

**Analysis of Information Resources Usage in Value Chain of Starbucks Corporation for
Competitive Advantage**

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Paper submitted to CI 6228 Managing Information Systems

Abstract

This paper analysis how the strategic use of Information Resources in value chain of an organization helps it to gain competitive advantage using the case study of leading coffeehouse chain, Starbucks Corporation. It begins by discussing the rise in usage of information resources such as data and technology as a strategic tool in this digital era. Further, it discusses about why competitive advantage is important for an organization and how Porter's value chain model is used by organizations to link various business processes for their advantage. It is followed by explaining Starbucks's company profile and reason behind choosing Starbucks for the analysis. Then, analysis is made on strategic application of information resources in value chain of Starbucks. This is to determine whether the usage of information resources in various links of value chain of an organization helps to attain competitive advantage or not. Finally, discusses the findings based on the analysis.

Keywords: Value Chain, Starbucks, Information Resources, Competitive Advantage

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Information technology impacts the way organizations run its businesses. It is changing the entire cycle whereby businesses build their goods. As the companies see the usage of the information resources by their competitors to create better value for buyers, they realize the need for change in every value chain activity of their organization (Porter M, 1985). This paper shows how information resources are used in the value chain of Starbucks Corporation and how the traditional value chain system has been tuned using information resources and technologies for its competitive advantage. First section discusses the value chain model of Michael E. Porter and the factors needed for competitive advantage. Next section discusses about profile of Starbucks and the usage of information resources in each and every value chain activities of Starbucks. Then discussed the findings of before and after using Information Systems in Starbucks value chain. Based on the discussion, pointed out some problems in Starbucks strategy and concluded with key learning points from Starbucks.

1. Literature Review

Researches done thus far have shown that competitive advantage increases when a company spends less amount for its value chain activities and at the same time adds value to the product. In this paper, I discuss about the literature done in the areas of value chain activities and competitive advantage.

1.1 Competitive Advantage

Companies sell their products and services in a marketplace populated with competitors. So, it is important for a company to possess competitive advantage in order to stay ahead in the competition. The competitive advantage is connected to the expertise acquired within the

company (Defillipi, 1990). The competitive advantage of a firm depends upon how strategically, resources have been used/deployed by the firm in comparison to its competitors (Hofer, 1979).

There are number of ways a firm can achieve a competitive advantage and one of the ways is adding value to their customers / products by effectively using information resources in its value chain activities (Porter M, 1985). Therefore, we can say that competitive advantage can be attained by showing difference in the value creation and reducing cost in comparison to its competitors.

1.2 Porter's Value Chain Model

Value chain is order in which set of activities carried out by a company to create value for its customers. In 1985, Porter proposed a model for evaluating the organization's internal processes and stakeholders involved in its supply chain by designing the firm as a chain of value-creating activities. Two value-creating activities as shown in Figure 1, proposed by Porter are Primary and Support activities. Former directly involves to the value created in a service or product and the latter activities complements the primary activities.

[Insert Figure 1 Here]

1.3 Using value chain for competitive advantage

A value chain of a firm in an industry is linked to value chains of others, for example, the value chain of suppliers, value chain of firm's distribution channel, value chain of buyers (of the product), so the term value chain can be expanded and can be called as "value system".

A organization can build competitive advantage by organizing the interdependent operations between the value chains (Porter M, 1985). Each activity can influence how others are conducted, indicating that the information technology cannot be used in isolation. Therefore in-

order to achieve maximum competitive advantage, efficient deployment of strategy is necessary to reduce the issues that occur because of interdependent activities.

2. Starbucks Case Study

In this section, company's profile, the reason behind choosing Starbucks for the value chain analysis and highly valued information resources of Starbucks are discussed.

2.1 Company Profile

Starbucks Corporation is a coffee company established in 1971 in America. It is a premier roaster, retailer and marketer of specialty coffee around the world. Besides Coffee, they sell goods and services under other brands such as Seattle's Best Coffee, Teavana, Ethos, Evolution Fresh and Starbucks Reserve. The mission statement of Starbucks is "To inspire and nurture the human spirit – one person, one cup and one neighborhood at a time" (Starbucks, 2020). To accomplish its mission, the company uses various strategies and at present it is the company which uses information technology earlier than its competitors in-order to stay ahead in the market.

