	6	7

F) The following section is about the **perception on value of the product**. The scale ranges from strongly disagree (SD) =1, neutral (N) = 4, and to strongly agree (SA) = 7. Please circle the most appropriate number.

	SD			N			SA
1. Using this product enhances my self-image to others	1	2	3	4	5	6	7
2. Using this product improves my self-expression to others.	1	2	3	4	5	6	7
3. Using this product makes a good impression on other people.	1	2	3	4	5	6	7
4. Using this product improves the way I am perceived.	1	2	3	4	5	6	7
5. Using this product better enables me to form interpersonal bonds with others.	1	2	3	4	5	6	7
6. Using this product helps me maintain my social relationships with others.	1	2	3	4	5	6	7

7. Using this product helps me make new friends.	1	2	3	4	5	6	7
8. Using this product enhances my social relationships with others	1	2	3	4	5	6	7

APPENDIX – C
Details of Online Questionnaire

An Example of Online Questionnaire in Thai

ส่วนที่ 1 ข้อมูลส่วนบุคคล

เพศ	☐ หญิง ☐ ชาย
อายุ	☐ ต่ำกว่า 20 ปี ☐ 21 – 30 ปี ☐ 31 – 40 ปี ☐ 41 – 50 ปี ☐ 51 – 60 ปี ☐ มากกว่า 60 ปี

โปรดเลือกระดับความคิดเห็นที่ตรงกับท่าน							
1. ฉันเลือกสินค้าโดยให้ความสำคัญกับตราสินค้ามากกว่าการใช้งาน	1	2	3	4	5	6	7
2. หากฉันมีเวลาพอ ฉันจะติดต่อเพื่อนหรือคนรู้จัก ผ่านทาง email	1	2	3	4	5	6	7
3. หากฉันมีเวลาพอ ฉันจะติดต่อเพื่อนหรือคนรู้จัก ผ่านทางโปรแกรมข้อความสั้นต่างๆ เช่น line …	1	2	3	4	5	6	7
4. หากฉันมีเวลาพอ ฉันจะติดต่อเพื่อนหรือคนรู้จัก ผ่านทางบริการสังคมออนไลน์ เช่น facebook …	1	2	3	4	5	6	7

ส่วนที่ 2 ความคิดเห็นเกี่ยวกับความสามารถในการสื่อสารออนไลน์ของผลิตภัณฑ์

ความสามารถด้านการเชื่อมต่อ	Wifi			
	GPRS		G	
	EDGE		E	
	3G		3G	
	4G LTE		4G	
ความสามารถด้านสังคมออนไลน์	Facebook		Facebook Messanger	
	Google +		WhatsApp	
	twitter		Skype	
	Instagram		WeChat	
	Foursquare		Line	
	Shazam		Kakao Talk	
	Flickr		Snapchat	
	Vine		Kik Messenger	

กรุณาใช้ข้อมูลความสามารถทางการสื่อสารของผลิตภัณฑ์ด้านบน ในการตอบข้อ 5 ถึง 13

5. ผลิตภัณฑ์นี้ทำให้ฉันติดต่อกับเพื่อนได้ง่ายขึ้น	1	2	3	4	5	6	7
6. ฉันไม่รู้สึกเหงาเมื่อใช้ผลิตภัณฑ์นี้	1	2	3	4	5	6	7
7. ผลิตภัณฑ์นี้ทำให้ฉันสามารถสร้างความประทับใจที่ดีให้กับเพื่อนได้	1	2	3	4	5	6	7
8. ผลิตภัณฑ์นี้ทำให้ฉันสามารถติดต่อสื่อสารกับเพื่อนแบบเป็นกันเองในเวลาที่ต้องการ	1	2	3	4	5	6	7
9. ผลิตภัณฑ์นี้ทำให้ฉันสร้างความสัมพันธ์ในด้านการงานที่ดีกับเพื่อนได้	1	2	3	4	5	6	7
10. ผลิตภัณฑ์นี้ทำให้ฉันแสดงตัวตนกับเพื่อนได้	1	2	3	4	5	6	7
11. ฉันรู้สึกคุ้นเคยกับความสามารถด้านการสื่อสารออนไลน์ในผลิตภัณฑ์นี้	1	2	3	4	5	6	7
12. ผลิตภัณฑ์นี้สามารถทำให้ฉันสามารถสนทนากับเพื่อนเรื่องสัพเพเหระได้ตามต้องการ	1	2	3	4	5	6	7
13. ผลิตภัณฑ์นี้ทำให้ฉันสร้างความสัมพันธ์ใกล้ชิดกับคนรู้จัก	1	2	3	4	5	6	7

