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GOODBABY GROUP: THE UPFRONT WAREHOUSE DECISION

Huan Zheng, Yuanzheng Ma, Du Chen, and Stephan Vachon wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

In spring 2019, Jinrun Li, chief operating officer for Goodbaby Group (Goodbaby), a leading retailer of maternal and child products in China, had been given a proposal from the marketing department to set up a children's shoe store in a high-end shopping mall in Shanghai for fall 2019. Li, a veteran in the retail industry, was expected to assess the proposal from a supply chain management perspective. Usually, a new store meant no more than another endpoint for the whole logistic network, but this proposal had the added complexity of too little floor space for the type of stores preferred by the marketing department. Li had to decide if a new supply chain structure that had been pilot tested over the past year would be an appropriate solution to satisfy the marketing department's preference.

GOODBABY HISTORY: STROLLERS, LOGISTICS, AND JUVENILE PRODUCTS

Founded 30 years previously, Goodbaby started with one product: baby strollers. Through the years, the company expanded to a whole portfolio of products, including cots, highchairs, children's clothing, and nursing supplies. The company also developed retail logistics that were leveraged by other brand-based companies. Using a different distribution channel from its own brands, Goodbaby managed stores and the related logistics for clients carrying both national and international brands.

The proposed new store was for one of Goodbaby's client brands. This client wanted Goodbaby to manage a set of stores that were categorized into four levels. The A stores, usually located in the heart of downtowns and high-end shopping malls, included a wider range of stock-keeping units (SKUs) in the store, the newest styles, and limited editions of products. The A stores' selling area (where customers actually shopped) needed to be a minimum 100 square metres (m^2) to provide a comfortable shopping experience. In contrast, B stores were smaller, carried fewer SKUs, and catered to a larger market segment that was less fashion and trend-oriented than the A stores. Located in most Shanghai shopping malls, these B stores were cash cows for Goodbaby. C stores were much smaller outlets with a narrower range of SKUs, and D stores were outlets for off-season products sold at a significant discount.

THE NEW STORE

The marketing department's proposed store would be located in a high-end shopping mall in Shanghai. The total space available for the store was 120 m^2, which allowed for a sales area of 85 m^2 and 35 m^2 for backstore

inventory. The marketing department preferred an A store in this high-end mall, but would have settled for a B store because the dimensions were more suited to this level. However, a B store would not have been competitive in this mall, particularly concerning brand identity and the targeted customer segment.

Forcing a sales area of 100 m^2 for an A store, as suggested by the specifications of the brand company, meant the backstore space—the inventory held at the store—had to be reduced. Although there was regular replenishment from regional warehouses to stores, out-of-stock SKUs were still common in stores because of fluctuating demands between replenishments. The rise of e-commerce and fast delivery services had increased consumers' expectations of service levels in retail stores. Consumers simply had less patience for out-of-stock situations—if they wanted a particular product, they wanted it right away. Out-of-stock SKUs translated into lost sales. Higher in-store inventory levels were essential to maximize sales. Li understood that the current replenishment time from the regional warehouse to the store was not compatible with low inventory in the store. That was the main problem Li faced with the new store proposal.

EXISTING SUPPLY CHAIN STRUCTURE

The stores in Shanghai were supplied from a regional warehouse, which provided products directly to stores. The regional warehouse was located outside of Shanghai, so transportation time was long—approximately 24 hours. On top of the transportation and delivery time, the stores' orders needed to be picked, moved to the trucks, and logistically managed (i.e., according to a shipping schedule). All this pre-transportation work for the 53 stores in the city was labour-intensive, which slowed the whole process. Overall, the average lead time was approximately 72 hours (three days) from order to delivery to the store. Also, the existing supply chain allowed only one store replenishment (i.e., one delivered order) per week.

