



The Influence of Knowledge Management and Brand Equity on Marketing Performance: a Case Study of a Japanese Automaker's Branch in Taiwan

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Abstract

The chief purpose of this study is to verify and understand how the corporate-initiated implementation of knowledge management (KM) and brand equity affect the marketing performance of a Japanese automaker's Taiwanese branch. Data was extracted from the population using convenience sampling to verify the goodness-of-fit of the overall, structural and measurement models by means of Structural Equation Modeling (SEM). Findings from this study indicate that 1) KM has a positive and significant influence on marketing performance; 2) Brand equity has a positive and significant influence on marketing performance. Not only do the research results give that particular Japanese car brand's Taiwan subsidiary a sense of how important and beneficial KM implementation is, they also offer other companies helpful information for operations-related decision-making.

Keywords: knowledge management, brand equity, marketing performance

1. Research Background and Purpose

The thriving high-tech and service industries have ushered in an era of knowledge-based economy. As most companies derive competitive advantages from intangible assets, it is common for customers to receive information from ever-increasing sources, which change their preferences and demand at an unprecedentedly rapid pace. That is

why knowledge management (KM) is gaining importance in corporate agenda across all sectors. Management guru Peter Drucker predicted in *Post-Capitalist Society* that “knowledge will eventually replace machinery/equipment, capital, raw materials or labor as the most important factor of production in corporate operations”. In other words, a company’s success is ultimately determined by the value resulted from intangible assets and knowledge, which in the automotive industry involves a mechanism known as KM. A company wishing to stay competitive in a treacherous business environment, therefore, has to implement tools satisfying KM both inside and outside the organization while bolstering marketing performance by way of brand equity. This present study is intended to verify and understand the importance of, and corporate performance attributable to, KM implementation and brand equity of a Japanese automaker’s branch in Taiwan. The purposes of this study are listed as follows:

1. To verify the influence of KM implementation on the marketing performance of a Japanese automaker’s Taiwanese branch;
2. To verify the influence of brand equity on the marketing performance of a Japanese automaker’s Taiwanese branch;
3. To shed light on upcoming trends in the automotive industry, and to provide advice on improving corporate operations and conducting future research in related fields.

2. Literature Review

There are three dimensions of literature review in this study (e.g., KM, brand equity and marketing performance), as stated below:

2.1 Literature Concerning the Definition of Knowledge Management

In an era of knowledge-based economy, knowledge is a major resource of competitiveness (Drucker, 1993) and also a new criterion for wealth creation (Thurow, 1996). Apparently, KM has become a crucial source of corporate competitiveness (Andrew, 2005). KM, which is a company’s organizational and technological infrastructure, is also defined as “the continuous process of improving organizational performance by timely offering correct knowledge to members who need it, so they could take the right action accordingly”. The KM process consists of stages such as the creating, confirming, collecting, classifying/saving, sharing/storage, using/refining and retiring of knowledge (O’Dell & Grayson, 1998). Such a process may lead to effective improvements in corporate performance (Laurie, 1997). The Resource-Based Theory emphasizes that a company should identify and make use of the most valuable asset, so as to maximize its enterprise value, or EV (Barney & Baysinger, 1990).

Alavi & Leidner (2001) divided the knowledge-creating process into four stages, namely creation, storage, conversion and application. Such a continuous process enables individuals, groups or companies to continuously share explicit/tacit knowledge.

The *conceptual definition* of KM in this study involves four dimensions, namely “knowledge absorption”, “knowledge storage”, “knowledge sharing” and “knowledge conversion”. That definition is expected to ensure a company’s efficient absorption of internal/external knowledge and systematically organized/stored data, so its employees may share a large quantity of creative ideas in an ongoing manner. That way, the knowledge effectively transferred to, and shared among, employees will become a company’s competitive advantage and greatest asset that lead to the best decisions.

2.1.1 Literature Concerning Knowledge Absorption

Based on previous studies of knowledge absorption, Zahra & George (2002) divided the capability to absorb knowledge into four sub-dimensions: “the capacity to acquire knowledge”, “the capacity to absorb knowledge”, “the capacity to integrate knowledge” and “the capacity to apply knowledge” in an attempt to explore how knowledge absorption affects corporate competitiveness, as stated below:

(1) The capacity to acquire knowledge: Liao, Fei and Chou (2008) said a company obtains the required knowledge through connections to networks either within or outside the organization. They went on to argue that communications, interactions and learning within or outside an organization are the components of knowledge-acquiring process, and also the methods to acquire knowledge. That explains why a company’s capacity to acquire knowledge is determined mostly by its connections to external networks, the employees’ competencies and knowledge structure.

(2) The capacity to absorb knowledge: Wheeler (2003) believes that knowledge absorption is a company’s learning process designed to capture the essence of new inventions or technologies, and also to understand any new technology underlying the structural/theoretical aspects of inventions. Unlike knowledge innovations, such absorption does not generate any commercial results; although it may widen the knowledge base and enhance the expertise of staffers involved. In addition to new technologies and inventions, a company absorbs knowledge about the skills/experiences observed and acquired by employees. Generally speaking, the knowledge absorption capacity is affected by how diversified a company’s knowledge structure is, and how similar it is with the external knowledge.

(3) The capacity to integrate knowledge: Zahra & George (2002) contended that the knowledge-integrating capacity causes external knowledge to flow and spread within a company, and then effectively merged with the existing knowledge. Such a capacity is almost always linked to a company’s sensitivity to market opportunities. There is usually an intention behind knowledge integration, which means companies highly sensitive to market opportunities would purposefully organize its exiting knowledge to offer services accordingly.