2.2 Why Starbucks

During the great depression of 2008, Starbucks profit had fallen 28% compared to the previous year. As a result, it closed 300 stores and terminated 6,700 employees. These unfortunate events reduced the Starbucks stock value by 50 percent of its previous value. At that point, Starbucks implemented several strategies to bounce back from its loss. It used existing information resources to help its business strategy. As it was not sufficient, Starbucks had appointed Gerri Martin-Flickinger as CTO in 2015. The interesting thing is before 2015, there was no CTO position in Starbucks. They created the position and appointed her. As Starbucks appointed its new CTO, it released a press notice stating that they needed a leader with rich

experience in AI, cloud and mobile technologies in-order to take the company to another level (Boulton C, 2015). This shows that Starbucks is serious about using information resources. So, I wanted to analyze how Starbucks integrated technology to its value activities and bounced back from its loss.

2.3 Information Resources of Starbucks

Starbucks has rich variety of highly valued Information Resources. Besides data resources such as customer data, they collect data of their coffee machines, supply chain operations etc. Apart from mobile technologies and Big data technologies that Starbucks use, the major Information Technology Resources of the Starbucks are the below five systems:

2.3.1 Transaction Processing System

Starbucks uses IBM TPS for every order. The system stores and processes data such as sales, wastage, cost of goods sold.

2.3.2 Supply Chain Management System

High Jump SCMS is the software used by Starbucks. It offers solutions for data collection and warehouse management and provisions to tune for the operational needs of other organizations in its value chain. (Peters, K 2002)

2.3.3 Decision Support System

It analyzes data and provides insights to take business decisions (Rouse 2010). Starbucks uses Oracle based Decision Support System that generate monthly reports in which important decisions are based.

2.3.4 Customer Relationship Management

Starbucks uses CRM, “Oracle Siebel customer relationship management” service and it has been linked to the Oracle based Enterprise Resource Platform (Archana V, 2014).

2.3.5 Enterprise Resource Planning

It enables different technological applications to collaborate and share data and information. Starbucks uses ERP software called Oracle OLAP (Online Analytical Processing). OLAP option on Oracle Exadata Database Machine, helps Starbucks to scale their processing of data and continuously migrate its existing data warehouse to Oracle Exadata. This integration provides them more data to analyze which in turn helps to take decisions accurately. With this resource, Starbucks tries all sorts of ideas and uses data to determine which one to take forward.

3. Value Chain of Starbucks

In this section, each value chain activity of Starbucks as shown in Figure 2 and integration of information resources in every activity is explained.

[Insert Figure 2 Here]

3.1 Primary Activities

The objective of primary activities is to add values in the process of creating goods or services.

3.1.1 Inbound Logistics

Starbucks key transport goal is to build an effective model to supply non-coffee goods and coffee beans to its processing plants (Kordestani, 2007). Starbucks buys their coffee beans from the farmers in Africa, Asia and Latin America, without any intermediaries in between. They use ocean shipping to transport coffee beans to United States of America and Europe for processing (Tuzkaya, 2009). The other type of transport is trucking through roads. After roasting and packaging of the beans, the products are transported to the distribution centers located across

the world. They use High Jump supply chain management system (SCMS) software to get to know demand for the products in every geographical location and based on that they distribute.

3.1.2 Operations

Starbucks operates in 75 countries and there are two store formats:

3.1.2.1. Company-operated stores

For Starbucks, stores operated directly by them are significant as they help them to directly track changes in consumer preferences and tastes. They can collect data from consumers and predict market tendencies in general. Starbucks had 15,834 company-operated stores and generated revenue of 79% of total revenues at the end of 2019.

3.1.2.2. Licensed stores

By the end of 2019, there are 15,422 approved Starbucks outlets, producing sales of about 10% of overall net sales in 2019.

As they keep on expanding their stores, it became a tedious for their operations to choose the location to open the new stores. It tackles the problem by using AI technology. AI models the various factors about a location in-order to determine which one benefits the company most. These include population, competitor presence, income levels of people, traffic in the area etc. Based on this model, they choose the location which boost their economic performance. This system is known as Geospatial Information Systems (GIS).

