Online shopping order fulfillment process for an Health and Beauty Retailer in Singapore

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Summary: This thesis proposes a solution for developing online retail order fulfillment model for a health and beauty retailer in Singapore. Order fulfillment models practiced by successful retailers are discussed. Business strategy is developed to identify the value proposition and target customer base. Two order fulfillment Process flows are designed for the Singapore retailer to suit its resources. A costing model is developed to design the number of orders that the retailer should get to justify the investment in online retailing order fulfillment models.

Key insights:

- A business strategy can help retailers to target the right customer segments and create beneficial value proposition
- Retailers should identify the fit between their resources and capabilities and order fulfillment models to choose the right processes
- Costing model can help choose the right fulfillment process to suit the resources, capabilities of the retailer and the market demands

Introduction

The power of internet has opened many possibilities to manage business operations more effectively and efficiently. Customers can now access information about any products on the web and compare the prices from different retailers and wholesalers from different regions within minutes. Customers no longer have to go through traditional supply chain intermediaries to purchase products and services. Customers can sit at home, browse and order products online, make payments online using credit or debit cards and get products delivered to their door steps.

The success of pure play online retailers made traditional retailers to look at online channels to offer their products and services as pure play online retailers were shifting the shopping behaviors of customers and were getting a share of traditional retailers' sales. To compete with pure play online retailer and to address the changes in customers' buying habits many of the major traditional brick and mortar retailers started offering their products and services online through a concept called multi-channel retailing, where customers can buy products and services through several sales channels that are offered by retailers.

In contrast to pure play retailers traditional retailers have more flexibility in terms of their operational designs. Pure play online retailers usually have their operations set up in a large warehouse and fulfill customer orders through these warehouses, whereas traditional retailers have the opportunity to fulfill

customer orders either through warehouses similar to pure play retailers or through their existing stores that are situated closer to customers. This flexibility of traditional retailers call for different set up of operating systems that involve smaller investments compared to pure play online retailers' operations.

The first step for a retailer, who is assessing the option of offering multi-channel retailing services, is to understand the customer segments and identify the value proposition that the retailer wishes to offer to customers. This can be achieved using any of the suitable strategy development tools. Once the retailer identifies the customer segments and the value propositions, the next step is to look at the capabilities and resources required to implement the business strategy. Many retailers fail to understand the importance of this step and end up copying other retailers that are focusing on different customer segments or offering different value propositions. Often such short sightedness leads to failure of online retailing channels for retailers. Hence it is important for retailers to identify the right operational processes that suit their capabilities.

In this research an analytical model to determine the right order fulfillment strategy for retailer was developed. Firstly, operating models that are practiced by successful multi-channel retailers were identified and described. Later, process flows with all the inputs, processes and outputs were designed with emphasis on the resource requirements. Finally, a costing model, with many variables, was developed to help determine the average number of orders that retailers should get every day to justify the investments required in setting up the online order fulfillment processes.

Background

This thesis involves Guardian Singapore, one of Dairy Farm Groups' retail brands. Guardian Singapore is the largest health and beauty retailer in Singapore, who is looking at providing multi-channel retailing services to its customers by offering online retailing option. Guardian had a separate team that was involved in creating and maintaining the front end part of the online services and it was considering several combinations of options for backend order fulfillment process.

The objective of this thesis was to recommend the right order fulfillment processes for Guardian Singapore by looking at their capabilities and resources. To understand the problem in detail a thorough overview of relater literature was conducted. Through this review customer online shopping habits and different ways of order fulfillment was highlighted. Most of the reviewed literature failed to address the challenge faced by Guardian Singapore. Hence this thesis followed a case study methodology to analyze the current situation and recommend the right order fulfillment strategy, on the basis on an analytical costing model that is used to justify the investments required.

The primary source of data for the case study on Guardian Singapore was obtained through interviewing the management teams of Dairy Farm Group, which owns Guardian brand and Guardian Singapore. The secondary data was collected through industry publications and market research papers. Due to the sensitive nature of some of the data, assumptions were used for these variables instead of actual numbers. These assumptions are highlighted in all places where they are used.

