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Freshippo: Data-Driven Business Model Innovation

In January 2016, the first Freshippo grocery store opened in Shanghai, China. Starting in the second half of 2017, Freshippo entered an era of rapid expansion, opening one store every six days on average. By June 2018, it had already opened 46 stores in 13 cities across the country.[1] Before the birth of Freshippo, customers could only choose between two shopping channels: supermarkets and e-commerce platforms. However, Freshippo had freed customers from the yoke of these limited choices. Apart from grocery shopping, they could even have fresh food cooked in-store to eat on the spot. If they didn't want to carry their groceries home, they could scan the QR codes with the Freshippo app and then have Freshippo deliver to their homes. The app also allowed customers outside stores to place orders online.

Hou Yi, Freshippo's Founder and CEO, had been infusing Freshippo's name with concepts like "omnichannel" and "mobile e-commerce" that previously had nothing to do with traditional offline stores. The creation of such a new platform straddling the boundary of online and offline retail and its driving business model evolution, according to Hou Yi, could be attributed to technological innovation.[2]

Technologies such as mobile Internet, cloud computing, big data, and artificial intelligence (see **Exhibit 1**) had all played a vital role in Freshippo's business model innovation. First, technologies helped Freshippo reinforce interactions between customers, product locations, and stores anytime, anywhere, online and offline, so that Freshippo could collect large amounts of data. Second, cloud computing made it convenient for Freshippo to build its business operation system around Ali Cloud. Third, through big data and artificial intelligence, Freshippo had established a set of unified standards for both online and offline retailing in terms of its membership system, product prices, inventory, marketing channels, and accounting procedures. Following Alibaba's "One Data" [i] Strategy, Freshippo's entire enterprise system and information technology (IT) architecture were built around Alibaba Cloud. [3]

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[i] Alibaba's 'One Data' Strategy was launched at the end of 2015, which aimed at building an organizational and business mechanism characterized by a big "One Data" platform. With this strategy, the front-end business unit can become more responsive to the ever-changing market, while the one data platform integrates the entire group's capabilities on operational data and product technologies to strongly support the businesses at the front end. Quoted from "In-Depth Analysis on Alibaba's 'One Data' Strategy", Sohu, 2017.05.30, accessed on September 12, 2018. https://www.sohu.com/a/144689936_488677

Would Freshippo benefit further from the advent of the 5G era and from the gradual maturity of emerging technologies? How should it leverage emerging technologies to evolve into a more competitive and profitable platform?

Data-Driven Business Model

Freshippo had started as a chain of brick-and-mortar stores mainly selling fresh produce—with fresh seafood as its signature product—supplemented by in-store catering and online retail businesses. To shop at Freshippo, customers had to download the Freshippo app, which was linked to Alipay. Freshippo offered 30-minute grocery delivery within a radius of three kilometers.

Even before Freshippo was born, the founding team had already decided that Alibaba's big data analysis could lead to what they called "top-level design." This design laid the foundation for setting key performance indicator (KPI)-based objectives for Freshippo's business model. First, the revenue from online transactions should be greater than that from offline transactions; second, each store should generate more than 5,000 orders per day online; third, the Freshippo app should be able to survive independently without support from other online traffic; and fourth, the stores should offer 30-minute delivery while keeping logistics costs under control.

Guided by these objectives, Freshippo determined that 20-to-45-year-old female white-collar workers who used Alipay would be its target customers. According to findings from Alipay's data, most customers in this group had families to take care of. They also lived a fast-paced life, enjoyed a moderate to high level of spending power, and attached importance to quality of life. Fresh foods and healthy diets were their needs, and once they had trust in the products offered by Freshippo, they would naturally choose the Freshippo app for their online purchases if they were unable to visit stores.

The operation's results demonstrated Freshippo's high brand visibility shortly after it started selling fresh seafood. This was largely owing to the willingness and financial ability of the aforementioned customer group to consume seafood that was not commonly found elsewhere. Meanwhile, the cleanliness of the seafood section in Freshippo stores was greatly attractive to them. These customers not only contributed to consumption, but spread word-of-mouth on social media as well. The quick rise of the Freshippo brand and customers' brand awareness had everything to do with this demographic.

It was also data that pushed forward the creation of the F2 (Fast & Fresh) convenience stores, Freshippo Cloud Supermarket, and the Hexiaoma stores.

