Future of grocery retail shopping:
Challenges and opportunities in e-commerce grocery shopping

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ABSTRACT

Advancement in technology has potential to significantly disrupt the grocery retail market in the U.S. by channeling sales from offline brick-and-mortar stores such as Walmart and Kroger to online e-retailers such as Amazon, Peapod, FreshDirect, and Instacart. E-commerce grocery retailers have invested heavily in technology, warehouses, and transportation fleets. However, as of 2016, e-commerce grocery sales still only contributed approximately 3% of the total grocery retail sales in the U.S.

This thesis first identifies and explains the obstacles to the expected growth of the e-commerce grocery market, and then introduces strategies for ameliorating these challenges and sustaining competitive advantage.

Thesis Supervisor: Professor Duncan Simester
Title: NTU Chair in Marketing
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1. Background and objectives

The grocery retail market in the U.S. is estimated to be around $608 billion, according to the latest numbers published in October 2017 (IBISWorld, 2017). According to an article published by CNBC in June 2017, the majority of the U.S. grocery retail shopping still occurs in the traditional brick-and-mortar grocery stores with Walmart and Kroger leading the market share at 14.46% and 7.17%, respectively (Berk, 2017). The market shares for the rest of the grocery retailers are relatively small and fragmented with less than 5% market share each.

In the 1990s, some brick-and-mortar grocery retailers started offering home delivery services to customers via phone or fax orders from catalogs (Hyten, 1996). At that time, the Internet was not so common with only about 20 million people having access to the Internet (Manjoo, 2009). One of the earlier pioneers in e-commerce grocery shopping (also known as online grocery), Auburndale-based Hannaford's HomeRuns, started offering online ordering in 1996, as did California-based Webvan in 1996. Unfortunately, these businesses went bankrupt in the early 2000s due to their aggressive expansion plans and flawed business models of trying to establish infrastructures themselves. Webvan, for instance, invested heavily in warehouses, transportation fleets, and marketing, betting that sophisticated online shoppers would appear quickly. Unfortunately, the adoption rates were slow, and there were not enough orders flowing through the system to justify the costs (Tedeschi, 2012). Aside from this, the mass-market strategy that Webvan adopted, which was to deliver the best quality products to customers at the pricing of supermarkets like Walmart, was not economically viable.

Since then, the e-commerce grocery market has yet to take off despite many years of trials and errors and heavy investments by different parties. While the overall grocery retail market in the U.S. is huge, the e-commerce grocery sales still only contributed approximately 3% of the total grocery retail sales in 2016 (Statista, 2018). Similarly, e-commerce grocery sales account for less
than 4% of the U.S. total e-commerce business to-date (Statista, 2018). Similar trends can also be observed in other markets around the world. For instance, in China, by far the largest e-commerce market in the world (Statista, 2018), e-commerce grocery sales amount to approximately 5% of China’s total e-commerce market. Fashion items and shoes, both highly customized segments, are bigger in terms of size and growth in e-commerce space.

With the rise of smartphones and the development of mobile payment technologies, we have now seen many potential players venturing into this space. FreshDirect and Instacart are a few of these examples. Many of the brick-and-mortar grocery retailers including Walmart, Target, and Kroger have also invested aggressively in e-commerce delivery platforms to offer delivery options after they witnessed the disruption brought by e-commerce companies such as Amazon in the books and consumer electronics segment. Among these players, many expect Amazon to disrupt this industry in the near future. In 2007, Amazon launched Amazon Fresh in Seattle, offering grocery delivery service. So far, Amazon Fresh has not been able to grow as fast as Amazon’s other business segments such as books and consumer electronics. With its recent acquisition of Whole Foods Markets Inc., the No.1 organic grocery chain in the U.S. in June 2017, Amazon plans to leverage more aggressively on the synergies between Amazon Fresh, Prime Delivery Services, and “365” private labeling from Whole Foods. Because the grocery segment operates on relatively thin margins, many skeptics question whether Amazon will be able to gobble up the market as it has done for books, toys, consumer electronics, etc. On the other hand, the brick-and-mortar retailers are worried that Amazon could potentially disrupt the grocery market using their aggressive price cuts and sophisticated logistics/warehouse system, similar to what it did in the early 2000s forcing brick-and-mortar bookstores to go out of business.

Our thesis identifies and explains the factors that have prevented the growth of e-commerce grocery market thus far and explores how e-retailers can grow this grocery retail in the next three to five years, despite limited resources and scale compared to Amazon. We examine which
segment of the grocery is most likely be disrupted by e-commerce, and what e-retailers can do to compete effectively. We finish with recommendations derived from our insights regarding Where-to-Play and How-to-Win over the next three to five years.

