

# Integration of Lean Operation and Pricing Strategy in Retail

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*The purpose of this study is to clarify whether lean can be successfully applied to retailing and how to develop a competitive advantage by introducing lean to retailing. The study provides a better understanding of lean operation and stable pricing such as everyday low price for developing an alternative business model to successfully compete with large retailers. It was found that lean can be successfully applied to retailing and stable pricing becomes a driver for successful implementation of lean operation. The study stresses importance of integration of marketing and operation as a corporate strategy to develop a suggested model.*

## INTRODUCTION

Globally large retailers such as Wal-Mart have been growing sales and profit. Large retailers have powers for buying by economies of scale and rich resources (Krafft and Mantrala, 2006; Harris, Kaufman, Martinez, and Price, 2002). Some critics addressed they became too large and were creating problems (Bianco et al., 2003; Fishman, 2006). Can small retailers compete with large scale retailers? If not, will large retailers such as Wal-Mart swallow the world retail market? The history of automobile industry is a good example to prove that it may not happen. Ford Motor Company, the largest automobile company in the world in the early 20th century did not dominate the world market. On the other hand, Toyota Motor Company, a small Japanese automobile company at that time, became the largest automobile company in the world in the early 21<sup>st</sup> century. The driver of growth of Toyota is its unique operation system: Toyota Production System (TPS). Interestingly, Ohno (1988) who established this system said he learned a lot from supermarket operation in the USA in 1950s.

The concept of TPS was refined by the MIT project team (Womack, Jones and Roos, 1990) and renamed by “lean”. Lean is a business system to eliminate wastes and creates continuous business flow. Successful lean implementation will be able to promote operational flow efficiency and achieve effective cost reduction. Because lean was developed in the manufacturing industry, the service industry was late in applying the strategy (Åhlström, 2004; Portioli-Staudacher, 2010). Womack and Jones (1996) said that the lean concept was applicable to the service industry. However, there were not many successful application cases in the retail industry. Lean in the retail is not well clarified and a process for lean transformation is not clearly identified yet (Naruo and Toma, 2007).

The research question for this study is whether lean as an alternative to scale can be successfully applied to the retail industry and how to develop a competitive advantage by introducing lean to retailing. It was considered that lean was a potential alternative to scale, but it was said that it was difficult to apply lean to the service industry. To answer to above questions, this study provides a case which explains that stable pricing strategy plays an important role to achieve a successful implementation of lean production system for retailers. The case is of a Japanese retailer Company X that successfully turned around the

business by transforming its business model.

A detailed case study of a Japanese mid-size big-box retailer Company X that transformed its business model by applying lean operation system verified that lean was an effective strategy, but it was not enough for complete business model transformation. Pricing as marketing strategy needed to be changed simultaneously from typical high & low pricing to EDLP. In reality, high & low pricing is trying to increase sales by price promotion, but as a result it is creating variation from sales towards upstream. On the other hand, EDLP as a pricing principle reduces daily sales fluctuation. Reducing sales variation will enable lean operation to be introduced easily. Accordingly, combination of lean and EDLP becomes an effective strategy to compete with large scale retailers. In fact, by integration of operation strategy and pricing strategy in the value chain, 1) lean can be successfully introduced in the retail, and 2) EDLP is able to establish a competitive advantage against high & low pricing strategy. Retailers which embrace lean must implement EDLP strategy, and EDLP must come synchronously with a lean operation.

The purpose of this paper is to provide a better understanding of integration of lean and stable pricing in retailing for developing an alternative business model to a large scale model. In the section 2, existing researches of lean operation and reasons for difficulty of applying lean in retailing are examined. After that, methodology and approach in the section 3 are explained. In the section 4, a case of Company X is summarized. In the last two sections, contribution of integration of lean operation and stable pricing strategy will be discussed.

## **LITERATURE REVIEW**

### **Lean Operation**

Ohno (1988) first introduced Toyota Production System that is a foundation of lean production concept. The lean production concept was well disseminated by the MIT project team (Womack, Jones and Roos, 1990). Lean is an operation system to achieve low cost by high operational productivity. Although lean is well acknowledged in the academic and business fields, it is not well defined for common use (Shah and Ward, 2007). According to Shah and Ward (2007, p. 787), "Lean production is generally described from two points of view, either from a philosophical perspective related to guiding principles and overreaching goal (Womack and Jones, 1996; Spear and Bowen, 1999), or from the practical perspective of a set of management practices, tools, or techniques that can be observed directly (Shah and Ward, 2003; Li et al., 2005)". Based upon dense literature researches, Shah and Ward proposed the following definition of lean production.