(4) The capacity to apply knowledge: Zahra & George (2002) said the knowledge-applying capacity allows a company to effectively seize and develop market opportunities with well-harnessed, integrated knowledge in order to create new knowledge and commercial results. Such a capacity is often linked to a company’s planning and organization abilities.

Knowledge absorption is operationally defined in this study as “a company’s ability to absorb either internal knowledge with employees learning from one another, research and development (R&D) programs and training, or the competitiveness-bolstering external knowledge through customers, competitors and the innovation-seeking environment outside the organization”.

2.1.2 Literature Concerning Knowledge Storage

It is imperative that the knowledge-storing process in corporate organizations comprise three basic stages. Firstly, occurrences, personnel and processes worth preservation must be identified and chosen. Secondly, the chosen knowledge shall be stored in the appropriate forms of experience. Finally, the stored knowledge must ensure the organizational memory is updated (Probst, Raub & Romhardt, 2003).

Davenport & Prusak (1998) proposed a knowledge-storing method that requires documents or files of disparate types be organized, so the knowledge content can be classified and stored accordingly. The tacit knowledge that cannot be conveyed orally, for example, is converted into orally conveyable, explicit knowledge in the process, with unfiled documents properly filed. After sorting through the knowledge, the organization must proceed with the production of knowledge distribution graphs and models, including a map specifying where each type of knowledge is found in the organization. The chief purpose of map-making is to show the organization's members where their desired knowledge is, so they can easily make queries. Consequently, it is important that the re-created knowledge is classified and stored in the form of highly accessible "organizational memory", a crucial aspect of effective KM (Stein & Zwass, 1995; Walsh & Ungson, 1991). Organizational memory includes knowledge in forms ranging from documents/papers, electronic database, tacit-coded knowledge in the expert system (i.e., human knowledge), job descriptions, and the employees' implicit knowledge and interpersonal networks (Tan et al., 1999). By means of organizational memory, an organization's actions are affected by past happenings and experiences (Stein & Zwass, 1995).

Knowledge storage is operationally defined in this present study as a company's ability to adopt information software as an aiding tool for introducing KM, to handle information and update knowledge using systematically compiled data, and to establish a satisfying internal information system in the corporate organization, so the employees may store valid knowledge and work experiences as classified knowledge.

2.1.3 Literature Concerning Knowledge Sharing

For an organization to succeed in knowledge sharing, a chief purpose of KM, it has to meet many objective and subjective qualifications. Knowledge innovation, according to Nonaka & Takeuchi (1995), is a continuous process where the four components of knowledge conversion (i.e., socialization, externalization, combination and internalization) take place in a "knowledge spiral" that engenders and diffuses enormous knowledge from an organization's interpersonal level to inter-group, organizational ones before eventually reaching outward. The process comprises ongoing attempts to integrate knowledge through *socialization*, *externalization*, *combination* and *internalization*. While *socialization* is a process of creating tacit knowledge by transferring it among an organization's members for shared experiences (e.g., schemata and technical skills), *externalization* is the process where the tacit knowledge is expressed in explicit forms through citations, comparisons, ideas and frameworks. The process of *combination* is a form of knowledge conversion that builds a knowledge system out of systematic ideas; it involves a combination of disparate explicit knowledge systems. Finally, the process of *internalization* transforms explicit knowledge into *tacit* forms. A piece of experience will become a valuable asset when it is *socialized*, *externalized*, *combined*, and *internalized* as a person's tacit knowledge.

Therefore, this study's author adopts the operational definition of *knowledge sharing* presented by Nonaka & Takeuchi (1995): "To create enormous knowledge by way of a non-stop *knowledge spiral*, which diffuses the knowledge from an organization's interpersonal level to inter-group, organizational ones before eventually reaching outward; the process comprises continuous attempts to integrate knowledge through *socialization*, *externalization*, *combination* and *internalization*". The shared and re-created knowledge is not only achievable by continuous internalization and

externalization at personal and organizational levels, but also makes the organization more competitive.

2.1.4 Literature Concerning Knowledge Conversion

Knowledge conversions occur at different levels, such as inter-personal conversions, conversions between a company and an external source of knowledge, between an individual and a group, among two groups, departments or even organizations. The process is dominated by communications, information flow and, according to Holtham & Courtney (1998), takes place through various channels: (1) formal and informal channels; (2) personal and impersonal channels. While the formal channels of knowledge conversion could be training programs or plant tours, the informal ones include irregular meetings, informal seminars and recess-time conversations. The *personal channel* refers to apprenticeships and one-on-one instructions, while the *impersonal channel* means the knowledge base. Although the channels' effectiveness depends on the type of knowledge to be converted (Inkpen & Dinur, 1998), they are invariably supported by information technologies, or IT (O'Dell & Grayson, 1998).

Albino, Garavelli & Schiuma (1999) proposed four essential components of knowledge conversion: (1) Actors: knowledge will be converted more effectively in an organization where the members share it with open-mindedness, mutual trust and satisfactory experiences in this regard; (2) Contexts: including internal and external contexts. While the internal context is the combination of corporate culture, representative organizational behaviors, skills, technological assets, attitudes and values, the external context involves the market structure and inter-company collaborations, with the potential of affecting the internal one; (3) Content: it is the capability to handle a given task, including tool-oriented content and cultural content. The tool-oriented content is the pre-requisite knowledge for executing a task or negotiations, and cultural content is the knowledge capability to create a background for organization-specific perceptions (i.e., the values and beliefs, individuals' cultural backgrounds and language used for communications within an organization); and (4) Media: the methods of effectively converting data and information, which can be addressed in the two aspects of codes and channels. While coding represents the exchange of information, the channel provides a way to convert coded knowledge. The efficiency and effectiveness of knowledge conversion depends on the variety and capacity of media, which takes such forms as rules, statistical forms, processes, database, and interpersonal-media resources (e.g., electronic documents, e-mails, phone calls, FAX files, and electronic data exchanges).

