Retail Management
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Lecture – 27
Retail Operations Management - 2

Hello everybody, welcome to this NPTEL Swayam course on retail management. This is professor, Swagato Chatterjee from VGSOM, IIT Kharagpur who is taking this course for you. We will be discussing retail operations management in this particular session. I talked about operational guidelines, various operational decisions that we have to think about and operational blueprint in the last video. In this particular session, we will discuss about each of these decisions and how to solve those decisions one by one.

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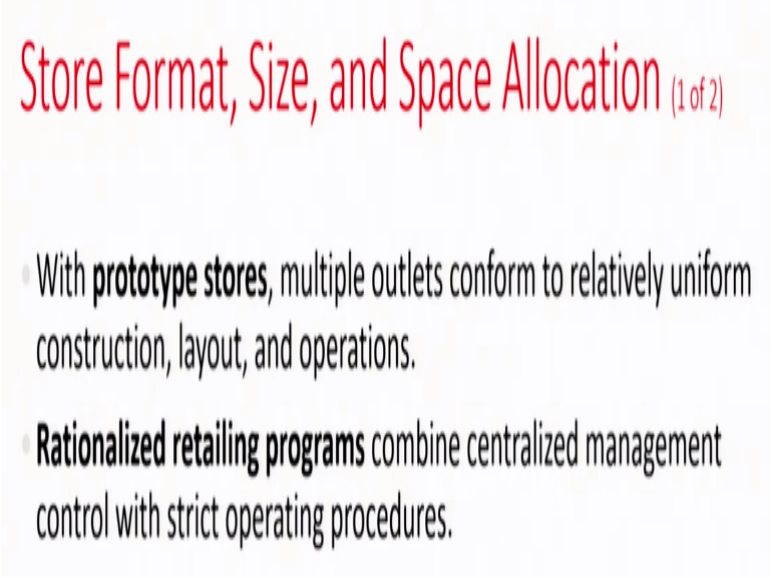

So, one of the decisions that we take is basically the store format, size and space allocation. So, what should be your format of this store? So, we talked about different formats of the store in the earlier classes. With prototype stores, multiple outlets conform to relatively uniform construction layout and operations. So, what we generally do, let us say we have decided that we will go with this kind of a size, this kind of space allocation and the format will be like that.

For example, let us say first I choose whether I will go for a food or general merchandise, in the general merchandise whether I will become a generic mass merchandise or niche or what kind of format. Once I have created the format and the size, whether it should be 1000 square

feet, 10,000 square feet, 20,000 square feet, when I have decided that I create a sample store. For example, let us say if I am a chai point, let us talk about food-based retail I am chai point.

So, I will create chai point will be how much, let us say 500 to 1000 square feet. So, they will create a store which is a sample store, which is a prototype store. Now, when once the prototype store is made by whoever taking the franchisee of this particular chai point kind of business will look at the prototype store or the design that is written there and they will try to create their own store whatever space they have.

There might be some here and there, there will be some differences, but overall, they want to probably mimic that prototype store. So, multiple outlets conform, they follow, to relatively uniform construction, layout and operations then we also go for rationalized retailing programs, which combine centralized management control with strict operational procedures. So, this is another way of dealing with the same problems, you to go for rationalized retailing program.

So, the whole retailing activity; you train every store employees sometimes separately, sometime in mixed way, that some employers come from there, some employees come from here, they get the training together. While they are getting the training, they also learn from each other how to actually implement the operational procedure that has been suggested to them and they may go back and then implement those operational procedures. So, that is one way of dealing this problem.

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Another approach is with the top-down space management approach. So, there are two types of space management approach that I called about. One is top down, one is bottom up. Wheat is top-down approach? In a top-down approach a retailer starts with its total available store space. He knows that how much store space is available, then out of this much store space how much I can give to food.

Different categories to food, let us say to general merchandise, to FMCG products, to home care products, how much I should distribute. So, he does this distribution and then works on product layouts. Now that I know that out of my store space 20% will go to food or 30% will go to food. Food should be there at the back or should be there at the front, so, this is a very important decision.

See most of the times you will see if you think about your own purchases at your home, you will see that food purchase is something that you do most frequently. It can be cook food, it can uncooked food, it can be grains, it can be vegetables, but this is something for which you go to the market most frequent. FMCG, homecare products you can probably do monthly purchases together as well. If you plan properly, you can do a monthly purchase together.

Then there can be some small items, which can be bought in a convenience basis. But most of the visits to the retail store will happen because of the food. So, food are the crowd pullers. Now if I know food is the crowd puller, where will I put? Will I want to make sure that the crowd comes inside the retail store, buys the food items and goes away, then they are not even seeing what are the things that are there in the retail store.

