

Available online @ <https://jjem.jnnce.ac.in>
<https://www.doi.org/10.37314/JJEM.2022.060103>
Indexed in International Scientific Indexing (ISI)
Impact factor: 1.395 for 2021-22
Published on: 31 January 2022

Design Thinking Approach to manage Home Inventory

Pankaj S. Ardak

Department of Mechanical Engineering,

Dr.Rajendra Gode Institute of Technology and Research, Amravati.

pankajardak@gmail.com

Abstract

In routine life lot of items are required to fulfill daily needs. Since from early morning to late night, human being requires lot of consumables. In a family where both are working don't have a time to maintain some of the consumables like grains, vegetables and fruits also to procure them. Most of the consumables deteriorates with respect to time and lose its quality due to deterioration. To maintain the quality of stock of grains required special holding arrangements which contribute to cost. Here attempt has been made to suggest a system which can deliver grocery items to peoples before demand at their places. Design thinking approach has been used to solve the problem. The concept suggested can increase the productivity of the supplier and can have good business opportunities. As customers don't need to visit grocery store so social distancing can be made effectively in situation like COVID-19.

Key words: *Before Demand, Business opportunities ,COVID-19, Grocery items, Productivity*

1. Introduction

It is possible to manage without good clothes and with some technological problems. But it is not possible to spend a single day without food. As food is the basic need of the peoples so the grocery market always has a demand. In urban and rural areas daily need of the grocery items get fulfilled by local kirana shops and malls like D Mart, Big Bazar and Wall Mart[1]. To procure grocery items from such shops and mall, peoples has to spend more time for billing rather than purchasing. In today's scenario as cost of living goes on increasing day by day, every family required multiple income sources. For that all key members of family are doing jobs at various locations. The number of nuclear families where both are working increasing day by day [2]. This scenario is most common in metros and small towns also. Most of the people has to travel more for jobs, can't have time even to spent with their loving ones. After reaching

home late by this long traveling if someone has to wait for billing in large queue, how will be the mental condition of that person. This cannot be imagined. Such situations lead to the need for online grocery. However, if same demand of grocery gets satisfied by providing advantage of home delivery and relaxation from standing in long billing queues can save time and physical exertion of the peoples. With advent of technology and urbanization, it can be possible very easily. Currently, most of the online grocery stores are located in Metro and Tier-I cities, but with increasing incomes and urbanization, they are slowly expanding to Tier-II cities as well [3]. All this online grocery stores works on demand deliveries. Big giants like Gofers and Big Basket are already in market doing online grocery business. Small kirana stores have a great impact of these big giants[4]. Our aim in this study is to save the business and increase the productivity of these small kirana stores. Also suggests the delivery of items before demand/stock out of the home

grocery inventory. By delivering items before demand, customer never faces the problem of stock out and also don't care about to spend time on purchase of grocery items. Here after literature review don't have any literature related to this concept. Design thinking approach has been used to define the problem and also to suggest solution. Design thinking is a used centered way to solved wicked problems. After discussing with families in which both are working and travel for office it is noticed that if grocery items are supplied to user before demand then user may definitely satisfied from this service.

2. Methodology and Approach

Here design thinking approach is used to define the problem and to provide solution. Here let Pradeep 40 years old residing in metro city of Maharashtra, has to travel one and half hour to reach the office from home and same to return home from office, is selected as a persona [7]. Customer journey map has been generated for this couple. Before, during and after situation are taken into consideration for customer journey map. Here activity is to purchase grocery items from store after reaching home from office.

Before:-

1. Get ready to go to shop.
2. Collect bags and list of items
3. Travel to reach shop

During:-

1. Pick items from racks
2. Maintain proper distance in pandemic situation.
3. Stand in billing queue for billing

After:-

1. Carry all bags up to vehicle
2. Travel to reach home
3. Drop down all bags in home

As already persona has tired by traveling from office to home and whole day working in office, he doesn't like to go to market. But

grocery items are must for daily routine so any how he has to go to market for purchase. Here problem is after hectic schedule of office working and travelling persona is not interested to go to shop. So a system which takes care of inventory and delivery of grocery items can be beneficial to persona.

2.1 Concept

To delivery of the items before demand, it is important to know the monthly demands of the various families. So here first of all we will have to collect the data of 100 families in which both are working and have to spend time on travelling.

