

# Dynamic Strategies for Apartment Brand Management in Korean Housing Market

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## Abstract

*Brand, which is widely used in manufacturing sectors for many years, has been adopted as a new apartment sales strategy by construction companies in Korean housing market since 1990s to survive in fierce competitions and fulfill customer's changing needs. Due to distinctive attributes of construction market and its product, various factors are needed to be considered in order to implement the strategy from other industries. A number of construction companies have succeeded in brand awareness and image building, however, they still struggle to establish brand loyalty and manage brand equity elements in balance. The purpose of this study is to introduce and analyze the brand equity building process of apartment products in Korean housing market and determine causal relationships among variables to propose strategies for long-term prosperity of the construction companies. System dynamics modeling method is applied to describe how variables affect and are linked to each other in terms of building equity and enhancing company profits from customers' brand awareness to brand loyalty. Based on the analysis model, strategies for construction companies were proposed and this may support the company to gain competitiveness among its competitors in the fast-changing market.*

**Keywords:** apartment, brand, construction company, system dynamics

## Body of Paper

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- Research Process
- Previous Researches
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## **Introduction**

Regardless of the geographical regions, a huge number of construction firms struggle through significant obstacles including cost escalation, global-wide intense competitions, and economic depression. Furthermore, client's or customers' evolving requirements when initiating projects or purchasing construction products provide much more challenging tasks to construction firms to survive in such competitive environment.

In parallel to such situation, Korean construction industry, particularly the housing market, also experienced sudden environment changes and fierce competitions in past years. The market was switched from supply-centered market to demand-centered market due to various economical, social, and political changes in 1990s. Along with the changes and increasing demands, apartment became the dominant housing type in Korea in a very short time and the statistic show the number of apartment almost doubled from 1995 to 2005 (KOSIS, 2012). These social changes resulted in severe competitions among construction companies building apartments, and furthermore, potential customers brought the level of the competition one step further. As the demand (i.e., buyers of houses) became more dominant in the market, they started to express their evolved requirements and needs when purchasing houses. Construction companies put much effort on improving exterior, floor plans, and functions of apartments to satisfy their potential customers. With increasing pressure and competition, the companies started to consider their duty as selling a "product", similar to what companies in manufacturing sector do, and meeting customer needs with new changes in constructed product became their priority for success.

To fulfill customer's evolving needs during a purchasing process, construction companies developed apartment brand based on product itself rather than the company's name which is similar to the idea of branded products in mass-production based sectors.

As a result, the new marketing strategy which was an outcome of product innovation with apartment brand has brought economic prosperities to construction companies in terms of purchasing preferences and price premiums. For instance, famous brand of apartment led to strong numbers in sales and twice higher selling price compared to former apartment without any brand (Choi, 2012).

However, after introducing a strong concept of branded apartment products in the market, construction companies faced another obstacle of enhancing brand equity such as brand loyalty and repurchase for stable and long-term profits.

This paper, thus, aims to investigate the process and effectiveness of the new competitive strategy on product in apartment sector. A case study in Korea where construction firm's product based strategies have been implemented over a decade is introduced to provide a vivid picture of possible successes and challenges to the industry. Dynamic modeling using system dynamics is implemented to visualize the dynamics of the system proposed in the case study and compare the system with that of manufacturing sector. Finally, the paper proposes general strategies to construction firms for long-term economic prosperity using product based brand marketing.

## **Research Methodology**

The main purpose of this research is to investigate the process of product based brand marketing in construction sector by analyzing a case study in Korean housing market, and find solutions for problems the companies are facing. In order to determine both process and effect, this research 1) distinguishes the unique attributes that characterize construction

industry, 2) analyze the important process of the construction industry's case study visualized by dynamic modeling using causal loop diagrams, 3) evaluate the uniqueness and effectiveness of phenomena by comparing the dynamic model to general brand phenomena, and 4) propose strategies for long-term success for construction companies. System dynamics modeling is implemented to provide a comprehensive analysis of case study which introduces the construction product based brand marketing process and define causal and feedback relationships among various factors in the system.