Knowledge conversion is operationally defined in this study as “a company's goal achieved by employees on a day-to-day basis via formal or informal channels such as conversations or meetings. By internalizing / externalizing knowledge among employees and organizations, a company is able to convert knowledge as part of the database, to keep its ITs updated on an organizational level, and to enhance the business administration process, punctuality and efficiency in organizing knowledge.”

2.2 Literature Concerning Brand Equity

The U.S.-based Marketing Science Institute defines brand equity as “a set of associations and behaviors on the part of a brand's customers, channel members, and

parent corporations that enables the brand to achieve greater sales volume and margins than it could without the brand name and that gives the brand an advantageous, maximized differentiation over competitors”. As the definition implies, brand value is a long-term goal for many companies, because the brand name is what makes a company’s products stand out from the competing ones (Chernatony & Riley, 1998). Brand equity represents the value added by a brand name, but Morgan (2000) defines it as the individual consumer’s awareness of how valuable a brand is to him/her. The measurable brand value serves as one of a company’s most powerful resources: it creates potential cash flow while indicating how consumers perceive, form attitudes and behave toward that company. Brand equity is an important concept in measuring corporate performances, more than just an intangible corporate asset. It is therefore imperative that a company seeking sustained operations focus on tangible factors such as sales results and market share, as well as on the establishment of Customer Lifetime Value (CLV) by accumulating brand equity. The five assets that create values for brand equity, according to Aaker (1991), are “brand loyalty”, “brand awareness”, “perceived quality”, “brand associations”, and “other proprietary brand assets”. Keller (1993) considered brand equity the result of brand marketing, the effect of which depends on consumers’ knowledge of the brand. Such knowledge is made up of *brand associations* and *brand image*, with each asset of brand equity generating value for customers and suppliers. It is therefore imperative that efficiency-minded brand equity managers understand how such values are generated. Most of the previous studies apply or adapt the brand equity model proposed by Aaker (1991) and Keller (1993).

To propose the conceptual definition of brand equity, this study’s author addresses brand equity in three sub-dimensions, namely “brand loyalty and brand associations”, “brand awareness and perceived brand” and “brand innovations and other proprietary brand assets” according to the model proposed by Aaker (1991) and Keller (1993) along with adaptations/applications by other scholars. Brand equity in this study is classified from the corporate and consumers’ viewpoints, in an attempt to explore how companies facing competitions identify and accumulate brand equity as a corporate asset through market segmentation, innovations and competitive advantages, and consequently ensure sustainable operations/development with CLV.

2.2.1 Literature Concerning Brand Loyalty and Brand Associations

Yoo & Donthu (2002) consider brand loyalty the most important determinant of brand equity because it is crucial for a company’s profit-making and value-creating attempts. A consumer will show preference for a specific brand if he/she is highly satisfied with the previous purchase of the brand’s product, which may involve the services or product-related experiences. Such preference is strong enough for consumers to stick to that brand even when its competitors launch a better marketing strategy, which is why brand loyalty is so valuable. Not only does brand loyalty enable a company to lower marketing costs and strengthen ties with channel providers, it also buffers against threat imposed by competitors. Horng (2002) contends that brand loyalty is the core element and an important determinant of brand equity. The two most valid measurement indicators of brand loyalty are customer satisfaction and repeat purchases, because loyal customers as a solid obstacle for competitors not only make brand loyalty the central element of brand equity, but also make a brand name better-established.

To sum up, customer satisfaction and repeat purchases are the valid measurement indicators of brand loyalty in this study, which is operationally defined with a focus on

how brand loyalty lies at the center of brand equity, and how it makes a brand name well-established enough to reduce and alleviate damages resulted from negative or unfavorable verbal attacks.

Hornig (2002) said brand associations provide companies with an important basis of differentiation. The term “brand associations” refers to all things a consumer associates certain brands with, so he/she can find the desired brand and relevant information among a multitude of options. Successful brand associations are market segmentation, or brand positioning, efforts initiated by a brand that helps consumers process and obtain brand-related information in order to differentiate itself from competitors in the consumers’ mind. Precise positioning and marketing strategies by such means of spokespersons and advertisements give consumers relatively positive attitudes or feelings toward a brand, which may not only increase the consumers’ willingness to buy, but also link the original brand to new, derivative products that consumers are willing to buy. Aaker (1991) divided the values generating brand associations into five categories, namely “the help with processing / retrieving information”, “differentiation/positioning”, “the reason to buy”, “creating positive attitudes/feelings” and “the basis for extensions (of brand)”. Since brand associations provide an important foundation for differentiation, a brand well positioned with regard to “key attitudes” from the very start is hardly threatened by competitors.

To sum up, the term “brand associations” is operationally defined in this study as the overall pre-purchase effect of all things connected to a brand (e.g., advertisements, spokespersons and messages) on consumers that gives them positive attitudes and mental / visual feelings toward it. Such associations help a brand make a strong impression on consumers.

2.2.2 Literature Concerning Brand Awareness and Perceived Quality

The brand awareness develops a perception that makes a brand of certain products (e.g., the Japanese car brand discussed in this study) appear familiar, likable, and famous enough for consumers to choose it when making purchases, with a greater likelihood of buying the brand’s products. In the form of a commitment, brand awareness enables consumers to realize the nature, ratings and value of a brand the moment they see it. Prestigious brands almost always are high in brand equity and the potential of developing brand associations; they have well-known names with one of more products or services that differentiate them from competing brands. The consumers’ ability to recognize and memorize a brand in a given product category involves a product’s quality and connection with the brand. For example, when making purchases, consumers usually choose familiar brands that are widely known, which is why brand awareness can be considered a useful tool that helps consumers make purchase-related decisions with simplified product information. The more famous a brand is, the higher the brand equity.

