

# Through the game model and Forever21 supply chain analysis

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**ABSTRACT.** *This thesis mainly discusses the application of supply chain through two parts, game model and market research. And comprehensively discuss the specific operations of the supply chain from upstream to downstream.*

**KEYWORDS:** *Supply chain, net profit, fixed cost, labor costs, packaging*

## 1. Introduction

Strong reputation and profit maximization serve as the strategy for me as the operation manager of Kibby and Strand.

Although I did not particularly agree with the style of directive decision-making, I still managed to upgrade the machinery in the first quarter. First, the stability, repeating model, and consistent activities in the manufacture facilitated me to weigh the pros and cons of upgrading the machinery. The primary pros were the company could produce various items to win more bidding, while the cons were the costs to assign to a fixed asset would increase sharply, resulting in \$28,200 in equipment upgrades in the first quarter. Competitive thinking made me apply conceptual decision style to supply chain management. Therefore, I bit the bullet and spent \$4,050 on employee training in the first quarter. It is worth mentioning that I also bought the trend report when I was deciding to upgrade the machinery and train the employee. Most of the potential products like Polo shirt, Windbreaker, and others, need more procedures. Although the total revenues were meager in the first and the second quarter, it reached \$115,597.05 by the third quarter, equivalent to the sum of the previous two quarters. Besides, this excellent business situation continued for two quarters. This has laid the foundation to build a good reputation, which is beneficial to the long-term development of the company. Besides, the complete types of equipment and professional talents would have prepared me for a differentiation strategy or penetration strategy in the future.

Obviously, in the game, any attempt to improve reputation, including upgrading equipment, training, faster delivery, high-quality orientation, and others, would

result in net income decline, which ran counter to profit maximization. Therefore, the analytical decision style drove me to enhance the analysis of variable cost in operation, and to reach an excellent balance. Equipment upgrades and employee training in the first quarter were fixed costs pertained to short term events. I thought the consideration of reducing the variable costs could start from the input of operation management like purchasing raw material, and then to the output, like delivery. Since limited rounds and small number re-bidding of the same item, I could not guide the production by the principle that marginal revenue from production equals marginal cost. Therefore, I tried to control costs and expenses strictly.

At first, I preferred the suppliers with a lower reputation (reliability) and price. For example, the cotton price from Owens Textiles with a low reputation was only \$0.08 at 50 qualities, while the price from Alpine with a high reputation was \$0.4 at 60 qualities. However, it turned out that this hurt my reputation. Then, I purchased the same material at a different price according to different biddings. If the order quantity of the bidding was small, I chose the supplier with a higher price. If the quantity of the order was massive, I chose the supplier with a lower price. Regarding bidding from a customer with a high reputation and plentiful order, I still chose a high raw material price. Since the acquisition of the bidding was based on a low price, the customer's high-quality requirements drove me to reduce the cost in delivery. Although the batch delivery caused some delay, the customer still gave a high rating in the end.

**Appendix:** Financial record of my second attempt.

Quarter 1 (Jan - Mar), 2020		Quarter 2 (Apr - Jun), 2020		Quarter 3 (Jul - Sep), 2020	
Account Balance	\$-62,580.21	Account Balance	\$-80,883.38	Account Balance	\$-25,311.20
Net Worth	\$-52,730.21	Net Worth	\$-71,033.38	Net Worth	\$-15,461.20
Contract Revenue	\$42,756.25	Contract Revenue	\$57,756.25	Contract Revenue	\$115,968.75
Interest Earned	\$350.52	Interest Earned	\$884.42	Interest Earned	\$371.70
Other Forms Of Income	\$0.00	Other Forms Of Income	\$0.00	Other Forms Of Income	\$0.00
<b>Total Income</b>	<b>\$42,405.73</b>	<b>Total Income</b>	<b>\$56,871.83</b>	<b>Total Income</b>	<b>\$115,597.05</b>
Raw Materials	\$30,101.40	Raw Materials	\$10,385.75	Raw Materials	\$7,299.76
New Equipment/Upgrades	\$0.00	New Equipment/Upgrades	\$0.00	New Equipment/Upgrades	\$0.00
Shipping	\$3,627.32	Shipping	\$6,443.66	Shipping	\$4,177.31
Labor Expenses	\$40,050.00	Labor Expenses	\$29,160.00	Labor Expenses	\$29,160.00
Utilities/Operations	\$1,442.66	Utilities/Operations	\$1,925.97	Utilities/Operations	\$1,421.30
Holding Costs	\$11,564.56	Holding Costs	\$27,259.62	Holding Costs	\$17,966.50
Other Expenses	\$0.00	Other Expenses	\$0.00	Other Expenses	\$0.00
<b>Total Expenses</b>	<b>\$114,985.94</b>	<b>Total Expenses</b>	<b>\$75,175.00</b>	<b>Total Expenses</b>	<b>\$60,024.87</b>

