

A Recipe for Success, Necessary Dimensions of Operations Management: A Case Study based on Walmart's Triumphs

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Abstract

Purpose: This paper aims to analyse operations management's importance in three main dimensions: having a successful strategy, an efficient supply chain management system, and continuous innovation. The case of Walmart is used to consolidate these three areas. The main methodology of this paper is quantitative. The previous empirical literature on operations management and Walmart will be utilized to assess three important areas of operations management that are relevant for business today. **Findings:** The results indicate that strategy, supply chain management, and innovation play an important role in effective operations management. Particularly, the research on Walmart has shown that a low-price policy (EDLP) strategy, streamlined supply chain management by constructing communication and relationship networks with suppliers, and routine innovation have enabled Walmart's success. **Limitations:** The research only focuses on three operations management areas. Moreover, this research paper only studies Walmart's case. Thus, its findings may not be generalizable unless more case studies can be analyzed.

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Introduction

A company's degree of success depends on its operations management's effectiveness. Operations seem to be a chain that includes many knots. Business managers and academics are concerned about how to make those knots match each other. Different authors will have different definitions of operations management. The following are some of these definitions:

Operations management is the direction and control of the processes that transform inputs into finished goods and services (Krajewski, Ritzman, 1999).

Operations management is how organizations produce goods and services (Slack et al., 2007).

According to the literature, strategy, innovation, and supply chain management (SCM) are three important operations management areas and get a lot of attention from researchers and decision-makers. Whereas strategy seems to be key in enabling companies to achieve specific goals (Porter, 1996), innovation helps a company's operations by enhancing efficiency and performance (Pisano, 2015), and supply chain management directly affects a company's manufacturing and business processes (Fisher, 1997). To run a business smoothly and successfully, managers need to have harmony among these three areas to enhance the performance of their companies. Therefore, the paper's research question is how Walmart can succeed and remain its triumph in the retail industry.

The paper is structured into three parts as follows. The first part discusses aspects of a successful strategy in operations management. The second part elaborates on efficient supply chain management, and the third discusses breakthrough innovation.

A successful strategy in operation management

The root of many problems in operations management is the failure to distinguish between operational effectiveness (OE) and strategy. Although they are both essential to superior performance, they are different. OE is to perform similar activities better than rivals (for example, reducing product defects or developing better products). At the same time, strategy follows a unique activity to deliver a unique value. In other words, the strategy's core lies in not doing the same activities as competitors more efficiently but rather having different activities than competitors (Kaplan, Norton, 2008; Porter, 1996).

One example of the difference between OE and strategy is Japanese companies, which have had multiple operations initiatives such as total quality management and continuous improvement since the 1970s. Japan seems to be the first pioneer triggering OE but not strategy because most Japanese businesses concentrate on the substantial cost and quality advantages.

So, what is strategy? Porter's definition is to create a unique and valuable position regarding business activities. A successful strategy's core is choosing the right activities that are different from competitors (Porter, 1996).

In a turbulent business environment, a company's strategy should be flexible for the company to be able to withstand and succeed in all circumstances and unforeseen issues. Furthermore, there should be a fit between strategy and operational planning to gain competitive advantage and sustainability (Porter, 1996). In addition, Porter (1996) also mentions the categories of strategic positioning by building variety-based, needs-based, and access-based positioning.

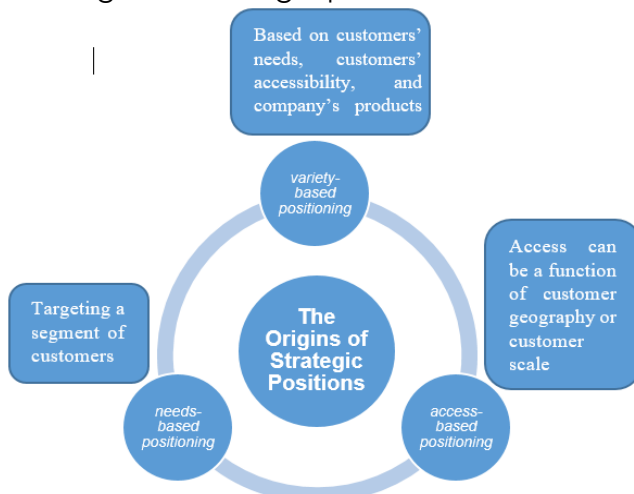
To reinforce the previous point, Collis and Montgomery (1995) refer to the resource-based view, which helps to determine whether a company's resources meet its strategy and target market. Managers invest in resources that have unique value and are a source of competitive advantage. These resources can be identified by using