2. The current state of play of e-commerce grocery shopping in the U.S.

In 2017, the e-commerce grocery market in the U.S. was estimated at around $14 billion and expected to grow to ~$30 billion by 2021 (Statista, 2018). E-commerce grocery shopping in the U.S. is outgrowing brick-and-mortar grocery shopping with its incremental sales four times higher than brick-and-mortar's in 2017, while its business size is only about 1/85 of brick-and-mortar's (Statista, 2018). The e-commerce grocery market can be broadly divided into two groups. The first group would be the full-fledged e-retailers such as Amazon (now integrated with Whole Foods), Instacart, Peapod, and Fresh Direct. The second group would be the brick-and-mortar retailers with an extended digital footprint on an online platform such as Walmart, Kroger, and Target. Each group offers a different variety of grocery items, including both perishables and non-perishables.

The leading force in the e-commerce grocery market is Amazon, forecast to account for 26% of e-commerce grocery market share in food and beverages, followed by Walmart (16%) and Kroger/Peapod/Fresh Direct (each with around 2%) in 2016 (Statista, 2018). Amazon's food and beverage sales are projected to triple from 2016 to 2021 (Statista, 2018) with the continued expansion of services such as Amazon Fresh and Amazon Prime Pantry. However, the majority of the sales generated by Amazon so far are for non-perishable products.

The main target customer for e-commerce grocery is Millennials, who are heavy users of technology devices and familiar with using online ordering platforms (Statista, 2018). Singles and
working mothers in their early thirties to mid-forties are also target customers for e-commerce grocery (Statista, 2018). The biggest driver to entice them to purchase grocery online is “convenience” (AYTM, 2017). Nonetheless, the penetration rate of e-commerce grocery remains low. In a survey conducted in September 2016, almost 77% of the U.S. respondents said that they had never ordered groceries online or through a delivery service (Statista, 2018). This rate indicates that there is still a long way before e-commerce grocery shopping can dominate the grocery retail market or replace brick-and-mortar grocery stores. E-retailers need to find ways to enhance the e-commerce grocery shopping experience, overcome the barrier of “lack of credibility” in delegating the process of picking groceries to the pickers, and lower the general shipping cost associated with e-commerce groceries (Statista, 2018).

E-commerce grocery shopping has its own challenges, but it is a massive whitespace with a huge upside opportunity. Moving forward, we believe brick-and-mortar stores such as Walmart and Kroger need to figure ways to manage their total operating costs as a whole to serve both the online and offline channels, while smaller full-fledged e-retailers such as Instacart and Peapod need to optimize their operations better and differentiate themselves to survive against Amazon (with Whole Foods). As these smaller full-fledged e-retailers cannot simply act upon and invest in everything, understanding which areas to focus on to lock-in customers is crucial to win in this space. The U.S. grocery retail market is still very fragmented (See Figure 1) but as e-commerce grocery shopping is growing fast, the market will witness more mergers and acquisitions, leaving the market with fewer, bigger, stronger, more capable players in the online space. We already see this happening with the merger of Whole Foods with Amazon.
Figure 1: U.S. Retail Grocery Market Share in 2016

<table>
<thead>
<tr>
<th>Retailer</th>
<th>Market Share</th>
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<tbody>
<tr>
<td>Walmart</td>
<td>14.46%</td>
</tr>
<tr>
<td>Kroger</td>
<td>7.17%</td>
</tr>
<tr>
<td>Albertsons</td>
<td>4.5%</td>
</tr>
<tr>
<td>Southeastern Grocers</td>
<td>3.89%</td>
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<tr>
<td>Ahold Delhaize</td>
<td>3.18%</td>
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<tr>
<td>Costco</td>
<td>2.43%</td>
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<tr>
<td>Publix</td>
<td>2.25%</td>
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<tr>
<td>Target</td>
<td>2.12%</td>
</tr>
<tr>
<td>HEB</td>
<td>1.71%</td>
</tr>
<tr>
<td>Whole Foods</td>
<td>1.21%</td>
</tr>
<tr>
<td>Dollar General</td>
<td>1.16%</td>
</tr>
<tr>
<td>Supervalu</td>
<td>1.11%</td>
</tr>
<tr>
<td>Seven &amp; I Holdings</td>
<td>1.08%</td>
</tr>
<tr>
<td>Amazon</td>
<td>0.19%</td>
</tr>
</tbody>
</table>

Source: GlobalData Retail estimates and analysis, CNBC

3. Methodology

Professor Duncan Simester’s paper “Iterating to Insights: Mining Thought Experiments for Strategic Insights” (Simester, Iterating to Insights: Mining Thought Experiments for Strategic Insights, May 2016) explains that strategic framework is widely taught, particularly the concepts of differentiation and sustainable competitive advantage, but understanding how to use the framework to engage in strategic thinking is relatively rare. He further explains that the goal of strategic thinking is to develop insights about which markets a firm can compete in and which markets it should avoid.

