

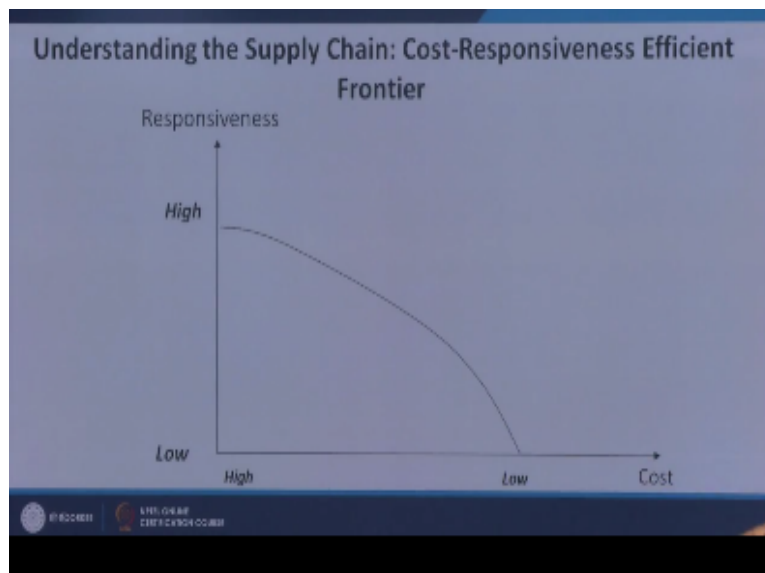
Supply Chain Analytics
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Lecture-09
Strategic Fit in Supply Chain

So welcome back, we are discussing the development of supply chain strategy, we discuss in our last session about the implied demand uncertainty spectrum. We discuss that there are products where uncertainties are very low. We took the example of salt for that category and we also saw that on the right side of the spectrum there are products having very high level of uncertainty and we took the example of iPhone 7 that how that high implied demand uncertainty is there in that type of product.

And then we took the example of some of the existing automobiles like CD 100 motorcycle of Hero Motorcars like Alto, like wagoner, like Scorpio. These types of products where we have somewhat uncertainty and somewhat stability. So that is the first step in the development of supply chain strategy. Then we also discuss about the capabilities of supply chain. How may supply chain can answer be required questions which are coming because of uncertainty is in my supply chain.

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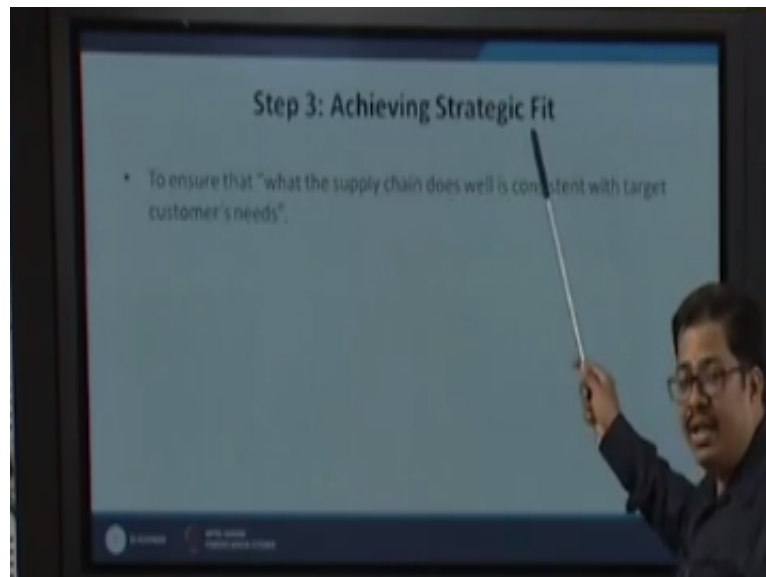
And now we are trying to develop on the basis of capabilities in my supply chain a particular spectrum of responsiveness versus efficiency, cost as we have discussed in our last lecture cost is inverse 2 efficiencies. If it is a high cost supply chain it means no efficiency, if it is a

low cost supply chain it means high-efficiency. So it is a relationship between responsiveness and efficiency of the supply chain.