3.1.3 Outbound Logistics

Consumers can buy Starbucks products from both offline and online Starbucks stores. Apart from this, only some products such as three in one coffee sachets can be purchased by customers from supermarket chains like Wal-Mart. In some areas, Starbucks uses automated systems to deliver beverages. Customers can choose nearly 280 drink combinations from these

machines. Those machines have interactive screens and when waiting for their order, consumers can play games. This reduces the labor costs for the Starbucks as well as increases customer experience thereby helping its outbound logistics.

3.1.4 Marketing and Sales

Marketing budget of Starbucks has been raising year by year and it's almost 351.5 million USD for the year 2016 (Starbuck Report, 2016). Starbucks spends this into sales promotions, print and media advertising, direct marketing, public relations, events and experiences. The key differentiator for Starbucks when compared to its rivals is its active presence in social media platforms and integration of the same into its sales processes.

One of the marketing innovation Starbucks have done is to map the trip that its coffee takes from farm to its cup. In this way, they connect the people who consume it with the people who produces it. With the help of Microsoft's Azure Blockchain technology, Starbucks is launching a feature in its mobile app that displays details about where their coffee bean was grown and where their packaged coffee comes from and things done by Starbucks to help farmers in those countries, to when and where it was roasted and much more. By this way, consumers themselves share this kind of interesting information in social media and promotes Starbucks. This digital traceability increases the customers trust and increases the sales.

3.1.5 Service

Top class customer services are the primary source of Starbucks brand image and it increases the competitive advantage of the company than any other activity in the value chain. Starbucks baristas are always pleasantly polite. For Example, they even greet regular customers by their names and such acts increases the service quality to a considerable extent.

Starbucks decided to extend their service for customers from in-stores to digital platforms. For this purpose, the company uses reinforcement learning algorithms via Starbucks mobile app. Reinforcement learning is one of the futuristic AI technologies in which a system learns to make complex decisions in unpredictable situations. Customers receive targeted order suggestions from their app generated via AI platform. With this technology combined with Starbucks data scientists research, nearly 16 million active members of Starbucks Rewards receive recommendations based on various factors such as popular selections, new product launches, weather in the location of the customer, community preferences etc.

3.2 Support Activities

The support activities complement primary activities to gain a competitive edge among peers.

3.2.1 Organization

Organization activities are functions such as general management, legal procedures, accounting etc., which supports the entire chain and are needed to keep the Starbucks stores operational. Before 2008, to manage the operations of the stores, district manager of Starbucks needs to physically go to each shop, collect the report and drive to regional office of Starbucks to file reports and send e-mail to their bosses. To increase the efficiency of the firm's management, managers were provided with laptops using which they even can sit in one of the Starbucks stores and collect report from other stores in his radius, analyze it and send reports to regional headquarters. To make ease the accounting, they use Transaction Processing System from IBM, through which they can retrieve and process all kinds of transactional data.

3.2.2 Human Resource Management

Important objective of good HR management is recruiting talented employees and retaining them. Starbucks follows variety of strategies to keep their employees happy. They provide stock dividends in the scheme called "BeanStock", offer employee benefits plans which includes various healthcare insurances. They not only provide in-company training, but also offers their employees university education. Starbucks partnered with Arizona State University in 2014, offers the employees online programs in discounted amount. The remaining amount is also reimbursed once they complete the course (Wallace, 2014). With all these perks and benefits, the company has strong employee retention rate when compared to their competitors (Essays UK, 2018).

3.2.3 Technology Development

Starbucks actively uses technology to support their primary activities such as operations, marketing, sales and services. There are two things Starbucks doing for technology development. One is collaborating with tech giants such as Microsoft, Oracle to integrate AI and Bigdata technologies in their information systems and second way is developing technology by themselves. In second way, they hire data scientists to provide insights from the large repositories of data that they manage using Oracle database. They even provide free Wi-Fi in each and every Starbucks store for better customer experience.

