

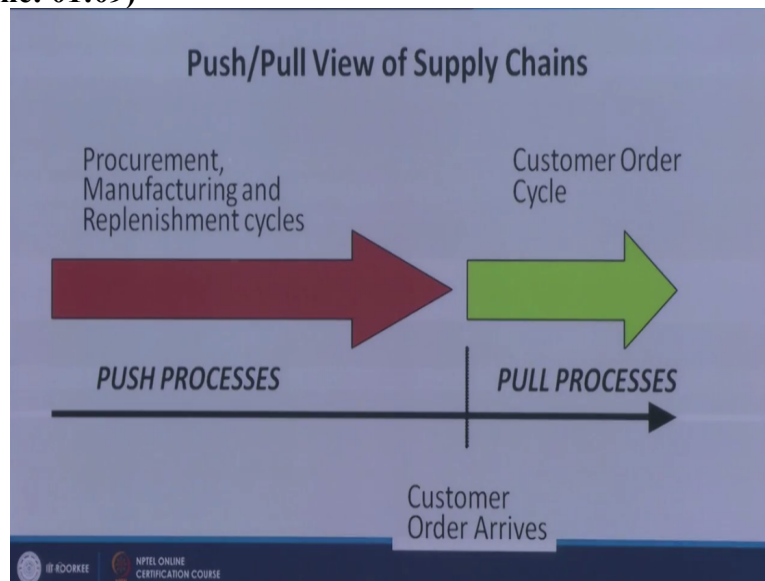
**Supply Chain Analytics**  
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**Lecture-05**  
**Different Views of Supply Chain**

So Dear friend, I welcome you to another session of supply chain analytics. So far we have discussed the basics of supply chain, the need of supply chain management in the changing business scenario, then we also discussed how analytics can help us in some of the challenges which current supply chain management is facing and then in last 2 sessions we are discussing that what are the philosophies which are governing the supply chain management.

And in the school of thought we have already discussed one school of thought which is represented as cyclic view of supply chain where the processes happening at each stage can be represented by the cyclic view or some kind of cycle.

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Now today we will discuss, we will start the another very important concept of supply chain which is known as push, pull view of the supply chain. Now here in the supply chain you see some of the part is represented in green and some of the part is represented in the red. In a complete supply chain starting from the supplier source to the customer end, you have some of the processes which are known as push processes.

And some of the processes which are known as pull processes. As the name represents pull processes are those processes which are pulled. And customer is at this end pulling products from the supply chain. So these are the pull processes. On the other hand in case of push processes the products are pushed to the supply chain. So demand is there or not there.

These products are forced to the supply chain and pull processes as a name indicates are there because demand is there, a customer wants these products and customer wants these products, that therefore customer is pulling these products from the supply chain. So now the take of this push and pull for a supply chain manager is that processes which are happening as a result of pull processes or all reactive.

Because demand is there, therefore supply chain is trying to fulfil the demand. So these processes are reactive in nature. Push processes because we feel that there will be demand, there will be demand, so these are in anticipation of demand. Demand has not occurred so far, but these are in anticipation of demand and these processes are more proactive in nature. These are proactive in nature, you feel that demand is going to be there in the future.

And therefore you are pushing products into the supply chain, that there will be a customer who will come and he will buy these product. So therefore I should maintain the sufficient inventory, sufficient of these stocks of these products. So in that anticipation push processes are taking place. On the other hand pull processes you go to a restaurant and when you go to a restaurant the food will be read only when you give a order.

So, preparation of food and serving the food to a customer is an good example of pull processes. While you go to a grocery store, you find so many chips, so many biscuits, so many other kind of food items are readily available. So these are push processes, that shop owner feels that customer will come to me and in anticipation of those demand, he is stocking the products.