To understand the challenges and opportunities in e-commerce grocery shopping, we applied the “Iterating to Insights” approach as described in his paper. This approach relies on “thought experiments” to characterize which markets a firm should compete in, and which markets it should avoid. The key to “thought experiments” is to propose a scenario, then evaluate it against known criteria and modify it to address inconsistencies.
For us to generate insights that are surprising yet compelling, we began by building “use cases” in the strategic thinking process and iterating these use cases in a sequence of thought experiments to generate insights. The process starts by identifying a single customer and a single customer decision criterion (including how they evaluate solutions against the criterion).

A) **Who is the customer, and what is the single decision criterion?**

For example, one of the customers for e-commerce grocery shopping could be a working mother, and her single decision criterion is the freshness of perishables. We then brainstorm whether e-commerce grocery shopping could offer solutions that could improve the quality of perishables for the customers.

B) **Adding a Competitor and a Product or Service Solution to the Use Case**

After selecting a single customer and a single decision criterion, the next step is to describe a product or service solution. Firms can create value in two ways: reducing cost by improving operational efficiency (a supply-side improvement) or improving the customer experience to create more demand (a demand-side improvement). In the case of e-commerce grocery shopping, e-retailers can either improve their operational efficiency by reducing operational cost or improve customer experience with consistent and high-quality service. For example, in order to ensure the freshness of perishables, one possible solution for e-retailers could be offering fewer varieties of these goods such as meat and seafood, so that the turnover rate is higher and the freshness of the product is maintained. We then need to select a competitor and identify the sources of differentiation. For example, one e-retailer has many varieties, but its seafood is not so fresh; another e-retailer has limited variety, but its seafood is fresh. If the single criterion for the customer were freshness, the latter solution would prevail.
C) Add a Partner

The final step is to identify a potential partner in the value chain. For example, an e-retailer may work in partnership with reputable seafood suppliers to ensure that the quality of the seafood supplied is consistent and fresh all the time.

After completing the analysis above, we iterated the use cases by changing one feature at a time. In our case, we could change the single decision criterion from freshness of perishables to convenience of grocery shopping and determine how it would change the solutions for e-retailers. We iterated this exercise numerous times using different features before building another use case with different customer profiles.

This process produced four key insights that e-retailers can consider to identify the challenges faced by the e-commerce grocery and whether there are any opportunities for them to address these challenges. All insights are specific to the U.S. grocery retail market but could easily be generalized to other global markets.

4. Insight 1: Customers value the browsing experience in e-commerce grocery shopping

The browsing experience is one of the key factors that determines the success in e-commerce. It provides customers the ability to (i) compare prices across online stores; (ii) locate products within an online store; and (iii) clearly understand the exact product that a customer will receive (e.g., knowing the exact size of apples). In the case of standardized goods such as personal computers, it is very easy for customers to search and compare prices across different manufacturers (such as Dell, HP or Lenovo) or online retailers (such as Amazon, Walmart, and Best Buy), as the item is identical and likely comes from the same brand or manufacturer. As customers are not going to purchase personal computers very often, they care less about the browsing experience but
more about the pricing because they can easily compare the prices online. Therefore, some e-retailers for personal computers offer “price match” guarantees to discourage customers from switching to other online providers.

For e-commerce grocery shopping, customers purchase grocery items from multiple different categories such as fresh produce, beverages, dairy products, etc. Therefore, they find it difficult to compare prices and locate grocery items online due to the vast number of SKUs, brands, and manufacturers. In addition, customers also purchase groceries more regularly than a one-off personal computer. Therefore, customers will value a platform interface that is easy to use, allows them to locate items easily and know what they are ordering. Such a browsing experience reduces customers’ time looking through the grocery items on their laptop or smartphones.

We present two use cases below to illustrate the importance of browsing experience, i.e. having a simple yet convenient browsing platform.