"Lean production is an integrated socio-technical system whose main objective is to eliminate waste by concurrently reducing or minimizing supplier, customer, and internal variability."(Shah and Ward, 2003, p. 791).

Shah and Ward above clearly defined lean production not only as a production system, but also as an integrated system in a whole business structure. It is important to clarify the factors of lean operation in retail. A concept which Shah and Ward identified is important to clarify combined factors by external and internal related. It also supports an integrated approach.

There is another important clarification. There is an unclear segregation between lean operation and low cost operation. The objective of the lean operation is to achieve low cost, but low cost by external factors can be also achieved by low wage, low rent or low purchase cost by scale or tough negotiation (Harada, 2008). This study focuses on how low cost can be achieved by lean operation.

Womack and Jones (1996) pointed out that it is important to identify wastes, and to eliminate them for promoting lean, and it all begins with flow. Resource efficiency improvement is often highlighted to achieve low cost, but flow efficiency is a more important element for lean production system (Modig, and Åhlström, 2012). A low cost operation by scale focuses on resource efficiency. On the other hand, a low cost operation by lean focuses on flow efficiency. Lean is a compelling alternative for low cost operation.

However, it is said that it is difficult for the retail industry to introduce lean. Furthermore, in manufacturing industry, production process is managed smoothly with little variation because piled inventory becomes buffering solution to adjust to customer demand and supply (Tomino et al., 2011).

### **Why is lean application difficult to the service industry?**

The reason for difficulty of applying lean to the service industry is because of the nature of the business. The next issues were discussed by Bowen and Yongdahl (1998), and Åhlström (2004).

The service industry cannot have inventory as a buffer to make an adjustment between supply and demand. Therefore, a different adjustment factor is needed between supply and demand. The manufacturing industry optimizes operation processes for the lowest cost and the highest quality. However, the output sometimes left at the warehouse as inventory when demand does not meet the level of supply volume. The service industry cannot utilize inventory because service itself cannot be stored as inventory. Therefore, a mechanism for demand control without sacrificing sales is needed. It is a marketing mechanism for customers to come to service locations and buy items every day and any time as needed. Service providers need to establish trust with customers for committing the same best service when customers need services.

There are two other difficulties. One is simultaneous production and consumption of services. Simultaneous production and consumption of services are needed in the service industry. Customers' needs often vary. Therefore, decentralized decision making process may be needed to meet customers' demands. To do so, standardized practices may not work well. The other difficulty is customer's involvement in service production. When customers visit service locations, they ask store employees what customers are looking for. For example, at a fresh section in a retail store, a service will be materialized by the products delivered to customers by orders, for kinds, volume, and packaging. In a clothing section, alterations may be needed by customers' orders. However, even though service providers are trying to eliminate waste and create flow, customers may disturb them. Involvement of customers in service production is an effort to meet customers' demand and to accept disturbance for lean.

Based upon above literature reviews, this paper clarifies whether lean as an alternative to scale can be successfully applied to the retail industry and how to develop competitive advantage by introducing lean to retailing as a service industry. These are topics which past researches did not fully cover yet.

### **METHODOLOGY AND APPROACH**

The prime objectives of this study were achieved by utilizing an extensive review of the literature and a case study of Company X that transformed its business model. The case study (Eisenhardt, 1989) with a single case was selected for this research as an effective method of eliciting productive findings and compelling conclusions. The reason why Company X was selected for a case sample was that very rich data was available and this case could examine a process of business transformation and helped deriving a theory of integration of lean and pricing strategy.

In order to collect data, I conducted semi-structured and unstructured interviews with senior executives and middle layer managers. Each interview was conducted for one to three hours outside of Company X. Memos were taken during the meetings and field notes were written down after the meetings. A total of 22 interviews were carried out. The study was conducted by interviews over 60 hours with 18 employees of Company X, who were directly involved in the business transformation.

The interviews focused on events identification in chronological order and actions for specific purposes. Two core interviewees precisely described events sequence and hints for causal sequence. Interviews with other persons helped verifying data and conceptualizing.

For data collection, public information sources were also used such as corporate financial data, historical references of Japanese retail industry, and articles in papers and magazines. Based upon interviews and literature reviews, a case was written down in the next section. The case was written by different transformation aspects.