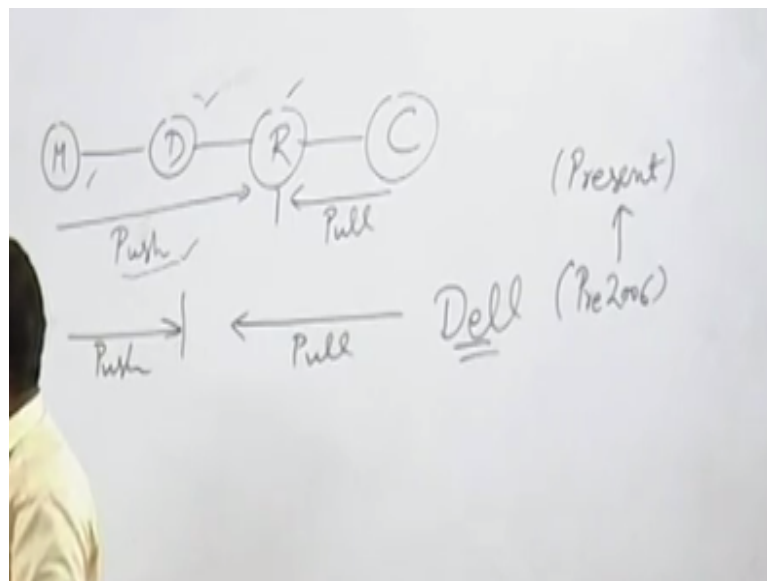
But normally you will find that in all supply chains, in all supply chains there are few processes which are done in anticipation. So these are pull/push processes and there are few processes which are done was the order has come. So these are pull processes. Now for a manager for a decision maker with the help of the data, with the help of our supply chain

analytics the very important job with respect to push and pull is to identify the correct boundary of these processes.

Where should we keep our boundary of push processes and pull processes which is that point in the supply chain. And probably this is one of the most crucial decisions a manager has to make and now a days, with the help of data driven analysis with the help of data driven decision making processes, it is very very important that you should have a dynamic type of push/pull boundary.

We in the old age system in a supply chain we always use to have a static push/pull boundary, but now a days because we are more into the real time data driven decision making, so it is quite possible that the boundary of push and pull processes may shift. So, we will see with the help of an example that how this boundary of push and pull processes may shift with the help of new data which may be available to us over a period of time.

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Let us see a generic supply chain where we have manufacturer, distributor, retailer and customer. Now the processes up to retailer are push processes. And only at the retailer end the processes are of the pull nature. When customer reaches the retailer so retailer will give that product to the customer. So only this thing is happening as the pull process and rest all these stages are bound by the push processes.

When things are happening with push processes all these places you will have very high level of inventory. Because in anticipation you are stocking the products. It is quite possible that

over the period of time when you have more data available with you, you may shift the boundary of pull processes to the distributor level. And only up to the distributor level processes may take place as push.

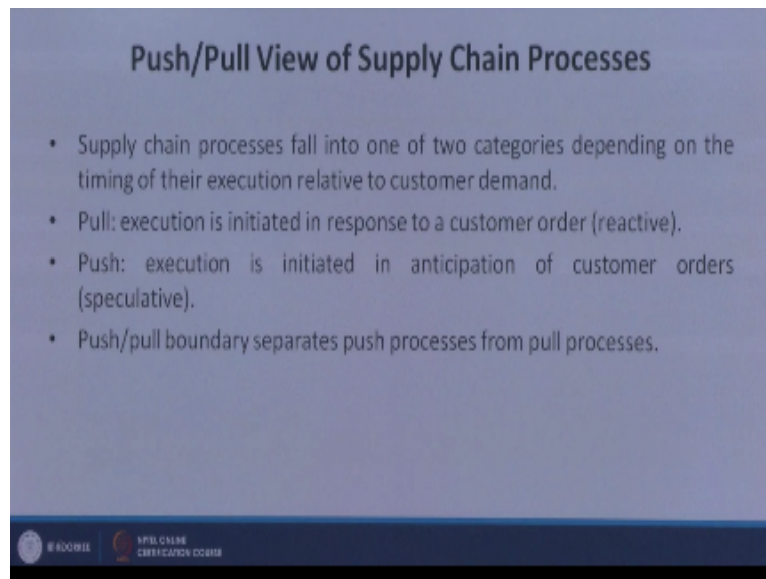
And when it is happening, when you are shifting the boundary of push and pull from retailer to the distributor and it means now retailer is not keeping the inventory in anticipation. Retailer will only being a source of contact to the customer and whenever order comes, whenever a customer walks to the retailer's place, retailer will further pass this information to the distributor and the distributor will supply the products to the customer.