The F2 convenience stores were created after Freshippo identified the pain points around the breakfast and lunch of office workers: food hygiene concerns and time wasted in queues. Therefore, F2 stores were positioned as providers of breakfast, lunch, and afternoon tea for office workers. Customers could place orders via the Freshippo app and the stores would prepare the food for them. Customers could then go to the stores at the appointed time to either pick up their food or eat it on the spot.

The first F2 store opened in December 2017, with very similar furnishings and product categories to Freshippo. Seafood was also the main product that attracted customers. The only difference was that the store had floor space of 500 square meters and served customers located within a 500-meter radius.

Freshippo Cloud Supermarket, launched on April 1, 2018, was an online retail business formed in order to offer products unavailable in Freshippo's brick-and-mortar stores. Carefully selected based on data on consumer needs, the 20,000 stock-keeping units (SKUs) sold at Freshippo Cloud Supermarket were products offering the best value from 10 categories, including staple and non-staple foods, maternal and child supplies, adult products, and daily necessities. The overnight delivery service offered by Freshippo Cloud Supermarket used customer data to reduce the cost of order fulfillment. Through data analysis, the company realized that short delivery times were not necessarily the only factor in creating the best fast-moving consumer goods shopping experience. Customers demanded fast delivery only when they had no concern about price.[4]

Opened in Suzhou in June 2018, Hexiaoma was a type of Freshippo supermarket jointly run by Freshippo and RT-Mart, an offline supermarket chain acquired by Alibaba. It had floor space of about 800 square meters. Like Freshippo, Hexiaoma integrated its stores and warehouses as well as its online business. The stores had a fresh produce section that occupied 50% of the entire floor space, but they offered neither fresh seafood, dining, nor on-site food preparation services. While still offering delivery within a three-kilometer radius, Hexiaoma only promised delivery within an hour and offered free delivery only for a customer's first order. Contributors to Hexiaoma's differentiation included data-driven site selection, product selection, and data marketing supported by Alibaba's big data resources and algorithms. In addition, Hexiaoma combined Freshippo's experience in data-driven operations with RT-Mart's experience in brick-and-mortar store management.[5]

Key technologies such as big data and artificial intelligence had also driven Freshippo to iterate its fresh store business model as well. Nearly one year after its first store launched in Shanghai in January 2016, it opened the third store, which was clearly distinct compared to the first two. The store area was doubled, with dining and retail space each taking up half of the store area. This was to expand the warehousing and distribution capacities of the store, and to strengthen the ability of the store to attract customers and direct them online.

To address the issue of long wait times for meals,[6] for which Freshippo had been widely criticized, Freshippo opened the Freshippo Nanxiang Store in February 2018. It was a brick-and-mortar store that combined an automated restaurant and a supermarket in one. Customers first chose their seats on the screen at the restaurant entrance, and then followed the instructions from the system to get seated. Next, they scanned the QR code on the table with their Freshippo app to order dishes. Beside the table, there was a track for robots to deliver dishes. From customer ordering to preparation in the kitchen to dish delivery, all activities were managed by the system and displayed on the screen beside the table. In this store, it was robots that delivered dishes and even cooked some standard dishes. The robotic dish delivery system and equipment, developed by Freshippo itself, adopted a variety of hybrid sensing technologies and deep learning techniques involving sounds and images. According to Freshippo, with this system, it took a robot about 40 seconds on average to deliver a dish once it was ready.[7] However, the store had still been receiving customer complaints, including some related to long wait times and stale and lackluster food.[8]

Data-Driven Core Competencies

Freshippo's operational efficiency could be attributed to its mature data-processing and application technologies. With these technologies, Freshippo could create business models supported by various data-driven core competencies.

Data-Driven Site Selection

To open a brick-and-mortar store, the first issue to address was site selection. The primary basis of Freshippo's site selection was the big data profiles of Alipay users. When Freshippo considered a location, it would conduct big data analysis of active Alipay users within a three-kilometer radius. The data might be from Alipay or from third-party platforms such as WeChat and Weibo. The reason why Freshippo opened its first store in Chengdu in Hongpailou District rather than the traditional Chunxi Road Shopping District was that according to its big data analysis, there were more online shoppers in Hongpailou District, with higher online transaction volumes and spending per order.[9] In addition to data on user profiles, Freshippo would also gauge whether local real-estate companies would cooperate and whether local property management companies were qualified service providers. Without their support, Freshippo could hardly find enough parking spaces, cost-effective warehousing, and store space to offer customers an optimized offline shopping experience and efficient online order delivery.