To sum up, brand awareness is operationally defined in this study as something that makes a brand’s products more likely to be bought and gives consumers a crystal-clear sense of familiarity, fondness, commitment and trustworthiness. After all, brand awareness reveals how consumers perceive the nature, ratings and value of a brand.

The perceived quality is how the intangible whole of a brand’s products and service quality is perceived as compared to its competitors, which invariably reflects a consumer’s subjective satisfaction (with the products). That explains why a brand will gain a consumer’s favor and build a solid foundation for the “willingness to buy” if it is

considered superior in product quality. The perceived good quality enables a company to increase product prices, to improve ties with channel providers and sales-making opportunities, and to create win-win situations for all business relationships. According to Cheng (2007), the perceived quality is already an essential factor of long-term corporate success, while Horng (2002) said a brand that successfully makes a favorable impression on consumers may further extend its positive brand image to the other product categories. Not only is the perceived quality a brand's extension that can be used to measure brand equity, it also is an important factor that makes the brand unique. The perceived quality has become a chief responsibility of many companies' operating teams as well as a source of permanent corporate competitiveness.

To sum up, the perceived quality is operationally defined in this study as the overall quality of a brand's products/services perceived and determined by consumers according to subjective satisfaction; it enables a brand that makes a pleasant impression on consumers to increase product prices, to improve ties with channel providers and sales-making opportunities, and to create win-win situations for all business relationships, which in turn result in permanent corporate competitiveness.

2.2.3 Literature Concerning Brand Innovation and the Other Proprietary Brand Assets

Because "the other proprietary brand assets" is closely linked to the "corporate perspective" (Huang, 2006), it is integrated in this study with "brand innovations" into "brand innovations and other proprietary brand assets". The ability to create brand innovations is one that uses new knowledge to provide new services and products required by consumers. A success-seeking company, therefore, must assign coordination, differentiation, integration issues to its various organizational teams and take management measures accordingly, so as to effectively function with regard to innovation resources, hierarchical reports and the employee accountability of internal organizations. That way, the company's managers will be able to form efficient organizational teams that differentiate it from competitors using own brand(s) and products, with the creativity concerning product positioning being a crucial factor behind production cost cuts. Simply put, the fact that innovations may come from any part of the value chain enables a company to accomplish strategic goals with greater efficiency and precision than competitors. An *innovation* is impossible without the successful execution of creative ideas, and a company will not build competitiveness until it chooses the right strategy and carries it out. There are two types of innovations, namely the incremental ones and disruptive innovations. The organizations and competitive relationships based on either innovation type serves as a perfect basis for discussions about corporate innovators, with "strategic incentives" and "organizational capabilities" being the two major perspectives.

To sum up, brand innovations is operationally defined in this study as a company's initiative to offer consumers with their required services and products using new knowledge. Brand innovations differentiate a company's brands and products from competitors, with the creativity concerning product positioning being a crucial factor for production cost cuts. That is why innovations may come from any part of a company's value chain.

The "other proprietary brand assets" refers to a brand's proprietary assets such as patents, trademarks, goodwill, ownership and channel relationships, even though they are often neglected. The trademark, for instance, prevents a company's competitors from using similar names, logos or packaging to confuse consumers, while the

copyright avoids direct competitions from rivals. It is therefore imperative that a proprietary brand be put under legal protection, with efforts made to keep its consumer base from being undermined with similar products or imitations (Cheng, 2007). That way, a company may reduce and avoid the likelihood of having its market share and profitability eroded by competitors.

The term “other proprietary brand assets” is operationally defined in this study as a brand’s proprietary assets that are irreplaceable by any competitor. With the proprietary assets protected by strong regulations, a company keeps its consumer base from being undermined by similar products or imitations, and consequently maintains a satisfying brand equity and competitiveness.

2.3 Literature Concerning Marketing Performance

Whether a company has good or bad performance depends on how competitive it is in the market (Albaum & Tse, 2001). The *performance* is derived from a comparison of results/output, or a comparison between the actual output achieved and the initial projection and target. It provides a criterion for measuring how an organization reaches goals, both effectively and efficiently, by using resources and meeting customers’ needs. Any marketing event launched by a corporate group is expected to eventually lower the costs while increasing profits. When that marketing event has been carried out for a given period of time, its marketing performance must be evaluated to make sure it is appropriate.

According to Bonoma & Clark (1988), companies usually measure their financial aspect with indicators such as profitability, sales growth, market share and cash flow. When a company determines whether its organizational marketing capacity helps build competitiveness, Vorhies & Morgan (2005) said, it may use performance-measuring indicators from three perspectives. For effective measurement of a company’s competitiveness marketing-wise, the three indicators shall be based on comparisons against the archrivals, with the distinctive qualities and components stated as follows:

(1) Customer satisfaction: Indicators from this perspective measure the capabilities to improve customer satisfaction, such as the ability to make customers happy, to convey values to customers, to meet customers’ needs, and to retain worthy customers.

(2) Market effectiveness: Indicators from this perspective mostly measure a company’s capability to reach market-related goals, which range from the growth in market share and sales, the number of new and existing customers, and the growth in sales from the existing customer base.

(3) Projected / actual profitability: Indicators from this perspective mostly measure a company’s profitability achieved in the past year and the projected profits for the next. They include a business unit’s profit-making ability, return on investment (ROI), return on sales (ROS), and the capability of reaching financial goals. Clark (2000) suggested in his study that sales growth, profitability and market share are the measurement indicators most often adopted by companies.