The example of Dell, when Dell was directly distributing products to the customer before 2006, so Dell was following this type of model where the push/pull boundary was a dealers there, distributors there, but now in the present system when Dell is following the retail distribution in that particular case the boundary of push/pull is shifting to this case.

So you can see the free 2006 and this is present, so in the case of Dell the boundary of push and pull has moved from the distributor to retailer from 2006 to now. So you have to be and this is by the by based on all real time data analysis. So this is a very good example that how your data analytics may help you to shift the boundaries of your push and pull processes and you cannot be static all the time.

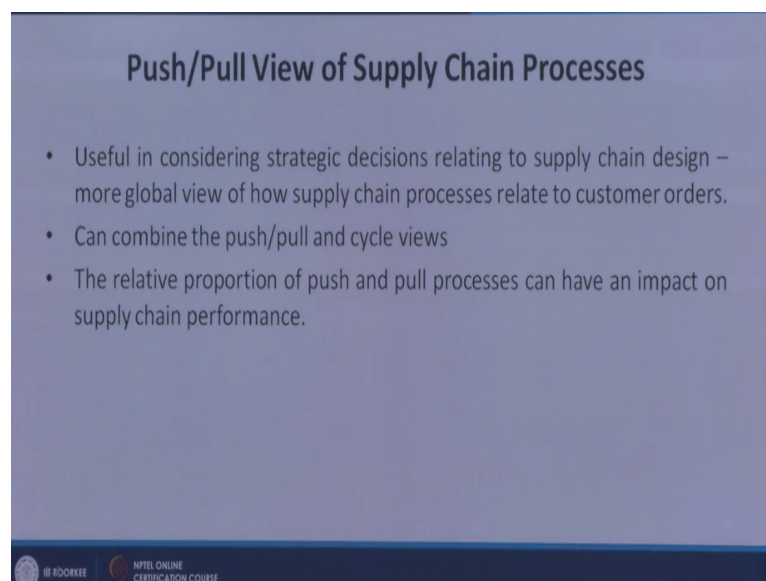
In present time scenario where you have lot of competition you have so much into the market face that everyday things are changing.

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So push/pull view as I told you pull view is reactive and push view in anticipation it speculative and the boundary of push and pull separates the push processes from the pull processes. So we have seen the role of boundary that before this and after this the processes are in anticipation and after this the processes are in reaction to the order of the customer.

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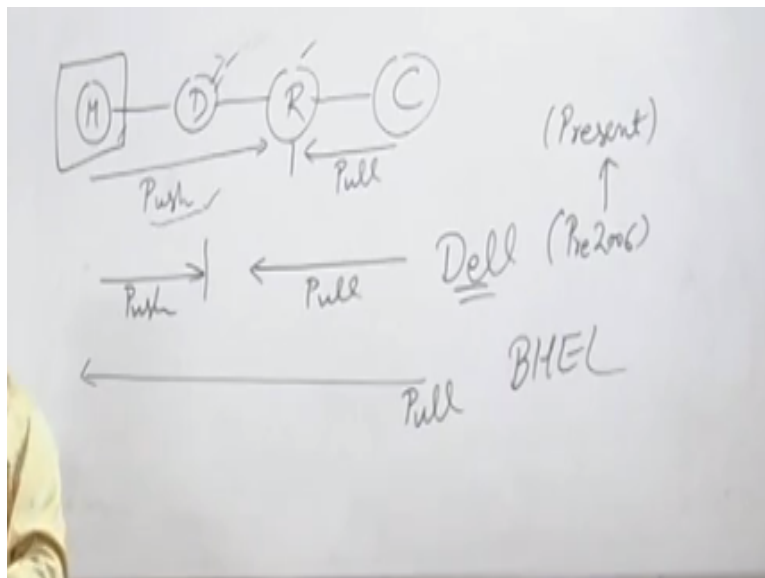
So push/pull processes because another important part of the push and pull processes as we have just discussed here and it is further written in this slide that it also gives you an idea of who is going to share the maximum risk in your entire supply chain. You can understand very well, those processes which are happening in reaction to the order. The risks in those stages are less.