Freshippo did not always open its stores in central areas as traditional supermarkets often did. It would sometimes choose relatively distant locations. For example, Freshippo Dacheng Road Store in Beijing was not centrally located at all. Neither was its Yizhuang Store (in Beijing). Although the Yizhuang area was a relatively remote place, data showed that it was home to many executives of Fortune 500 companies.

Online Traffic Guided by Brick-and-Mortar Stores

According to the original plan of the Freshippo project, brick-and-mortar stores were supposed to provide customers with enjoyable experiences to build their trust and loyalty. The ultimate goal was to boost online traffic by guiding customers to shop on its app. Therefore, while Freshippo opened its stores, it also launched its online retail business via its app.

The Freshippo app played a vital role in converting offline traffic to online traffic. For Freshippo, all channels and shopping scenarios served to guide traffic to the Freshippo app. First, customers had to use the app to make payments in offline stores. Second, as Freshippo's online platform and stores offered products of the same category, quality, and price, customers could use the app to scan product barcodes in-store and then place orders online for home delivery. Third, customers could scan products on a self-checkout machine in a store and then pay via the app, which saved time waiting in line. Fourth, if customers ordered food in the dining area of a store, they would receive a message from the app when the food was ready. In the meantime, they could shop around.

Personalized Marketing

Because all the customers, no matter online or offline, had to make payments via the Freshippo app, Freshippo was able to turn all of them into its members and had full access to information on their consumption needs and habits. Based on this data and with Alibaba's personalized recommendation technology, the Freshippo app was able to perform one-on-one marketing to thousands of different customers. The interactive marketing venues ranged from events at stores to different forms of promotion online. For example, Freshippo would invite children of a similar age and their parents to parties in stores; when there was a product promotion, Freshippo would send the information directly to customers in need of such a product.

Freshippo had developed extensive profiles of its customers. When it created scene-based advertising content, it used these profiles to determine which content might resonate most with specific customers. For example, in 2018, the brand content of Freshippo changed from "fresh food" to

"fresh elements in daily life." Correspondingly, the video ads of Freshippo comprised five scenes based on customer data: 1) a husband, who was a senior executive at work, ordered large lobsters from Freshippo for his wife; 2) a daughter who studied overseas ordered king crabs for her parents in China; 3) children became friends as they got together at Freshippo to observe the seafood they liked, which made their mothers beam with smiles; 4) neighbors shared "Daily Fresh" chicken stew with one another; and 5) white-collar workers got to know each other because of a bowl of dumplings made with their hometown flavor.[①]

Supply Chain Management

The supply chain of Freshippo—from procurement, warehousing, and logistics to distribution (see **Exhibit 2**)—was fully managed with new technologies and equipment. Freshippo's supply chain management system was built around the Alibaba Cloud platform, which included the enterprise resource planning system, the point-of-sale system, the logistics system, the distribution system, and the app system. It took Freshippo and Alibaba 1.5 years and 500 software engineers to develop a system suite that fully realized digital management over Freshippo's memberships, goods, marketing, transactions, supply chain, and store operations. The data thus generated, together with the external data of Freshippo and the support of technologies such as those in the fields of deep learning, image recognition, speech recognition, temperature recognition, geographical positioning, had helped Freshippo build an intelligent algorithm model to enhance its supply chain operations and management capability in product selection, warehouse management, store operations, order fulfillment, and delivery (see **Exhibit 3**).

Data-Driven Product Selection

As for procurement forecasting, Freshippo made product selection and procurement plans for each store and allocated stock accordingly based on big data from Alibaba and its own customers.

Thanks to big data, Freshippo's product selection capability had been continuously improving. When a store was not yet opened, Freshippo collected data from Alipay user profiles and product supplier information. After a store was opened, the company added the operations data. In the first two months after a store was opened, Freshippo tracked the sales of each SKU to decide whether a product should be stocked. If so, Freshippo then decided the frequency and quantity of orders. Two months after a store was opened, the SKU's product category and customers' ordering patterns would normally fall into place. After that, Freshippo would continue to track customers' shopping preferences, purchase frequency, and product reviews through its app, through Wi-Fi, and through its product QR code in order to further optimize its product selection algorithm.

