Integration of lean operation and pricing strategy in retail

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Abstract
The study provides a better understanding of lean operation and Everyday Low Price model in the retail for developing an alternative business model to the existing high & low pricing model. The study stresses importance of integration of marketing and operation as a corporate strategy to develop a suggested model.

Keywords: Lean Operation, Everyday Low Price, Retail Strategy

Introduction
A detailed case study of Japanese large big-box retailer Company X that transformed its business model shows that Everyday Low Price (EDLP) pricing strategy with lean operation system is a strategic alternative to successfully compete against conventional high & low pricing with resource optimizing operation strategy. 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. Successful lean implementation will be able to promote operational flow efficiency and achieve effective cost reduction. Accordingly, combination of lean and EDLP becomes an effective strategy to differentiate from high & low competition in the retail. In fact, by integration of pricing strategy and operation strategy in the value chain, 1) EDLP is able to establish a competitive advantage against high & low pricing strategy and, 2) lean can be successfully introduced in the retail. Retailers which embrace an EDLP strategy must implement lean to establish a low cost operation, and a lean operation system must come synchronously with EDLP.

Japanese big box retailers enjoyed a rapid growth in 1980s and early 1990s, but they have been steadily losing sales since 1996. Basically high & low pricing strategy is well supported for gross margin maximization (Hoch et. al. 1994), and Japanese big-box retailers heavily rely on high & low pricing strategy to grow sales. However, big-box retailers which reply on high & low pricing strategy are facing difficulty due to sales decline and low profitability. It indicates that high & low pricing strategy is not always effective. It is assumed that high & low pricing agitated price competition and promoted inefficient retail operation. Therefore, big-box retailers which play with high gross margin and high selling, general and administrative expense have been losing sales and deteriorating profitability.

Under the current situation of Japanese big-box retailers, an alternative pricing strategy is EDLP which many discount retailers such as Wal-Mart apply. Wal-Mart has been growing its sales and profit under EDLP, and it has become the world largest retailer. Wal-Mart’s EDLP
pricing strategy seems to be more successful than high & low pricing strategy.

Wal-Mart alleges that EDLP should be achieved by Everyday Low Cost (EDLC), a low cost operation. However, Wal-Mart’s EDLC was established not on operational efficiency, but on economy of scale. Wal-Mart’s low cost operation heavily relied on low purchase cost, low wage, low rent and low facility cost (Harada 2008, Ortega 1998, Brunn 2006). It is not easy for other retailers to take such a strategy without a large scale.

Is scale necessary for implementing EDLC for EDLP? There should be an alternative strategy to achieve EDLC. That is lean. In the manufacturing industry, low cost operation is achieved by 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). 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 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. Because the lean concept was developed in the manufacturing industry, the service industry was late in applying the strategy (Åhlström 2004, Portioli-Staudacher 2010). Lean in the retail is not well clarified, and a process for lean transformation is not clearly identified yet. 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). 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.

The research question for this study is how to develop competitive advantage by introducing EDLP, an alternative strategy to high & low pricing principle, and how to achieve it without scale such Wal-Mart has. 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 lean production system plays an important role to achieve a successful EDLP and EDLC implementation for retailers. The case is of a Japanese retailer Company X that successfully turned around the business by transforming its business model.

Through the case study, two important findings were identified. Firstly, EDLP with a lean operation system is a successful alternative strategy to conventional high & low pricing strategy in the retail. Secondly, integration of a lean operation system and EDLP as a pricing strategy needs to be incorporated in a corporate strategy. EDLP becomes a key driver for lean operation to minimize operational variation by less daily sales fluctuation. This study sheds light on how a lean operation system effectively functions with an appropriate marketing strategy in the retail industry. Retailers which embrace an EDLP strategy must implement a lean operation system to establish a low cost operation and a lean operation system must come synchronously with EDLP. Utilizing EDLP is an effective strategy to differentiate from high & low competition.