From the financial and marketing perspective, this study’s author adopts *sales growth* as the measurement indicator.

2.4 Literature Concerning Knowledge Management and Marketing Performance

In “An Empirical Study of the Effect of Leadership style and Team Characteristics on the Marketing Team’s KM Capability and Marketing Performance-The Moderating Effects of IT and Social Defense”, Ho (2009) argued that a team’s KM capability and

marketing performance are significantly and positively affected by leadership and team characteristics.

Liao (2006) empirically proved in his case study of new employees at life insurers that training-oriented business operations and the storage of learned knowledge exert a positive and significant influence on salespersons' performance.

Tsai (2007) cited empirical data to prove in his case study of information electronics industry that market-oriented business operations, knowledge integration and organizational innovations exert a positive and significant influence on organizational performance.

In "The Influence of Knowledge Sharing on Job Performance at Taiwanese Insurance Companies: Using Transformational Leadership as the Mediating Variable", Teng (2009) proved that, empirically, shared knowledge affects corporate performance positively and significantly.

Yang (2006) declared in an empirical study that the motives for employee training and personal knowledge conversion affect either job performance or learning outcome positively and significantly.

In his empirical study of the relations among the aggressiveness of marketing strategies, marketing KM, marketing capacity and marketing performance, Lin (2004) concluded that, under an aggressive a marketing strategy, marketing KM and capacity have a relatively positive and significant effect on marketing performance.

Citing empirical data, Chien (2007) mentioned how a company's market KM capability positively and significantly affects its operating performance in "A Study of How Market Knowledge Management Capability Affects Operating Performance: From a Dynamic-Capability Point of View".

In a case study of Taiwanese high-tech industry, Hsieh (2001) empirically proved the positive and significant effect of market-oriented business operations, market KM and product innovations on corporate performance.

In "Exploring How the Customer-related Knowledge Management Capability Affects Corporate Operating Performance from the Dynamic Capability Viewpoint: An Empirical Analysis of Car Dealers and Insurers", Chung (2007) argued that, empirically speaking, KM is positively and significantly linked to a company's operating performance: it helps car dealers or insurers achieve performance to a certain extent.

Huang (2002) concluded in his empirical case study of Taiwanese integrated circuit manufacturers that KM and innovation strategies and linked to organizational performance in a positive and significant way.

In her empirical study, Lin (2009) proved how customer-related KM, customer-oriented business operations and adaptive sales behaviors positively and significantly affect sales results, and also how they enhance job satisfaction.

Chu (2000) empirically proved in a comparative study of high-tech firms and service providers that the type of combination between knowledge integration mechanisms and innovation strategies affect the performance of knowledge conversion in a positive and significant way.

Tsai (2007) in an empirical study mentioned the positive and significant influence of market-oriented business operations, market-related knowledge, and customer KM on a company's performance in innovating products.

Lee, Wu, Ay and Tu (2007) proved in their co-authored case study of Taiwan's knowledge-intensive industries that organizational learning and knowledge sharing have

a positive and significant influence on a company's performance in developing new products.

Citing empirical data, Huang (2002) empirically proved in a case study of Taiwanese information/software companies that the intensity of interactions with customers, customer-related KM capability and the customers' characteristics exert a significant and positive influence on a company's performance of new products.

Li (2006) argued in an empirical study that moral judgments positively and significantly affect a personal financial advisor's products, customer knowledge-related capability and work performance.

Besides, Li (2006) in his case study of mobile communications service providers' internationally marketed products empirically showed how the role of IT, KM, market-oriented business operations and job performance affect a company's work performance positively and significantly.

In his case study of Taiwanese chain stores, Lu (2004) empirically proved that customer-related KM, market-oriented business operations and marketing strategies affect a company's marketing performance positively and significantly.

The following hypothesis was derived from the above-mentioned literature:

Hypothesis 1 (H₁): KM has a significantly positive influence on marketing performance.

2.5 Literature Concerning Brand Equity and Marketing Performance

Lee (2003) empirically proved that a company's performance is positively and significantly influenced by the organization's internal/external factors and decisions regarding own-brand establishments.

In their case study of Taiwan-based firms, Horng and Wu (1998) mentioned how a host country's characteristics positively and significantly affect the performance of internationally marketed own brands.

Lin (2009) empirically showed that brand image, the perceived value and relationship quality affect a beverage provider's performance positively and significantly.

Wu (2007) found in her empirical study that corporation acquisitions, brand equity and integrated channel strategies exert a positive and significant influence on the brand performance of Internet service providers.

Lin (2007) proved in an empirical analysis that own-brand strategy affects corporate performance in a significantly positive manner.

Citing empirical evidence, Chang (1990) proved how marketing performance is positively and significantly affected by the brand and channel strategies.

In his empirical study, Wen (2006) contended that brand equity, brand strategies and channel strategies positively and significantly affect a luxury cell phone provider's channel performance.

Ting (2006) cited empirical data to prove how brand strategies and channel strategies positively and significantly affect desktop bare system makers' channel performance.

In an empirical study, Chang (2006) concluded that a cosmetics firm's brand performance is positively and significantly affected by brand equity, brand strategies and channel strategies.

Yeh (2006) empirically proved that farmers' associations affect the marketing performance of Taiwan-produced brand-name fruits in a positive, significant manner.

The following hypothesis was derived from the above-mentioned literature:

Hypothesis 2 (H₂): Brand equity has a significantly positive influence on marketing performance.