five simple tests: a) Inimitability – the resource is hard to copy; b) durability – how long does it exist; c) appropriability – The company can capture part of the value it creates, d) substitutability – the capacity to substitute with an existing resource, e) competitive superiority – whose resource is predominant (Collis, Montgomery, 1995).

Figure 1 presents the origins of strategic positions

Figure 1

The origins of strategic positions



Source: Porter (1996)

Strategy, unquestionably, is the backbone of the success of any company because it is the bridge that brings together all other parts of the operational processes. However, not all companies create successful strategies; sometimes, fear cripples many managers. Further, many external conditions affect strategic efficiency, such as the technological level, competitors' strategies, etc. Further, managers must also select trade-offs to create a successful strategy (Porter, 1996; Kaplan, Norton, 2008).

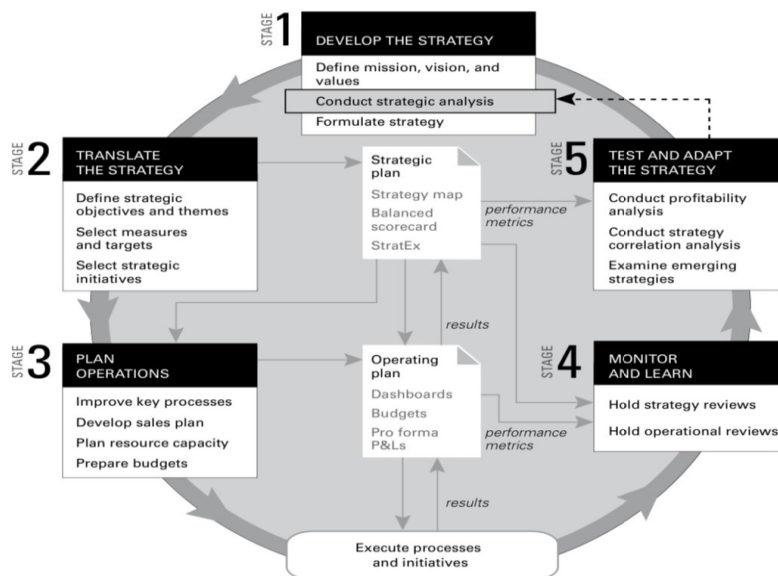
For instance, according to the article "Restoring American Competitiveness" by Pisano and Shih (2009), the United States competitive capacity has decreased in high-technology fields because many US companies prefer to save costs and outsource manufacturing. As a result, most US laptops and cell phone companies are manufactured and designed in Asia (Pisano, Shih, 2009).

To demonstrate the importance of strategy, Hayes and Pisano (1994) mention that two companies might have similar manufacturing processes; however, only one of them obtains success (which is the one with the superior strategy) (Hayes, Pisano, 1994). No identical companies have the same strategy; all businesses have different backgrounds, financial resources, expertise, corporate cultures, and so on (Collis, Montgomery, 1995).

A strategy is created when it complies with two basic rules: understanding the relationship between strategy and operations and knowing the right tool to use in each stage (quality and process management, resource capacity planning, activity-based costing, etc.). Unbalance between strategy and operations is a major problem for companies (approximately 60% to 80% of companies fail because of strategy and operations mismatch) (Kaplan, Norton, 2008).