1) Alex, an 18-year-old student, who frequently uses Amazon on his laptop or smartphone to purchase almost everything he needs, such as books, electronics, food etc., is moving to Cambridge to further his study at MIT. As the nearest grocery store takes a 15-minute walk, he decided to use the online grocery platform to purchase his grocery to save time. He can compare prices across different vendors for non-perishable products such as rice, canned food, snacks, and certain perishable products that are packaged and labeled such as milk, bread, and ice-cream. However, he found it difficult to compare prices for perishable products that are not packaged, such as fruits, vegetables, meat, and seafood. In addition, non-perishable and packaged products have more comprehensive descriptions than perishable products, i.e. he is very sure he is getting the same Kellogg’s Corn Flakes Breakfast Cereal (non-perishable products) but he cannot ascertain what size of oranges or apples (perishable products) he will receive when he orders online. He found
that Amazon's website is very confusing because it comprises Amazon Fresh, Prime Pantry, and Amazon Marketplace, all of which offer similar varieties of grocery (See Figure 2).

Figure 2. Kellogg's Corn Flakes Breakfast Cereal sold by Amazon

Sold by Amazon's Prime Pantry

Sold by Amazon's Fresh

Sold by different retailers in Amazon Marketplace

Source: Amazon websites
2) Angela, a working mother who is very busy during weekdays and does not have much experience using an online platform to order goods. She is trying out an e-retailer to determine whether it is more convenient to purchase grocery online. She is going back and forth browsing pages to find all her items and is very frustrated, as sometimes she could not find her items. She became more frustrated as she could not determine the differentiation of fresh produce, such as place of origin and size of products.

The use cases above raise an important question of “Why would a customer want to purchase his/her grocery online?” The perceived benefits could be convenience and time, or it could be lower cost. E-retailers need to ascertain which perceived benefits the customer will recognize. Our hypothesis is that customers value convenience and time when shopping grocery online, and are willing to pay more to enjoy the benefits. However, the browsing experience for e-commerce grocery shopping can be very different for perishable vs. non-perishable items. As illustrated above, it is very easy for a customer to compare non-perishable items such as standardized packaged foods, beverages, household and toiletries items, but it is very hard to compare non-standardized perishable items such as fresh produce and seafood. Therefore, we think that it is crucial for e-retailers to focus on the browsing experience for perishable products. By providing an easy and seamless platform with the exact or detailed description of perishable items, e-retailers can make customers more comfortable when they browse through online.

In addition, it is very easy to overlook the browsing experience for e-commerce grocery shopping, as there is not a single successful grocery e-retailer. E-retailers look to successful e-commerce companies such as Amazon when they design their websites and platforms because Amazon has demonstrated its ability to disrupt many traditional markets such as books, consumer electronics, and toys. We think that if an e-retailer were to follow Amazon’s platform, it could be making a mistake because the browsing experience for other product categories (such as books and consumer electronics) is very different from groceries, and online grocery shoppers want a more
intimate experience (such as clearer photos and descriptions). For instance, customers navigate between multiple categories when shopping for groceries, such as meat, fruits, and vegetables, unlike shopping for personal computers that are in one category.

If an e-retailer could understand the needs of customers and create a platform or website that is user-friendly, the e-retailer could differentiate itself, and the platform would become a strategic resource for the e-retailer. Customers would stick to the first platform that offers the most convenient browsing experience, even though competitors can copy the browsing experience. In addition, they would not want to experience the inconvenience of inputting personal information again (such as home address, phone number, and credit card details). Grocery shopping occurs almost once or twice a week, so customers would not be switching across providers, as he/she would need to learn about the new platform again.

Therefore, it is fundamental for an e-retailer to differentiate itself and get it right in the first place when designing the customers' browsing experience. However, the differentiation and stickiness of customers will not be sustainable as new entrants are more likely to lower prices to try to attract away customers, which e-retailers need to be wary about (Simester, Capturing Value: What Have We Learned From Observing Firms Attempts to Differentiate, 2016). Hence, it is crucial for e-retailers to maintain an excellent browsing experience.

5. **Insight 2: E-retailers should sacrifice variety to ensure freshness**

In e-commerce markets such as books and consumer electronics, most customers would prefer that e-retailers offer a wide variety of options. This is because they know that e-retailers have the ability to carry or stock a large number of SKUs (as these items do not deteriorate or decay) or create a marketplace that consolidates products from different vendors and providers across the
country, region or even the world. The advancement of technology and logistics capability have also allowed them to provide a wider selection and faster availability than a single online retail store. However, for e-commerce grocery market, while customers would also prefer and want to choose from a wide variety of the grocery products, they realize that this may not always be possible because some grocery items are not shelf stable, unlike books or consumer electronics that have no expiry date. In addition, customers have begun to demand fresher and less processed foods to uphold a healthier lifestyle and this creates both opportunities and challenges for e-retailers. E-retailers can make data-driven decisions when determining the assortment of these products; however, they also need to consider the shorter shelf life of these products.