## **Literature Review**

### ***Construction Market and Product Attributes***

Construction project and its product consist of unique features which set them apart from manufactured goods. Focused on the end-products, Nam & Tatum(1988) summarized major characteristics of constructed products including immobility, durability, and costliness. These attributes not only have huge impact on constructors and contractors of the product, but also client and end-users during their decision making process. Furthermore, they heavily account for the differences from products of manufacturing sector.

In the manufacturing industry the production is completed in certain location and transported to market places, where as the process of construction process takes place at the point of consumption and the final product is generally immobile (Nam & Tatum, 1988). The surroundings of area around the building which strongly affect consumers or in this case, residents' daily lives are also determined by the location of the final product itself and vice versa. Thus, the mobility reflects the regional property to the building value and price. For instance, the price of a house located in the center of metropolitan and rural area vary greatly in despite of the same size. Therefore, the location factor of constructed products is considered to be one of the most important criteria for both production and purchasing. Durability, the resisting forces of nature over an extended period of time, and costliness, being the largest single expenditure of an urban family, also distinguish constructed products from manufactured ones (Nam & Tatum, 1998). The strong durability of the constructed products determines possible service life and period before repurchasing or changing the products by end-users under consideration of costliness.

In terms of price determination, products of construction and manufacturing industries again set each other apart. Market price of common goods are normally determined based on basic supply and demand rules, however, building price is based on Hedonic Price Theory where overall value of attributes consisting the product determines the price. The constructed product's location, surroundings, and physical characteristics are included in the value, and their importance is consistently changing based on the market condition (Ko, 2007). Due to the fact, apartment price can vary within the same market unlike any common goods market where price difference of same product within the same market does not exist. This led to an intervention of the government policy and regulation to control the price and demand-supply group.

This research incorporates the attributes of construction products mentioned above in dynamic innovation modeling describing the case study which will be discussed in the next chapter. Based on the basic innovation dynamic model, constructed product's distinctive features are assigned as external variables which affect relationships between internal variables regardless to the effect of internal system.

## ***Brand Equity Management***

American Marketing Association defines Brand as a name, term, design, symbol, or any other feature that identifies one seller's good or service as distinct from those of other sellers. Even though, there is uncountable number of definition of the word brand, they mostly share similar concept with the one mentioned above.

Korean housing market, especially apartment builders, adopted this concept to enhance the company's apartment sales numbers by establishing strong identity in the industry and provide quality assurance and sense of pride based on the company's original image in the society to their customers, in other words, residents. The power of brand may act relatively strong to potential customer on their purchasing intention compare to non-brand products.

Brand Equity can be defined as a set of brand assets and liabilities linked to a brand's name and symbol that adds to (or subtracts from) the value provided by a product or service to a firm and/or that firm's customers (Aaker, 1992). A great deal of research efforts has been made regarding brand equity and its possible values. Aaker(1992) suggested 5 different components of brand equity; brand loyalty, brand awareness, perceived quality, brand association, and other proprietary assets. In this sense, brand provides sources for 1) attracting new customers, 2) reducing marketing costs, 3) helping process and retrieve information, and 4) giving reasons to buy. While Aaker's research mainly focuses on the brand equity components and their possible benefits, Riezebo(1994) proposed a Brand-added Value/Brand Equity Model which separates brand-added value and brand equity to define values added to customer and company clearly. Brand-added value consists of perceived performance, psycho-social meaning, brand name awareness and they provide functional and expressive benefits to customers. This explains how customers' information process boost, purchase decision confidence, and consumer satisfaction can be achieved through value components. Company also obtains value such as market share size, market share stability, brand margin, and proprietary assets through brand equity. The components are categorized into financial, strategic, and management benefits and they give company more sales, greater margins, reputation, and global branding opportunities. Keller(2002) proposed the Customer-based Brand Equity Model defining the differential effect that consumers' brand knowledge as on their response to the marketing of that brand. Furthermore, strong brand would result to great customer loyalty including repeat purchase, favorable word of mouth, strong preferences, and price premium which will have both direct and indirect impact on the company's market share and profits again (Jacoby & Chestnut, 1978).