Quarter 4 (Oct - Dec), 2020			
Account Balance		Raw Materials	\$21,462.54
\$29,829.90		New Equipment/Upgrades	\$0.00
Net Worth		Shipping	\$6,966.83
\$39,679.90		Labor Expenses	\$29,160.00
	Contract Revenue	Utilities/Operations	\$1,732.28
	\$124,818.75	Holding Costs	\$10,255.52
	Interest Earned	Other Expenses	\$0.00
	\$100.48	Total Expenses	\$69,577.17
	Other Forms Of Income		
	\$0.00		
	Total Income		
	\$124,718.27		

## 2. Print scarf supply chain management of Forever21

Headquartered in Los Angeles, Forever21 has been a mass-market fast fashion garment brand since its inception by Korean-American Chang Dongwen and his wife ChangJin Sook in 1984 (Bensinger, 2010). Approachable price had made the brand well-known in the mid-low-end market, in which its target customers are 20 - to 30 - year - old urbanites. Besides, the multiple brand divisions of Forever21 products cover almost all categories of the fashion industry (Bhasin, 2018). Forever21 officially filed for bankruptcy on September 29, 2019 (McHugh, 2019). This essay will take the print scarf, one category in its accessory line, as a case to analyze the problem in its supply chain management.

### Forever 21

REVENUE	<b>\$2.7B</b>
INDUSTRY	Retailing
FOUNDED	1984
COUNTRY/TERRITORY	United States
CO-FOUNDER & CEO	Do Won Chang
CFO	Ann Cadier Kim
EMPLOYEES	32,800
FISCAL YEAR END	Dec 31, 2018
SALES	<b>\$2.7B</b>
HEADQUARTERS	Los Angeles, California

As of Dec 17, 2019

Figure. 1 Forever21 revenue in 2019 (Forbes, 2019).

Akin to ZARA, H&M, and Uniqlo, the supply chain management strategy of Forever21 was under the business model of SPA, namely specialty retailer of private label apparel (Du et al., 2015; UNIQLO, 2004; Baack et al., 2012). SPA requires vertical merchandising integrated by material storage, product development, manufacturing, logistics, sales, commodity management, store planning, and other elements. Around 2010, against a backdrop of an overall challenging business

environment, Forever21's in-depth knowledge of the supply chain had made it expand rapidly around 2010. Its peak in 2014 achieved \$4 billion in revenue (Wang and Kim, 2019). Then, by 2016, Forever21 had 522 stores in the U.S. and over 200 stores in 43 other countries. When Forever21 went bankrupt in 2019, its revenue was only \$2.7 billion, accompanied by numerous store closures and high unpaid rents.

### 3. The supply chain of Forever21's print scarf

Forever21's globalization strategy required it to put its sourcing process in developing countries. Suppliers close to the market produced popular seasonal products, while those away from the market produced cheaper core products (Palpacuer et al., 2005; Amendolaginea et al., 2019). A former supplier of Forever21's print scarf in China said that all Forever21's scarf production concentrated in the cities of Yiwu and Deqing in China.