But those stages which are performing processes in anticipation are those stages which are having the push phenomena, the risk is high in those stages. So now it is a very important strategic decision in entire supply chain that which stage is going to have how much risk and many times you will see that manufacturer needs to keep maximum risk with itself.

Some time in some supply chains very few supply chain you will find where distributors are giving the maximum risk, but there will be very few supply chain, very few supply chains like Walmart or something like that where you will find that retailer is giving the maximum risk. But in most of the cases it is the manufacturer which is keeping the maximum risk. Because manufacturer has to prepare everything in anticipation of the order.

But there are some very specific examples particularly those manufacturers dealing in the industrial products like BHEL making tribes, making transformers, these types of organization, these types of manufactures, they even do not keep inventory of those products. This company is start everything in the pull fashion.

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The example of BHEL you will find that right from the beginning right from the manufacturers end everything is happening in pull fashion. And very little is happening in anticipation. So some type of raw material procurements, some type of spare procurements, only those things may happen in push form. But rest of the things are happening entirely in the pull form.

So those products which are industrial marketed or where the other word can be the unit value is very high. So those products where the unit value is very very high you normally find the entire processes are happening in the pull form. And but still in this particular case also the procurement of raw material, procurement of the spare parts and some of the components may happen in anticipation.

So a little bit element or push will also be there here you see you cannot have the entire thing starting when the order comes to you. You cannot start going to a mine to get the iron ore or making a tribune only after the order comes. So you procure the steels, you procure the raw materials, you procure different types of alloys in anticipation that orders will come. And we need to have these materials ready with us whenever order comes.

So you need to have a fine though, these are some of the guiding principles, but still depending up on your whole data, depending upon your own information you will find a suitable boundary or push and pull in your supply chain. So that is very very important that where is the boundary or push and pull in your supply chain, because this as I mention that relative proportion of push and pull can have a impact on supply chain performance.

So it is very very important if this boundary is not properly selected it may result in excessive inventory or if a result in a stock outs. So our data, our analytics will help us to appropriately select the boundary that will give us better supply chain performance.

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**Competitive and Supply Chain Strategies**

- **Competitive strategy:** defines the set of customer needs a firm seeks to satisfy through its products and services
- **Product development strategy:** specifies the portfolio of new products that the company will try to develop
- **Marketing and sales strategy:** specifies how the market will be segmented and product positioned, priced, and promoted
- **Supply chain strategy:**
  - determines the nature of material procurement, transportation of materials, manufacture of product or creation of service, distribution of product
  - Consistency and support between supply chain strategy, competitive strategy, and other functional strategies is important

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Now another point which I we will like to discuss in this session, that is about the competitive and supply chain strategies. The supply chain should always support. Supply chain strategy is a type of functional strategy and in an organization there are varieties of functional strategies. So all those functional strategies should support the competitive strategy of the organization. Now what is the competitive strategy?. The competitive strategy is the set of customer need a firm seeks to satisfy through its products and services.

Now the meaning is how differently, how differently a firm can fulfil the requirement of its customer over its competitors. I require some product for my transportation requirements. Now there are A, B, C, D, E 5 different marketers offering different type of transportation solutions. Now what is the USB of A, what is the USB of B, what is the USB of C, that defines my competitive strategy.

So each one of us each marketer, each corporate, they look to provide some kind of different solutions, some kind of unique solutions, the unique way to fulfil the requirement of the customer's need. Walmart is the very popular example and in our supply chain class we use this example so often. The competitive strategy of Walmart is everyday low pricing, everyday low pricing that is the competitive strategy of Walmart means Walmart is famous.

Walmart provides that you can get large number of products and a single roof with the lowest possible price on a particular day. So that is the competitive strategy of the Walmart. So now the issue is that how my supply chain suppose this competitive strategy and then only the success of organization comes. So here we see that there are different types of functional strategies you have product development strategy, you have marketing and sales strategy.