And this is that cost responsiveness efficiency Frontier. This car is the cars responsiveness efficiency Frontier that you have a particular level of responsiveness with a particular level of efficiency and when you are trying to increase the responsiveness of your supply chain the cost of supply chain or the efficiency of the supply chain has to be trade off. So this is that cost responsiveness Frontier.

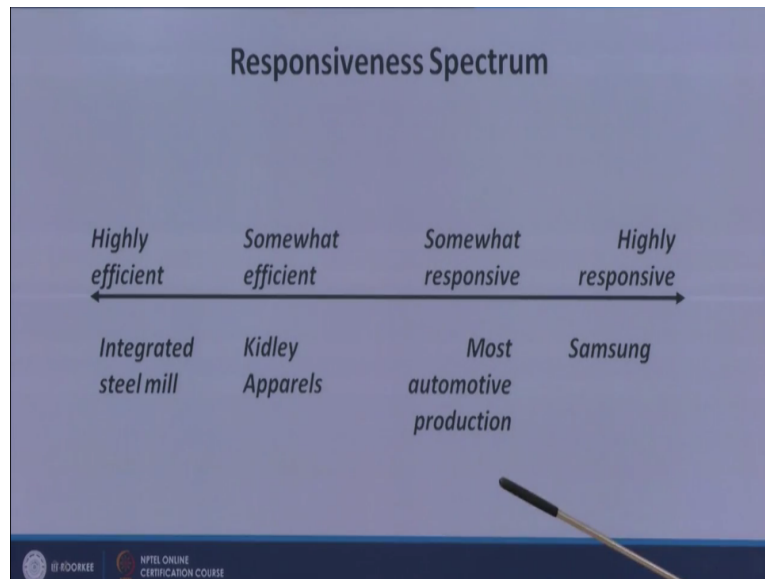
We want low cost of the supply chain or you can say high efficiently high supply chain and high responsiveness so this is the most desired Frontier. This is the most desired frontiers where you have high responsiveness and high efficiency, low cost means high efficiency. So this is that is spectrum on which we want to locate our supply chain but most of the time in real life we see that if you have high responsiveness in your supply chain you have low efficiency. But this is the most ideal situation which is desirable in any kind of supply chain high responsiveness and high efficiency. So this is that curve.

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Now finally we are coming to step 3 of the supply chain strategy development that we are developing a strategic fit in our supply chains with respect to uncertainties of demand and supply and with respect to efficiency and responsibilities that is the capabilities of the supply chain.

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So now let us see how this is developed. You have highly efficient supply chains, this is that responsiveness efficiency spectrum and this is highly responsive supply chain. Now you can see on this is spectrum that companies like Apple, companies like Samsung which are highly innovative, continuously introducing new products are highly responsive to the markets requirement and that is why these are placed on the right side of the spectrum.

On the other hand we have integrated Steel Mills which are continuously producing same type of product so they are highly efficient because of their particular label of integration which they have achieved and in between you have companies like just for an example very popular low cost apparel company Kidley, and this 2 of the efficiency side. Then you have towards responsive side most of the automotive production companies.

Because they are continuously introducing new models, they are producing more variants of their product. So these are towards the responsive side. So you can actually have intermediate location depending upon efficiency and responsiveness and their relative ability to make their supply chain efficient and responsiveness. So from this point to this point, you can have various intermediary locations and accordingly you can find on your own.

Different examples which you feel are suitable and I must give you this exercise at this moment that try to see different type of examples around you and those examples on this responsiveness spectrum at different location. See where Maruti fits into this, see where Hero fits into this, see where post office fit into this, see where Amul fits into this, see where Mumbai Dabbawala fits into this, so try to see various examples around you.