So, what I will do is I will put the food items at the back of the retail store. You will see let is say any store that will go, let us say Spencer or Big Bazaar. Big Bazaar, there will be an entry. Inside the entry there will be lots of apparel and this and that high margin products and then food will be in the second floor or third floor because food is lower margin in general than these items and those are also crowd pullers, you will automatically buy them.

Because you purchase a lot of food items, you have to basically go to this retail store and buy them in bulk and look for discounts and etc. So, you generally go to the top floor. So while going to the top floor, I will make sure that you move around the retail store as much as

possible so that you can look at different kinds of products that are available inside the retail store and purchase them. So that is why the second important job.

Once you have decided that how much I will allocate to whom and that allocation will also depend on the function of as I told, sales is a function of shelf space and shelf location. Now, once you have decided this, you can optimize this as well. But remember, we sometimes generally do not try to only focus on sales, we will also consider the profit maximization technique. So, this location and shelf space, this allocation is often an optimization problem with certain constraints in it.

So, you can say that first basic decision is that which floor will be allocated to which kind of product. Then within that floor, how much has to be allocated to the dairy items in the food case, how much to be the grains, how much will go to vegetable, how much to bakery. Then within the bakery, how much. So, these are multiple level of optimization problems, sometimes these are done together, sometimes these are done separately.

So, these kind of optimization problems are there to be solved and this is not exactly and that is why basically retail is not only a marketing problem. See, I am generally a marketing professor, this particular course was taught from a marketing angle, but retail is not only a marketing problem in general, it is a mixture of marketing and operations problem. There are so many operations, operations issues that comes into the picture in the day-to-day operations which can be considered as marketing, which can be considered as operation.

So, ultimately, both are profit focused. Its major focus is how to improve my profit and there probably both types of studies will come together in play. The next approach is bottom-up space management approach which begins planning at the individual product level. So, you do this shelf space analysis for each of this product and then you choose that which are the top most profitable products that I can keep and then you go to the category, then to the store and overall company level.

So, space allocation you can do the top down or bottom up, which one is better. So, let us say if you have lots of choices in terms of which product to keep and which product not to keep and your product have lots of margin, majorly your products are of higher margin, you

probably go for a bottom-up approach because you will focus on products profitability then and you will try to allocate product based on the profitability.

You will not focus on the category then. I have taken a retail strategy where the retail should look like this, you do not focus on that or you focus on that all products comes under the broad domain of my retail, now there is no crowd puller let us say, all the products are margin based products, higher margin products. So, if there is no prominent crowd puller, I will focus on each customer each products margin.

Whichever product gives me higher margin, I will allocate more space to him. But depending on what kind of company you are, you can either take a top-down approach or a bottom-up space management approach.

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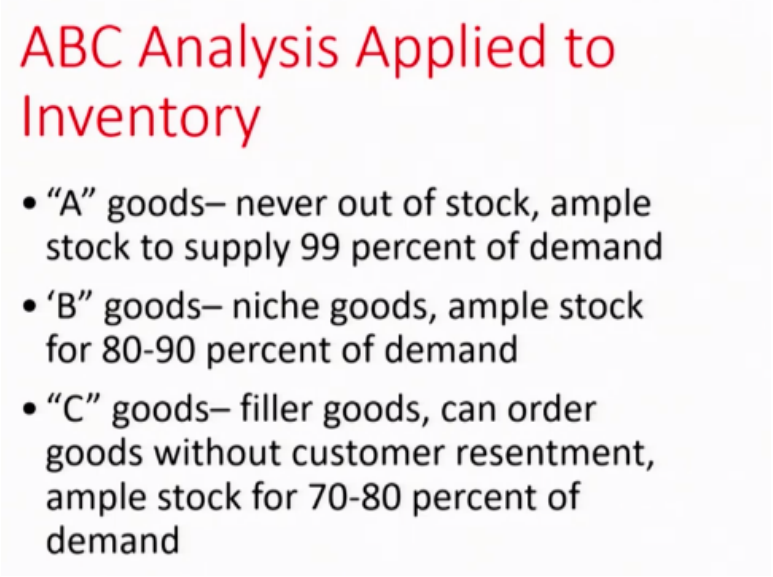

Next important decision is the inventory decision. So, inventory decision is basically related to whether you have enough stocks when the demand is there. So, when the demand is there, if you want to have enough stock, the first job you have to do is a demand estimation. You have to estimate or predict the demand that is coming up in 3 days, 4 days ahead. Why 3 days, 4 days, 10 days ahead because if you give an order today, it will take some time to reach your retail store or your inventory.