The purpose of this paper is to provide a better understanding of integration of lean and EDLP in the retail for developing an alternative business model to the existing high & low pricing model. In the section 2, existing researches of pricing strategy in the retail and lean
Existing Research

Pricing Strategy in Retail

Pricing strategy is one of the most important elements out of 4P of marketing in the retail industry. Prices directly affect sales and gross margin and impact on retailers’ financial performance.

Pricing strategy is defined by dichotomy of high & low and EDLP (Bailey 2008, Fassnacht and Husseini 2013, Hoch et al. 1994, Dolan and Simon 1996, Kopalle et al. 2009, Lal and Rao 1997, Lattin and Ortmeyer 1991, Pechtl 2004). High & low pricing strategy drives sales by frequent prices change by sales promotion. EDLP pricing strategy drives sales by relatively same prices with low level for differentiation. High & low strategy requires more works than EDLP. High & low strategy is promotion oriented, which identifies promotion items with low prices and notifies customers by advertisement such as flyers and TV commercial. Special works such as setting promotion sales floors and special orders for promotion items are required for additional labor hours to the regular works. EDLP is a relatively simple strategy by eliminating frills to achieve low cost in all functions. The fundamental philosophy of this strategy is simple, leveled and standardized. Hoch et al. (1994) defined “an EDLP pricing policy is as follows - the retailer charges a constant, lower everyday price with no temporary price discounts”. Lattin and Ortmeyer (1991) defined “The strategy of EDLP is typically characterized by retail prices, stabilized on an everyday basis, at a level in between the regular and discount prices of promotional retailers”. Pechtl (2004) defined “In the every-day-low –price (EDLP) strategy, the retailer promotes a basket of products with the argument to offer attractive low prices with will be constant for a longer period. These prices are lower than normal prices in HILO stores, but not as low as their prices discounts”.

Japanese Big-Box Retailer's conventional model and Wal-Mart Model

Japanese big-box retailers steadily developed their market foundation from late 1950s to mid 1990s. The market size reached ¥23 trillion in 1996, about twice of growth in 16 years. The key strategy was high & low pricing. However, sales of big-box retailers started sliding from 1996. One of major reasons was price competition. Discount retailers and specialized category retailers started growing sales by low prices. It revealed that high & low pricing strategy was not effective any more in Japan. The similar phenomenon was observed in USA. Wal-Mart, a discount retailer, grew rapidly and became the largest retailer in the world with EDLP pricing strategy. Even though existing researches explained that high & low pricing strategy had an advantage of higher gross margin, discount retailers such as Wal-Mart established a better market position in USA and even in Japan. It is now convincible that EDLP is more feasible than high & low pricing strategy. It shows that EDLP becomes an alternative to high & low pricing strategy. It is necessary to explain why EDLP is more profitable than high & low although EDLP has an advantage to gain sales to high & low pricing.

It is important to point out that the reason why many retailers choose high & low pricing strategy rather than EDLP. Based upon empirical study by Hoch et al. (1994), EDLP gave a small increase of sales and a big loss of profit when a retailer switched its strategy from high & low to EDLP. However, this study did not assume operational improvement by the strategy change. Previous researches have a tendency to study a pricing principle in the retail as a
marketing strategy, with little link to operation strategy. Fassnacht and Husseini (2013) identified for the further study that “costs play an important role in formulating a pricing strategy, so it would be interesting to investigate how costs may influence the pricing strategy of a retailer”.

There is a reason why many retailers are not able to take the same strategy as Wal-Mart takes. Wal-Mart EDLP pricing strategy relies on EDLC that is established not on operational productivity, but on economy of scale. Wal-Mart has a power to negotiate with suppliers to obtain the lowest purchasing price, with landlords to obtain the lowest rent and with labor to obtain the lowest wage (Harada 2008, Ortega 1998, Brunn 2006). It is difficult for competition to replicate Wal-Mart strategy without such a large business volume. It is valuable to identify a different solution to achieve EDLC for EDLP.