Analysis and Results

Order fulfillment models

Two different order fulfillment models that are practiced by successful retailers are described in detail. The first model called in store picking model is particularly applicable for retailers who have brick and mortar physical stores in place. In this model, retailers follow the traditional supply chains to place orders in stores and online order fulfillment is performed by using existing stores and its facilities. Such models are followed by most of the 'brick and clicks' type of online retailers, as this model allows the utilization of existing infrastructures and reduces risks and minimizes initial investments while providing maximum coverage. Here store employees will pick products for customers, walking through store like normal customers equipped with carts and order details.

The second model called warehouse picking model is used by both pure play online retailer and multi-channel brick and mortar retailers. In this model, orders are fulfilled from a centralized warehouse that is redesigned to cater to fulfill online orders. This model involves large capital investments compared to store based picking model, but the efficiency of such a model higher than store picking model. Automated systems can be developed to reduce labor costs and operationally efficient processes can be developed to reduce overall costs.

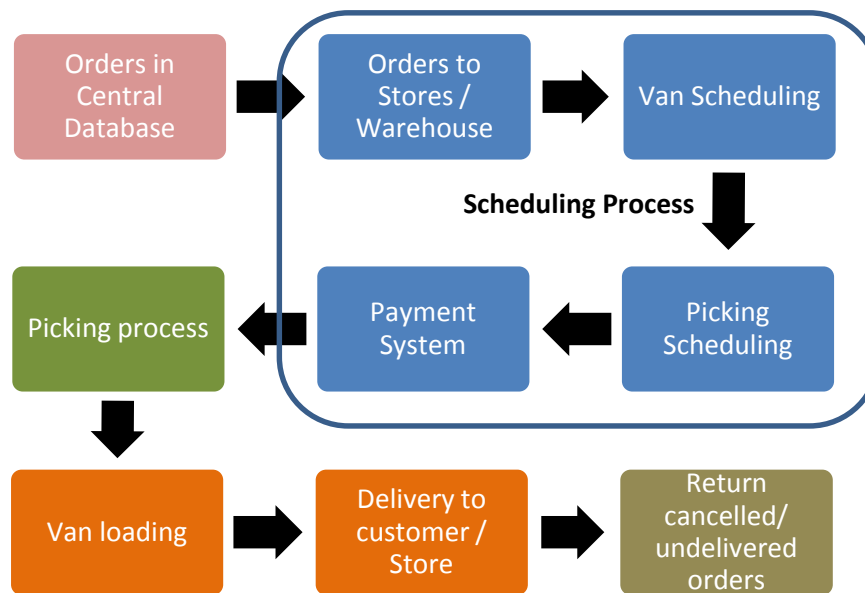The processes in these two fulfillment models are described in figure 1.

Figure 1: Overview of order fulfillment process

Comparisons of both these models in terms of different factors such as investments and resources required effect on performance of stores and store staff for both normal store operations and online order fulfillment operations and room for future expansion to include more orders when the demand for online retailing services increases are described in table 1.

	In Store Picking	Warehouse Picking
Initial Investment	Low	High
Picking System	Manual	Manual/Automated
Congestion	High	Low/None
Picking Efficiency	Low/Medium	High
Operational Efficiency	Low/Medium	High
Product Availability	Low	High
Scope for expansion	Low/None	High