According to the literature, the benefits of the close-loop strategic management system are twofold. Firstly, it can support a practical model for strategic implementation while considering the company's operations. Secondly, almost all tools are documented to be successful. It has five stages (see Figure 2)

Figure 2
The closed-loop system



Source: Kaplan, Norton (2008)

- 1) *The first stage: Developing the strategy*
 - The company's mission and vision are created first.
 - The company's strengths, weaknesses, opportunities, and threats are essential in helping to identify its objectives.
 - Strategy is formulated forward, taking advantage of competitive advantages at this stage.
- 2) *The second stage: Translating the strategy into objectives*
 Strategy in this stage will be translated into small objectives for the relevant departments. All units must be in harmony with the strategy.
- 3) *In the third stage: Planning operation*
 The main goal is to plan the resource capacity to match each stage. Consequently, a company can identify specific objectives and strategies to implement planning operations.
- 4) *In the fourth stage: Monitoring and learning*
 Operational issues will be reviewed throughout all processes. Moreover, KPI results and outcomes will be considered to assess the strategy.
- 5) *In the fifth stage: Test and adapt the strategy*
 The company here re-estimates due diligence periodically based on its strategic performance. Furthermore, assessing performance helps managers compare their expectations and desired strategies to practical outcomes. This step is also a prerequisite to making decisions for the next activities.

What is efficient supply chain management?

One of the prominent factors that helped WM be as successful as they were supply chain management (SCM). SCM depends on the company's capacity and strategy and should be flexible and adaptive to any circumstances. It should also match a company's strategy (Fisher, 1997).

SCM plays an important role in any company's competitiveness and competitive advantage (Harrison, 2003; Negi, Anand, 2014). Good SCM is the fastest and most effective way to transfer or provide final products to the end users (Gattorna, 2006). However, turbulent market conditions force firms to be more flexible and adapt to market shifts. Moreover, SCM covers diverse fields such as procurement, distribution, logistics, and inventory. Consequently, if there is an error or delay during the process, it will bring a lot of risks and losses (year by year, because of ineffective SCM, America's food industry wasted \$30 billion) (Fisher, 1997). Also, the costs to operate a warehouse accounted for around 20% of all logistics costs, whereas the process of picking items accounted for 65% of warehouse costs (Astalosch, 2017).

It is easy to recognize that SCM depends on customers' demands. Thereby, SCM's primary challenge is the ability to predict demand accurately. According to Marshall Fisher, to construct an efficient SCM, a company must consider the demand's nature for a particular product because the root of most problems in SCM stems from mismatching products and supply chains. Moreover, the difference in products (either primarily functional or primarily innovative) requires different SCM systems (based on product life cycle, demand predictability, product variety...etc.) (Fisher, 1997).

Table 1
the comparison of functional products and innovative product

Features	Functional	Innovative
Aspects of demand	Predictable	Unpredictable
Product life cycle	More than two years	3 months to 1 year
Contribution Margin	5% to 20%	20% to 60%
Product Variety	Low (10 to 20 variants per category)	High (often millions of variants per category)
The average margin of error in the forecast at the time production is committed	10%	40% to 100%
Average stockout rate	1% to 2%	10% to 40%
Average forced end-of-season as a percentage of the full price	0%	10% to 25%
Lead time required for made-to-order products.	Six months to 1 year	One day to 2 weeks

Source: Fisher (1997)

Table 1 distinguishes the difference between functional products and innovative products. Particularly, functional products satisfy basic needs with long life cycles, and the demand for those products is stable and relatively easier to predict. Because of this stability, many companies penetrate markets of functional products, which is why the profit margin is low in these markets.

In contrast, to improve a company's profit, the company might develop new solutions and innovative products. Bringing innovation enables a company to attract new consumers. Nevertheless, its demand is unpredictable. In addition, the life cycle of innovative products is shorter – sometimes lasting only a few months because competitors start to imitate the innovation. The author suggests that innovative products require a different supply chain than functional products (Fisher, 1997).

What is a breakthrough innovation?

In practice, innovation capacity is a gate to participate in a competitive race toward sustainable growth and long-term success, as not all successful companies in the short term sustain their competitive advantage.