Grocery e-retailers have tried their best to offer as much variety as possible, but they have to balance it with the risk that some items, especially perishable products (such as fruits, vegetables, meat, and seafood), have a very short shelf life and may deteriorate or become spoiled quicker. And with the slower growth of e-commerce grocery market in the last decade and hence lower inventory turnover, full-fledged e-retailers such as Amazon have been facing challenges in ensuring that the perishable products delivered to their customers are fresh and in the best condition.

We present two use cases below to illustrate the tradeoff between variety and freshness.

1) Daniel used to purchase his groceries from supermarkets when he was living outside of the city and had a car. But after he moved to Boston for a consulting job, he had to sell his car due to the high parking fee and no longer had the luxury of time to go to physical stores to purchase his groceries. He started ordering groceries online and prefers an e-retailer that offers a wide variety of products for him to choose from, especially on non-perishable products. Even if the retailer does not carry certain brands or manufacturers that he is looking for, he could easily order them from other e-retailers. As for perishable products
such as fruit, he only orders items that he knew have high turnover rates, such as oranges, apples, and bananas, but seldom or rarely orders raspberries, blackberries or peaches, because he has had negative experiences of receiving those fruits that are not fresh. Even though the e-retailer offers a wide variety of choices for fruits, the items ordered were not fresh enough compared to his self-picks at the closest offline store.

2) Jane visits Trader Joe’s in Boston every week to buy her groceries. She also has negative experience of buying fruits that are not fresh from the store. However, as she visits the store every week, she finds that the berries look very fresh on the shelf and buys them despite her previous negative experience. Therefore, the cost of a mistake is higher for online stores compared to offline stores.

As illustrated in the use cases above, customers’ main decision criterion could be variety or freshness. For non-perishable items, customers’ main decision criterion is variety as customers want to have the luxury of choosing from different brands and manufacturers and expect e-retailers to either carry these products or create a marketplace for them. In this case, e-retailers such as Amazon would seem to have competitive advantages as they can create a marketplace that allows other distributors or vendors to sell via its platform and provide more choices to the customers. Therefore, we believe it would be very hard for e-retailers to differentiate themselves when selling non-perishable products.

On the other hand, for perishable products, we found that customers’ main decision criterion is not variety, but the freshness of the products. This is because if perishable items are not fresh, customers have to buy again at other e-retailers or at offline stores. E-retailers need to take into consideration the turnover of the perishable products and determine the number of varieties to stock so that they can maintain the freshness of these products. This will also help them to reduce wastage, as higher turnover means that fewer products decay before being sold. Our presumption
is that they will sacrifice the variety of perishable products so that they can have a higher turnover of the stock and maintain the freshness of these products.

In order to retain existing customers, it is crucial for e-retailers to differentiate themselves by focusing on the freshness of the perishable products. Customers who do not care about the freshness of the perishable products will end up buying from any e-retailers that offer the lowest price. However, the reality is most customers care about freshness, especially on perishable products. A successful e-retailer needs to consider how best to deliver fresh products to customers, i.e. to pick the freshest products and maintain the freshness of the products during the delivery so that it will be differentiated from other e-retailers.

6. Insight 3: Customers need to infer “what you see online is what you get”

In e-commerce grocery shopping, customers cannot predetermine or easily trust the quality of the product, as they cannot view, touch or choose the exact item for delivery. As there is no physical touching and viewing of products when ordering groceries online, especially for perishable foods (i.e. fresh fruits, vegetables, meat, fish), customers cannot pre-screen the goods in advance and may end up being dissatisfied with the delivered items. A general distrust toward the products sold by e-retailers is a huge barrier to purchasing groceries online. This is especially true for perishable food whose origin and growth conditions are difficult to determine.

Most of us who have tried e-commerce grocery shopping have had negative experiences such as receiving a product that looks very different from what was advertised on the website. E-retailers face more challenges in selling perishables vs. non-perishables, as the former is harder to standardize and control in terms of product characteristics and quality. One can confidently assume a can of Pringles Original Chips looks and tastes the same compared to any other can
of Pringles Original Chips sold in an offline store. However, one cannot confidently assume the specifications and sweetness of strawberries ordered online are the exact same product as those sold in offline stores. Therefore, perishable food has grown slowly compared to other categories in e-commerce grocery.

The key decision criteria for customers to determine whether to buy perishable food online depends upon how confident they are about food quality (Melton, 2017). However, whether perishable food delivered is of good quality is generally subjective. For example, if a person is shopping in a store, this individual may want to buy three apples of an exact size, shape, color, and type; similarly, she may have a particular preferred thickness, marbling, size, color, and sourcing of a steak. Thus, it is difficult for an unknown picker to meet her specific requirements, or for her to assess a product's characteristics from photos on websites.