Table 1: Comparison of order fulfillment models

Business Model Canvas

Business model generator canvas that is developed by Alexander Osterwalder and Yves Pigneur in their book 'Business Model Generation' was used to help understand the motivation for Dairy Farm Group to offer online retailing. This business model canvas also helped in determining several important factors that are relevant in identifying the right strategies and processes for offering online retailing service, some of these factors include: value proposition for customers, key resources, key partners etc. Business model canvas also helped us determine the market segment and geographic region that Dairy Farm Group should focus for providing online retailing. The business model canvas that was developed for Dairy Farm Group is shown in figure 1.
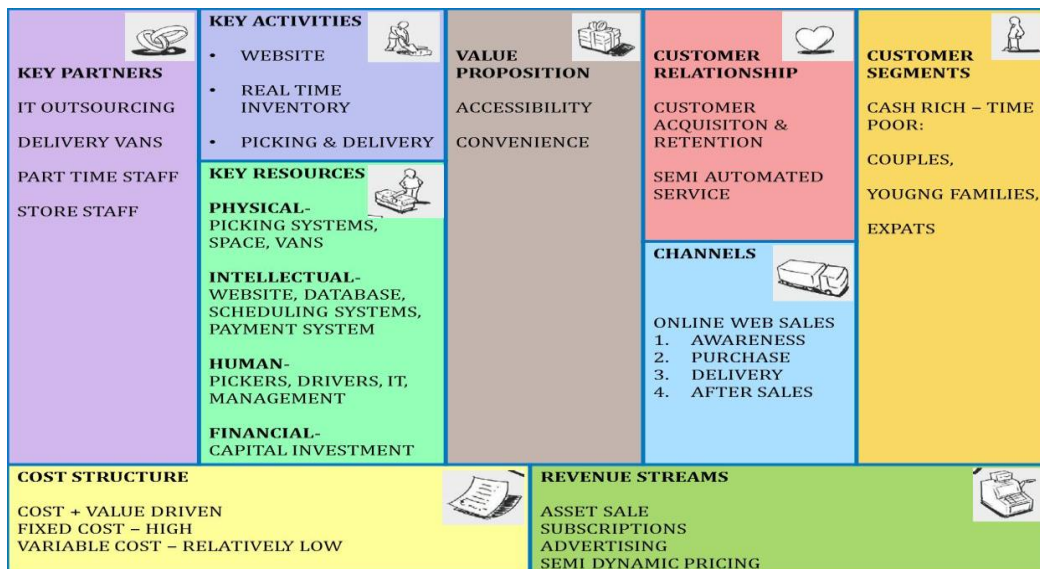

Figure 2: Business model canvas for Dairy Farm Group

Capabilities available at Guardian Singapore

IT capabilities: Guardian in Singapore already has a dedicated IT system in place that is used for managing their existing operations. This system can also be used to capture online orders that will be placed by customers. Existing IT capabilities can also be used to include online product details and prices.

Supply chain network: Guardian Singapore has 152 stores throughout Singapore. These stores are served by a supply chain that has evolved through several years of operations. Resources, capabilities and processes from this network can be used to offer online retailing services to customers.

Human resources: Guardian Singapore can use its people in stores and warehouses to setup new operations for online order fulfillment.

Process flows

Two different process flows were designed to match the resources available at Guardian Singapore. There are 10 different activities that form the process flow for both in store picking and warehouse picking models. Each of these activities has several inputs that are essential for the activities to complete, and they also have outputs that are outcomes from each successful activity completion. Also several constraints or factors that can affect the performance of each activity as well as the success of many activities can rely on the constraints are also listed. Both the process flows for in-store picking and warehouse picking have similar activities and inputs and outputs with few minor changes. Both processes have its own advantages and disadvantages and depending on Guardian's resources, capabilities and expected order growth, the right process will be implemented.

Costing model

To determine the suitable order fulfillment process, cost and expected profit details for both the options are analyzed. Based on the costing structures and expected margins, the threshold number of orders per day that Guardian Singapore should get for it to invest in warehouse picking model versus in-store picking model was determined.