So, form the order till the product comes to your space, shelf space called basically the lead time. You have to think about this lead time and you have to predict the demand which is going to happen after the end of the lead time. So, there are different kinds of products where

the demands, for some products the demand is very steady, for some product the demand fluctuates a lot. So, depending on these kind of product characteristics, retailers divide the products into A goods, B goods and C goods.

These are very prominent marketing operations management activity. It is not only done in retail, it is also done in let us say any manufacturing process, anywhere operations is required. Let us say in the hospitals, in banks these are the stocks which are implemented. What is the A good? A good is such kind of products where you cannot allow stockout. Let us say the products which is most frequently bought or most frequently used in a manufacturing setup.

So, you cannot allow stockout for that because that is the item for which people will come. If you cannot provide that item then and there, then the people will go to another retail store and if people go to another retail store you not only lose customer for this current transaction, oftentimes they might probably prefer these A goods in some other retail store and they will start going to that retail store leaving your retail store for a very long time.

So, you not only lose a customer for one transaction, you lose a customer for multiple such transactions. So, you have to try to make sure that this does not happen for you. So that is why never stock out, never out of stock is something that you try to ensure for A goods. How do you do that? You have ample stock to supply 99% of the demand. The demand may fluctuate, demand may go up or go down, but you have to keep enough product in your stock such that 99% of the demand gets fulfilled.

Then comes the B goods. So, in a retail setup, let us say A goods will be the grocery items, basic let us say if I talk about the huge, I would say big stores like Spencer or Big Bazaar, the grains, basic vegetables, some basic milk like that you buy Amul milk or something like that, which is basic which is most consumed milk you have to keep that. People also go there to buy let us say certain soap or shampoo or certain basic FMCG products, which are most sold.

You have to find out those products which are highly frequently sold and who are the crowd pullers, in that particular retail store and you have to keep them. Next is B goods which are niche goods. So, niche goods mean they are not basically the products for which customer comes to retail store. But these are the products which are very important, they have very

high margin and the availability of these products basically differentiate your retail store with the normal Mom and Pop retail store or other retail stores.

So, these are niche products. The availability of very prominent let us say if I talk about vegetables that very high-class vegetables which is generally not being sold in a normal vegetable shop or let us say some high-end FMCG products or high-end food products, very organic products, so which are niche, which differentiates yourself from other stores is something that you should have. For example, in the corners of Spencer if you know that they have a liquor shop.

So, even different places this liquor shop is basically a differentiator. Why would you get in the grocery store? In India in a grocery store having a liquor store is not very common, but they have that, even irrespective of the size of that particular Spencer shop, even big or small they have a liquor store. So that is a niche store, speciality store inside a retail store becomes niche and that attracts lots of customers just for that particular purpose.

And then you have to make sure that those are also there at least 80 to 90% time. Then there are filler goods, which are neither the most prominent attractive goods, not also the niche goods but existence of some amounts of products in this product categories makes you a complete retail store. So, filler goods you can order goods with customer resentment, ample stock for 70-80% of demand should be there.

So, slowly as you go down from A to B to C, your stock requirement comes down, but you see that even then the lowest one is 70%. So, at least 70% of the demand stock should be there, so, that is called a buffer stock. So, that much stock should also always be there irrespective of which kind of product you are.

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Product Proliferation

Retail Chain	Average SKUs per unit
Aldi	1,400
Costco	3,800
Stew Leonard's	2,000
Kroger	30,000-52,000
Safeway	30,000-52,000
Supervalu	30,000-52000
Winn Dixie	30,000-52,000

Now, if I know that this is for example let us say in Aldi or Costco or Kroger, Safeway, depending on which kind of retail chain it is, they have decided what kind of average SKUs per unit they will keep, how much will be their buffer stock.