Freshippo sold produce from both its private label and from third parties. Since its inception, Freshippo had built an R&D team for its private-label brands such as "Freshippo Taste" and "Daily Fresh." By early 2018, Freshippo had already created more than 300 private-label brands.[10] Products under the private-label brands were purchased through the "buyers system" directly from domestic or overseas production bases. For example, Freshippo found a partner with fishing rights in Alaskan waters for king crabs and placed orders directly with this partner. The partner then packed the king crabs in coolers. After that, Freshippo was responsible for cold-chain transportation to send the crabs to the Freshippo processing and testing center. Finally, the crabs were delivered to the stores.

[①] This was a private-label brand launched by Freshippo in August 2017, which included goods like vegetables, meat, and milk. These goods were directly purchased from production bases or suppliers and had to be sold at its stores within 24 hours. Those that were near the end of their shelf life would be either sold at a discount via the Freshippo app or used as ingredients for dishes offered to consumers.

"Daily Fresh" products, on the other hand, were purchased via the fresh produce supply chain that Freshippo had built with local farms. The quantity of the order for each store was fed into Freshippo's system by noon every day, and product purchase plans were forwarded to farms by 14:00. Picking would be done on the farms before 15:00, and all the fresh produce would be delivered to stores after 17:00. For vegetables, the time from picking to putting on sale was strictly kept within 18 hours. During the process, the system performed real-time monitoring through Wi-Fi cameras, temperature sensors, GPS, and so on. Freshippo also required fresh produce suppliers to set up processing plants near their farms that were equipped with cold-chain temperature control, prepackaging production lines, and Wi-Fi cameras. The cold-chain transportation vehicles were also equipped with temperature sensors, GPS, and so on.[11]

Products of third-party brands were selected based on Freshippo's big data. So as to make the prices more reasonable, Freshippo did not charge entry fees, promotion fees, or other kinds of marketing fees to third-party suppliers.

Warehouse Management

There were two levels of warehouses at Freshippo. The first level was the central warehouse, which also performed functions like quality inspection, product standardization, and live seafood farming. Store warehouses were the second level. "Daily Fresh" products were delivered directly from farms to store warehouses, while all other products were delivered in bulk on pallets by trucks first from their origin or suppliers to the central warehouse, and then to the store warehouses. "Daily Fresh" products were only transported in small packages in the final three kilometers from stores to customers. The warehouse management algorithm for the central warehouse and store warehouses was built on operational data from the stores and the Alibaba systems.

By means of electronic shelf labels[①] and product barcodes, Freshippo implemented a real-time and unified pricing and inventory management system both online and offline. All the product information was consistent, no matter whether the products were in the central warehouses, in the store warehouses, or on store shelves. Therefore, whenever a product was out of stock or moving slowly in a store warehouse or on a shelf, automatic replenishment or promotion would be triggered in the warehouse management system. For example, if "Daily Fresh" products were left on shelves near the end of the day, the system would target customers interested in such products and would push promotions to them. From the beginning of such a promotion, the system would adjust the promotional plan according to the sales performance at regular intervals (say, every other hour) in order to achieve more effective results.

Store Operation

Because every product had an electronic shelf label and a barcode, the store employees could identify products with handheld intelligent devices. With the help of the system, they could perform other tasks—including receiving goods, shelving, order picking, packaging, and distribution—in an efficient manner. For example, they could determine which products were put on shelves and at what time, the number of times a product was replenished, and even how many fish were killed.

[①] An electronic price label, which could replace traditional paper price tags, was an electronic display device with information-sending and information-receiving functions. When connected to a back-end database through a wired or wireless network, the label could display the latest product information and ensure price consistency between the checkout counter and the shelf.

Furthermore, the store operation system was able to assign tasks to employees that were accurate to the minute, so as to ensure not only a balanced distribution of work in stores but also optimal human efficiency and sales per square meter.

For example, when an online order was generated, the system broke down the order items into different tasks based on products' locations in the warehouse, product sorters' locations, and their workload. Each task was assigned to the nearest product sorter so that a product-picking task could be accomplished within three minutes. The conveyor belts hanging on store ceilings were designed to facilitate efficient product picking and delivery. Product-picking bags moved along the conveyor belts to the product-gathering area, where the products were packed. In sum, the whole order-generation process did not take more than 10 minutes.