3. Research Framework

Figure 1 shows the research framework built out of the afore-mentioned research purposes, hypotheses and literature review:

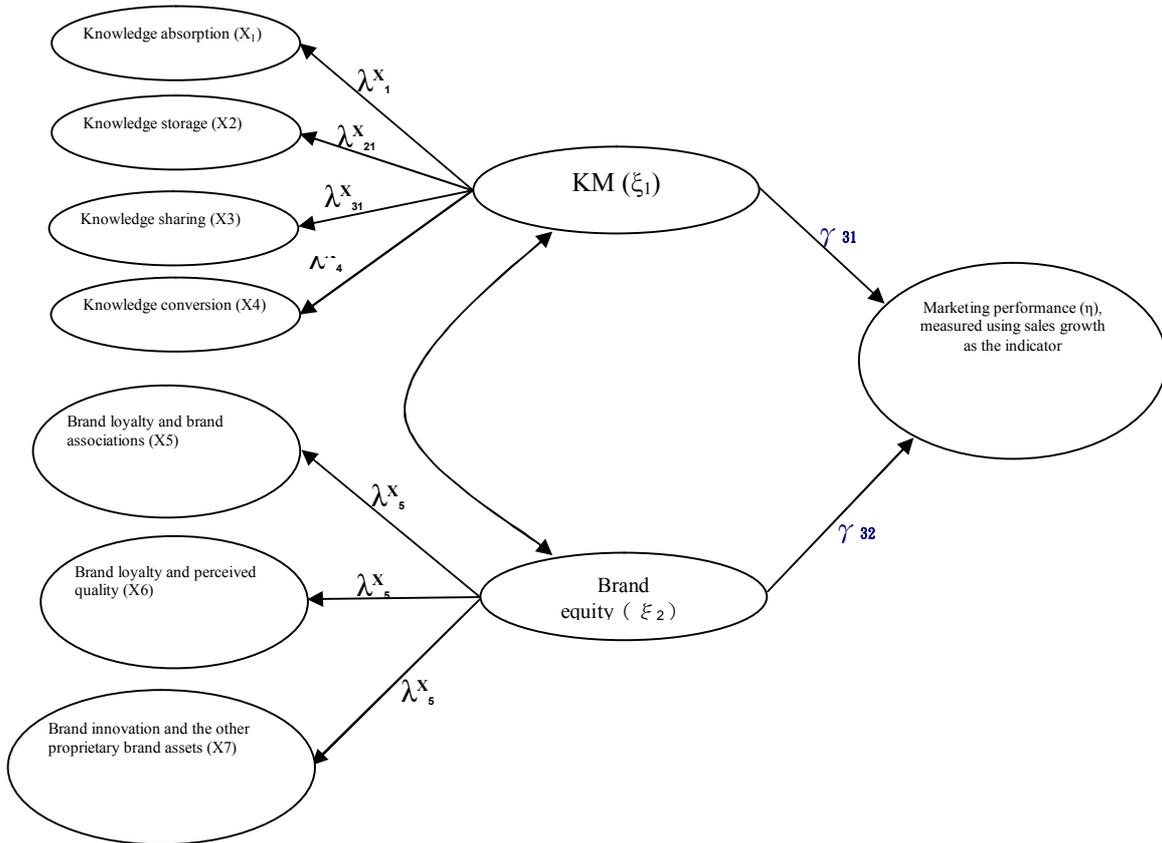


Figure 1 Research Framework

4. Methodology

4.1 Targets and the Design of Questionnaire

In this study, copies of questionnaire were given to managers and salespersons at a Japanese car brand's Taiwan subsidiary selected by convenience sampling. For increased content validity and reliability, copies of expert questionnaire were given out before the pilot-test. After inappropriate questionnaire items were revised or removed, a post-test took place with 320 copies of questionnaire given to **the Taiwanese branch of a Japanese automaker**. The return rate was 90.9% as 291 copies were returned valid. Statistically speaking, females accounted for 55% of the respondents. People who were aged 31-40 at the time of answering the questionnaire, with 1-3 years of work experience, and a position in the sales department, represented the largest portion of respondents (41%, 26% and 42% respectively). Table 1 shows the total number of questionnaire items under each variable of major dimensions (or conceptual dimensions) and sub-dimensions (or operational measurement dimensions).

Table 1 Total Number of Question Items and Structure of Questionnaire

Major dimensions	Sub-dimensions	Total Number of Items	Compiled according to
KM	Knowledge absorption	4	Ching-wen Cheng's unpublished MA thesis (2002) entitled "The Effects of Network Centrality, Absorptive Capacity on Unit's Innovation and Performance: The Case of Shipping Industry"; Tse-hui Hsiao's paper (2005) "The Effects of Knowledge Sharing Reflected on Intellectual Capital- Taking Taiwan Power Company Power Plant for Example", and this present study.
	Knowledge storage	4	
	Knowledge sharing	4	
	Knowledge conversion	4	
Brand equity	Brand loyalty and brand associations	4	"Services Marketing and Management" by Kong-fah Cheng (2009), Future Publishing Co.
	Brand awareness and perceived quality	4	
	Brand innovation and the other proprietary brand assets	3	
Marketing performance	Sales growth	4	Mei-chun Chen's paper (2001) entitled "Exploring How Investments on Information Technologies and Intellectual Capital Affect Corporate Performance" and this present study.

4.2 Linear Structure Model

Based on the three major dimensions (i.e., KM, brand equity and marketing performance) this study's author conducted a Confirmatory Factor Analysis (CFA), an analytical approach opposite to the Exploratory Factor Analysis (EFA). SEM comprises the structural and measurement models to effectively address the cause-effect relation among implicit variables. The models in this study are verified in three aspects: (1) the goodness-of-fit of measurement model; (2) the goodness-of-fit of structural model and (3) whether the overall model conforms to the goodness-of-fit indices.