3.2.4 Procurement

As Starbucks spans over 30,000 stores globally, it is highly prone to inefficiency and procurement waste in its supply chain. To monitor demand in real-time, Starbucks created an automated information system which helps in scheduling transport, storage volume, and stock inventory allowing the supply chain to perform at maximum efficiency (Archana V, 2014).

Starbucks procurement activity complements its inbound logistics by maintaining strategic relationship with their suppliers. It procures from a diverse community of coffee bean vendors and runs eight farmers support centers staffed with agronomists who work with coffee farming. In-order to maintain high standards, Starbucks does not outsource its procurement activity.

3.3 Summary

The above analysis is summarized in Table 1.

[Insert Table 1 Here]

4. Discussion and Findings

The two types of strategies to attain competitive advantage are through cost leadership and differentiation. In Starbucks, information resource usage has positive significant impact on competitive advantage in both cost and differentiation.

4.1 Cost Leadership

As mentioned in literature review, cost-leadership results when a company creates quality products with less cost than their competitors. After the fall in 2008 recession, Starbucks implemented several strategies in their supply chain operations, marketing, sales and service using information resources (Cooke A, 2010). It uses automatic coffee machines to reduce labor costs. Based on the survey done by an online statistics and analytics provider called Famecount, Starbucks was named the most famous brand in social media. It effectively uses social media platforms by providing the customers an online platform to submit their ideas and give feedback about the experience with Starbucks as well as its products. This activity attracts customers to its stores and reduces cost in Marketing budget. To avoid risks associated with the fast expansion, Starbucks uses data-driven location analytics to plan the store location and this in fact given

them profit. Example: The stores that opened in 2011 and 2012 able to produce 2:1 sale to investment ratio. The new stores costed \$494,000 to build and delivered sales of \$1.05 million, against a goal of \$900,000 (Arellano, 2013). Starbucks reduces the cost of operations by reducing costs incurred by maintenance of machines. Starbucks have developed a new coffee machine, called “Clover X”. This has been currently used in flagship and concept stores of Starbucks. This machine is cloud-connected and apart from more extensive collection of operational data, it also allows for remote diagnostics of faults and remote repairs (Peiper, H 2018).

4.2 Differentiation

As discussed in section 3.1.5, in-addition to providing excellent services to customer physically, Starbucks differentiates by extending the care to digital platforms. They provide targeted customer service to every customer. Usually an organization strives to improve value in customer side only. But Starbucks differentiates in this by not only providing value to the customers but also to the suppliers thereby improving supplier relationship. They use Blockchain technology in their mobile app to show the customers where the coffee beans come from and show suppliers such as farmers where the coffee beans go. It improves the trust between customer and Starbucks as well as supplier and Starbucks. Using its data-driven technologies, Starbucks understood the movement of considerable amount of people from dairy to non-dairy products, the inclusion of almond milk in its outlets, in addition to other non-dairy substitutes such as coconut milk and soy milk, produces distinctions from their rivals.

4.3 Competitive Advantage

At the end of 2008, Starbucks stock lost over 50% of its value and lost its marketplace. Then it bounced back by using information resources strategically in every possible activity of its

value chain there by creating value and making difference. From then onwards revenue of Starbucks is keep on increasing. Example, Starbucks annual revenue for 2019 was \$22.84 Billion, a 14% increase from 2016 as shown in Figure 3. Starbucks continues to add value to its customers as well as introduce innovative products using their information resources. This helps Starbucks to gain competitive advantage than their competitors.

[Insert Figure 3 Here]

5. Lessons Learnt

One of the significant strategies of Starbucks is that not only they integrated information technology to all of its value chain activities but they upgrade it every time the technology evolves there by creating more value to product and service and builds its brand image which is costly to imitate for competitors. Other organization can learn from this about value created by integrating information resources in their value chain activities. Starbucks has also followed a clever strategy of collaborating with technology giants like Microsoft and Alibaba which not only helps to improve Starbucks experience to customers but also increase brand value of Starbucks thus attracting more investors.