Based on these research outcomes, this paper assumes that brand equity components such as loyalty, perceived quality, and brand image are made and developed mainly based on customer's response from decision making and evaluation process. Companies are able to achieve their brand-added value and various benefits by enhancing level of customer's response, and again, the response could be enhanced by company's marketing approaches and strategies to the customers.

## ***Apartment Brand Management***

After the apartment boom in Korea, many researchers have been proposed studies considering the new phenomena of branded apartments to depict the domestic market situation. The research outcomes were generated more in various academic fields such as human behavior, business, marketing, and advertisement, rather than from construction field itself. This supports widely accepted importance of apartment brand to companies, their customers, and furthermore, the market and society.

The effect of brand equity element on preferences and actual purchase (Lee, 2012) and correlation between brand equity elements (Kim, 2006) were analyzed using one-way ANOVA, regression analysis, and case studies. The research outcomes suggested that brand name, equity, and loyalty lead consumers to have purchasing commitments and have positive effects on one another. Bae(2006) intended to investigate the effect of Integrated Marketing Communication (IMC) implement in apartment brand and proved that IMC implementation achieved customer's trust and purchasing intention.

Existing studies have made a contribution to adopt marketing theories to apartment market and product in different point of views, however, they had a number of limitations such as: 1) deriving research outcome from simple survey or statistical data, 2) considering insufficient volume of apartment product attributes, 3) analyzing causal relationship and dynamics of brand equity elements, and 4) taking only short-term forecast of effectiveness proposed policy into account. Thus, this study aims to conduct comprehensive analysis of the process of apartment brand implementation including causal relationships and dynamics among the variables by using system dynamics modeling, and propose strategies for effective use of brand equity components that can generally be adapted to construction industry.

## **Dynamic modeling**

System dynamics modeling is implemented in this study to provide a process overview of product innovation taken place in Korean construction industry since late 1990s. Causal loop diagram is presented to determine the existing relationships among consisting variables and effects of external variables representing construction industry's unique attributes. The impact of the external variables could be clearly stated from comparison with other sectors with different characteristics where the concept of brand has been widely realized over time (i.e., manufacturing industry). Intangible aspects of brand components may provide limitations to understand clear relationship between variables and to quantify the accumulated knowledge from real-life experience and convention. Application of System Dynamics modeling is appropriate for assisting such problems with its comprehensive analysis ability of the entire system and dynamics among variables. It can be adopted particularly effective when dealing with problems, such as housing market, including strong interdependency and relationship between stakeholders or system variables and external factors (i.e., market environment and demand supply structure) having significant impact on the system (Elg, 2000). Thus, this study reflects distinctive features and relationships of housing market, and its product which differs with fast consuming goods under mass production. The developed model also explains the current problem of apartment brand management, and possible strategies are driven to overcome such situation.