This supply chain structure created two problems: (1) the quantity distributed for the initial sales of a new SKU was large and, during the high season, 60 per cent of the forecasted season's sales for all new products had to be held in the storage area, which had limited capacity; and (2) when a store ran out of stock during a replenishment cycle, the store manager would have to contact other stores to ask for the product. However, the quicker transshipment between stores proved to be expensive. The transportation cost between stores averaged ¥9,[1] excluding the additional costs related to the time needed for employees to package and handle the products. According to an internal report, between July 2016 and June 2017, these transshipment costs were approximately ¥3.5 million for the company—almost the same as the total direct delivery costs from the regional warehouse to stores for the same period.

Facing this situation, Li wanted to reconsider the current supply chain structure and pursue the goal of building shorter delivery cycles to the store without having a negative impact on the service level. Quicker replenishments converted into lower inventory holding costs. In turn, reduced inventory levels at the stores meant larger space for the sales areas. Li considered an upfront warehouse. This concept had been popular among retailers since 2017; it consisted of a smaller, in-city warehouse that could deliver products to consumers, usually within hours. Retail giants such as JD.com Inc. and Alibaba.com had built upfront warehouses to provide rapid delivery for online orders directly to consumers. Could Goodbaby replicate this idea to supply its stores? After much discussion, Goodbaby's management team decided to experiment with an upfront warehouse project in the Shanghai region (see Exhibit 1).

[1] ¥ = CNY = Chinese yuan renminbi; US$1 = ¥6.75 in 2017; All currency amounts are in CNY unless otherwise specified.

THE 520 PROJECT

The pilot project was named "520": five hours' maximum replenishment time, two replenishments a day, and zero out-of-stock situations. With an upfront warehouse, the previous supply chain structure was replaced with an intermediary step (see Exhibit 1). According to the 520 plan, the upfront warehouse acted as a buffer for product flow from the regional warehouse to stores and, with the help of an automatic ordering system that monitored in-store inventory levels in real time, provided rapid replenishment to stores.

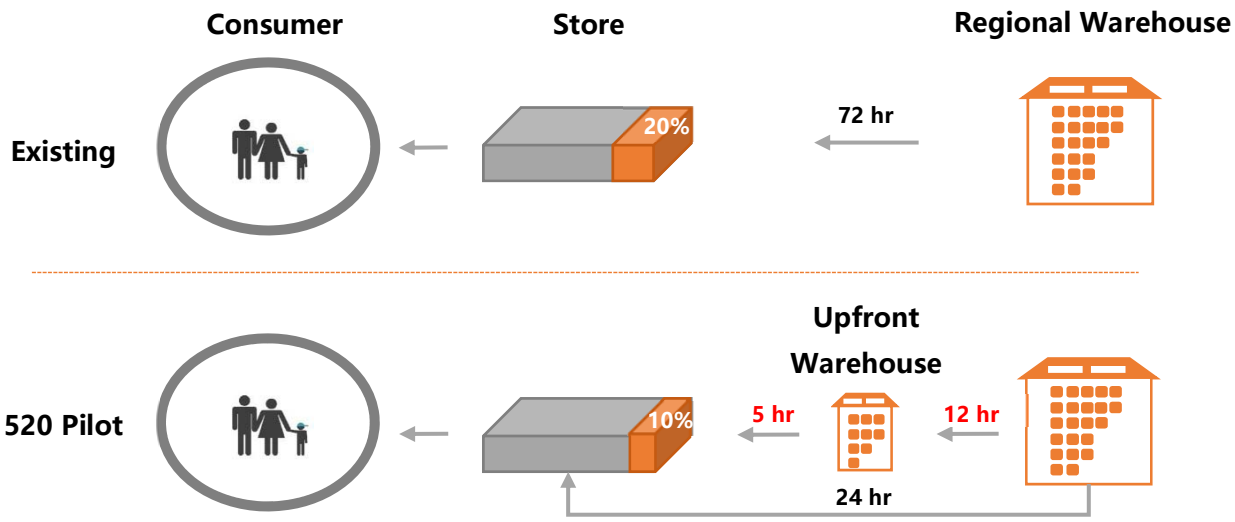
In this way, the replenishment journey to the stores was shortened significantly, particularly by replacing some of the manual tasks with real-time information systems. Products from the regional warehouse would arrive at the upfront warehouse within 12 hours and from the upfront warehouse to the stores within five hours. As a result of these faster replenishments, not as many products needed to be held in the stores, and the area devoted to backstore inventory could be reduced from 20 to 10 per cent of the total area.