In the analysis, the data concerning marketing strategy, operation strategy and other supporting business strategy were categorized in causal sequence. The initial view point was identifying the process and details of business transformation. However, it was identified that EDLP, a stable pricing strategy, itself strongly helped implement a low cost operation. There were two different actions which affected

others. It was the point for a new concept to be developed.

## **CASE STUDY: LEAN TRANSFORMATION**

Company X was a mid-size Japanese retailer which sold foods, consumables, apparels, and general merchandise goods. Since the mid-1990s, Company X had been struggling due to financial trouble. By severe competition and less consumer spending, Company X was losing its sales. Because of high overhead cost, operating profit diminished. The situation was getting worse. In 2007, Company X sought to make a critical decision to transform its business model for turning around this depressed situation. Although it took three years for Company X to transform its business model by implementing the lean operation system and EDLP, Company X successfully turned around the business with its new business model. There are three aspects to transform its business model: marketing transformation, operational transformation and support business transformation.

### **Marketing Transformation**

#### *Low Price for Competition*

Based upon a market research, Company X benchmarked a retailer which had been successful in growing sales and profit. That retailer took EDLP pricing strategy and Company X studied price differences of primary 2,000 items. Company X calculated the needed price investment amount to evenly compete with the benchmarked retailer. It required more than 3% of its sales for the price investment and it was impossible to accomplish by its normal cost reduction effort.

Management decided to transform its business model by implementing EDLP that a benchmark company successfully executed and a high productive operation system for creating price investment. EDLP implementation processes were initiated by Merchandising Group, and EDLP was gradually implemented by category.

#### *Other Marketing Actions*

In retailing, pricing is not the only element for customers to make a decision which stores to go. Wide assortment and good in-stock are also very important. Many stores appeal by massive volume display at end caps, aisles and specially created promotion spaces. No one will buy an only one item left over on a shelf. Customers want to choose the best item even though they are all equally same in quality. Company X expanded assortment by about 40% and increased in-stock at the floor space by 30%. To be done, store remodeling was executed by introducing tall and deep shelf fixtures.

Communication with customers is crucial for successful marketing transformation as well. Company X sent a single message about low prices every day. Prices, store environments such as in-stock volume and display method, and messages from the company why all prices were low, were conveyed to customers. Company X successfully changed an image of retailing model from a high end general merchandise store to a discount retailer.

### **Operational Transformation**

In-store execution was the most important thing for lean operational transformation. It was an important transformation to create a fund for price investment as marketing transformation. The following actions were taken for lean transformation at the stores:

#### *Multitasking*

In the past, employees were assigned to product-based departments such as a produce department or a grocery department. Lean transformation reduced department-oriented tasks. For example, first in the morning, all employees started merchandise stocking at a produce section. Then they moved to a meat section, a dairy section, a fish section and a grocery section for stocking. This way was much more efficient for stocking. They would be able to complete stocking for all sections before the sales peak time at noon. All employees were trained for cash register operation and store cleaning. This operation was

called “multitasking”, and everyone could do all tasks any time. This enhanced flexibility for labor allocation and job rotation. After implementing multitasking, the best feedback from employees was “fun for work”. It provides more job opportunities for employees.

#### *Lean Solution*

It was identified that many tasks were not creating values for customers. All of the merchandise were delivered to stores in various packages prepared by suppliers. However, store employees took them out from packages and put them into different trays or fixtures. For example, much of the produce was packed in cardboard boxes. These were taken out from cardboard boxes and placed in plastic cases on shelves. It took many hours for repackaging. This process identified as a waste. Stores started putting delivered boxes with merchandise directly on the shelves.

#### *Kaizen Activity*

Management believed that store employees knew the best practices for store operation. Based upon this philosophy, store managers coordinated to promote continuous improvement activities at stores by sharing the best practices and finding any opportunities for productivity improvement. Facilitated by section leaders, a 15-minute meeting (Kaizen Meeting) was held at each store twice a day. All employees participated in a meeting every day. It was aimed not only to implement lean operation, but also to promote team building.

#### *Standard Operation Practice*

Best practices were shared with all stores coordinated by the business transformation team. The team collected the best practices and prepared a lean operation manual that was distributed to all stores and all departments at headquarters. Company X tried to make operation be standardized for anyone at any time.