## **Process Model**

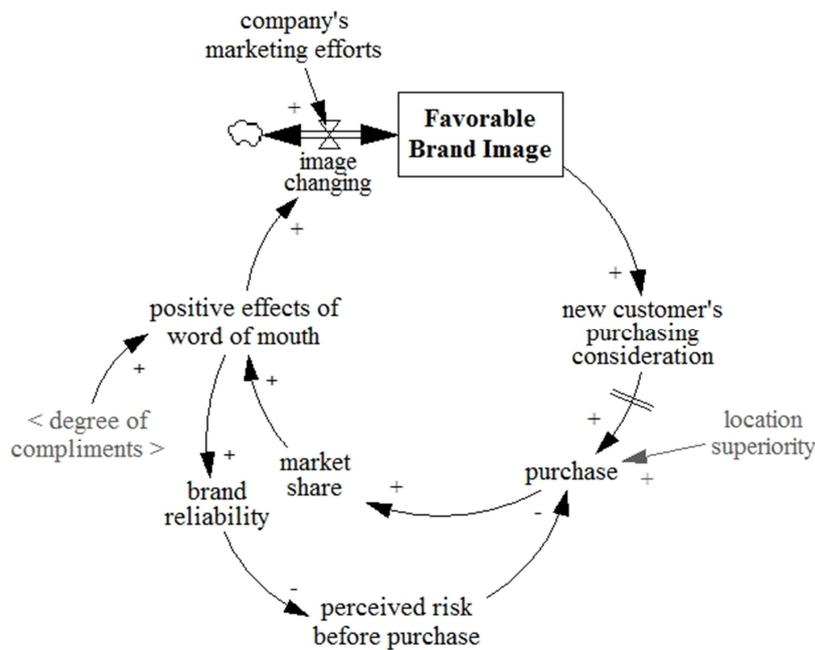
### ***Favorable Brand Image and Purchase Intention***

Marty(2004) explains brand image as a customer's mental picture of a brand and as a result of company manipulated communication which is in contrast to the brand identity, assembly of factors reflecting how the brand owner wants the consumer to perceived the brand. As depicted in Figure 1, Favorable brand image is established through company's various

marketing efforts (e.g., advertisement, annual customers' survey, newspapers, and company's image), and positive effects of word of mouth. The same initial condition can be assigned to both manufacturing and construction sectors with mentioned variables. Once being aware of a certain brand and forming personal brand image, customers choose purchase alternatives based on their awareness and knowledge about the brands. This is the most important first step for a brand to be purchased in the future (Macdonald & Sharp, 2000). When customer obtains reliable information about the brand and this reduces their perceived risk caused by uncertainties at pre-purchase stage (Jarvenpaa & Todd, 1997; Mitchell, 1999). In other words, favorable brand image is critical factors to be considered as purchasing alternatives, and customers may decide to purchase the brand product based on the information and trust provided by the brand. Considering the possibility of being included as purchasing consideration as the ultimate purpose at the early stage of brand management, only "favorable" brand image level is assumed in the loop.

However, in apartment brand product where attributes of construction industry play significant roles, location superiority, the external factor, has important impact on customers' purchase decision. Unlike fast consuming goods, construction product should be able to provide values that are beyond the original purpose of the products. For example, a general manufactured product such as toothpaste has its main purpose of cleansing teeth where as construction product needs to provide a safe shelter, pleasant surroundings, future investment value, and the location superiority encapsulates these values in the model as an external variable. With regard to its complex values to be considered carefully, customer's purchase decision making process takes much longer time compare to manufactured goods, even after getting included in purchasing consideration. Act of actual purchase takes place when the external factor generally meets the customer's expectation. Otherwise, customers are willing to wait for the optimal time for the purchase to minimize their economic loss in the future.

The perceived risk may influence the purchase decision since apartment is one of the most expensive goods customer purchases, thus it is inevitable for the customer to have relatively high perceived risk before buying an apartment. However, the positive effects of word of mouth, resulted from brand loyalty which will be discussed later, can dramatically reduce the risk by providing reliable sources about the product. Favorable apartment brand image with high market share implies financially strong image of the company as well as product reliability. Even though an apartment is experience good where product quality is assumed only with product experience, trustful brand image and its reliability could reduce customer's uncertainties before actual purchase (Durovnik, 2006).