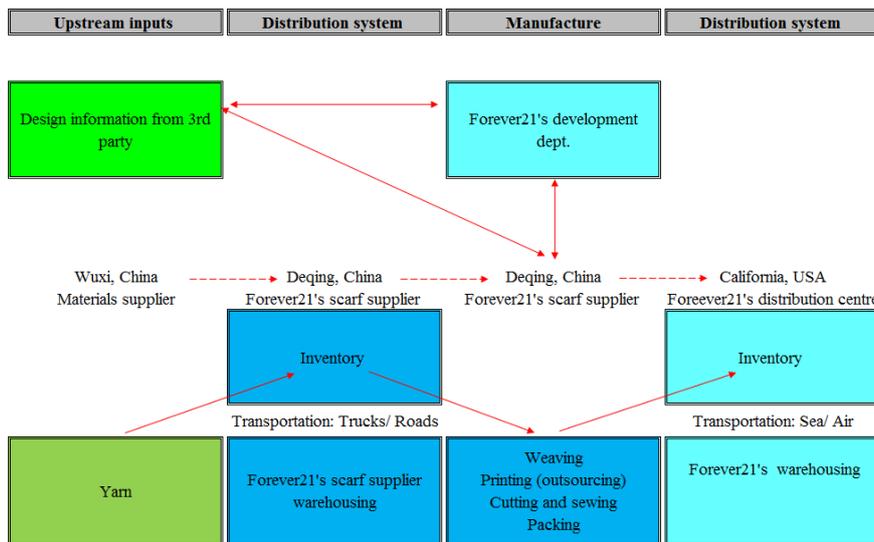


Figure. 2 Print scarf supply chain (Compiled by author).

The print scarf supplier receives orders from Forever21's headquarters, but pre-production samples are submitted to a third-party design agency hired by Forever21. Forever21 is responsible for confirming the sample. Production can only start after the sample is confirmed. Print scarf supplier purchases yarn from Wuxi in China. Adequate inventory allows the yarns to reach the factory in 3 days. The print scarf supplier weaves the yarn into calico. Print scarf supplier typically stocks up on enough calico for 50,000 scarves to last more than half a year because of the high cost of weaving.

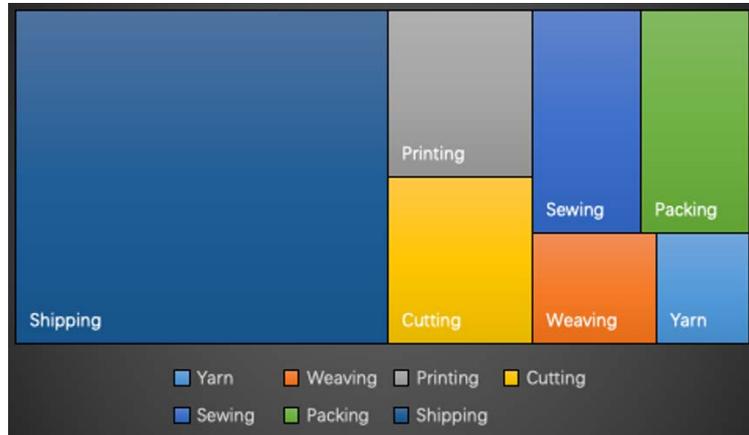


Figure. 3 The process of the print scarf (Compiled by author).

Once the sample is confirmed, the print scarf supplier will send the calico to the printing and dyeing factory for printing, which usually takes 1 week. The cutting and sewing process is completed in the scarf supplier's factory, usually taking 2 weeks. The final packaging is also done in the scarf supplier's factory, which usually takes 1 week. Finally, the scarf supplier will ship the goods to the port of Shanghai.