Costing model is an analytical model that is dependent on several variables that are required as inputs. The data for most of these variables were provided by Guardian and for sensitive data, assumptions were made. The costing model was run with different scenarios to determine the threshold/breakeven number of orders required to be profitable. The scenarios that we ran for both in store picking and warehouse picking are as follows:

1. Optimistic - refers to the scenario where the order value is higher than expected average order value.
2. Pessimistic – refers to the scenario where order value is lower than expected average order value.
3. Most likely – refers to the scenario where the order value is around the average order value that is expected by Guardian.
4. Change in expected margin

Results

The results of the costing model for different scenarios of order value and expected profit for in store picking model are described in Figure 3. And for warehouse picking model is described in figure 4.
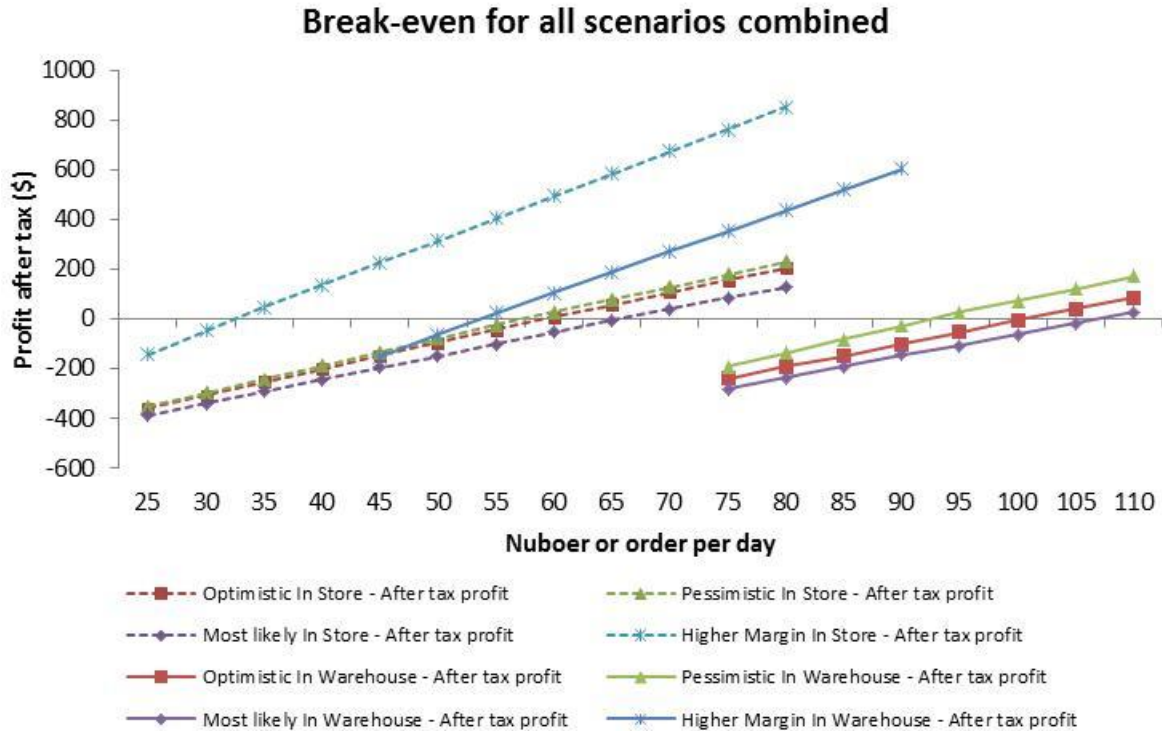

Figure 3: Breakeven number of orders for all scenarios

Conclusion

The research reveals that for a retailer to offer successful online retailing services, order fulfillment operations have to be efficient to match the business strategy of online retailing for that retailer. By understanding their capabilities, retailers can design their fulfillment operations to match the market demand. To mitigate risk, it is described literature that picking in store is a safer option as the amount of investment required for this operation is low. But once the order volume goes up then it is justifiable to invest in warehouse picking model. The costing model that was developed in this research also suggests the same strategy with analytical evidence under different possible scenarios. The success of online retailing service is highly dependent on the backend operations, hence retailers should take the 3 step approach that was described in this thesis to create successful online order fulfillment operations and should not blindly copy their competitors.