**Fig. 1** Causal Loop for Favorable Brand Image

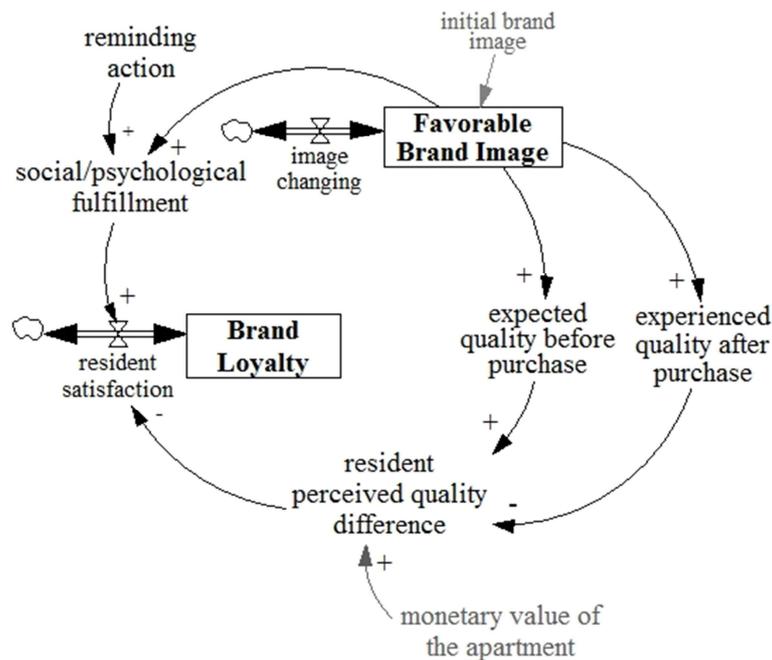
### ***Establishing Resident Satisfaction***

Another important benefit of having a strong brand is being able to utilize loyal customers as sources of marketing and profits. As shown in Figure 2, Favorable brand image can be used to generate Brand loyalty with resident satisfaction. The amount of resident satisfaction is depending on the perceived quality of the product after customer living in the apartment. Perceived quality difference is an outcome of the gap between expected quality and experienced quality including brand image and monetary value of the apartment. It is the customers' subjective response to experienced quality based on brand image which may have influenced on market share, brand profit, brand power and equity (Garvin, 1984; Jacobson & Aaker, 1987; Aaker & Jacobson, 1994; Aaker, 1996).

Considering one's social status is often expressed with his/her assets such as car and house, the publically accepted brand image will enhance the level of the pride or satisfaction of its owner. As the favorable brand image increases, the social/psychological fulfillment of the residents also increases with sense of pride of being able to own such product, and repeating remind action from other sources or people is needed to increase the amount of fulfillment. The link (Favorable Brand Image → social/psychological fulfillment → resident satisfaction) explains customer's aspect of wanting to fulfill not only the materialistic requirements but also social/psychological desire by purchasing brand products (RICON, 2012).

On the other hand, the quality difference between expectation (before purchase) and reality (after purchase) easily slows down the satisfaction of house owners. Based on the brand's image, customers have certain amount of quality expectation towards the product. After purchasing and consuming the product, each individual establishes his/her own level of the experienced quality. With regard to selling the apartment in the future, changing monetary value, which is influenced by market condition and gives the resident direct economical gain or loss at the point of re-selling, has great amount of impact on resident's perceived quality difference. According to industry experts working on apartment brand management in Korea, it is shown that with the market recession, claims on house quality to construction companies

tend to increase from their customers through stricter evaluations compared to market booming phase.