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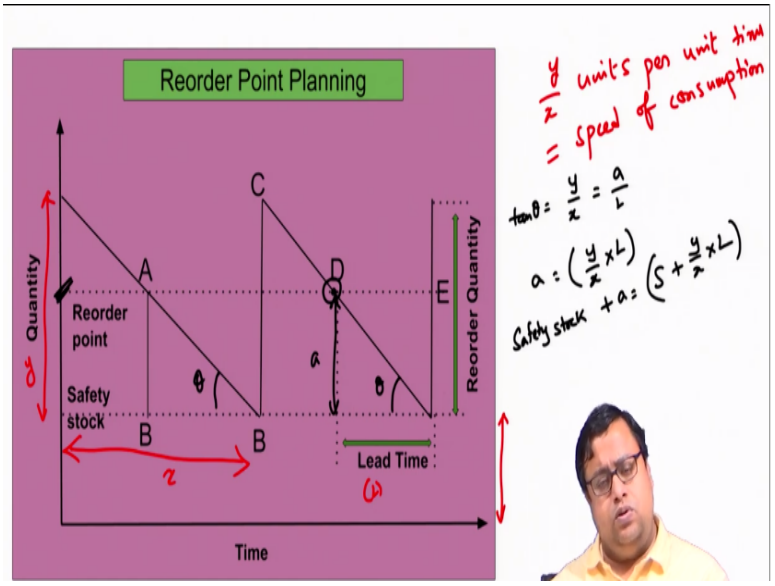

Now, this is called a safety stock or a buffer stock. This much is a buffer stock. Now, this will be either 70% or 80% or 90% or 99% depending on which kind of product you are. Now, you might know that there is a consumption pattern, there is a speed of consumption. How will you know the speed of consumption? This is let us say y and this is let us say x, then y by x units per unit time is the speed of replenishment or speed of consumption you know that, in that speed it gets consumed.

And you know that the lead time is L, you know that L is the time that you require to get the product. Now, if you know that L is the time to get the product again delivered at your retail store, so from order to deliver, so then what happens? S, during the point the exact day when this product is getting delivered on that day, you should have the buffer stock ready with you because next day, if it is not delivered on the very next day, the stock available will be lower than the buffer limit or safety limit.

So, you want to make sure that the product is delivered exactly on that particular day or probably ahead. But if you want to be most efficient exactly on that particular day when you reach your buffer stock, then you have to give an order exactly on that particular day from where the L days, within L days the product gets consumed. So, how will you know that that within L days I will reach the buffer stock level?

If this is my y by x, if you see that, if this level is a, I would say small a, if this level is small a then by the formula triangle both the angles are same, this angle is same, this angle is same, let us say theta. So, tan theta is y by x and tan theta is also a by L. So, a is basically y by x into L. So, if you know that per day how many units of a product is getting consumed and you know that L days is required to get the product to me, so then a is basically y by x into L and what is this a?

$$\tan\theta = \frac{y}{x} = \frac{a}{L}$$

$$a = (\frac{y}{x} \times L)$$

$$safty - stock + a = (S + \frac{y}{x} \times L)$$

The a is the point whenever you reach this level of stock then you go for your ordering. So, what is that level of stock? That level of stock is basically the safety stock or the buffer stock whatever you say plus a or S + y by x into L. Whenever you reach in this level, you give an

order. Now, you see you give an order, what should be the order amount? The order amount is basically that amount which reaches makes it from 99% to 100%.

So, that is the reorder quantity. So the 100, the highest demand minus the safety stock demand is the reorder quantity that is the amount that you order. So, you might want to order, so sometimes people actually if it is fluctuating, sometimes we become risk averse. So, we order sometimes that let us say mean demand plus 0.5 into sigma demand. If sigma is pretty high, if we know that sigma is fluctuating, we have to make sure that our life is simple, sometimes a little bit higher, but that is not something that we should do.

What we should do is to try to focus on reduction in the lead time, we should make sure we should do all the operational efficiency we should try to bring in to reduce the number of lead time and make sure the lots of information sharing is being done between the retailer and the manufacturer and the wholesaler so that the bullwhip effect does not come in. So, if the demand is fluctuating, we should not get trembled, we should not get disturbed a lot.

We should keep our calm and share the information as much as possible. So, that is why the reorder quantity is always the mean demand minus the safety stock that is the thing that we try to make sure. So, this is called a reorder point planning which is done to do inventory management.