Try to see the applies new start ups, new startup are coming up and where they are?, where they are on this responsibility spectrum, so this will be a good hands on learning for you and you can see that it will be very interesting as an outsider, as an expert of the supply chain. Now you will be able to understand that whether the supply chain is towards efficiency side or towards responsiveness side. So this is the responsiveness spectrum. In our last class we discuss the implied demand uncertainty spectrum, now we are discussing this responsiveness spectrum.

And now we have actually clubbed both these things. In this figure we have clubbed the responsibility spectrum and implied demand uncertainty. This we discussed in the previous lecture. Today we are discussing this responsiveness Frontier that from the efficiency to responsive side, we have this spectrum and this is the uncertainty side to certainty side. And when we are trying to combine these 2 spectrums you develop this zone of strategic fit. This is very very important.

Now as a supply chain manager I always want to keep my supply chain in the zone of strategic fit. This is the place, this is the zone where I will like to place my supply chain. When I am inside the zone, when I am inside in this zone it means my supply chain capabilities are enough to respond to various uncertainty which are coming to my supply chain. But if I am not in this zone then probably I am not able to develop that type of capabilities which are required to answer the uncertainty which are coming in my supply chain.

For an example if I am towards this uncertainty side, if I am towards this uncertainty side so if I project this uncertainty into this graph, so appropriately I need a more responsive supply chain. So more responsive supply chain is the answer of uncertain demand and if I have a certain demand then the efficient supply chain is the answer of that certain demand. And for any intermediate location you can appropriately find a suitable level of responsiveness of the supply chain.

If in case of uncertain demand you are having huge uncertainty in your supply chain because of maybe more innovations, because of quantities, because of varieties etc. But the capabilities are towards efficiency side. This is a purely a mismatch. This is purely a

mismatch and you are not going to achieve any strategic advantage of the supply chain. Rather just type of supply chain arrangement is bound to give you failures.

So it is very important to understand that my supply chain capabilities which are exhibited on this responsiveness spectrum are in line, are in sync with the implied uncertainty spectrum. So if I would have a more certain demand, if I have a routine demand, if I have fix demands and in that case I am developing a responsive supply chain useless, no point. Because if I am having a certain customer may not be interested.

Other customer is not at all interested in paying me any extra premium and that is going to be a wasteful responsiveness of the supply chain. Because when I am developing responsiveness, when I am having more responsive supply chain we just discussed responsiveness comes at a cost. So it means I am providing a costly solution, a high cost solution to my customer which a customer of this point where uncertainties are low never likes and therefore this is also a mismatch.

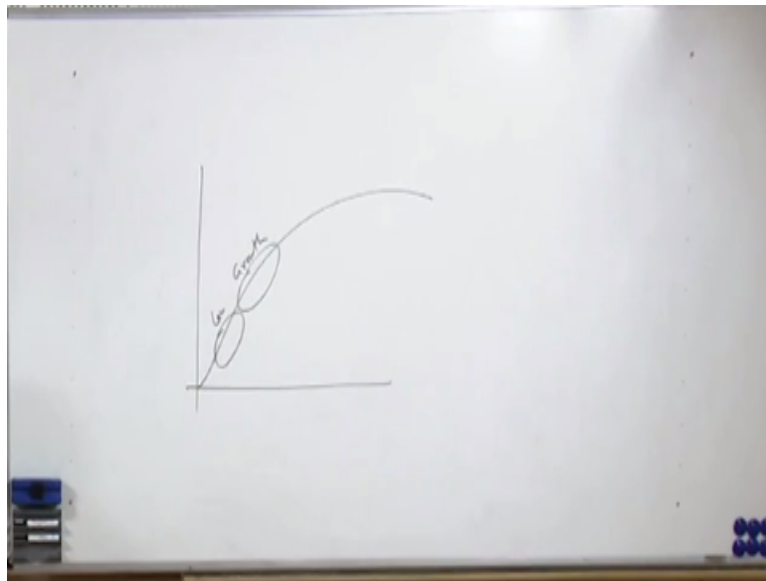
So if you can understand now that if you have uncertainty in the demand and supply you should have a responsive supply chain and then you are located somewhere here in this responsiveness zone of strategic fit. Then if you have more certainty in the supply chain then you should develop efficient supply chains and you are located at this point of the zone of strategic fit.