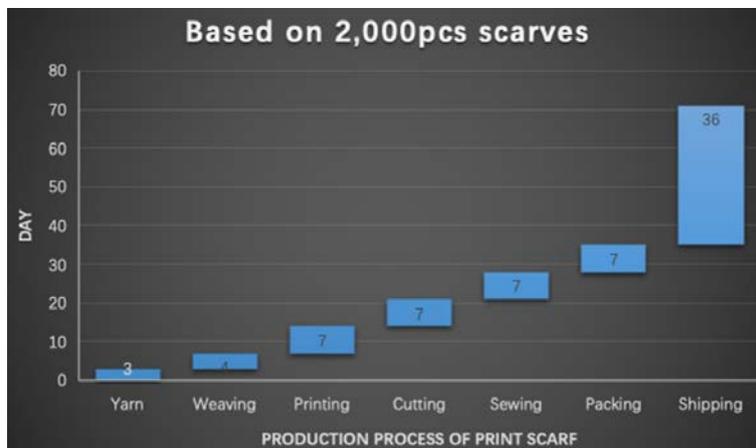


Figure. 4 The days each process of print scarf takes (Compiled by author).

According to the scarf supplier, each year Forever21 purchased about 50,000 pieces of various kinds of scarves in total, including prints, knits, or children's, men and women. The purchase price was no more than \$5, but usually around \$2. The

price tag of the packaging material showed that the primary selling price was \$4.99, \$5.99, \$6.99, and \$7.99.

#### 4. The problems in Forever21's supply chain

The print scarf supplier divulged that the sampling time of Forever21, up to 10 weeks, often exceeded the lead time. Interestingly, the scarf lead time was often less than 4 weeks. It took 20 weeks from the scarf design to the scarf arrival at the distribution center. However, the rival H&M took just 7 weeks in total. This related to the ineffective supervision and coordination between Forever21's headquarters and the third parties of design, resulting in outdated designs. Meanwhile, a series of lawsuits caused by the imitation and copying of designs had generated enormous pressure for Forever21. This made the supply chain system of the printed scarf of Forever21 not smooth, which seriously affected the flow of goods.

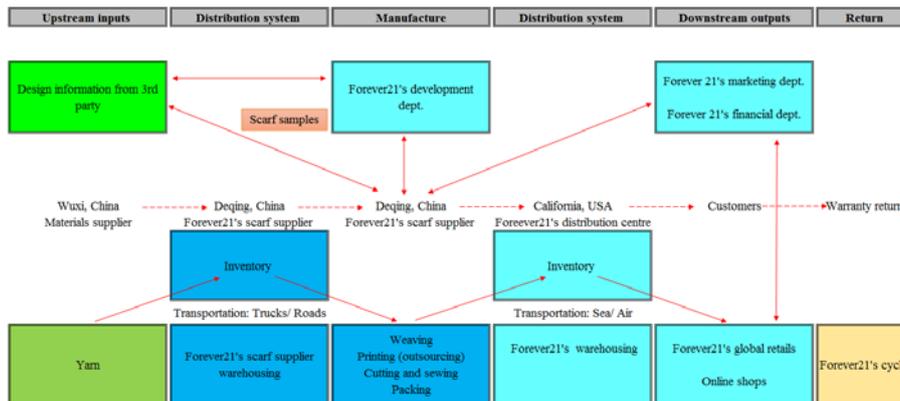


Figure. 5 The whole supply chain of Forever21's print scarf (Compiled by author).

Forever21 had hired EZ World Express as its exclusive carrier in 2015 (Stech, 2016). The courier airlifted the package to an international destination for clearance by a chartered customs clearance team. The pre-clearance system electronically sent a copy of the shipping details to the foreign clearance team before the package arrived in the destination country so that the team could prepare the shipment in advance. The above operations saved more time for Forever21 products to reach stores quickly. However, customers' complaints of the slow product updates, frequent quality problems, and suppliers' disclosure of Forever21's defaulting on payments, suggested problems in the supply chain.