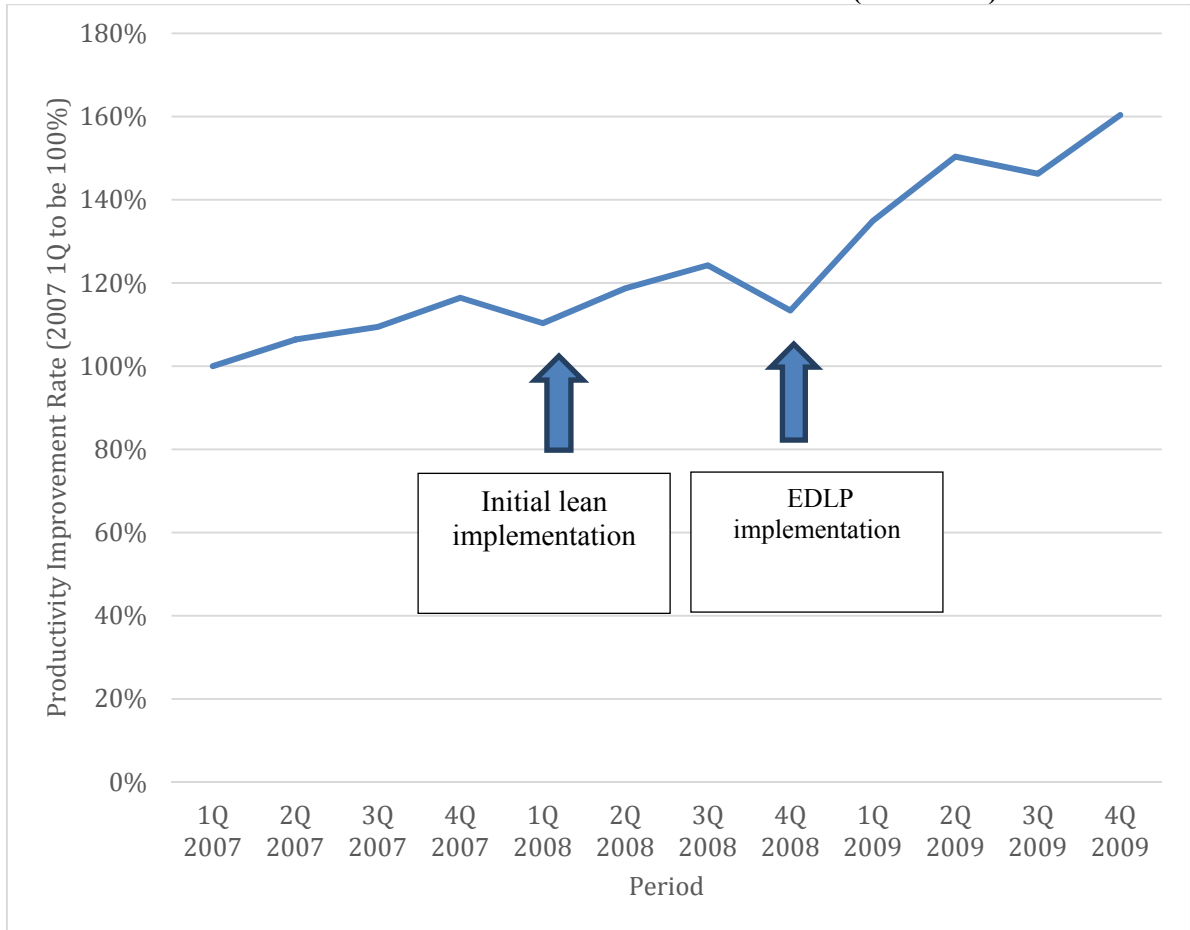
In the process of lean transformation, some interesting aspects were found. At the beginning, lean operation was needed to create a fund for price investment to implement EDLP, but EDLP actually promoted lean operation. Through initial lean transformation starting in 1<sup>st</sup> quarters of 2008, waste eliminating was conducted by simplifying and standardizing tasks at stores. However, cost saving was not significant enough to justify full price investment. Through secondary lean transformation by leveling operation starting in 4<sup>th</sup> quarters of 2008, cost saving was accelerated as FIGURE 1. Leveling operation was initiated by EDLP. Through stabilizing prices, leveling operation created smooth continuous operation flow. It is a competitive advantage of lean with stable pricing strategy.