So whether you are located here or you are located here it is the zone of strategic fit where you are located and therefore this is also a suitable position for the supply chain strategy and this is also a suitable position. But if you are located somewhere here or somewhere here or anywhere outside this zone probably your supply chain is not going to give you the kind of advantage which you are expecting from your supply chain.

So this course on data analytics and supply chain is going to help us to take decisions that what type of uncertainty are coming in my supply chain, because the uncertainties are not constant. Uncertainties are going to come or a new type of uncertainties are going to come. So you continuously need to be very much watch full about the uncertainties. And I must warn you, I must caution you that a companies position, a supply chains position on this uncertainty spectrum may change as you move from one market to another market as time

changes as you launch new products so with respect to all these factors your position on this uncertainty spectrum may change and therefore you have to be watchful about changing positions of your supply chain on this spectrum. And when you know that how your position is changing appropriately you need to change or you need to update whether it is more appropriate to say you need to update your supply chain capabilities because then only you will remain into the zone of strategic fit. Otherwise if you have a particular level of capabilities in your supply chain.

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And let see you have developed a product a new kind of automobile had initially during its launch and growth stage you are toward the uncertainty side and therefore in the beginning of the product life cycle you require more responsive supply chain. But as luck is there and now the product is moving into the maturity side, so you need to develop capabilities in your supply chain that you can come from this responsive site.

Because as you are going to the maturity of the period you are moving from uncertain demand to certain demand. So you cannot keep all the time same level of capabilities in your supply chain and Maruti is a wonderful example. When Maruti first came into India when we have a very limited car market in this country where only few Fiat cars and Ambassador cars and Contessa cars used to be there.

At that time in Maruti came so if I see from this point of view so initially it was an uncertain demand. If a different matter that supply chain was not responsive at that time because of various licensing reasons. But over a period of time Maruti is demand for their 800 became

more like a certain demand it became a commodity type of products and when it became a commodity we were looking to change from responsive to efficiency.

And Maruti did that wonderfully and developed its network throughout the country to provide more efficient solutions with respect to their supply chain. And as a result of that you have a very strong network of Maruti giving highly efficient solutions to the distributor and therefore supply chain of Maruti is another source of competitive advantage to Maruti apart from their huge filtration to the car market, the new products, the low maintenance of their product etc. etc.

But supply chain is also providing a very important competitive advantage to Maruti. So therefore what I am trying to say that the role of the zone of strategic fit is that over a period of time the direction of movement because whenever it is coming into the market it is at this stage of uncertain. So normally this is the starting position for most of the products in this zone of strategic fit.

And over period of time we move to watch the origin from here we move in this direction, so that over a period of time as uncertainties are reducing we need to change the supply chain capability is from responsive to the efficiency. But data analytics, the supply chain analytics will help us to understand the rate at which these uncertainties are diminishing.

And appropriately we get time to change the capability of the supply chain. So therefore this understands because ultimately the whole objective of this course or the entire supply chain management is to plan our supply chain positioning in this zone of strategic fit. So this particular point is to be emphasised clearly boldly that what is the objective of this particular zone of strategic fit.

And if you are in this zone of a strategic fit it is going to give you clear advantage that you will always be having that type of supply chain capabilities which are required to answer different types of uncertainty in your supply chain. So I hope that the purpose of this supply chain strategy development is now clear to us, the process is clear to us and how drivers help in development of the supply chain strategy that is also clear to us.