5. Analyses and Results

5.1.1 Matrices for SEM

Shown below are matrices for SEM in this present study:

1. The Measurement Matrix for Extraneous Variables

$$\begin{pmatrix} X_1 \\ X_2 \\ X_3 \\ X_4 \\ X_5 \\ X_6 \\ X_7 \end{pmatrix} = \begin{pmatrix} \lambda_{11}^X & 0 \\ \lambda_{21}^X & 0 \\ \lambda_{31}^X & 0 \\ \lambda_{41}^X & 0 \\ 0 & \lambda_{52}^X \\ 0 & \lambda_{53}^X \\ 0 & \lambda_{54}^X \\ \lambda_{52}^X & \end{pmatrix} \begin{pmatrix} \zeta_1 \\ \zeta_2 \end{pmatrix} + \begin{pmatrix} \delta_1 \\ \delta_2 \\ \delta_3 \\ \delta_4 \\ \delta_5 \\ \delta_6 \\ \delta_7 \end{pmatrix}$$

2. The Measurement Matrix for Endogenous Variables

$$Y = \lambda_Y \eta + \varepsilon$$

3. The Structural Equation

$$\eta = \gamma_{31}\zeta_1 + \gamma_{32}\zeta_2 + \zeta$$

This study’s author adopted SEM for modeling in order to discuss the relationship among implicit variables in the structural model, and also to examine the measurement reliability of measurement model. Indicators that measure this study’s overall goodness-of-fit are χ^2 , d.f., GFI, AGFI, NFI, CFI, RMR, RMSEA and R^2 . For satisfactory goodness-of-fit, it is almost always required that $\chi^2/d.f. < 5$, $1 > GFI > 0.9$, $1 > NFI > 0.9$, $1 > CFI > 0.9$, $RMR < 0.05$, $RMSEA < 0.05$ and $R^2 > 0.3$ (Bagozzi & Yi, 1988). In this study, the goodness-of-fit of the overall model proves satisfactory as $\chi^2/d.f. < 5$ and GFI, AGFI and NFI are all larger than 0.90, with a below-0.05 RMR, as shown in Table 2.

Table 2 Assessment of Fit of the Overall Model

Indices	χ^2	DF	GFI	NFI	AFGI	CFI	RMR	RMSEA	R^2
Goodness-of-fit	26.717	12	0.972	0.923	0.916	0.954	0.031	0.073	0.82

5.1.2 The Measurement Model in SEM

The factor loading of each item under the latent/implicit variables (i.e., the major dimensions) and manifest/ explicit variables (i.e., the sub-dimensions) mostly measures the intensity of linear correlation between each item under the explicit variables and latent/implicit variables. A factor loading close to 1 indicates the measurement variable, or sub-dimension, is relatively capable of measuring the major dimensions. This study

proves reliable with all sub-dimensions exceeding 0.7 in factor loading. In other words, all sub-dimensions (or explicit variables) in the model's *measurement system* are capable of appropriately measuring the *major dimensions* (i.e., all implicit variables). The Average Variance Extracted (AVE) calculates an implicit variable's explanatory power of variance regarding each measurement variable; the higher the VE, the greater reliability and convergent validity of the implicit variable. Usually it takes an above-0.5 VE to indicate that the explanatory variance of dimensions is larger than measurement error (Fornell and Larcker, 1981). In this study, all AVEs are larger than 0.5, hence the latent/implicit variables' excellent reliability and convergent validity (See Table 3 and Figure 2).

Table 3 Judgment Indicators in the Measurement Model

Major dimensions	Sub-dimensions	Factor loading	Cronbach's α	Average Variance Extracted
KM	Knowledge absorption	0.91	0.992	0.844
	Knowledge storage	0.86		
	Knowledge sharing	0.81		
	Knowledge conversion	0.87		
Brand equity	Brand loyalty and brand associations	0.84	0.993	0.867
	Brand awareness and perceived brand	0.87		
	Brand innovation and other proprietary brand assets	0.87		
Marketing performance	Sales growth	0.85	0.985	0.862

5.1.3 Path Coefficients of Implicit Variables in SEM

Once the overall model passed the test of internal goodness-of-fit, the standardized path coefficients and Critical Ratio (C.R.) among latent/implicit variables were estimated, as shown in Table 4. Figure 2 illustrates the results of a path analysis.

Table 4 Parameter Estimates for Implicit Variables

	Estimate	S.E.	C.R. value	P value
KM \rightarrow Marketing performance	0.688	0.138	4.992	***
Brand equity \rightarrow Marketing performance	0.211	0.131	0.616	0.106
KM \leftarrow Brand equity	0.854	0.090	9.449	***

Note: *** indicates a statistically significant C.R. value ($\alpha=0.001$)