Order Fulfillment

The algorithm for order fulfillment at Freshippo was based on information regarding product production routes, order sequences, temperature zones required by ordered products, warehouse sections where products were stored, and so on. This was to ensure the highest efficiency of product production and distribution, as well as the best consumption experience at the lowest fulfillment cost.

Take the promise of fulfilling an order within 30 minutes as an example. At Freshippo, product picking was not done by an individual employee for each order. Instead, the Freshippo system consolidated the same products in different orders and then assigned tasks to store employees nearby. Each employee did his or her part of the picking job with the help of a handheld device. Products picked would be put into bags, hung on conveyor belts on store ceilings, and then transferred to the warehouses at the backs of stores.

The product picking time for each employee was controlled by the system to stay within three minutes. Once product-picking bags were hung on the conveyor belts, it also took less than three minutes for them to be transferred to the store warehouses. The final packing was also limited to within three minutes. The system automatically grouped and combined products according to order composition, adjacency of order time and customer locations, and similarity in delivery routes. Products for each order were then manually packed, sent to the logistics center through the vertical lift system, and ready for delivery. The time left for delivery men to do their job was 20 minutes.

Logistics and Distribution

It was through system optimization that Freshippo was able to deliver orders within 20 minutes. First, based on information like order time and delivery address, the Freshippo system would combine different orders into delivery batches. Then, based on information including the order batch, the order category (normal temperature or cold chain), delivery men's familiarity with the distribution area, and delivery men's locations at that time, the system would calculate the best delivery route and assign delivery to the most appropriate delivery man.

On the other side, the logistics and distribution system at Freshippo Cloud Supermarket was different. In order to reduce the cost of order fulfillment, orders would accumulate to a certain quantity and then the best outbound route would be determined according to the order quantity and product types. Orders on the same distribution route would be integrated according to the maximum workload with which a delivery man could cope. Then the integrated orders would be transported during the night from the central warehouse to the stores. The next day, delivery men would pick up parcels of the integrated orders during relatively less busy store hours. After a delivery man reached a customer, he would sort out the customer's parcels according to the order information.

Other Technology-Driven New Retailers

Freshippo was not the only technology-driven New Retailer around the world. Amazon Go had appeared in the U.S. market, and the Chinese market included unmanned convenience stores and unattended shelves.

Amazon Go

Amazon Go was a brick-and-mortar cashier-free convenience store created by Amazon, the world's largest e-commerce retail company. By leveraging technologies such as computer vision, deep learning, and sensor fusion, Amazon Go had eliminated cashier checkout in traditional convenience stores, allowing customers to "take and just go."[12] Customers could download the Amazon Go app on their mobile devices and then enter an Amazon Go store by scanning the code at the store entrance. Whenever customers took an item off the shelf, the item was added to a virtual shopping cart. If it was put back on the shelf, the item would automatically disappear from the shopping cart. After customers had selected what they needed, they could go straight out of the store. Within a few minutes of exiting the store, an electronic receipt would be pushed to their mobile phones and they would be charged on their Amazon accounts. The electronic receipt showed not only shopping details, but also the length of time the customer had stayed in the store.[13]

Amazon Go was run on a trial basis on the first floor at the Amazon headquarters in Seattle in December 2016, serving only Amazon employees. It was intended to be officially open to the public in early 2017. However, during the trial operation period, it was found that when there were more than 20 people in the store or when customers took products off shelves too fast, the tracking devices in the store were unable to accurately track customers and products.[14] It took Amazon a year to tackle this problem. Hence, Amazon Go was not officially open to the public until January 22, 2018. However, Amazon planned to open five more stores in 2018.[15]

Unattended Convenience Stores and Unattended Shelves

The first unattended convenience store in China was BingoBox, opened in Guangzhou in August 2016. It kicked off its large-scale expansion through franchising in Shanghai in June 2017. By January 2018, it had already entered nearly 30 cities across China.[16]

The entry of BingoBox into Shanghai had led to the creation of a series of unattended convenience stores under other brands. Having seen the trend, investors threw themselves into this field one after another. On June 28, 2017, F5 Future Store received A+ round investment of ¥30[①] million. On July 3, BingoBox completed its Series A financing of more than ¥100 million. Then on July 8, Tao Café, Alibaba's version of Amazon Go, made its debut at Taobao Creation Festival in Hangzhou.