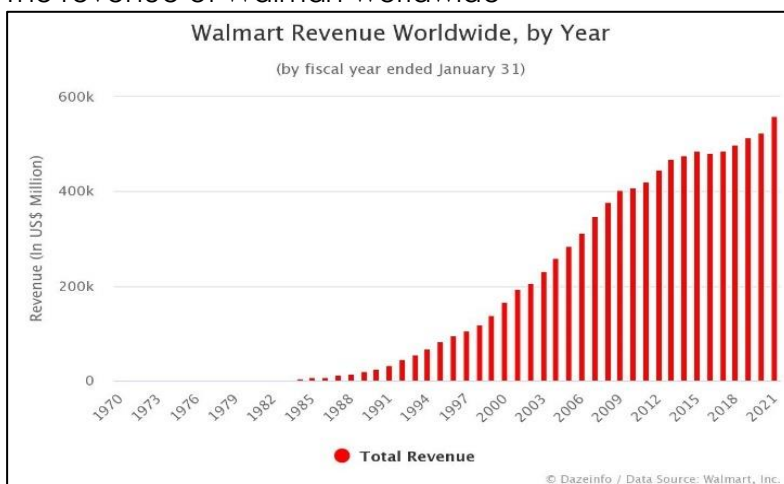
Pisano indicates that the main reason a company finds it hard to build and maintain an innovative performance is the lack of a clear innovation strategy. A strategy is created to align all parts within a company towards a common goal and to identify the company's main short and long-term objectives and priorities. In turn, a strategy is a commitment to coherent, improving mutual policies and tactics to achieve specific competitive goals. Hence, without an innovation strategy, all company departments will pursue conflicting priorities, even with a clear business plan. Moreover, a clear innovation strategy helps managers align internal conditions with specific competitive needs (Pisano, 2015).

Similarly, to construct an innovation strategy, a company needs to understand and articulate its objectives relating to maintaining a sustainable competitive advantage. In addition, innovation is assessed along two dimensions: the degree to which it involves a change in the technology or an organization's business model. Particularly, innovation strategy should be able to answer the following questions:

- How will innovation create value for potential customers?
It should be as clear as possible how customers will benefit from the innovation.
- How will the company capture a share of the value its innovations generate?
Imitators react as quickly as they can in a mutually exclusive competition. Therefore, one of the best ways to preserve self-position is to develop and continue to invest in innovation more their strategies.
- What innovations will allow the company to create and capture value, and what resources should each type receive?

There is no type of system that can fit all companies well or run under all circumstances. Hence, identifying the types of innovations that match the company is the first requisite to execute an innovation strategy. Figure 3 presents the revenue of Walmart worldwide by year.

Figure 3
The revenue of Walmart worldwide



Source: Walmart.com

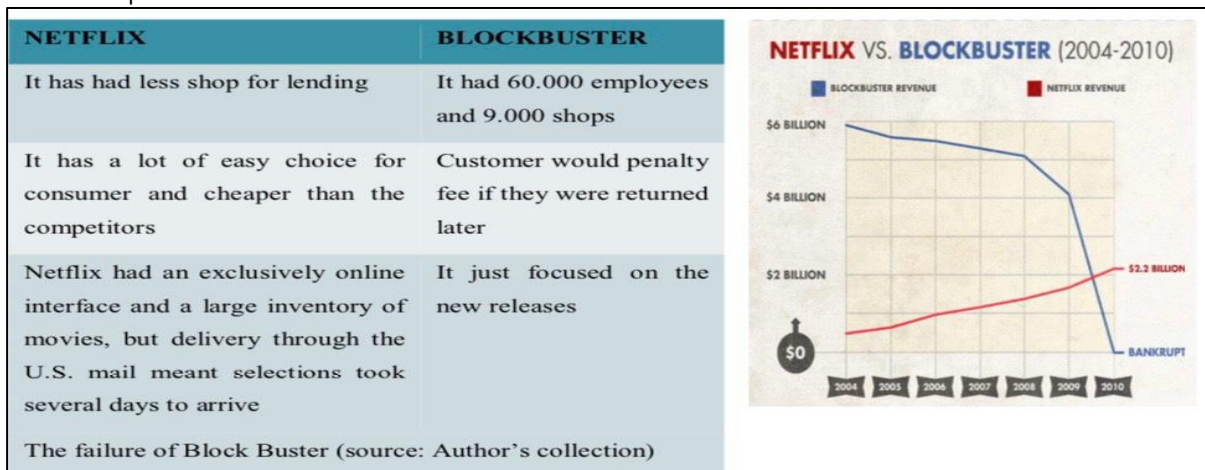
According to Pisano, there are four types of innovation as per the following (Figure 7):

- Routine innovation - is built not only based on a company's existing technological competencies but also its business model.
- Disruptive innovation - named by Clay Christensen, requires a new business model but not necessarily a technological breakthrough (Clayton et al., 2015).
- Radical innovation - the polar opposite of disruptive innovation – concentrates on technological capacity.
- Architectural innovation - is a combination of technological and business model disruptions.