These are the functional strategy. And there is a supply chain strategy. Supply chain strategy should support by competitive strategy. It should be using with my competitive strategy, it should support my competitive strategy, so that I can achieve what I want to. Now supply chain strategy is it determines the nature of material procurement, transportation material, manufacturing of products, creation of services, distribution.

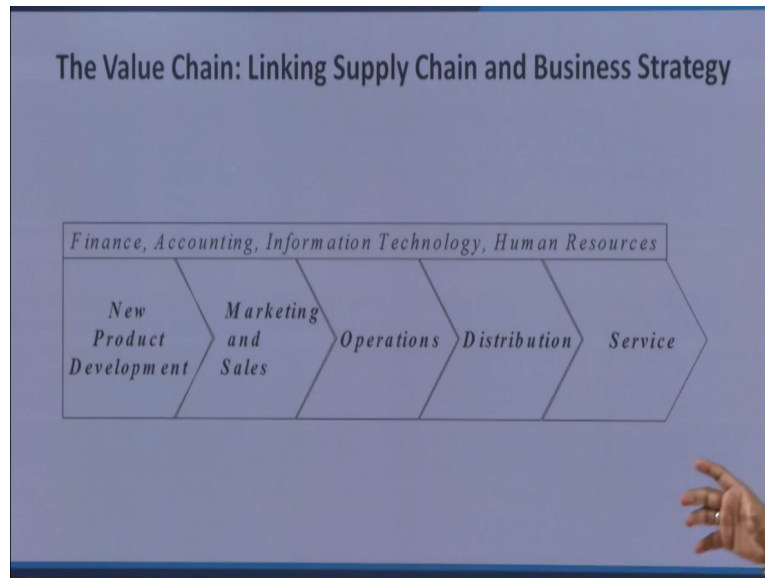
And it is also how consistency and support between supply chain strategy, competitive strategy and other functional strategy. Earlier we use to have different silos. Silos means if I am in the marketing department I normally uses note communication with my product



development department. If I am in product development department I use to have no communication with my production department.

If I am in the production department I use to have no communication with my HR department. So we use to live silos arrear. But nowadays it is not possible to live in silos. We need to have a very strong integration of all functional strategy.

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Therefore, this value chain represents that right from the new product development to marketing sales to operations, to distribution, to services. All these things, all these functional areas need to be integrated, need to be supportive of each other, and finance, accounting, IT, human resource etc. need to work as supporting to these major functional areas. So this is the value chain which links these supply chain with the business strategy of the organization.

And therefore we are very much concern that what type of supply chain strategy we adopt. So that the competitive strategy of my organization can be achieved.

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## Achieving Strategic Fit

- Strategic fit:
  - Consistency between customer priorities of competitive strategy and supply chain capabilities specified by the supply chain strategy
  - Competitive and supply chain strategies have the same goals
- A company may fail because of a lack of strategic fit or because its processes and resources do not provide the capabilities to execute the desired strategy.

And for that purpose we further talk of this strategic fit where we should have a consistency between customer priorities of competitive strategy and our supply chain capabilities specified by the supply chain strategy. Now it is very very important to understand that customer priorities which is determining my competitive strategy. And supply chain capabilities these things are determining my supply chain strategy.

So my customer priorities, my ability to understand my customer priorities that is the first important role which analytics will play. The data will help macro environment to understand the priorities of my customer. And it is very simply to understand that over a period of time customer priorities are changing. Customer priorities are no longer constant, I am living in India.

But in India also the priorities which we used to have about 20 years back or 30 years back, these are no longer the priority at the moment. Our priorities are to be changing, so priorities do change as we get more exposure as we have better purchasing power, as we have access to latest technology particularly IT, particularly internet, and so on. So all these things are helping me to change the customer priorities.

Now as a marketer as a supply chain decision maker if I am not able to capture these changing priorities of my customer I will not be able to evolve dynamically the my competitive strategy. So the first important role of our supply chain analytics, the data analytics part into the supply chain is to identify the changing customer priorities, how things are changing.