In 2018, the 520 pilot project was deployed at 27 of 53 stores in Shanghai. The 150 m^2 upfront warehouse was located in a relatively inexpensive district with an excellent transportation network to the 27 stores. The upfront warehouse held between 700 to 800 SKUs, which was approximately 30 per cent of the total SKUs for any given season. Usually, the upfront warehouse received supplies from the regional warehouse once a day. The total number of product units (e.g., a pair of shoes) distributed daily to the 27 stores from the upfront warehouse was approximately 200. The logistics department signed a contract with a local express-delivery courier firm, and the boxes from the upfront warehouse were guaranteed to be delivered to the stores within four hours. The transportation cost charged by the courier averaged ¥3.

The replenishment orders were placed by an information system automatically. The upfront warehouse replenishment process worked in the following way: When the inventory volume in a store for a particular SKU reached a certain threshold, an order was sent electronically to the upfront warehouse. Workers at the upfront warehouse then picked and packed the products into boxes according to the electronic order. Couriers picked the boxes from the upfront warehouse and delivered them to the store within four hours.

Li received some data from the logistics department that illustrated the inventory and flow for six SKUs at 3 of the 27 piloted stores for the same 77-day period in 2017 (with the existing supply chain structure) and 2018 (with the upfront warehouse). The data for one of the six SKUs at one of the three stores for 2017 and 2018 was significant (see Exhibit 2, complete data can be found in dataGB.xls). Li needed to review the data before making a recommendation on the new store to Goodbaby's management. Was it possible for the proposed new store to have at least 100 m^2 (i.e., less backstore space for the inventory) by incorporating an upfront warehouse to the supply chain structure?

EXHIBIT 1: EXISTING SUPPLY CHAIN VERSUS PILOT PROJECT



Source: Created by the authors based on company information.

EXHIBIT 2: COMPARATIVE INVENTORY DATA FOR ONE SKU FOR THE SAME 77 DAYS IN 2017 AND 2018

	2017					2018					
		Transshipments		Warehouse			Transshipments		Warehouse		
Day	In Store[a]	Out[b]	In[c]	Regional[d]	Sales	In Store[a]	Out[b]	In[c]	Upfront[e]	Regional[d]	Sales
1	4	0	0	0	0	3	0	0	0	0	0
2	4	0	0	0	0	3	0	0	0	0	0
3	4	0	0	0	0	3	0	0	0	0	0
4	4	0	0	0	0	3	0	0	0	0	0
5	4	0	0	0	0	3	0	0	0	0	0
6	4	0	0	0	0	3	0	0	0	0	0
7	4	0	0	0	0	3	0	0	0	0	0
8	4	0	0	0	0	3	0	0	0	0	0
9	4	0	0	0	0	3	0	0	0	0	0
10	4	0	0	0	0	3	0	0	0	0	0
11	4	0	0	0	0	3	0	0	0	0	0
12	4	0	0	0	0	3	0	0	0	0	0
13	4	0	0	0	0	3	0	0	0	0	0
14	4	0	0	0	1	3	0	0	0	0	0
15	3	0	0	0	0	3	0	0	0	0	0
16	3	0	0	0	0	3	0	0	0	0	0
17	3	0	0	0	0	3	0	0	0	0	0
18	3	0	0	0	0	3	0	0	0	0	0
19	3	0	0	0	0	3	0	0	0	0	0
20	3	0	0	0	0	3	0	0	0	0	0
21	3	0	0	0	0	3	0	0	0	0	0
22	3	0	0	0	0	3	0	0	0	0	0
23	3	0	0	0	0	3	0	0	0	0	0
24	3	0	0	0	0	3	0	0	0	0	0
25	3	0	0	0	0	3	0	0	0	0	0
26	3	0	0	0	0	3	0	0	0	0	0
27	3	0	0	3	0	3	0	0	0	0	0
28	6	0	2	0	0	3	0	0	0	0	0
29	8	0	0	0	0	3	0	0	0	0	0
30	8	0	0	0	0	3	0	0	0	0	0
31	8	0	0	0	0	3	0	0	0	0	0
32	8	0	0	0	0	3	0	0	0	0	0
33	8	0	0	0	0	3	0	0	0	0	0
34	8	0	0	0	0	3	0	0	0	0	0
35	8	0	0	0	0	3	0	0	0	0	0
36	8	0	0	0	0	3	0	0	0	0	0
37	8	0	0	0	0	3	0	0	0	0	0
38	8	0	0	0	1	3	0	0	0	0	0
39	7	0	0	0	0	3	0	0	0	0	0
40	7	0	0	0	0	3	0	0	0	0	0