During survey we can collect the information like size of family, festival celebration, possibilities of guest arrival, daily and monthly demand of various items, mode of payment, etc. and then analyze the same. The information can be collect through the questionnaires. After analyzing all information collected from the customer we will come to know that how many families are interested in this concept. From this information local shop keeper can have the idea about the monthly usage of different grocery items. That's why shop keeper can maintain the inventory according to the demand of the customer. Here the concept of Vendor Managed Inventory has to be used. In a vendor managed inventory (VMI) concept, the vendor takes responsibility for managing the inventory of the customer without the need of orders from the customer side to be placed.[5] Therefore, the vendor can optimize capacity planning, while the customer has to improve forecast accuracy. The successful implementation of the VMI completely depends upon proper communication between the customer, vendor and suppliers. By implementation of this system family members can save lot of time for billing and can spend with loving ones and hence can improve the productivity of families.

2.2 Business Model

In present scenario local kirana shop keepers has to maintain large stock of grocery items. To purchase these large stocks, need sufficient floor space and hence heavy investment. Most of the items remain as it is for long period of time waiting for sale and hence deteriorates with respect to time. This happens as shopkeepers don't have control on inventory. If they think for low level of inventory then again a fear of customer loss. The reason for this is uncertainty in demand. Again most of customers purchase a stock of nearly one month as they don't have time to spend on this due to their busy schedule and travelling. To store one month stock again need special arrangement to maintain inventory.

The concept suggested here can give a proper solution to these problems. After survey of families need for one month, shopkeeper can plan his inventory accordingly. After proper survey complete information will be given to software. And software will give reminder to shopkeeper about the requirement of customer. As per requirement shopkeeper can supply the order. The mechanism will work as follows.

Let Customer 'A' has provided his complete family requirement of grocery items to surveyor. Suppose he needs 5kg of sugar and 5kg of edible oil per month. Before implementation of this concept he purchases complete 5kg of sugar and oil at once in a month. But after being the part of this module, at the end of month shopkeeper will deliver 2.5 kg of sugar and oil to him. This will be consumed in two week by user. Again software will give information to shopkeeper that he has to supply remaining quantity to customer 'A'. So shopkeeper will deliver. Because of this what happens shopkeeper has no need to maintain large stock as he has the complete idea of demand. As he has complete data regarding when to deliver and what to deliver so he can order that much quantity from whole seller only. This saves his investment on floor space and procurement of large stock. Also customer will not require special arrangement to store this inventory. As

delivery of items is at doorstep so customer can save the time. If shopkeeper has number of customer from a colony then he has no problem to deliver the item to all with minimum delivery charges. If we see delivery system of Swiggy or Zomato, they charge Rs15=00 for each delivery and customer pays. Here supply of daily needs items to many at once is there so surely customer can pay. They have to pay against their saving of valuable time. If any customer needs a special item or regular items in between then can place order online. Means both, on demand and before demand delivery system can be possible with concept.

2.2.1 Advantages

After implementation of this concept, following advantages will be to shopkeeper and customer.

- Shopkeeper can plan for his inventory. So no need to invest on large stock.
- Needs less floor space area.
- Large saving on inventory holding cost.
- Less spoilage and wastage of consumables items.
- Customer can save money as purchase is in small quantities.
- No need of special storing and maintaining of grocery items in house.
- Can save time on purchase and billing.
- Can give employment to peoples for home delivery and packaging.

3. Conclusion

Here attempt has been made to save the business of small kirana shop and also increase their productive. Productivity of the family members can be increased by saving the time of the family members. Such concept avoid

large gathering of the peoples and can be beneficial in situation like COVID-19. Also as shop keeper is well aware about his supply so can save inventory holding cost.

References

1. KPMG Report, Indian Retail – The next growth Story, 2014
2. BCG Report, Retail Transformation- Changing your Performance Trajectory, 2016
3. EY Report, Pulse of Indian Retail Market, 2014.
4. Michael E. Porter, The Five Competitive Forces That Shape Strategy, 1979.
5. Grocery Wars, Taslima Khan, Goutam Das, Nevin John, 2015
6. YourStory, Hyper Funded Pepper Tap to shut down operations this month, 2016, <https://yourstory.com/2016/04/peppertap-shutdown/>
7. Danah Henriksen, Rohit Mehta, and Swati Meh, Design Thinking Gives STEAM to Teaching: A Framework That Breaks Disciplinary Boundaries, Steam Education, Springer Nature Switzerland AG 2019, pp. 57-78.