The print scarf supplier also revealed they were buying cheaper synthetic fiber materials because of price cuts and unpaid bills from Forever21. The unsustainably low prices of the upstream created difficulties for its supply chain management, causing the reliability issue of the product (Bonroy and Lemarié, 2012). The

manufacturing had been under low supervision. The product quality of Forever21 was controlled and supervised by the third parties, which made the quality unguaranteed. Besides, Forever21 was not alive to the consumption upgrading of its target customers and still adhered to the cheap and low-quality route.

Forever21's cheap route made its supply chain over-reliant on low prices. The upstream suppliers kept the yarn cost down by any means, which led to the undue exploitation of manufacturing workers, environmental pollution, and waste of resources. Undoubtedly, Forever21 would be under considerable public pressure. Even jeopardies above are a common problem for fast fashion brands, in the context of sustainability, its competitors are outperforming Forever21 in a game in which they remain the leading value-driven and ethical players in the fast-fashion world (Chua, 2019).

The problems of inventory management for print scarf are also conspicuous. As a brand adopting the strategy of shallow inventory (Zentes et al., 2016), Forever21 assumed high express fees in its after-sales return and replacement. Combined with Forever21's inventory management of shallow inventory, its hot style products soon faced with a shortage. However, for a print scarf that was slow to sell, Forever21 chose to return them to the suppliers, including those they ordered wrong.

## 5. Conclusion

Moreover, the average print scarf turnover rate of stores and warehouses was not high, which is not a good sign for stores in a high rent position. Its rival ZARA had a turnover rate of up to 4 days. The high SKU (Stock Keeping Unit) of designing and manufacturing goods on a weekly basis in SPA requires a large amount of consumption data feedback from the end of the sales to the end of production and design (David E. Mulcahy, 2008). However, the information feedback had not well achieved in Forever21. The immaturity of digital settings in its retail stores caused the disjunction of dynamic data of its stores, including customers, commodities, and logistics, which could not be collected, analyzed and transmitted effectively. These would create immense capital pressure for Forever21 supply chain.

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**Appendix: Transcript from the interview with one former scarf supplier**

**Me:** I have learned that you used to be one scarf supplier of Forever21. Now, I'm writing a paper on the supply chain management of Forever 21. Are you convenient to answer some of my questions?

**Scarf supplier:** Yes, we had worked with Forever21 for four years before Forever 21 filed for bankruptcy in 2019. There is still a payment of Forever21 that has not been paid to us.

**Me:** I'm sorry to hear that. Can you tell me the purchasing process of Forever 21?

**Scarf supplier:** Forever 21 usually placed the order with us first and then confirmed the sample. However, their samples were usually not submitted directly to their headquarters, but to a third party of design agency. Finally, the design agency confirmed the design sample and sent it to the headquarters of Forever 21 for review. The production instruction would be given after the sample was reviewed. The production was finished and shipped from Shanghai port to the global distribution center of Forever 21.

**Me:** Is it convenient to tell me the time of each process?

**Scarf supplier:** In fact, the most time-consuming process was sampling, usually took 10 weeks. I remember the longest one, the samples alone, took 11 weeks.

**Me:** Would you be able to produce in time?

**Scarf supplier:** The production process of scarf is relatively simple. Generally, we can complete a batch of orders in 4 weeks at the earliest.

**Me:** Do you check the quality of the products during the production?

**Scarf supplier:** We would check it out ourselves. Forever 21 also hired a third-party inspection agency to check the quality of the product.

**Me:** In what areas do you think Forever 21 is not good enough?

**Scarf supplier:** They haggled too much, so we had to buy cheaper raw materials. It is not understood that some orders that have not sold well, Forever21, would returned to us. Later, in terms of payment, it was not timely.

**Me:** Do you know anything about your competitors?

**Scarf supplier:** I know something. Forever21's scarf suppliers are mainly in Yiwu city and Deqing city. They would not go to Korea because the price in Korea is very high. However, they usually bring some cutting-edge designs from Korea.

**Me:** Ok, the information you provided is very helpful to my paper. Thank you very much.