	2017					2018					
		Transshipments		Warehouse			Transshipments		Warehouse		
Day	In Store[a]	Out[b]	In[c]	Regional[d]	Sales	In Store[a]	Out[b]	In[c]	Upfront[e]	Regional[d]	Sales
41	7	0	0	0	0	3	0	0	0	0	0
42	7	0	0	0	0	3	0	0	0	0	0
43	7	0	0	1	0	3	0	0	0	0	0
44	8	0	0	0	0	3	0	0	0	0	0
45	8	0	0	0	0	3	0	0	0	0	0
46	8	0	0	-1	0	3	0	0	0	0	0
47	7	0	0	0	1	3	0	0	0	0	0
48	6	0	0	0	0	3	0	0	0	0	0
49	6	0	0	0	0	3	0	0	0	0	1
50	6	0	0	0	0	2	0	0	0	0	1
51	6	0	0	0	0	1	0	0	0	0	0
52	6	0	0	0	0	1	0	0	2	0	0
53	6	0	0	0	0	3	0	0	0	0	0
54	6	0	0	0	0	3	0	0	0	0	1
55	6	0	0	0	0	2	0	0	0	0	0
56	6	0	0	0	0	2	0	0	1	0	0
57	6	0	0	0	0	3	0	0	0	0	0
58	6	0	0	0	0	3	0	0	0	1	0
59	6	0	0	0	0	4	0	0	0	0	0
60	6	0	0	0	0	4	0	0	0	0	0
61	6	0	0	0	0	4	0	0	0	0	0
62	6	0	0	0	0	4	0	0	0	0	1
63	6	0	0	0	0	3	0	0	0	4	1
64	6	0	0	0	1	6	0	0	0	0	0
65	5	0	0	0	0	6	0	0	0	0	0
66	5	0	0	0	0	6	0	0	0	0	0
67	5	0	0	0	0	6	0	0	0	0	0
68	5	0	0	0	0	6	0	0	0	0	0
69	5	0	0	0	0	6	0	0	0	0	0
70	5	0	0	0	0	6	0	0	0	0	0
71	5	0	0	0	0	6	0	0	0	0	0
72	5	0	0	0	0	6	0	0	0	0	0
73	5	0	0	0	1	6	0	0	0	0	0
74	4	0	0	0	1	6	0	0	0	0	0
75	3	0	0	0	0	6	0	0	0	0	0
76	3	0	0	0	0	6	0	0	0	0	0
77	3	0	0	0	0	6	0	0	0	0	0

Notes: These data are an excerpt from dataGB.xls, (see student spreadsheet, product no. 7B20D018). The data for the 77 days in 2017 were for the existing supply chain structure; for 2018, the pilot with the upfront warehouse.
a. In-store inventory in the morning.
b. Number of items transshipped to other stores.
c. Number of items transshipped from other stores.
d. Number of product units received from (positive) or returned to (negative) the regional warehouse from the store.
e. Number of product units replenished from the upfront warehouse.
Source: Company files.