With this in mind, the process to convince the customers as to the product quality needs to be more structured and organized by leveraging various tools in digital form and supplier partnerships. The actual quality of products is very difficult to communicate; however, e-retailers can maximize the use of images, descriptions, detailed information on nutrition and sourcing, and sizing options. These are all valuable trust builders for an e-retailer to create credibility around perishable items.

We believe e-retailers can use branding to send “consistent” signals around food quality and provide an opportunity to help customers to infer what they see on websites is what they will get. This is especially true for a first-time user who does not have any experience with the product. For example, Amazon Fresh, which sources strawberries from multiple suppliers, advertises that the strawberries come from the U.S., Chile or Mexico (See Figure 3). This creates uncertainty to the customers in terms of product quality and product origin. If Amazon Fresh could partner with more prominent suppliers such as Driscoll’s, customers would be able to infer that the
strawberries are of good quality due to the association with the Driscoll’s branding. However, there is a risk that Driscoll will own the customer in the long term and Amazon will not be able to sell strawberries without this relationship. Amazon could develop its own private brand such as “Amazon Strawberries” but this would require time and massive investment.

Figure 3. Non-branded strawberries sold in Amazon Fresh

About the product
- Growth in the United States, Chile, or Mexico
- Growth in the United States, Mexico

Source: Website of Amazon Fresh

7. **Insight 4: Categorize deliveries based on product types and customer locations**

According to research by Foley Retail Consulting, full-fledged e-retailers (also known as “Pure Players” in the research) operate at a very shallow margin (Foley Retail Consulting, 2018), as the grocery industry is more of a product-driven business than a service-driven business (See Table 1).
Table 1: High distribution cost in e-commerce grocery

<table>
<thead>
<tr>
<th>P&amp;L comparison grocery brick-and-mortar vs. pure player</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Revenue</td>
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<td>EBIT</td>
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</table>

Source: Extracted from Foley Retail Consulting’s research (based on industry averages), indicative calculation

Full-fledged e-retailers incur a considerably higher distribution cost compared to brick-and-mortar (Foley Retail Consulting, 2018) due to the high cost associated with the delivery services. E-commerce grocery players have been trying to increase the penetration of e-commerce grocery and convert more customers from the brick-and-mortar stores. As customers expect “Free Delivery” in non-grocery e-commerce (such as in books and consumer electronics), e-retailers may have to also honor it in e-commerce grocery. Even though they have set a minimum value per order for customers to be entitled to enjoy the “Free Delivery”, the question remains whether the e-commerce grocery can continue to operate sustainably with such thin margins (Industry average EBIT of 0.5% vs. 4% for brick-and-mortar players).

The current delivery mechanism is generally identical for all product types (perishables vs. non-perishables) and customer locations (city vs. outskirts). This is a burdensome structure for e-retailers as perishables (vs. non-perishables) and close to the city (vs. outskirts) require a different mechanism to deliver the goods in a convenient and profitable way. From the customers’ point of view, they usually need to be present in-person to receive the goods from the deliveryman, especially for perishable products. The perishable items in general (including packaged...
perishables that may melt easily such as ice cream) need to be stored immediately in the refrigerator to maintain their freshness. Fruits or vegetables will lose their wateriness and meat or fresh seafood will rot if left outside in hot and humid weather.

Often, different households have a customized, preferred time for their grocery deliveries, making it hard for the e-retailer to compile orders and serve them on one trip to the neighborhood/village. The current market practice is very uneconomical as it allows and induces customers to select their desired time/day and location to receive the goods. There are many instances where the e-retailer is losing money every time its truck delivers grocery items to an area far from the cities. For example, a couple who lives in one of the small villages in Rockport may only require small quantities of groceries and order only a few items that just meet the minimum requirement of Amazon Prime Fresh for “Free Delivery” ($50 per purchase). If Amazon did not combine their order with other families that live close to that area, there is a high likelihood that each of these trips generate a loss for the company.

For perishables, e-retailers should thus limit the delivery locations with close proximity to the city, where the population is high and has a higher chance to aggregate the deliveries with customers’ desired time and day into a single truck. By deliberately doing so, e-retailers could operate with fewer trucks, and each truck would not be required to have refrigerated containers (which costs 20~30% more compared to dry containers). Customers living in the outskirts areas may start to churn as other smaller local-based e-retailers would be able to serve them better with fresher products and quicker delivery.