### **Support Business Transformation**

For success of business transformation, corporate-wide supporting activities were required. To reduce merchandise ordering work, an auto-replenishment system was introduced to all stores. Merchandising Group and Logistics Group worked closely together to deliver necessary items with sufficient volume to stores by using historical sales data and sales index to meet special demands. Store employees could spend much less time for placing orders of merchandise. Stores were equipped with fixtures to hold merchandise for the most efficient operation such as standardized deep shelves for better in-stock on sales floors. Then labor for products stocking was reduced.

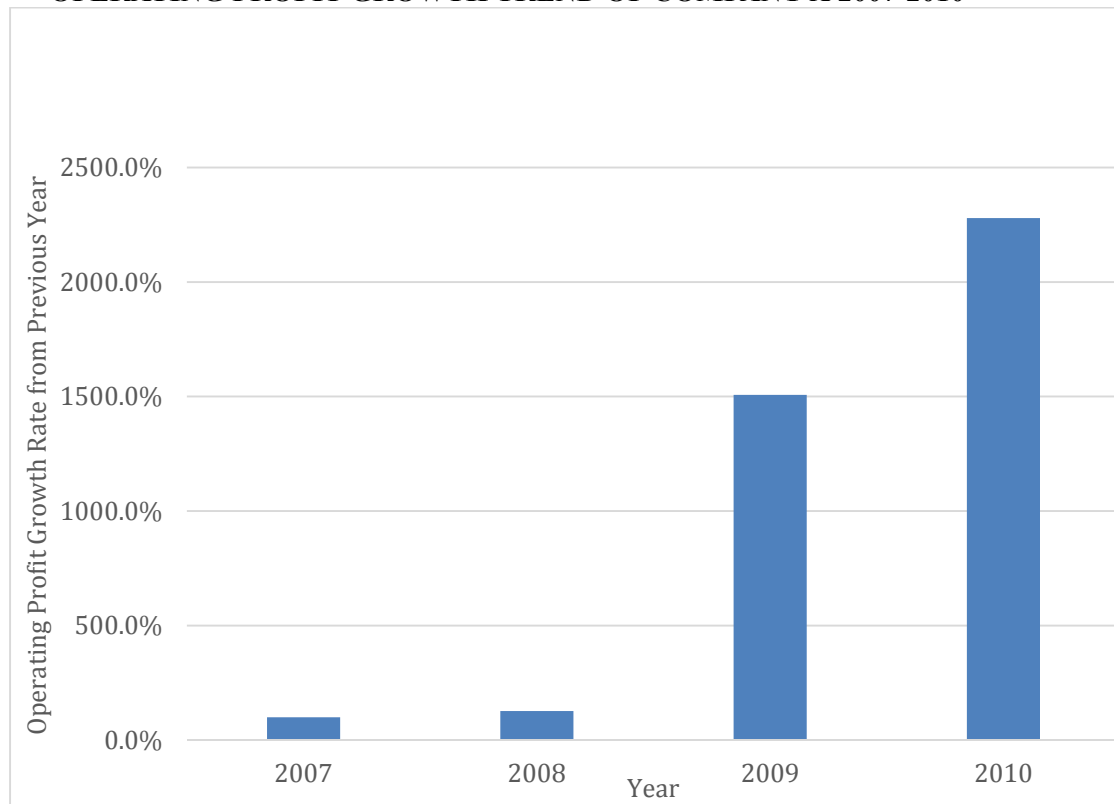
Management identified operations which should be held at stores and should not be done at stores. In the past, Company X had small meat processing and meal preparation kitchens at each store. The operation was inefficient because of a small scale, with poor sanitation and inflexible job assignment. There was a small central kitchen for meat processing and meal preparation, but it was not fully utilized. Company X made a change by eliminating meat processing and down scaled meal preparation at all stores. Then it expanded central kitchen operations, even adding more capacity. It improved operational efficiency, sanitation and people productivity.

**FIGURE 1**  
**PRODUCTIVITY IMPROVEMENT OF COMPANY X (2007-2009)<sup>1</sup>**



The results from 2007 to 2009 were that averaged annual store labor productivity<sup>2</sup> was improved by 34% (FIGURE 1) and selling & general administration cost over sales was reduced by 3.5% for three year. It created funds for price investment, and financial performance dramatically improved (FIGURE 2). Company X was successfully turned around by the end of 2009. From 2007 to 2009, Japanese economy and consumer consumption were stagnated and there were no other special reasons for Company X increased sales.