ส่วนที่ 3 ความคิดเห็นเกี่ยวกับการใช้งานผลิตภัณฑ์

14. (สมมุติ) ถ้าท่านเป็นเจ้าของผลิตภัณฑ์นี้ ท่านจะใช้ในสถานที่ใด (สามารถเลือกได้มากกว่า 1 สถานที่)

1. ห้องน้ำ	9. สถานศึกษา
2. ห้องนอน	10. ร้านอาหาร
3. ห้องครัว	11. ศาสนสถาน
4. ห้องรับแขก	12. พิพิธภัณฑ์
5. บริเวณอื่นๆ ในบ้าน	13. ห้างสรรพสินค้า
6. รถส่วนบุคคล	14. สวนสาธารณะ
7. รถสาธารณะ	15. สวนสนุก
8. ที่ทำงาน	16. ท่าอากาศยาน

ส่วนที่ 4 ความคิดเห็นเกี่ยวกับตราสินค้า

กรุณาใช้ข้อมูลจากตราสินค้าด้านบน ในการตอบคำถามข้อ 15 ถึง 21							
15. ตราสินค้านี้เป็นเครื่องหมายของเกียรติยศ	1	2	3	4	5	6	7
16. ตราสินค้านี้เป็นเครื่องหมายของความสำเร็จ	1	2	3	4	5	6	7
17. ตราสินค้านี้เป็นเครื่องหมายของความมั่งคั่ง	1	2	3	4	5	6	7
18. ตราสินค้านี้ให้ความรู้สึกถึงความเป็นคนพิเศษ	1	2	3	4	5	6	7
19. ตราสินค้านี้ให้ความรู้สึกถึงความเป็นคนที่แตกต่าง	1	2	3	4	5	6	7
20. ตราสินค้านี้ได้รับการยกย่อง	1	2	3	4	5	6	7
21. ตราสินค้านี้เป็นตัวแทนของความปราณีต	1	2	3	4	5	6	7

ส่วนที่ 5 ความคิดเห็นเกี่ยวกับคุณค่าของผลิตภัณฑ์

กรุณาใช้ข้อมูลรายละเอียดของผลิตภัณฑ์ด้านบน ในการตอบคำถามข้อ 22 ถึง 29

22. เมื่อใช้ผลิตภัณฑ์นี้ทำให้ภาพลักษณ์ของฉันดีขึ้นในสายตาผู้อื่น	1	2	3	4	5	6	7
23. เมื่อใช้ผลิตภัณฑ์นี้ทำให้ฉันสามารถแสดงความเป็นตัวตนต่อผู้อื่นได้ดีขึ้น	1	2	3	4	5	6	7
24. เมื่อใช้ผลิตภัณฑ์นี้ทำให้ฉันสามารถสร้างความประทับใจในสายตาผู้อื่นได้	1	2	3	4	5	6	7
25. เมื่อใช้ผลิตภัณฑ์นี้ทำให้คนอื่นมองฉันในทางที่ดีขึ้น	1	2	3	4	5	6	7
26. เมื่อใช้ผลิตภัณฑ์นี้ทำให้ฉันสามารถสร้างความสัมพันธ์ระหว่างบุคคลกับผู้อื่นได้ดีขึ้น	1	2	3	4	5	6	7
27. เมื่อใช้ผลิตภัณฑ์นี้ทำให้ฉันสามารถรักษาความสัมพันธ์ทางสังคมกับผู้อื่นได้	1	2	3	4	5	6	7
28. เมื่อใช้ผลิตภัณฑ์นี้ทำให้ฉันสามารถหาเพื่อนใหม่ได้	1	2	3	4	5	6	7
29. เมื่อใช้ผลิตภัณฑ์นี้ทำให้ฉันสามารถยกระดับความสัมพันธ์ทางสังคมกับผู้อื่น	1	2	3	4	5	6	7