However, industry experts had noted that compared with Amazon Go, the unattended convenience stores in China were still not truly of a "take and just go" model. Most of the products in these stores had RFID labels,[②] which required customers to scan QR codes to pay upon the completion of shopping.[17]

Apart from convenience stores, unattended shelves focusing on the office market were another New Retail application scenario that caught the eyes of venture capitalists in 2017. As of the end of

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[①] ¥ = CNY = Chinese yuan renminbi; ¥ 1 = approximately US$0.1470 in June, 2020.

[②] This was a kind of non-contact automatic identification technology that automatically identified a target object and acquired relevant data through radio-frequency signals. The identification work did not require manual intervention.

September that year, at least 16 brands of unattended shelves received financing of a combined total of over ¥2.5 billion, according to third-party data. However, since the beginning of 2018, this retail segment had reported negative news such as layoffs and store closures. Therefore, the sustainability and profitability of the business model of unattended shelves had been questioned.

The Future of Freshippo

With the advent of the 5G era, Freshippo realized that more data sources would be found and hence more business opportunities would emerge. The company hoped to further reinforce its online and offline channel development by leveraging Internet of Things technology. With its strengths in channel development, Freshippo could increase its bargaining power and pricing power across the value chain.[18]

On the online side, other e-commerce channels of Alibaba—such as Taobao.com and Ele.me—would also push traffic to Freshippo. On the offline side, apart from its own stores, Freshippo had been trying to empower its strategic partners and turn their channels into its own. Hexiaoma stores were just the first attempt of Freshippo in this regard. The integration of online and offline channels and their expansion benefited Freshippo not only with a sizeable market but also with a tremendous amount of real-time data. This would bring Freshippo more bargaining power with suppliers.

In the face of a larger market, Freshippo expected to build many more private labels based on existing data resources and the application of emerging technologies. This strategy could help Freshippo increase its pricing power by redefining product attributes under its private-label brands. One of the examples of following this strategy was its "Daily Fresh" brand. To implement this strategy, Freshippo had established plant standards for its partnering farms, and instituted environmental requirements, such as the use of pollution-free and hazard-free resources, including land and water.

Would innovative initiatives like "Daily Fresh" and Hexiaoma ultimately help Freshippo grow into an influential player with strong bargaining power across the value chain in the New Retail industry? Could Freshippo's operational shortcomings exposed during its past development be properly addressed through data- and technology-driven innovation? How could Freshippo better leverage emerging technologies to become more competitive in the 5G era?

Exhibit 1: Emerging Technologies Used by Freshippo

| Technology	Content
Cloud Computing	This was an Internet-based computing method through which shared resources and information of both hardware and software could be provided to computers and other devices as needed. Cloud computing allowed its users to reduce the cost of technology application, keep up with the latest technology trends, and enhance collaboration. There were three categories of cloud computing services: IaaS (Infrastructure-as-a-Service), PaaS (Platform-as-a-Service), and SaaS (Software-as-a-Service). Along with the development of mobile Internet, mobile cloud computing technologies had also been evolving. People could gain access to infrastructure, platforms and software they needed via mobile Internet in an on-demand.
Big Data	This referred to myriad diversified information assets with high growth rates. Because in the past these assets could not be processed to create commercial value by traditional data-processing methods, big data technologies that could exploit data to create value emerged. These technologies included data collection and storage, data filtering, algorithm analysis and prediction, data security, data analysis results display, to name just a few.
Artificial Intelligence	This was a way to intelligently process big data, mainly used in fields like fingerprint recognition, facial recognition, image and language recognition, and intelligent control. AI technologies mainly included natural language generation, machine learning, deep learning, and biometrics. To adopting AI applications, a large amount of data was required for training and optimizing the corresponding algorithms.