**Fig. 2** Causal Loop for Brand Loyalty

### ***Impact of Resident Satisfaction to Brand Image***

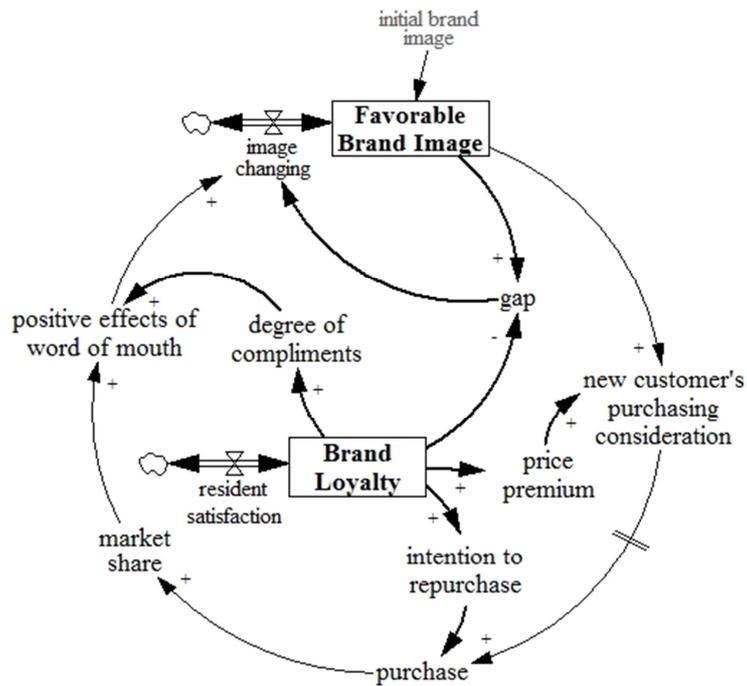
Figure 3 explains how Brand loyalty and Favorable brand image are related with various affecting link, and the adjustment process between the two levels. The advantages of establishing a strong brand is to be able to utilize the loyal customers for source of profits and reliable information (Jacoby & Kyner, 1973). The loyal customers are willing to recommend the product to others with reliable sources from their actual experience. A strong effect can be generated with increased market share and the degree of compliments from brand loyalty, and this will eventually have impact on the brand image as described earlier. The loyal commitment expressed in the terms of favorable word of mouth guarantees the product's quality and brand value to potential customers and provides trustful information for reducing perceived risk before purchase (Jarvenpaa & Todd, 1997; Mitchell, 1999).

Brand loyalty not only helps the company with the intention to recommend, but also with the actual intention to repurchase the product. This will eventually lead to greater market share when the same brand is repeatedly purchased irrespective of situational constraints (Assael, 1998). Furthermore, the Brand-loyal consumers may be willing to pay more for a brand because they perceive some unique value in the brand that no alternative can provide (Pessemier, 1959; Jacoby & Chestnut, 1978; Reichheld, 1996). This aspect could provide strong advantage especially to the housing market where the number of available products is limited and increases new customers purchasing consideration with upgraded level of investment value.

The adjustment process is triggered due to the gap between brand image and loyalty. For example, without any actual customer satisfaction, the brand struggles to increase its image, and even with high favorable brand image established, when there is a significant decline in

customer satisfaction due to unfortunate events, the brand image would eventually drop in short future.

Despite of significant advantages that brand loyalty provides, housing market and its products still spend difficult time in obtaining loyal customers due to the factors such as product’s long consumption period and limited number of repurchases. Thus, strategies for construction companies to implement balanced brand management including brand loyalty and resident satisfaction are proposed in the following chapter.



**Fig. 3** Causal Loop for Brand Image and Loyalty Adjustment

### ***Model Structure Verification***

To test validity of proposed variables and process model, the structure verification test proposed by Forrester & Senge(1980) is conducted. It is particularly important in this study to see whether the causal loop diagrams based on well-known theories in brand and marketing are in accordance with actual industry and market situations. The gap between reality and the assumptions in the model is more noticeable when the model includes soft variables, such as “customer satisfaction”, “product quality”, or “perceived quality” (Luna-Reyes & Andersen, 2003). To reduce such gap, qualitative forms of expert interviews with apartment brand managers in Korean construction company were performed and validity of the model structure was confirmed. Structure verification, direct extreme condition, and parameter verification are implemented and the results are summarized in table 1.