We suggest prioritizing the delivery operations based on Table 2. The criteria were based upon the easiness of maintaining product quality and the cost of each delivery.
Table 2: Prioritization of delivery operations

<table>
<thead>
<tr>
<th>Category</th>
<th>Close to city</th>
<th>Outskirts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perishables</td>
<td>1st priority</td>
<td>Do not operate</td>
</tr>
<tr>
<td>Non-Perishables</td>
<td>2nd priority</td>
<td>3rd priority</td>
</tr>
</tbody>
</table>

Source: Internal analysis

In terms of the priority, the clear strategic choice would be to focus on the areas closer to the city, where the population density is high, which makes more sense and reduces the likelihood of operating a half-loaded truck. By doing so, more investments could be dedicated to building and developing a better relationship with customers, especially those who are high-end, premium users living in the cities. The perishable deliveries should no longer be a simple “drop-off” of goods but a “dedicated” service. We believe such kind of relationship-based deliveries work best for perishables as the items are more subjective to judge in terms of quality. We think that each interaction between the deliveryman and the customer should not be wasted but transformed into a long-term relationship-based credit that locks in customers to a specific e-retailer. This asset is hard to be copied or imitated by competitors, as relationships require significant time to invest and build. Retaining the deliverymen will have to be a top priority for e-retailers, otherwise, customers’ stickiness will break and it is hard to build a new one.

By consciously making a choice of which categories to focus on (perishables vs. non-perishables) and which location to serve (close to the city vs. outskirts), e-retailers would be able to increase the overall profitability and customer satisfaction of recurrent, frequent users. The e-retailers can increase customers’ loyalty and switching cost by understanding in depth a particular household’s needs and preferences in perishables based on a combination of accumulated customer data and deliverymen’s qualitative observations. After several rounds of deliveries and feedback, e-retailers will ultimately become irreplaceable to these customers and less impacted by competitive threats.
The future of grocery retail will shift from how to acquire “more share of stores” to “more share of households”. Until the emergence of robots and drones that could potentially lower the delivery cost to every customer and every location, we recommend that e-retailers stay focused and prioritize the deliveries based on product types and locations, and avoid those that may not be financially and operationally viable and sustainable in the longer run.

8. Summary of insights

We have summarized the four insights discussed earlier in the table below.

Table 3: Summary of insights

<table>
<thead>
<tr>
<th>Insight</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Customers value the browsing experience in e-commerce grocery shopping</td>
</tr>
<tr>
<td>2</td>
<td>E-retailers should sacrifice variety to ensure freshness</td>
</tr>
<tr>
<td>3</td>
<td>Customers need to infer “what you see is what you get”</td>
</tr>
</tbody>
</table>
9. Recommendations

Based on the four insights in Table 3, we can clearly see that the key challenge faced by e-retailers in growing the e-commerce grocery business centers on “Perishable Products”. Therefore, we recommend that to succeed in the e-commerce grocery market in the next three to five years, e-retailers have to differentiate themselves by having the ability to effectively and efficiently sell and deliver perishable products.

This means that they should focus more on: (i) how to enhance the browsing experience when customers shop online for perishables; (ii) how many varieties of perishables to offer to ensure the freshness of the products; (iii) how to standardize the branding of perishables; and (iv) how best to deliver perishables to customers.

As browsing experience, variety (selection), branding, and delivery are distinct for “perishables” against “non-perishables”, e-retailers should focus on the “perishables” segment to increase customer adoption in e-commerce grocery and prevent churn. If an e-retailer could attract customers to use its e-commerce platform to shop for perishables, the same customers would also use its platform to shop for non-perishables, as they have built trust and loyalty in the platform. However, if an e-retailer focuses only on non-perishables, there is a low likelihood that the same customers will use its platform to shop for perishables and the customer can switch to a competing platform with lower prices.
In the following sections, we provide some suggestions on how to address the challenges for perishables in terms of browsing experience, variety, branding, and delivery. We also discuss whether Amazon would be able to excel in these areas. Our hypothesis is that Amazon would not have the capability to effectively and efficiently sell and deliver perishables due to its inherent focus on non-perishables such as packaged food and beverages. They would be better off partnering with smaller full-fledged e-retailers for “perishables”. On the other hand, the smaller full-fledged e-retailers who focus on perishables could partner with Amazon on non-perishables.

(i) Suggestions to enhance the browsing experience for perishables

E-retailers need to avoid changing the platform for perishables too often, as this will reduce the switching cost to other platforms. In addition, we recommend not having too many items listed on different pages, as customers will find it hard to compare and identify each and every product offered. The website should have a simple and well-structured navigation path for shoppers to select and de-select the offerings from the beginning of the browsing experience. For example, if a customer is looking for a Kosher, organic, locally grown meat, the site needs to let the customer set his criteria from the beginning. This shortens browsing time as it prevents the customer from clicking on each item and reading the information separately. These suggestions should also be consistently applied not only to the desktop platform but also to the mobile platform as more and more users are ordering from smartphones, e.g., ordering while commuting from work. It would be challenging for Amazon to succeed in this because it would need to standardize its grocery-browsing platform with its other segments such as books and consumer electronics, which require different browsing experiences.