Source: Compiled by authors according to "what is the Difference and Connection Between Data Center, Cloud Computing, and Big Data?" Sohu, January 12, accessed July 5,2018, https://www.sohu.com/a/216330788_100012035

Exhibit 2: Freshippo's Supply Chain
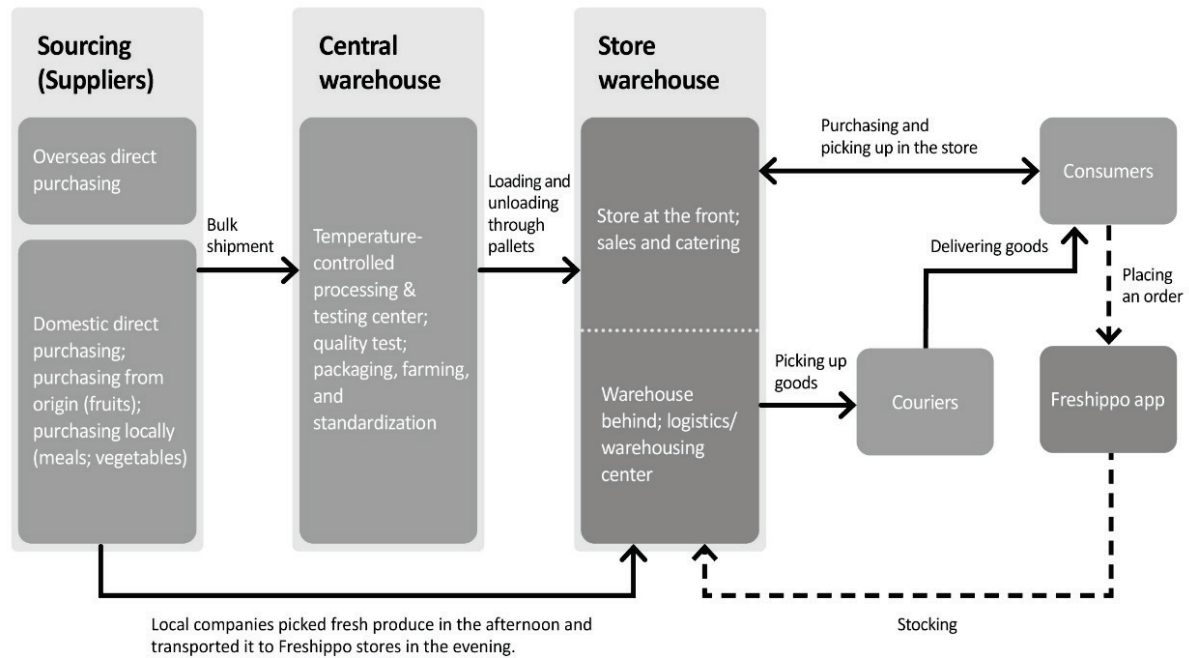
Note: The solid line represents logistics; the dotted line represents information flows.

Source: Adapted from "A probe into Freshippo's Logistics System", www.yidianzixun.com, April 17,2018, accessed May 29,2018, http://www.yidianzixun.com/article/0Ip5R82a.

Exhibit 3: Operation Management and Capability Algorithm of Freshippo's Supply Chain
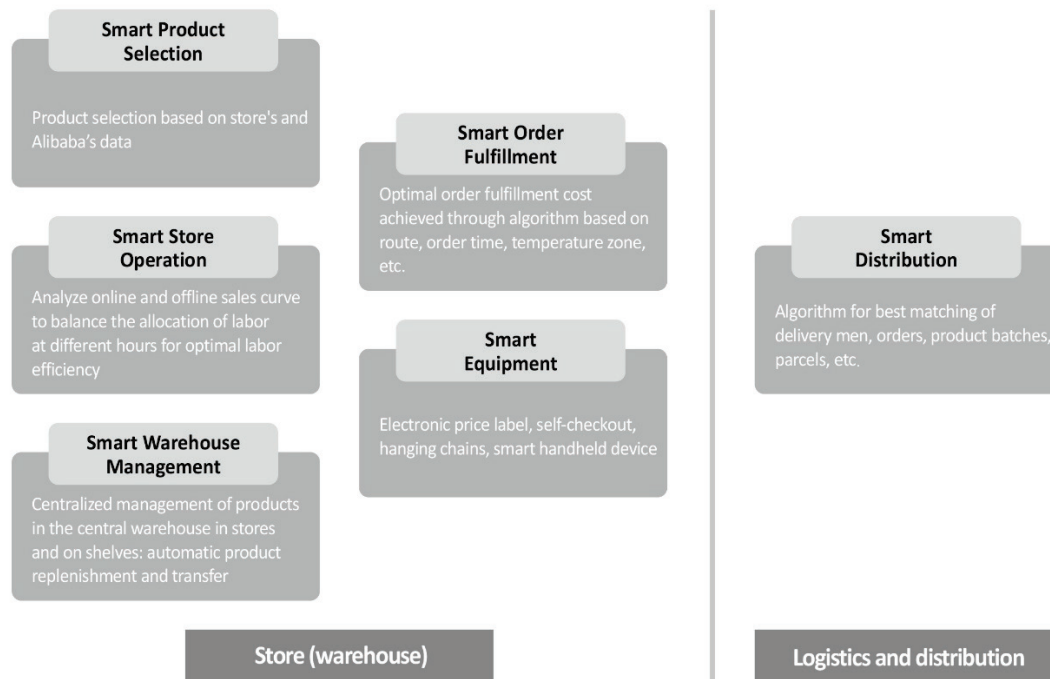
Source: Adapted from "A probe into Freshippo's Logistics System", www.yidianzixun.com, April 17, 2018, accessed May 29,2018, http://www.yidianzixun.com/article/0Ip5R82a.