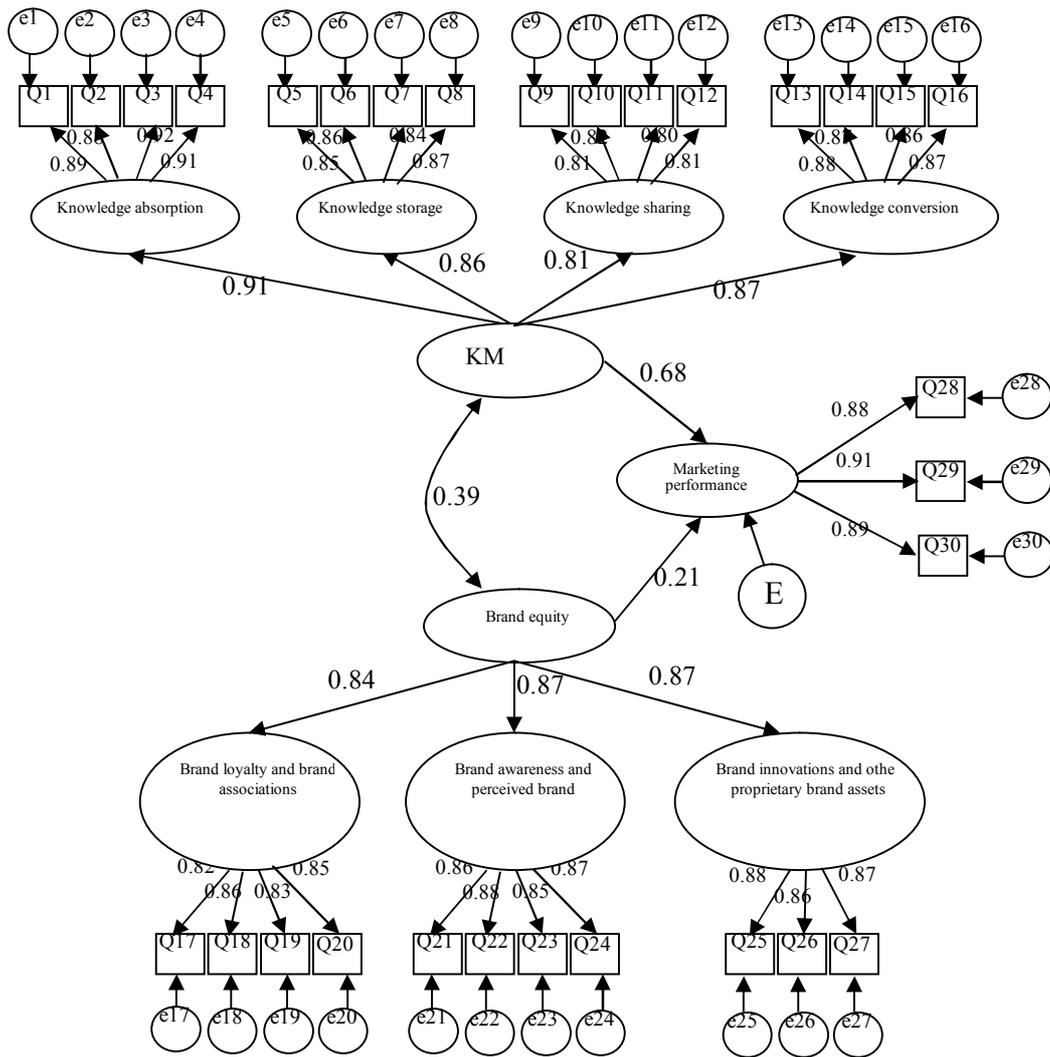


Figure 2 Standardized Results of SEM Analysis

The analysis above engendered the following conclusions:

1. Given the positive and significant influence of KM on marketing performance of the Japanese car brand's Taiwan subsidiary, H₁ is supported by an estimated 0.68 standardized path coefficient (Hypothesis substantiated);
2. Given the positive yet insignificant influence of brand equity on marketing performance of the Japanese car brand's Taiwan subsidiary, H₂ is partially supported by an estimated 0.21 standardized path coefficient (Hypothesis partially substantiated).

6. Conclusions and Suggestions

According to analyses and results mentioned above, the chapter specifies conclusions and this study's contributions, followed by limitations during research process and advice for future researches.

6.1 Conclusions

Focused on the managers and salespersons at a Japanese car brand's Taiwan subsidiary, this study uses SEM to verify the influence of KM and brand equity on marketing performance. Conclusions derived from this study are specified as follows:

6.1.1 The Influence of KM on Marketing Performance

Considering the research findings, H_1 is substantiated (i.e., KM has a significantly positive influence on an organization's marketing performance). That matches the arguments proposed by Chen (2008) in "A Study on the Relationships among Customer Knowledge Management, Marketing Knowledge Creation Capability, Marketing Innovation and Market Performance" and that by Tsai (2007) in "How Organizational Innovation Mediate Market Orientation and Organizational Performance, Take Knowledge Integration as Moderator".

6.1.2 The Influence of Brand Equity on Marketing Performance

Considering the research findings, H_2 is substantiated (i.e., Brand equity has a significantly positive influence on an organization's marketing performance). That matches the arguments proposed by Wu (2007) in "The Effects of Corporation Acquisition, Brand Equity and Channel Strategy Integration on Brand Performance -An Empirical Investigation of Internet Service Industries".

6.2 Contributions of This Present Study

1. Not only do findings from this study encourage and inspire companies to enhance EV by means of KM, they also contribute to the constant corporate growth with an increased potential of sustained development.

2. In addition, the dimensions and indices built and verified in this study are key factors for a company's attempt to create competitiveness that lasts. They give managers a basis when they make decisions about corporate operations.

3. This present study alleviates the lack of KM-related literature, in hopes of building on the past success and carrying on research efforts in this specific area.

6.3 Limitations

Each stage of this study was conducted with limited resources and the most cautious attitude possible, despite the following restrictions:

1. The inadequate resources forced this study's author to adopt convenience sampling, which may not fully represent the population, which is the greatest limitation.
2. While sales growth was used in this study to measure marketing performance, the company's growth performance would have been more objectively gauged using ROA and ROE as indicators. Unfortunately, the ROA and ROE data is either confidential or trade secrets, making it unlikely to reflect the company's operating performance correctly.

6.4 Suggestions for Future Researches

The studies of KM are applicable to all sectors, not just the automotive industry, and the definition of KM varies among industries as well. This study focuses solely on the Taiwanese branch of a Japanese automaker. In order to obtain a wider range of research information, or to make breakthroughs, future research studies are advised to examine how KM affects organizational performance at companies of disparate natures or from different industries, so as to analyze the companies' satisfying qualities in cross-industry comparisons.

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