**Lean Operation**

Ohno (1988) first introduced Toyota Production System (TPS) that is the foundation of the lean production concept. Lean is an alternative to achieve EDLC by high operational productivity in the retail. Lean concept is to be learned from the manufacturing industry. The lean production concept was well disseminated by The MIT project team (Womack, Jones and Roos 1990). Although “The Lean” is well acknowledged in the academic and business fields, it is not well defined for common use (Shah and Ward 2007). At the same time, because the lean concept 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, but there were not many successful cases in the retail industry. Lean in the retail is not well clarified and a process for lean transformation is not clearly identified 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 strategy from high & low to EDLP. 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. I was deeply involved in the retail industry as a corporate executive from 2007 to 2011. I incorporated my knowledge and insight in this study and described characteristics of strategies.
Based upon interviews and literature reviews, a summary of the case was described in the next section. The case successfully clarified causal relationship of actions taken by management and employees.

A series of discussions with contributors were made to verify the logic of the study and to assure objectivity of fact layout. I also analyzed the process of how EDLP worked with a lean operation system and how EDLP was implemented. Many findings were derived by integration of literatures and empirical studies.

**Case Study: Lean Transformation**

Company X was founded in the 1950s in Japan which had more than 50 years of history. 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.

In-store execution was the most important thing for lean transformation. The following actions were taken for lean transformation at the stores:

1) **Multitasking:** In the past, employees were assigned to product-based departments such as the produce department or the grocery department. Lean transformation reduced department-oriented tasks. For example, first in the morning, all employees started merchandise stocking at the produce section. Then they moved to the meat section, the dairy section, the fish section and the grocery section for stocking. This way is much more efficient for stocking. They would be able to complete stocking for all sections before the noon sales peak time. 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.

2) **Lean Solution:** It was identified that many tasks were not creating values for customers. All of the merchandise was delivered to stores in various packages. 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.

3) **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 any opportunities for lean transformation. 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 to also promote team building.

4) **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 departments at headquarters.
Company X tried to make the operation be standardized for anyone at any time.

5) Outsourcing: Management identified operations which should be held in 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 for 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.

In the process of lean transformation, some interesting aspects were found. At the beginning, EDLC upon lean operation was needed to create a fund for price investment to implement EDLP, but EDLP actually promoted lean operation.

1) Simplifying: EDLP did not require frequent flyer circulation, frequent price tag changes, special promotion places, labor in-store processing, and complex tasks.
2) Leveling: EDLP did not require irregular work flow, special store arrangements, and overtime work. EDLP predicts work schedule for employees.
3) Standardizing: EDLP provided opportunities of various job tasks, enabled operation to be more flexible and improved work quality and productivity. EDLP enabled anyone to prioritize and execute tasks.

The results were that store labor productivity improved by 40% and selling & general administration cost over sales was reduced by 3.5% for three years. It created funds for price investment, and financial performance dramatically improved. Company X was successfully turned around by the end of 2010.

Results
The original issue was which pricing strategy was more feasible to be successful in the retail, high & low or EDLP. The existing study clarified that EDLP grew sales but sacrificed gross margin. Then the issue brought next was whether EDLP could be implemented with increasing operating profit by low cost operation. Wal-Mart case is a good example to answer to this question. However, Wal-Mart is a unique case because of its scale that many retailers cannot achieve. An alternative solution is a combination of EDLP and lean. Lean is a solution to achieve low cost operation.

Unlike manufacturing business, retail business can have little time gap between customer purchase and service delivery at stores. It is difficult for retailers to predict the level of customer demand for purchase. Therefore, an integrated approach of marketing and operation well explains how a lean operation system is adopted in the retail industry. This study uncovers EDLP as a key driver for implementing lean operation, and it discusses what retailers should know related to lean transformation as it relates to the whole process of the retail industry to low cost management. EDLP should be considered as an integrated corporate strategy with a lean operation system. EDLP reduces variation of sales and it pulls stable operation flow that improves flow efficiency.

Lean in Retail
The lean concept based upon TPS was originally established by Ohno (1988) for automobile assembly, and Womack and Jones (1994) implied that it was applicable to service industry. However, there are no established lean management concepts in the retail industry (Naruo and
Toma 2007). Modig and Åhlström (2012) extended lean concept application to the service industry by refining flow efficiency.