**FIGURE 2**  
**OPERATING PROFIT GROWTH TREND OF COMPANY X 2007-2010<sup>3</sup>**



## **RESULTS**

The original issue was whether lean can be applied to retailing and how lean can be implemented. The case study showed that lean operation system was successfully applied to retailing and stable pricing strategy needed to be simultaneously implemented. Existing researches explained that the lean operation system improved productivity even in the service industry although application was difficult and application cases were still limited.

Lean fundamentally eliminates wastes for adding value and creates smooth flow of business in the value chain. Ohno (1988) said “Work flow means that value is added to the production to the product in each process while the product flows along. If goods are carried by conveyor, this is not work flow, but work forced to flow. The basic achievement of the Toyota production system is setting up the manufacturing flow. This naturally means establishing a work flow.”(Ohno, 1988, p.130). Womack and Jones addressed “In short, things work better when you focus on the product and its needs, rather than the organization or the equipment, so that all the activities needed to design, order, and provide a product occur in continuous flow.”(Womack and Jones, 1996, p. 22). Lean is a solution to achieve a low cost operation. The retail industry is not an exception. The case of Company X verified that lean could be successfully implemented in retailing and added values.

### **Lean in Retail**

Lean has two elements. One is waste elimination. The other is creating continuous business flow. Both contribute to cost reduction, but creation of continuous business flow has brought a much bigger impact on financial performance based upon the case of Company X. The case study showed that lean transformation was a key driver for financial performance improvement at Company X. Stable work

process and work flow with minimized variation of sales level was needed to make the entire business be lean. In the service industry, sales cannot be predicted easily. However, stable pricing such as EDLP becomes a driver to reduce daily sales variation and helps operation be lean with less operational variation. Based upon this case study, it was found that all of key characteristics of the lean operation system were well incorporated in a low cost lean operation in the retail industry.

### **Stability of Pricing**

It was found that there are two elements in EDLP. One is a mechanism of pricing which stabilizes operation. The other is a source of competitive advantage for price competition. From the operational point of view, pricing stability is more important to reduce variation of sales level which affects operational stability. Pricing level should be decided by intensity of price competition. Stable pricing decides operation strategy and cost structure. It means there are two different components in EDLP, everyday same or stable prices and competitive low prices. Those two can be controlled separately.

### **Pricing Strategy decides Operation Strategy**

All retail activities, including primary and supporting, are closely linked in the value chain. Sales and service to customers at stores at the front end activities affect the next activities toward the back end and supporting activities (Porter, 1985). Therefore, if the front end activities vary, activities toward the back end and supporting activities vary. Since marketing and sales activities are not independent from the other, a whole process in the value chain should be considered as an integrated process. The front end process is a marketing strategy focusing on pricing and how to create values for customers. The back end process is an operation strategy focusing on cost and how to create values by operators. Integration of the front end process and the back end process as a corporate strategy should be a whole process for minimizing variation of sales and reducing operation cost.

From the case study, it was found that EDLP as a pricing strategy became a key component for implementing low cost lean operation. In other words, low cost lean operation could work well with EDLP implementation. EDLP is not only a marketing strategy but also a strategy for a low cost lean operation. EDLP becomes a driver of low cost operation upon the lean operation system. As illustrated in FIGURE 3, pricing strategy and operation strategy create a loop to develop a business model based upon EDLP and lean in the retail.

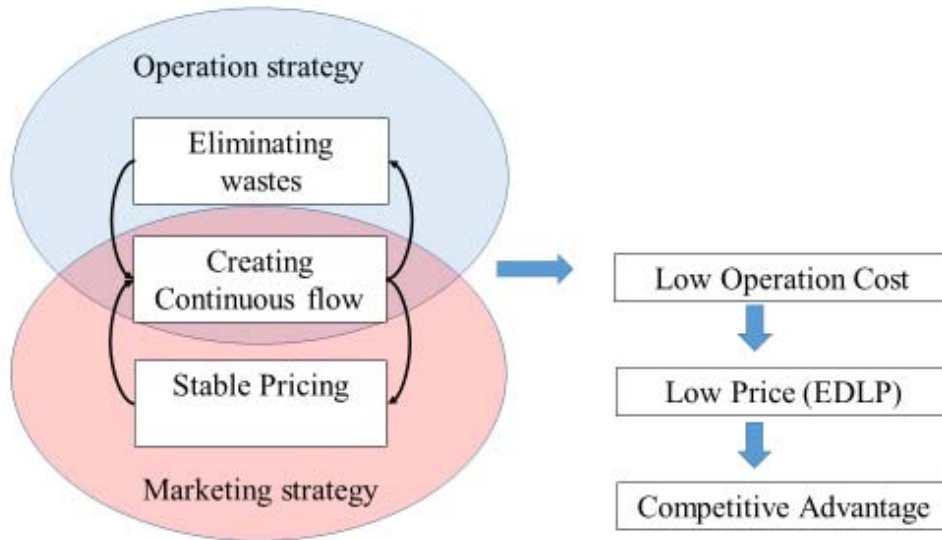
### **Integration of EDLP and Lean as a corporate strategy**