Endnotes

[1] Dong Ye, "Freshippo Opened 46 Stores," pintu360.com, April 26, 2018, accessed May 29, 2018, www.sohu.com/a/229549090_363549.

[2] "Hema Xiansheng CEO Hou Yi: What We Have Learnt from Amazon Go: Technology Drives New Retail," iYiou, December 11, 2016, accessed July 5, 2018. https://www.iyiou.com/p/35888#0-tsina-1-10554-397232819ff9a47a7b7e80a40613cfe1

[3] "The Secret of New Logistics at Freshippo: What Is Special About It?" Sohu, May 2, 2018, accessed July 5, 2018, www.sohu.com/a/230194576_650513.

[4] Ibid.

[5] "Data Mindset Behind Hexiaoma Shocks Traditional Businesses," uMeng Data, June 6, 2018, accessed July 5, 2018, http://www.investorscn.com/2018/06/06/69124.

[6] "Hidden Risks in Hema's Operating Model," Sohu, April 24, 2017, accessed July 5, 2018, www.sohu.com/a/136085005_479244.

[7] Wang Shiqi, "The Secret Behind Hema Automatic Restaurant: Dish Delivery in 40 Seconds on Average," rich.online.sh.cn, June 13, 2018, accessed July 5, 2018, https://rich.online.sh.cn/rich/gb/content/2018-06/13/content_8929852.htm.

[8] Dianping.com, accessed July 5, 2018, http://m.dianping.com/shop/98652528/review_all.

[9] Wang Dan, "Freshippo Xiansheng to Open 10 Stores in Chengdu This Year," Sichuan Online, May 8, 2018, accessed July 5, 2018, http://news.winshang.com/html/063/8471.html.

[10] "First Freshippo Store in Chengdu Opens," winshang.com, February 6, 2018, accessed May 25, 2018, http://news.winshang.com/html/063/3994.html.

[11] Ibid.

[12] Michael Kasavana, "Amazon Go's Impact on Payments, Self-Checkout," Louisville, January 31, 2017, accessed June 29, 2018, https://www.retailcustomerexperience.com/blogs/amazon-gos-impact-on-payments-self-checkout-2.

[13] Ibid.

[14] "After More Than 20 Years of E-Commerce, What Is Special About Amazon Go?" QDaily, March 5, 2018, accessed July 5, 2018, http://new.qq.com/omn/20180305/20180305A0U8EM.html.

[15] "Amazon Plans to Open 6 Amazon Go Grocery Stores," Sohu, February 24, 2018, accessed July 5, 2018, https://www.sohu.com/a/223829910_223764.

[16] "Fosun Nurtures New Species of Unmanned Retail by Leading BingoBox Round B Financing," China.com.cn, January 17, 2018, accessed July 5, 2018, www.xinhuanet.com/itown/2018-01/17/c_136902370.htm.

[17] "Unmanned Retail in China from the Perspective of Amazon Go Is a Double-Edged Sword," Daily Economic News, October 24, 2017, accessed July 5, 2018, http://tech.sina.com.cn/it/2017-10-24/doc-ifymzzpw0432445.shtml.

[18] "Freshippo Xiansheng CEO Hou Yi: What Kind of New Retail Do We Want to Create?"Pintu Business Review, October 15, 2017, accessed July 5, 2018, http://tech.ifeng.com/a/20171015/44716331_0.shtml.