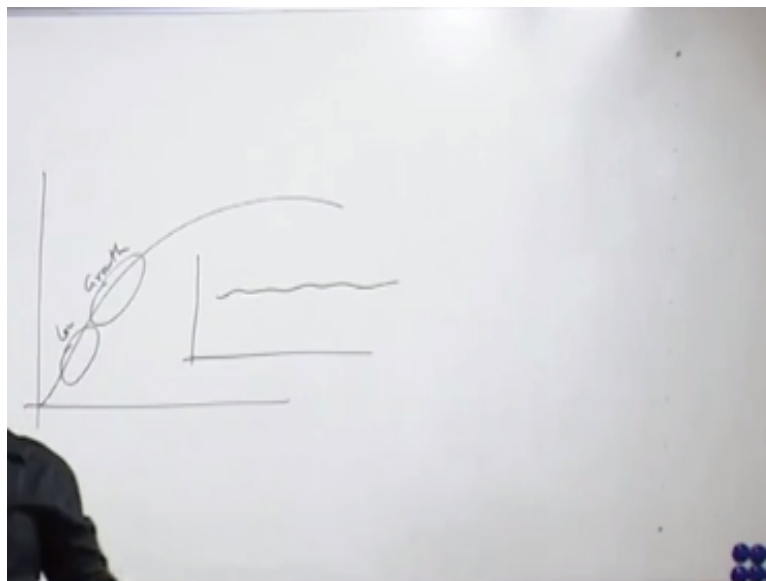
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Step 3: Achieving Strategic Fit

- All functions in the value chain must support the competitive strategy to achieve strategic fit –
- Two extremes: Efficient supply chains (Indian Post office) and responsive supply chains (DHL) –
- Two key points
 - there is *no* right supply chain strategy independent of competitive strategy
 - there is a right supply chain strategy for a given competitive strategy

So after achieving the strategic we can discuss these two examples one is the example of post office which is a very efficient supply chain and second is the example of a very responsive supply chain that is DHL. So you can see if I can find out that somewhere here we have the Indian post office, you have almost a constant demand in certain level of demand is there which you can represent through almost a straight line.

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If I want to represent the demand of Indian post office so it is more like this way. So over a period of time the demand of product in case of post office is this horizontal curve. So post office has developed a very efficient supply chain because that certain demanded that you can locate post office somewhere here. On the other hand DHL is a product, DHL is a company where uncertainties are very very fine because of reduce time, expectation of the customer is very lonely time customer is expecting very high level of services.

And all these things are putting towards high uncertainty in the demand and therefore you see the DHL, DHL has developed to answer this uncertainties, DHL has developed capabilities to suite the responsiveness and DHL will come somewhere here. So both these organisations are taking the advantage of supply chain very strategically. DHL to answer uncertainties develop the responsive supply chain and the location is here.

Post office in the same category because of the certain demand the efficient supply chain located here. Both these organizations are into the zone of strategic fit. So you can discuss more such examples where you find that same supply chain, same category of product can be located either at the origin or at the extreme of the zone of strategic fit. Now once we have understood the concept of this zone of strategic fit.

Now it is too important takeaways from this whole discussion that there is no right supply chain strategy independent of competitive strategy. Now competitive strategy I derive from my market what type of product to which type of customer I am going to offer. So post office is looking as a welfare organisation, so it is looking for low cost market and therefore my supply chain has to follow this competitive strategy of the post office.

On the other hand DHL is looking those customers who are very much time sensitive and this is the competitive strategy of the DHL. So my supply chain strategy must response to this type of requirements of DHL. And then another important take away is there is a right supply chain strategy for a given competitive strategy. So if I want to have customers who give more importance to the time that I have to develop a responsive supply chain.

And if I am looking for customer who gives more money in that case I have to develop a very efficient supply chain. So there is a particular type of right supply chain strategy for a particular type of competitive strategy. So it is the role of supply chain manager or the supply chain executive to understand that what is the competitive strategy and how do I develop those capabilities in my supply chain.