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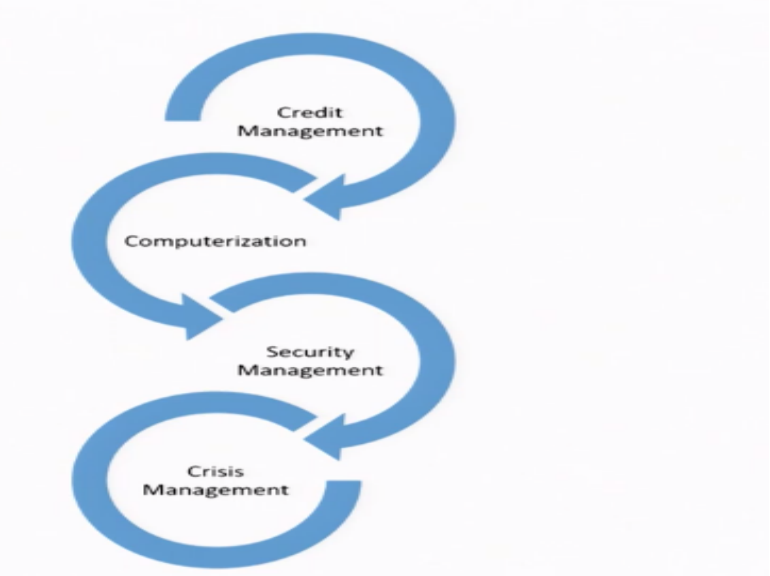

Other than that, what are the different things that we do? For example, one important decision is credit management under the operations. What is credit management? In the credit

management you have to take the decision that whom to give a credit, in a supply chain activity I am talking about. So, whether I will sell the products in credit to the customers? How much credit is allowed or whether we will at all go for credit card kind of purchases?

So these are some of the decisions. Whether we will go for loyalty points? For the loyalty point basis credits will be given or not? In the purchase also in the context of sourcing also how much credit we will ask for from a supplier? What should be the optimal credit fund that we will be going for? How will I balance credit availability and the quality of the product that is being stocked or credit availability and the services that is being given by the supplier?

So, how to balance them? All these things have to be decided under credit management. Another important decision which is coming up in today's world is called computerization. So, how much you will use computers? So, computers are generally the ERP system we call it, enterprise resource planning system is there, right now it is the backbone of almost every retail store. Even small retail stores, they have their own I would say apps that are coming up.

So app based very less costly 2000 rupees per month, 4000 rupees per month that kind of, in at that level also ERP apps are coming up where you can do basic inventory management, basic purchases and you can create your invoices, create your tax returns and etc., can be done. So, computerization is coming in, but in the retail space there are further more stronger computerization coming in. For example, Robotics has come up in the retail space.

You do not anymore rely on people who are moving around. There are robots who are helping you out with the product availability, I would say with the product information, with product comparisons and etc. In a food retail, robots are serving food in today's world. AR VR is coming in, artificial reality virtual reality, is coming up. I have talked about that in the very first day that you can take a picture of your hand.

You can put your hand like this and I can put the ring on your hand and see that exactly how it is looking. We all have, probably many of you have tried Lenskart where you can choose a frame and you can take pictures of your faces and they will show you that how this particular I would say glass frame will look on your face. So, those are things that are changing the retail space like anything.

People are putting VR goggles, big goggles, VR goggles and seeing that how they will look like when they are wearing a dress or how will be the experience if they are going for a travel, in case of travel retailing services. How will it look like when you go to a hotel? So, all those things are coming up. Computerization is going ahead and entering into the market. But the problem is computerization also, one is aha element that is there in computerization.

Another important thing that comes up in computerization is also I would say related to how much is the cost because every decision that you take here will come up with certain amount of costs that is also involved. So, you have to compare the costs that is there to bring up computerization, the degree of computerization, whether the customers are ready to adopt that level of computerization or not.

And also what kind of benefits, what kind of added that aha element, what kind of added revenue that is creating, whether the positive word of mouth it is creating. For example, if we talk about Amazon Go, there is the probably they were talking about fast brick-and-mortar retail store which is human less, no human being will be there. So that had a huge aha element. People thought that wow, this is a very new thing.

It is absolutely based on computer where you will come in and computer vision will track that who you are and what kind of products you are picking up and when you go out of the retail store, it will automatically cut money from the credit card. But the problem of that computerization was security and etc., Those was one kind of problem which they managed properly. But the major problem was costs and to make sure that the same setup gets replicated everywhere, see Amazon is fighting with Wal-Mart at the end of the day.

So aha element and etc., is all there, but for that aha element you will find customers only in very filthy rich I would say the cities, will not find those kinds of people in Indian cities let us say, but India is a huge market. So can you come up with Amazon Go in India still there is a huge question mark in front of Amazon. So, though Amazon was e-commerce store which is coming up in a brick-and-mortar retail store with the help of computerization.

But whether that can be replicated, that can be scaled, that can be benefited out is something that is a very important decision that you have to basically put, take a pen and paper and do your maths for that. So that is also another level of operations management decisions. So, we

will stop here. There are two three few more like security, crisis and insurance management, two three more operations management decisions that has to be taken. We will discuss that in the next video. Thank you very much for being with me. I will see you in the next video.