Figure 4 below compares Netflix and Blockbuster's principal operations. Netflix's appearance in 1997 (a disruptive innovation) ended the dominance of Blockbuster (in 2010). Netflix started later than its rival and focused on different segmentation than its competitor. After many improvement efforts, Netflix's market shares constantly increased; it had redefined the market and defeated its biggest rival (Blockbuster) because what it did was very different from what its competitors and consumers usually expected.

Figure 4

The comparison between Netflix and Blockbuster



Source: Netflix.com

Methodology

To understand the importance of operational management in business, the study utilizes a case study to interpret Walmart's success in the retail industry. Based on the literature, the paper concentrates on three main parts of operation management: strategy, supply chain management, and innovation.

The author selects Walmart as a case study because of its triumph – one of the world's largest retailers. Although the company operated long ago, its success remains until now from \$1.24 billion to \$572.8 billion in 1970 and 2021, respectively. Whether or not Walmart's success derives from decided continuous innovation.

Consequently, the paper focuses on examining strategy, supply chain management, and innovation to identify

Case studies analysis

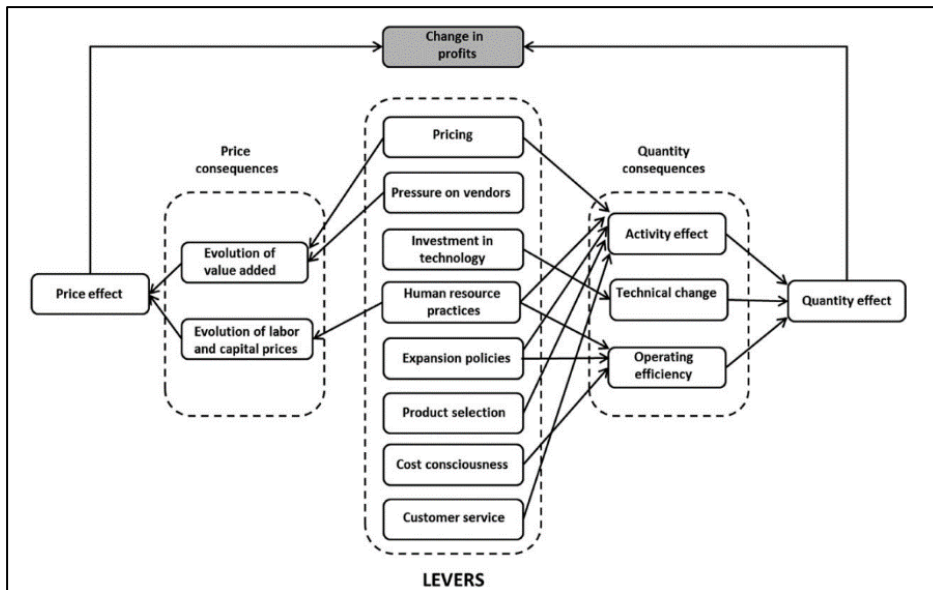
Walmart's Strategy

Walmart (WM) is a family company. All its numbers that speak for themselves show that it hit the peak of success. For example, its annual revenue was \$312.4 billion in 2006 (Johnson, Mark, 2007). WM adopted a unique and competitive strategy – the “everyday low prices” policy (EDLP) to achieve its success. WM's strategy seems to have been an innovation in the retail industry, as it differentiated WM from its competitors in the long term.

Walmart's progress is impressive, as a major success in the retail industry is depicted through the revenue worldwide from 1970-2021. The growth rate of Walmart's revenue is rapid year by year, demonstrating that the strategy and orientation of Walmart's director are going the right way under the market intention.