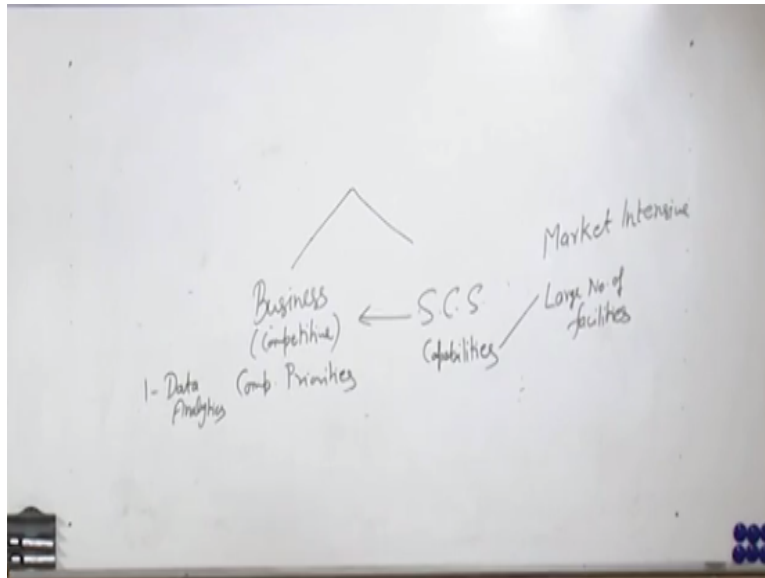
You see when Japanese movement of quality started at that time the customer priority shifted towards getting the quality product and throughout the world not only in India customers started expecting to get Japanese qualities in their product. But over a period of time almost all the manufactures throughout the world they had same technology, same management principles, and they were able to deliver almost competitive quality levels.

Then came the Chinese invention of low cost and now a days customer expects that the quality of the product will be as good as Japanese product, but we need price as low as Chinese products. So priority all of the strategies changing. And then priorities do change with respect to the different market segments. So as you go from one market segment to another market segment may be on any variable you will find that priorities are changing.

Sometime I am purchasing a product only for my status and sometime I purchase a product for its functional utilities, so dynamically I need to see what are the customer priorities, so this is very very important to understand that these are the customer priorities which I am getting with the help of my data support. The second is supply chain capabilities, what my supply chain capabilities are, what it can do and you have the example of Maruti in India.

Maruti in India is very good example that how Maruti reached to tier 1 then to tier 2 and now it is reaching Tier 3 cities also of the country. And therefore the worst infrastructure the large number of facilities created by Maruti is helping to a great extent to achieve the supply chain strategy of the marketing. But there are many companies in the country, they have a supply chain strategy in their vision, but the supply chain capabilities are not developed accordingly and therefore you are not able to implement, you are not able to execute that supply chain strategy.

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So first thing is we want to develop a strategic fit between business strategy or you can say competitive strategy which supply chain strategy must support and the supply chain strategy the exhibit of the strategy comes in the form of capabilities. Capabilities which we develop these are the manifestation of supply chain strategy. How do we see that this is the supply chain strategy.

So that capabilities which were developing, these are actually the manifestation of the supply chain strategy and this manifestation must match with the competitive priorities or customer needs which are continuously. So changing customer priorities are to be captured with the help of data, so this is the first use of data analytics. That data analytics will help us in regularly monitoring the competitive priorities and you need a very good strategic fit between these 2 things.

Then just to simplify the same statement we have this statement that competitive and supply chain strategies must have the same goal. It means many times it is possible that people may not understand the holistic nature of the organization and when they do not understand the holistic nature people at their own departmental level, at their own functional level may develop the departmental and functional goals.

So we are warning against these things, that the overall goal of the organization which is the business goal or the competitive goal and the supply chain goal must have same objective, must be same thing. And then we further war that company may feel because of a lack of strategic fit or because it processes and resources do not provide the capabilities to execute

the desired strategy. So we need to see that what type of strategy we are developing and how the resources and processes support this strategy.