(ii) Suggestions on how many varieties of perishables to offer

E-retailers should decide how many varieties of perishables to offer by taking into consideration their turnover. They should focus on items that have higher turnover rates so that they can ensure
the freshness of the products. E-retailers can form local partnerships with farmers and fisheries to directly source fresh perishables. It is important not to have too many suppliers as it would increase the operational complexity and make it harder to control the freshness and quality. At the same time, having a few suppliers will diversify the risk of strong suppliers’ bargaining power. Even though Amazon could also form local partnerships, this practice opposes its operating principle of centralized sourcing to obtain economies of scale.

(iii) Suggestions on how to standardize the branding for perishables

We suggest collaborating with external local brands (especially the local artisan/gourmet brands that are difficult to buy from other websites or brick-and-mortars) rather than creating private labeled brands. As these brands become the point of customer reference, the bargaining power may shift and lead suppliers to capture most of the value created. E-retailers should frequently introduce new brands so that they can slowly phase out the older ones and balance their negotiation power. The entire interface with customers should be transformed in a way to appeal to the brand credibility of high-quality foods — e.g., styled food photos and simple yet informative description of foods, including nutritional panels. There is no better way to convince customers other than other customers’ feedback to build branding around product. Facilitating customer reviews by incentivizing comments and compensating for any dissatisfaction cases could potentially drive consistent and standardized experiences for both products and services. This strategy is something that perhaps Amazon would not necessarily want to focus on, as its interest is to drive its private labeled brand from Whole Foods to achieve better profitability.

(iv) Suggestions on how best to deliver perishables to customers

E-retailers should operate only in high population density areas. In addition, they should focus on customer segments who are the most sensitive to the delicacy of perishables and who demand the most convenient shopping experience due to their busy schedules (e.g., working mothers). E-
retailers should not play in customer segments such as mass markets or small basket customers (such as students). The delivery of perishables should be designed and customized in a way that attracts customers to pay for the additional delivery service (e.g., Night time or weekend delivery). As each delivery trip is costly, we propose not to deliver beyond the designated regions as this may lead to negative gross margins.

E-retailers can also have a regularly scheduled delivery system where they can automatically suggest and ask for permission to deliver the same amount of perishable goods to customers (e.g., delivery every week or every two weeks for items such as milk, bread, eggs, etc.). These items need to be replenished frequently; hence, customers would not want to order a large quantity at once as the food have a short shelf life.

E-retailers could form partnerships with local grocers or farmers so that they could deliver the perishables to the customers sooner, which means the perishables will be fresher and in better condition. From Amazon’s point of view, in order to penetrate the perishables market, they could also form local partnerships, as it is very inefficient and costly to deliver perishable products directly from their fulfillment center. However, these local partnerships will prevent Amazon from scaling in the perishable grocery market and are in conflict with its mission of selling everything that any customer wants online.

**Target customer segments**

Based on the suggestions above, we think that e-retailers could focus on the target customer segments below:

1) Higher-end, premium market: E-retailers can focus on higher-end, premium market as gross margins for this segment are higher and they can differentiate themselves from other e-retailers that target the mass market. However, e-retailers need to ensure that the quality
of their products and services are always consistent and exceptional, as the customers in this market segment expect high quality in their products and services.

2) Single working people and working mothers who can afford to pay extra for convenience:
They are more willing to shop through e-commerce grocery platforms due to their time constraints and are willing to spend more to use the platform. However, e-retailers should deliver only in the high-density areas so that they can enjoy economies of scale.

We do not recommend e-retailers focus on mass markets as the margins are very thin and many competitors fight for a piece of the pie. An e-retailer needs to differentiate itself from the others in terms of service and product quality, instead of competing for low prices.

In addition, we think that e-retailers can also consider enhancing customers’ experiences by leveraging the data compiled from their order histories to offer customized/personalized promotions to stimulate interest and impulse purchases. This strategy will clearly distinguish themselves from other e-retailers and brick-and-mortar stores, as it is very hard to personalize coupons to the mass market.

In sum, we think that there are plenty of opportunities for full-fledged e-retailers to grow the e-commerce grocery market in the next three to five years. In order to succeed in the e-commerce grocery market, an e-retailer needs to effectively and efficiently sell perishable products by differentiating itself in terms of browsing experience, variety, branding and delivery. It also needs to focus on certain target customer segments such as higher-end, premium market, single working people and working mothers.
REFERENCES