Particularly, during the 1970s to 1980s, the strategy aimed to provide good quality commodities at reasonable prices for consumers (Nguyen, 2017; Chandran, 2003). Then, it created a positive spillover effect in expenditure and price reductions. By implementing EDLP, WM utilized an effective Supply Chain Management (SCM) to cut operational costs by working directly with suppliers without mediators. Figure 5 below presents Walmart's discount retailer business model.

Figure 5
Walmart's discount retailer business model

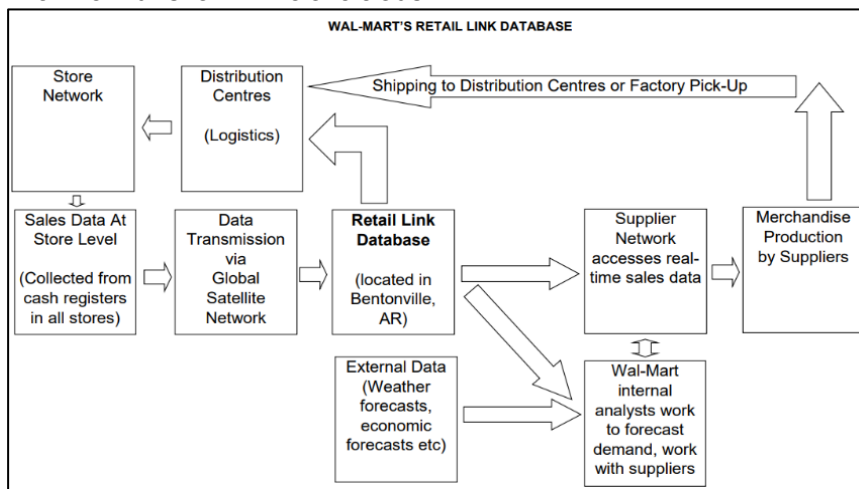


Source: Brea-Solís et al. (2015)

Furthermore, WM saved costs by applying an innovative information system in integrated operating processes. For instance, the distribution centers connected each WM's store via an information system, ensuring that products were provided to all stores on time. Moreover, WM applied information technology in their business, allowing managers to access inventory numbers and sell products daily.

According to the study of Brea-Solís et al. (2015), the paper analyses Walmart's first third CEO business model based on eight levers: pricing, Pressure on vendors, Investment in technology, Human resource practices, Expansion policies, Product selection, Cost consciousness, Customer service. Hence, to identify Walmart's business strategy in its success. Figure 6 shows Walmart's retail link database.

Figure 6
Walmart's retail link database



Source: Walmart.com

For 36 years, Walmart is still loyal to its business model, although each CEO has implemented some adjustments. According to the study objective, the paper analyzes each Walmart's CEO business model to clarify its business strategy.

The comparison of Walmart's business model under CEOs:

- Sam Walton

From 1972 to 1988, under Sam Walton's administration, Walmart follows the policy- of everyday low prices (EDLP) - Pricing. For vendor and cost consciousness, Walton develops vendor partnerships to exchange information by cutting costs and improving operational efficiency, particularly its truck fleet. By applying novel information technology such as satellite systems, barcodes, or distribution centers, Walmart strongly increases profits - Investment in technology. Moreover, at the business model lever, Sam Walton concentrates on developing in the following parts: Human resource practices: the company implements many policies to attract talents; Expansion policies: focusing their attention on developing in rural areas; and Product selection: Walmart wants to provide various product categories for consumers such as jewelry, shoes, photo labs, and pharmacies. In other words, Walmart wants to create a friendly consumer shopping environment - Customer service.

- David Glass (1988 to 2000)

In contrast, David Glass (1988 to 2000) is forward to opening new stores, cutting costs, and increasing product variety. His priority that invests in information technologies to link stores with vendors. That is one reason why Walmart became the world's largest retail industry. Secondly, in product selection, Walmart is expanding private brands to have the diverse product on the shelf. Thirdly, Glass builds more stores in suburban areas and opens abroad.