6. Challenges

Starbucks does differentiate by providing variety of products with high quality in premium prices. This high-quality premium price strategy might not always work. As Starbucks have high competitors like Dunkin Brands, McDonalds, Costa Coffee, in times of economic crises, customers might switch to other coffee brands due to high price of Starbucks. Starbucks has recalled some in-demand items over the years such as cheese and fruit bistro box and sausage, egg, and cheddar breakfast sandwich (Sterling W, 2016). This will have a negative

effect on the company's image identity and might lose its trust of customers. Large size of Starbucks can be a problem in times of crises. In china alone, Starbucks has shutdown 2000 stores because of coronavirus outbreak. This number is almost 50% of stores of Starbucks in China and this close might affect the Starbucks revenue (Starbucks Press Release, 2020)

There are multiple incidents of data security breaches associated with Starbucks. It had been reported that, in 2008 information of 97000 employees such as names, social security numbers, addresses etc. has been stolen (Infowatch, 2008). In 2018, Korea government fined Starbucks for \$9000 as data breach happened due to technical vulnerability in Starbucks mobile application (Koreatimes, 2018).

7. Recommendations

Starbucks can introduce new products in optimum price in order to survive in times of economic crises. Starbuck have introduced their new automatic coffee machines in only few places. In times of epidemic and pandemic situations like covid-19, installation of many IoT enabled automatic coffee machines in multiple location can prevent them from loss of revenue. It is evident from multiple incidents of security breaches that Starbucks is not investing much in security. There are two things Starbucks need to concentrate in terms of security. One is protecting customer data and other is IoT security. As Starbuck integrated IoT technology in its coffee machines, Ovens etc., there is increased risk of security threat. So, my recommendation would be to invest more on security to protect Starbucks connected device as well as customer data.

8. Conclusion

The analysis proves that Starbucks is an example of modern-day business which creates value by integrating information resources to its value chain activities. Though Starbucks faces

some challenges in privacy and security matters due to its technology use, the way Starbucks uses its information resources for every value activity in its chain can be considered as an epitome of managing information and technology in an efficient way. In fact, Starbucks did not do any breathtaking invention about Big Data or Artificial intelligence or any other new technology. It strategically uses its data and existing ERP tool such as Oracle OLAP to find insights about market needs and takes decision. Also, if needed, it forms strategical alliances with other technology-based companies to expand its business thereby gaining competitive advantage.

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Tables

Table 1

Summary of analysis of Information Resources in Starbucks Value Chain

Activities	Information Resources in Starbucks
Primary Activities	
Inbound Logistics	Starbucks uses High Jump supply chain management system (SCMS) software to get to know demand for the products in every geographical location and based on that they distribute the coffee beans/ packaged coffee powders from their centers.
Operations	AI powered Geospatial Information Systems helps Starbucks to determine location for their stores based on various factors.
Outbound Logistics	Starbucks uses IoT powered interactive coffee machines to serve the customers which reduces labor costs as well.
Marketing and Sales	Starbucks uses multiple resources such as mobile app, online payment, blockchain technology, social media platforms etc. for their marketing and sales
Service	With AI algorithms such as reinforcement learning, Starbucks provides takes care of their customers individually.
Support Activities	
Organization	With WiFi enabled stores, Starbuck provides laptops for district managers to manage stores effectively.
Human Resources	Starbucks provides incentives, provides training on latest technology and manages them using HR management system tool.
Technology	Apart from technologies mentioned in above sections, Starbucks uses Oracle based ERP tool, CRM tool and Transaction Processing System to connect organization as a whole and collaborate with organizations like Microsoft, Alibaba to expand digitally.
Procurement	Automated information system to help in scheduling transport, storage volume, and stock inventory allowing the supply chain to perform at maximum efficiency.