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, EDLP as a driver to reduce daily sales variation 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 low cost lean operation in the retail industry.

**Wal-Mart model as economy of scale and power**

Wal-Mart, the largest retailer in the world, is recognized as a low cost retailer. However, Harada (2008), Ortega (1998) and Brunn (2006) argued that Wal-Mart’s low cost structure heavily relies on low wage, low rent and low purchasing cost. It is not a lean operation, but a low cost operation relying on economy of scale and its bargaining power. To compare Wal-Mart with Japanese retailers, two indexes are used. One is inventory turnover which explains flow efficiency. The other is selling and general administration cost over sales, which shows operation cost structure. Wal-Mart’s inventory turnover in 2012 (consolidated base) was 10.6 and selling, general administration cost rate over sales was 19.1%. Inventory turnover of a Japanese lean retailer (OK Corporation) in 2012 was 65 and selling, general administration cost rate over sales was 15.2%. The largest retailer Aeon’s (Aeon Company Ltd.) inventory turnover in 2012 was 13.4 and selling, general administration cost rate over sales was 35.2%. Wal-Mart’s competitive advantage is not operation flow efficiency, but low cost management.

Wal-Mart’s business model is established based on EDLP and EDLC. Wal-Mart has a state of art IT system to optimize logistics covering entire US, but it is a relatively smaller portion in the cost structure. Womack and Jones (1996) also describe Wal-Mart as a retailer utilizing its bargaining power to drive supplier margins down (by offering access massive sales volumes to only one firm in each supplier category) for its profit. Womack and Jones said, “What Wal-Mart has not done (but it will need to think about soon) is how to analyze entire value streams to drive total costs down” (1996, pp. 282). The case study verified that Wal-Mart’ model could not be easily replicated by competitions due to its scale.

**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 works only with EDLC, and EDLP becomes a driver of low cost operation upon the lean operation system. As illustrated in Figure 1, pricing strategy and operation strategy create a loop to develop a business model based upon EDLP and lean in the retail.

**Figure 1 - Strategic Loop of Lean Retail Development**

*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 for EDLC was established by 1) simplifying the process with eliminating wastes, 2) leveling work load, and 3) standardizing the process with multitasking. 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 to 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. Fujimoto (2003) clarified organization capability in manufacturing and corporate performance. Based upon series of field study, Fujimoto identified surface competitiveness which is not linked with organizational capability but directly recognized by customers and deep competitiveness which is not recognized by customers but directly linked with organizational capability. He advocated deep competitiveness was an important factor for sustainable competitive advantage for a corporate. 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 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. Therefore, organizational capability for sustainable competitive advantage in the retail should be developed in conjunction with deep competitiveness and surface competitiveness.

**Conclusion**

This study clarified that EDLP becomes an effective alternative to high & low pricing strategy. To make EDLP implementation be successful, lean operation 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. Some of researches clarified lean as a tool to improve productivity in the supply chain system. 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 a 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 operation to minimize operational variation by less daily sales fluctuation. Utilizing EDLP is an effective strategy to differentiate from high & low competition. The point is in the continuous operation flow in the value chain, the whole business flow needs to be designed to minimize variation. High & low pricing is creating variation from sales towards upstream as a result of efforts to increase sales by sales promotions. The store operation, logistics and merchandising are affected by sales and required by irregular tasks which create wastes. 3) Integration of lean operation system and EDLP needs to be incorporated in a corporate strategy. Retailers which embrace an EDLP strategy must implement a lean operation system to establish a low cost operation and a lean operation system must come synchronously with EDLP. 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 EDLP model because they may simply assume transformation of business model from high & low to EDLP sacrifices gross margin and operating profit. Since integration model of pricing and operation is not presented, EDLP is not well applied for lean implication. As the case study verified, EDLP becomes a driver for low cost operation. This model can improve business performance by 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.

**References**