- Lee Scott (2000 to 2008)

Becoming Walmart's CEO in 2000, Lee Scott had to deal with the existing problem regarding human resource practices. Consequently, Walmart offers beneficial conditions for employees and improves salary structures. Besides, its vision and orientation are the international stores.

WM's supply chain management

Supply chain management was the tool that boosted WM's brand; no one does SCM better than Walmart (Chandran, 2003). The key to WM's success is its SCM,

which integrates three main factors: procurement and distribution, logistics, and inventory management.

- Procurement and distribution

WM's goal is to provide the best price to its consumers; hence it has to concentrate on reducing costs in the purchasing process. WM's buyers meet and negotiate directly with manufacturers instead of working with intermediary agents. Moreover, WM requires suppliers that receive the lowest price the supplier can offer, which is not available to anyone else (Nguyen, 2017; Chandran, 2003).

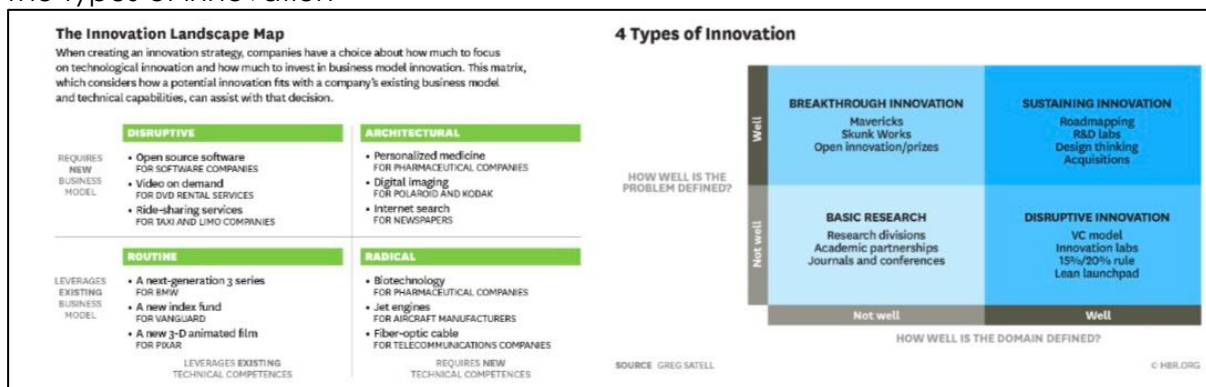
- Distribution

As for the distribution sector, in early 1998, WM possessed over 40 distribution centers providing over 80,000 various products. Managing a huge number of distribution centers, WM has a competitive advantage in providing merchandise to each store. For example, WM's warehouses supplied 85% compared with 50-65% of its rivals, and the lead time to replenish is shorter than others (two days and five days, respectively). Moreover, the shipping costs per transformation are around 3% for WM and 5% for competitors.

- Logistics.

Another dominating aspect of WM's SCM is its logistics system – a truck fleet helping WM can be active in delivering from inbound to outbound trailers without intermediary agents. To support the distribution process, WM uses a logistics technique – “cross-docking”. Cross-docking saves time and cost for handling and storing finished goods by picking them up and sending them out to customers (Nguyen, 2017).

Figure 7
The types of innovation



Source: Pisano (2015), Satell (2017).

- Inventory

Applying technology in operations and inventory management helps WM detect low-inventory products and inform their distribution centers for replenishment (Garcia, 2020; Chandran, 2003). Innovative technology supports other aspects of WM's inventory management, such as using barcodes and now Radio Frequency Identification Tags - RFID supporting employees to easily get the number of sold or stored items of a particular product in their warehouses (Mark, 2012). Moreover, based on RFID, WM can forecast the demand of consumers (Johnson, 2008).

WM's Innovation

Table 2 presents the technological innovation applied by Walmart.