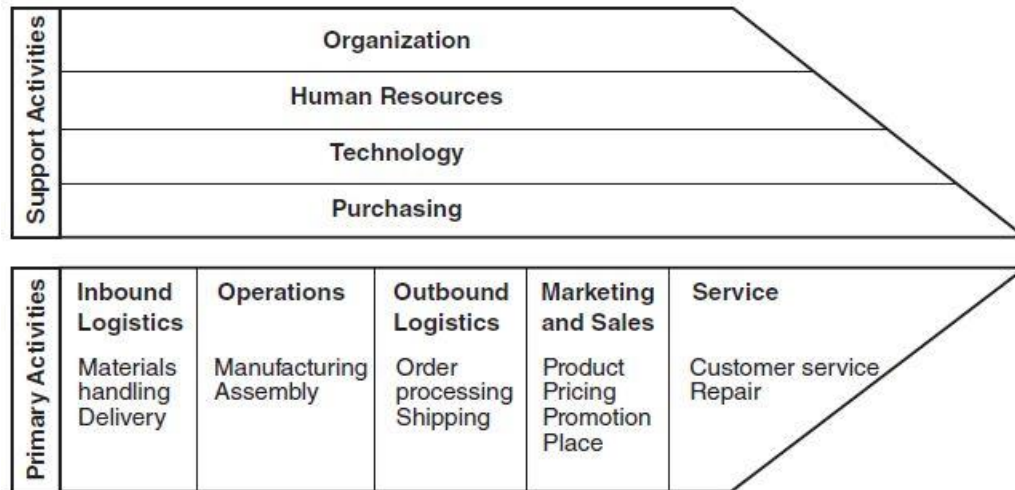


Figure 1. Value chain of a firm (Porter M, 1985)



Figure 2. Value chain of Starbucks Corporation (Starbucks, 2020)

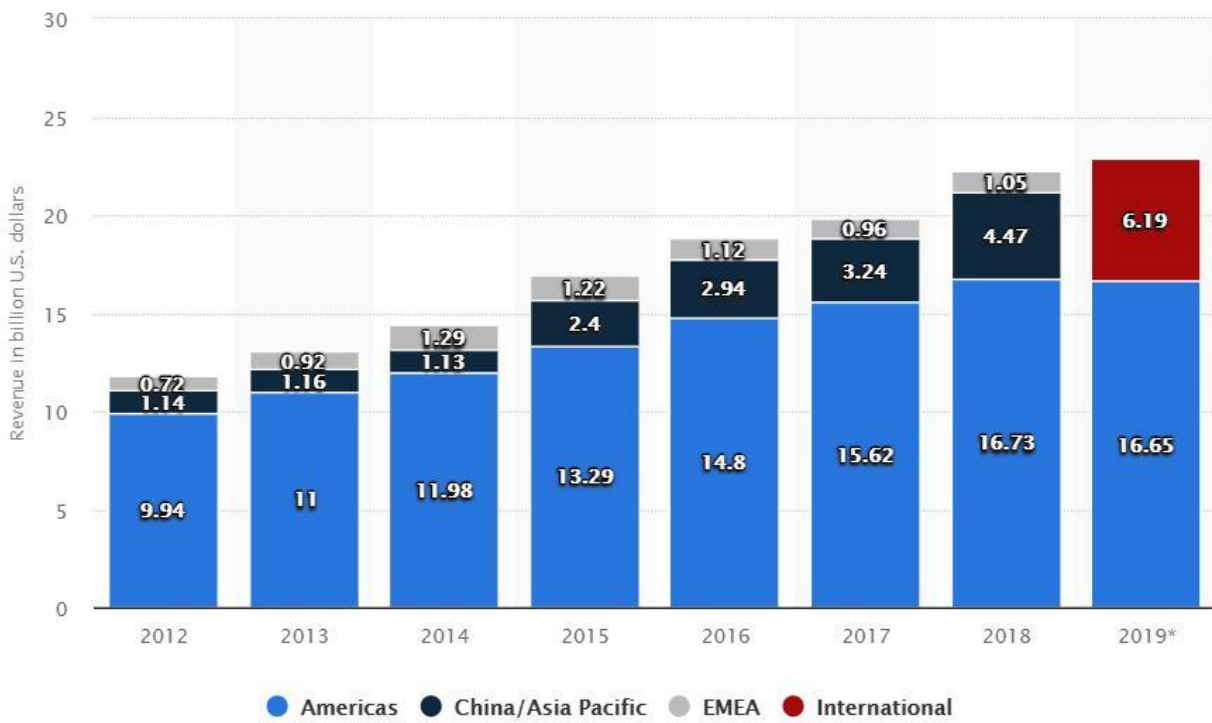


Figure 3. Revenue of Starbucks from 2012 to 2019 (Lock S, 2019)