**Table 1** Structure Verification Tests

Test	Method	Results
Structure verification	Comparing the form of the equation of the model with the real system or generalized knowledge in the literature	<ul style="list-style-type: none"> <li>▪ Increase in brand awareness, image, and decrease in perceived risk having positive influence on purchasing intention is widely accepted knowledge and proven by a number of research outcomes including Aaker(1996), Jarvenpaa &amp; Todd(1997), and Mitchell(1999).</li> <li>▪ Well known theoretical models of Aaker(1991), Reizebo(1994), and Keller(1994) are used as basis for core ideas in the causal loop.</li> <li>▪ Expert interviews indicate that quality defects in apartment negatively affect to resident dissatisfaction and very sensitively according to market condition and residents' perceived monetary value of the house.</li> </ul>
Direct extreme condition	Evaluating the validity of model equations under extreme conditions	<ul style="list-style-type: none"> <li>▪ If there is no favorable brand image, the purchase consideration would not be generated, and perceived risk would keep high rate. This will lead to customer's purchase decision only based on the product's price, investment value, and location superiority.</li> <li>▪ If there is no resident satisfaction, brand loyalty from resident would not be generated, and the influence of quality different between expected and perceived may directly impact on resident satisfaction again.</li> </ul>
Parameter verification	Evaluating the constant parameters against knowledge of the real system	<ul style="list-style-type: none"> <li>▪ External variable such as location superiority acts independently to entire inner structure and from expert interviews, it is identified that different statistics are shown based on the external variable within the same brand product.</li> </ul>

## Strategy Suggestions

It is essential to consider distinctive attributes of housing market and product to successfully implement the concept of brand which was originally initiated for manufactured products. As explained in the previous chapter, a number of variables plays essential role in apartment brand management and the comprehensive causal model of the apartment brand management is shown in Figure 4. Considering these variables in the causal loop diagrams, helpful strategies for construction companies are suggested as below:

1) Construction companies need to actively provide customers distinctive and enough information on the brand using various methods to spread brand awareness and favorable image. As described in figure 1, it is one of the most important tasks to be remembered and included in customer's purchasing consideration group. Without any favorable brand image stocked, the corresponding loop (Favorable Brand Image → new customers purchasing consideration → purchase → market share → positive effects of word of mouth → image changing) and any other loops cannot be activated naturally. Particularly, establishing brand images using various media including advertisement, newspaper, on/offline event is essential to enhance the brand image when there is not enough creditability or public awareness of the company. Based on the company's original image, the initial brand image value may differ and customers assume that certain amount of quality is guaranteed even before actual purchase. Thus, using various methods to enhance brand awareness and favorable brand image can be the first step to acquire future success from the brand.



## Conclusions

In this research, the building process of apartment brand equity and various relationships among consisting variables are identified using the System Dynamics modeling method. It aims to propose effective strategies to construction companies for long-term and stable financial benefits by utilizing apartment brand equity in balance. The causal loops also highlight the significance of brand loyalty in apartment brand which has been often ignored to be taken care of due to its complexity in managing. Identifying the value of each brand equity component would help brand manager to focus and manage more on underestimated values and suggest them the long-term effect of the variables. In addition, the integrated causal loop diagram and proposed strategies considering apartment attributes are expected to assist decision making process of brand managers in construction companies and reduce misuses of common marketing strategies which have limitations for application to apartment products. However, the developed model is mainly based on the existing theory and the academic resources and only limited methods are used to verify the model structure. Thus, further studies on the similar topic are required and they need to include quantification and simulation of the causal loop diagrams, and consider factors demonstrating the situations in construction markets in other countries for wide implementations.

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## References

- Aaker, D. A., & Jacobson, R. (1994). "The financial information content of perceived quality." *Journal of Marketing Research*, 31(2), pp.191-201.
- Aaker, D. A. (1996). "Measuring brand equity across products and markets." *California Management Review*, 38(3), pp.102-120.
- Aaker, D. A. (1992). *Managing Brand Equity*, THE FREE PRESS, New York, N. Y.
- Assael, H. (1998). *Consumer behavior and marketing Action(6th edition)*, Cincinnati, Ohio: South-Western.
- Bae, J. M. (2006). "The Effect of Integrated Marketing Communication Strategy in Samsung Raemian." *Journal of Korea Real Estate Analysts Association*, 12(2), pp.102-113.
- Choi, J. Y. (2012). Special Report: Apartment Brand Power is ahead of Selling Price, Location, Market Price. *Economic Review*, Korea (2012.04.24).
- Durovnik, C. (2006). From "Experience" Goods to "Search" Goods, <http://icommons.org/2006/08/22from-%E2%80%09experience%E2%80%99-goods-to-&E2%80%98search%E2%80%99-goods/>