Just to give you an example because it is becoming very theoretical, so how our resources can provide the support to the competitive strategy. For that purpose if I am talking a very market intensive strategy, my supply chain strategy is market intensive. Now when I am saying that I want to develop a market intensive strategy supply chain strategy the meaning is that I want to open large number of facilities in almost all the corners of my market.

So when I am talking of market intensive strategies are the market dominants strategy I should have large number of facilities. But then in a city like Delhi I am opening only 2 retailers, in a city like Mumbai I am opening 3 retailers, so this does not qualify to be the market dominant strategy. When I am saying market dominant strategy in a city like Delhi there should be more than 50 retailers.

In a city like Bombay there should be more than 30 retailers, wherever I go in Bombay, wherever I go in Delhi, wherever I go in Kolkata I should have every corner with my retailer and Pathanjali is a very good recent example that how Pathanjali is following is market dominant strategy. And for that purpose wherever you go in even a small city every street, every market you will find distributors, retailers of Pathanjali.

But they say that we are going to be the market dominant company and in whole other city you have only 1 distributor, one retailer than probably your supply chain capabilities are not matching with your supply chain strategy. So whatever supply chain strategy you have you need to develop the resources, you need to develop the capabilities in line of that and this strategy that we should follow market dominant strategy, it should come from your competitive strategy.

That my customer prefers those products which are closely available, which are nearly available, they do not want to put lot of efforts in buying those products and if that is so I should go for market dominance strategy and when I go for market dominance strategy then I should have large number of stores, large number of retail outlets in a particular area. So all these things must be in sink.

If it is there then my supply chain strategy is in line with my competitive strategy, but I say that my customer follows the convenience way of purchasing, but even in that case my supply chain is following the selective way of distribution. So my supply chain strategy is not in line with my competitive strategy. So the very first thing we should understand the competitive priority that what are the competitive priorities and according to those competitive priorities.

I must design my supply chain strategy and according to supply chain strategy I should design the, I should develop my supply chain capability. So data analytics is the part which will help us in dynamically understanding the competitive priorities and accordingly you can take all these decisions. The way the very good example of use of data analytics in developing the supply chain capability is almost all petroleum companies in our country.

Earlier we use to have very limited number of retail outlets of these petroleum companies to which we call as petrol pumps. But now over a period of time with the help of available data, these companies realized that number of automobiles, number of cars, number of 2 wheelers in the country is increasing exponentially and therefore the requirement of petroleum products are going to increase and then they realize that we should go for the market dominance strategy.

And for that purpose now you see almost in each street of the city highways are filled with the petrol pumps of different of companies. So the earlier very selective strategy was there, but now it is totally change into the market dominance strategy. So this way you can understand that how data analytics can help us in providing the required strategic fit between the competitive strategy and the supply chain strategy of an organization. Now moving further into this discussion of supply chain strategy and the competitive strategy.

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## How is Strategic Fit Achieved?

- Step 1: Understanding the customer and supply chain uncertainty.
- Step 2: Understanding the supply chain.
- Step 3: Achieving strategic fit.

We will see that it is a 3 step process. The first process is you need to understand the customer and supply chain uncertainties. So as I am saying that your customer is continuously changing its priorities and so on the capability of your supply chain also has lot of uncertainties. Because in your supply chain there are supplier, vendors, different type of other members are there and they all have some component of uncertainty associated with that.

So very first thing is to understand the customer and supply chain uncertainty. And to a large extent data analytics may help us in resolving the issue of these uncertainties. We can have good modeling software we will discuss and those things will help us in removing the customer and supply chain uncertainties. Then the second thing is to understand your own supply chain.

The capabilities these capabilities what are these capabilities, so that is the second part. And third part you need to link these supply chain capabilities with the customer and supply chain uncertainty. Whatever uncertainties you resolved, you should try to fulfil those things with the help of your supply chain capability, if you can do that it means you have achieve the strategic fit.

So here today we close about this concept of strategic fit in our next session we will see with the help of some kind of modelling exercise that how these strategic fit is achieved and that will give us with help of some more practical examples the usefulness of the data analytics in achieving the supply chain strategic fit with your competitive strategy. Thank you very much.