Details of All Sixteen Products

Table C1: Mobile Phone

		Mobile Phone			
		Set 1	Set 2	Set 3	Set 4
Brand	• Samsung	✓	✓		
	• i-mobile			✓	✓
Internet Connectivity	• Wi-Fi	✓	✓	✓	✓
	• GPRS	✓	✓	✓	✓
	• EDGE	✓	✓	✓	✓
	• 3G	✓	✓	✓	
	• 4G-LTE	✓	✓	✓	
Social Software Availability	• Facebook	✓	✓	✓	✓
	• Google +	✓		✓	
	• Twitter	✓	✓	✓	✓
	• Instagram	✓		✓	
	• Foursquare	✓		✓	
	• Shazam	✓		✓	
	• Flickr	✓		✓	
	• Vine	✓		✓	
	• Facebook messenger	✓		✓	
	• WhatsApp	✓		✓	
	• Skype	✓		✓	
	• WeChat	✓		✓	
	• Line	✓		✓	
	• Kakao Talk	✓		✓	
	• Snapchat	✓		✓	
	• Kix Messenger	✓		✓	

Table C2: Camera

		Camera			
		Set 1	Set 2	Set 3	Set 4
Brand	• Canon	✓	✓		
	• Polaroid			✓	✓
Internet Connectivity	• Wi-Fi	✓	✓	✓	✓
	• GPRS				
	• EDGE				
	• 3G				
	• 4G-LTE				
Social Software Availability	• Facebook	✓		✓	
	• Google +	✓		✓	
	• Twitter	✓		✓	
	• Instagram	✓		✓	
	• Foursquare	✓		✓	
	• Shazam	✓		✓	
	• Flickr	✓		✓	
	• Vine	✓		✓	
	• Facebook messenger	✓		✓	
	• WhatsApp	✓		✓	
	• Skype	✓		✓	
	• WeChat	✓		✓	
	• Line	✓		✓	
	• Kakao Talk	✓		✓	
	• Snapchat	✓		✓	
	• Kix Messenger	✓		✓	

Table C3: Television

		Television			
		Set 1	Set 2	Set 3	Set 4
Brand	• Sony	✓	✓		
	• Philips			✓	✓
Internet Connectivity	• Wi-Fi	✓		✓	
	• GPRS				
	• EDGE				
	• 3G				
	• 4G-LTE				
Social Software Availability	• Facebook	✓		✓	
	• Google +	✓		✓	
	• Twitter	✓		✓	
	• Instagram	✓		✓	
	• Foursquare	✓		✓	
	• Shazam	✓		✓	
	• Flickr	✓		✓	
	• Vine	✓		✓	
	• Facebook messenger	✓		✓	
	• WhatsApp	✓		✓	
	• Skype	✓		✓	
	• WeChat	✓		✓	
	• Line	✓		✓	
	• Kakao Talk	✓		✓	
	• Snapchat	✓		✓	
	• Kix Messenger	✓		✓	

Table C4: Refrigerator

		Refrigerator			
		Set 1	Set 2	Set 3	Set 4
Brand	• LG	✓	✓		
	• Beko			✓	✓
Internet Connectivity	• Wi-Fi	✓		✓	
	• GPRS				
	• EDGE				
	• 3G				
	• 4G-LTE				
Social Software Availability	• Facebook				
	• Google +				
	• Twitter	✓		✓	
	• Instagram				
	• Foursquare				
	• Shazam				
	• Flickr				
	• Vine				
	• Facebook messenger				
	• WhatsApp				
	• Skype				
	• WeChat				
	• Line				
	• Kakao Talk				
	• Snapchat				
	• Kix Messenger				

APPENDIX – D
List of Expert in Information Technology

List of Expert in Information Technology

1. Wachara Chantatub, Ph.D.
2. Assistant Professor Pimmanee Rattanawicha, Ph.D.
3. Assistant Professor Nattavee Utakrit, Ph.D.
4. Assistant Professor Thippaya Chintakovid, Ph.D.
5. Associate Professor Sirapat Boonkrong, Ph.D.

VITA

Tanapon Jensuttiwetchakul was born on March 19, 1984 in Prachuap Khiri Khan, Thailand. He received his Bachelor and Master degree in Electrical Engineering from Chulalongkorn University in 2006 and 2008, respectively. Since December 2009, he works as lecturer at faculty of Information Technology, King Mongkut's University of Technology North Bangkok. From August 2010, he studies Ph.D. degree in Information Technology in Business at Faculty of Commerce and Accountancy, Chulalongkorn University.