Elg, F. (2000). "Application of system dynamics to brand management." International System Dynamics Conference Presentation, Norway

Forrester, J. W., & Senge, P. M. (1978). Tests for building confidence in system dynamics models. System Dynamics Group, Sloan School of Management, Massachusetts Institute of Technology.

Garvin, D. A. (1984). "What does "product quality" really mean?" Sloan Management Review, 26(1), pp.25-43.

Jacobson, R., & Aaker, D. A. (1987). "The strategic role of product quality." Journal of Marketing, 51(4), pp.31-44.

Jacoby, J., & Chestnut, R. (1978). *Brand Loyalty: Measurement and Management*, New York: John Wiley & Sons.

Jacoby, J., & Kyner, D. B. (1973). "Brand Loyalty vs. Repeat Purchasing Behavior." Journal of Marketing Research. 10(1). pp.1-9

Jarvenpaa, S. J., & Todd, P.A. (1997). "Consumer reactions to electronic shopping on the world wide web." International Journal of Electronic Commerce, 1(2), pp.59-88.

Keller, K. L. (2002). *Strategic brand management: building, measuring and managing brand equity*, Prentice Hall, Upper Saddle River, N.J.

Kim, D. Y. (2006). "The Correlation of Brand Loyalty and Identity." Journal of the Korean Society of Design Culture, 12(1), pp.38-93.

Ko, W. Y. (2000). "The Influence of Urban Residential Environment on Multi-Family Housing Prices." Journal of Korea Planners Association, 36(3), pp.287-288.

Korean Statistical Information Service, [www.kosis.kr](http://www.kosis.kr)

Lee, B. R. (2012). "Analysis on the Effects of Apartment Brand on Housing Prices." Korea Research Institute of Construction Policy.

Lee, I. S. (2012). "Effects of Apartment's Brand Equity on Customer's Loyalty and Purchase Intention (Focused on Brand Apartments in Incheon City)." Master Thesis, Department of Real Estate, the Graduate School of Policy Science, Inha University, Korea.

Luna-Reyes, L. R., & Andersen, D. L. (2003). "Collecting and Analyzing Qualitative Data for System Dynamics: Methods and Models." System Dynamics Review, 19(4), pp.271-296.

Macdonald, E. K., & Sharp, B. M. (2000). "Brand awareness effects on consumer decision making for a common repeat purchase product: A replication." Journal of Business Research, 48, pp.5-15.

Marty, N. (2004). *The Dictionary of Brand*. Massachusetts

Mitchell, V. (1999). "Consumer Perceived Risk Conceptualizations and Models." *European Journal of Marketing*, 33(1/2), pp.163-195.

Nam, C. H., & Tatum, C. B. (1988). "Major characteristics of constructed products and resulting limitations of construction technology." *Construction Management and Economics*, 6(2), pp.133-147.

Pessemier, E. A. (1959), "A New Way to Determine Buying Decisions", *Journal of Marketing*, 24 (January).

Reichheld, F.F. (1996). *The Loyalty Effect*, Harvard Business School Press, Boston,

Riezebos, H. J. (1994). "Brand-added value (theory and empirical research about the value of brands to consumers)." Dissertation Erasmus University Rotterdam, Eburon Publishers, Delft.

Swan, J. E., & Combs, L. J. (1976). "Product Performance and Consumer Satisfaction: A New Concept." *Journal of Marketing*, 40, pp.23-33.