Based upon the case study of successful business transformation at Company X, all business strategies and actions need to be synchronously executed. The lean operation system was established by 1) simplifying the process with eliminating wastes, 2) standardizing the process with multitasking, and 3) leveling work load. Implementing EDLP eliminated flyers for trade promotions, reduced workload for trade promotion setup, reduced frequent changes of price tags, and brought more customers daily. New work practices such as multitasking, team activities, and Kaizen meetings helped lean operation be successfully implemented.

From the case study, EDLP as a pricing strategy and lean as an operation strategy need to be executed synchronously with a tight coordination. It often happens that a merchandising team which manages prices and a store operation team which administrates operations do not get along each other and do not work as a team because initiatives driven by either team often affect activities of the other team. Executing EDLP and lean for a new business model requires a different organizational capability. In manufacturing industry, production process is managed smoothly with little variation because piled inventory becomes buffering solution to adjust customer demand and supply. Unlike manufacturing business, retail business has little time gap between customer purchase and service delivery at retail stores. It is difficult for retailers to predict the level of customer demand for purchase. Therefore, an integrated approach of marketing and operation (Piercy and Rich, 2004) well explains how a lean operation system is adopted in the retail industry. The lean operation system needs to be effectively incorporated in the corporate strategy.



**FIGURE 3  
STRATEGIC STRUCTURE OF LEAN RETAIL DEVELOPMENT**



**CONCLUSION**

This study clarified that lean can be successfully applied to retailing to become an effective alternative to scale. To make lean implementation be successful, stable pricing strategy needs to be introduced at the same time. Although Womack and Jones (1996) said that the lean concept was applicable to the service industry, there were not many successful cases in the retail industry. Lean in the retail has not been clarified and a process for lean transformation is not clearly identified yet. Because Japanese big box retailers have been struggling with their high cost structure, a low cost model upon lean system should improve their performance. The case study answered to the question how the new model was successfully implemented.

This study sheds light on how a lean operation system effectively functions in the retail industry. 1) This study examines lean operation that was successfully introduced in the retail, a service industry. Basically lean is a concept to eliminate wastes and unnecessary work, and lean is a strategy to create continuous operation flow in the value chain and to create values. 2) EDLP as a pricing principle becomes a key driver for lean implementation to minimize operational variation by less daily sales fluctuation. Utilizing a model of lean with EDLP is an effective strategy to differentiate from large scale discount retailers. The point is creating a continuous operation flow in the value chain and the whole business flow needs to be designed to minimize variation. 3) Integration of lean operation system and EDLP needs to be incorporated in a corporate strategy (Noda, 2014). Retailers which embrace a lean strategy must implement a stable pricing strategy to establish a continuous flow of operation and stable pricing such as EDLP must come synchronously with lean. Independent actions at a function are not effective and efficient without cooperated actions by other functions.

Many retailers do not highly value the advantage of lean model because they may simply assume transformation of business model is not applicable and pricing model transformation from high & low to EDLP sacrifices gross margin and operating profit (Hoch et al., 1994). Since integration model of operation and pricing is not presented, EDLP is not well applied for lean implication. As the case study

verified, EDLP becomes a driver for a low cost operation. This model can improve business performance by creating price advantage for sales growth and cost advantage for low cost. In order to examine applicability of this model, a set of business transformation path needs to be clarified. Some future researches remain concerning the generalizability of the results. The case study of Company X presented an example for this transformation, which may not be for all. This study has not fully examined the influence of other factors to support business transformation such as organization capability, relationship with stake holders and managerial capacity also need to be explored.

## ENDNOTES

1. It was created by the best estimates upon public information and interviews.
2. Labor Productivity is sales per store labor hour.
3. Since Company X did not disclose financial information in public, it was created by the best estimates upon public information and interviews.

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