Table 2
Technological Innovation Applied by Walmart

Time	Initiative	Meaning	Source
1983	Satellite network	Connect every store by video and voice to improve the operation control	(Mohamed, 2014)
In the mid-1980s	Barcode, point-of-sale system, and real time data collection	Decision making relies on data analysis to acquire the real-time information about all merchandise	(Johnson, Mark, 2012)
In the mid-1980s	Distribution centers and computerized inventory systems	Controlling the effectiveness of supply chain practices	(Chandran, 2003)
In the late 1980s	The fleet of trucks and an innovative cross-docking logistic technique	Delivery and replenish the products from distribution centers to stores. That aims to reduce operating costs and inventory	(Johnson, 2008)
In the mid-1980s	A central database, store-level point-of-sale systems	To provide additional support to buyers, improving the accuracy of its purchasing forecasts.	Walmart (2020)
1990	Collaborative Planning, Forecasting, and Replenishment (CPFR) & vendor-managed inventory (VMI)	Calculate and predict demand and exchange information to avoid wrong forecasts	(Krajewski, 2015)
In the mid-1990s	Retail link	Let its suppliers can be able to access data on every sale as well as replenish their products	Walmart, IVEY, 907D01, 2020
2003	Radiofrequency identification tags (RFID)	Better than barcodes, such as storing more data and identifying and tracking inventory from manufacturers to warehouses to stores.	(Hunt, 2007; Stodder, 2007)
2013	SPARC app	Suppliers can access inventory information.	(CSA, 2013)
2014	Real-time Big Data Café	An analytics hub in its Arkansas headquarters	(Marr, 2017)
2015	Drones in Inventory Management and In-store delivery	Checking warehouse inventory and testing home delivery	(Logistics, 2015)
2016	Blockchain for Food Tracking	Examining the quality of the product. The Walmart Food Safety Collaboration in Beijing	(Popper, 2017; Kharif, 2016)
2016	My Productivity mobile app	Software available for every member of the in-store management team	(Ibbotson, 2016; Graham, 2016)
2017	Chemical Intensive Product Initiative	Identifying harmful chemicals in products	(Torrie, 2009)
2019	Intelligent Retail Lab (IRL)	Integrating artificial intelligence in the retail experience.	(Smith, 2019)

Source: Author’s work

Unlike traditional supermarkets, WM recognized the importance of information early. In the 1980s, WM invested in a database through a satellite network (Johnson, Mark, 2007) - Retail Link – equally 570 terabytes. WM's satellite communication

network is estimated to be the largest in the world as a private company. This satellite communication serves the purpose of communicating between distribution centers and each store. Because of conveniently informative exchanges among parts, this system was able to shorten the pending process time more than ever before. All problems were solved through the communication system instead of going to the physical office. Hence, managers could easily observe their stores anytime and anywhere. WM can deliver commodities quickly to replenish out-of-stock products at any store.

Moreover, WM utilized paralleling barcodes to manage inventory levels, bringing huge efficiencies. WM has never stopped its creative revolution. Particularly, in the 1990s, instead of using continual barcodes, Walmart integrated RFID tags into its products and systems, improving its management because RFID's benefits are much larger than barcodes, such as identifying the exact location and number of products without manually looking for the product and counting them. It contains the manufacturing date, expiration date, etc. (Nguyen, 2017).

To this day, WM has continuously innovated on both sides, its technology and business model, to construct an ideal ecosystem that achieves sustainable growth and development for the company (Garcia, 2020). An interesting note is that almost all WM innovations are assessed as routine.

Conclusion

All companies aim to maximize profitability and achieve sustainable long-term growth and development. Therefore, identifying the strategy is the core to obtaining success. Strategy is about conducting unique activities to deliver a unique value, not operational effectiveness. In addition, in today's fiercely competitive environment in the business world, more and more imitators can quickly duplicate other companies' innovations. Thus, to maintain a competitive advantage, companies must continually innovate and have an innovation strategy that matches well with the company's strategy, goals, and capabilities. Last, competitors will catch up to it unless a company is pioneering in the race for long-term success and profitability. A strategy or innovation isn't enough to achieve success without an appropriate SCM system. An effective SCM helps companies enhance their capacities and performance and save unnecessary costs. A prominent example of successful implementation of these three areas in operations management is Walmart – the retail empire is built by an everyday low prices policy (EDLP) strategy; its supply chain management excels through its communication networks with its suppliers, and this retail empire always pioneered by using routine innovations in both its business model and in the technology, it's used.

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