So that my supply chain strategy in sync with the required competitive strategy. Otherwise if my supply chain strategy is not in sync with the competitive strategy in that case there will be

a serious disaster in the organisation and we will not be able to achieve that competitiveness that advantage of the supply chain and the whole purpose will be lost.

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	Efficient	Responsive
Primary goal	Lowest cost	Quick response
Product design strategy	Minimum product cost	Modularity to allow postponement
Pricing strategy	Lower margins	Higher margins
Mfg strategy	High utilization	Capacity flexibility
Inventory strategy	Minimize inventory	Buffer inventory
Lead time strategy	Reduce but not at expense of greater cost	Aggressively reduce even if costs are significant
Supplier selection strategy	Cost and low quality	Speed, flexibility, quality
Transportation strategy	Greater reliance on low cost	Greater reliance on responsive

Now some of the comparison between the efficient and responsive supply chain. So we discuss that these are the two extremes of supply case strategy. And when we see some of the items on which we can compare the efficient and responsive supply chains. So the first thing is the primary goal. The primary goal, the primary objective of efficient supply chain is lowest possible cost, you want to reduce the call that is the most important objective.

And we have seen this in the case of Dabbawalas, you have seen this in the case of post office, you have seen this in the case of public distribution system. So these are some of the examples where we want to have efficient supply chain and cost is one of the important considerations in those efficient supply chains. In case of responses supply chain we want to give quick response.

Now the meaning of quick response is that normally to understand it is with respect to time, that you need to fulfill the customers' requirements with minimum time. So how fast you can fulfill the requirement, how much you can reduce the lead time that is very important in case of our responsive supply chain. So this is the primary objective then with respect to product design strategy. We because now the primary objective is clear.

So rest of the things will be guided by these primary objective. In case of efficient supply chains all the things are guided with maximum utilisation with low cost like those parameters

and in case of response is supply chain all other items will be guided by how fast you can deliver, how much you can reduce the lead time and therefore in case of product design strategy.

In case of efficiency driven supply chain you want to achieve product design with minimum product cost, you try to design products where cost is very low. And here in case of responsive surprises you want to provide for modular solutions, you want to provide wood modular solutions so that you do not think of cost rather you think of that your product should be more as per the requirement of the customer.

So it is highly customised and for that purpose you allow postponement, you go up to the stage that once the order comes then only we will supply the product. Because you are thinking that we need to make some kind of modular arrangements and then when the order comes you should assemble the product and supply as per the requirement of the customer. So we go with the postponement kind of strategy in case of product design for a response supply chains.

Then the pricing strategy it is very simple in case of efficiency we have low margin because not much uniqueness is there and low rate of innovation and there are routine items. So product is already in the maturity stage. So for all these things you do not have a very high margin in case of efficient supply chains. While in case of a response supply chain you can go with very higher margins because you are taking lot of risk.

You are ready to take care of a lot of uncertainties in the supply chain and therefore higher margins are possible and I just said that i7 type of products where you have a high responsible as you take very high margins initially. Then the manufacturing strategy here the focus is maximum utilisation of the assets. That is the concept, that economy of scale that drives our manufacturing strategy.

On the other hand in case of responsiveness we look for flexibility that how we can use our capacity in a more flexible manners, if more quantities are required you use more capacities, if less quantities are required so you should be able to use less capacity of your entire production system. So the capacity utilisation you want to have a flexible system in using the capacity in case of responsiveness.

Inventory strategy we want to go with concept like JIT or we keep minimum inventory in case of efficient supply chain and in responsive supply chains we keep sufficient amount of safety stock so that you achieve high service level, so you keep buffer inventory, so that is also important part because inventory is a very important driver in our supply chain strategy locations. The lead time you can have lead time but you can reduce the time only when you increase the cost.

And it is not expected and sales in case of efficient surprises because the demand is very certain it is a routine type of product. So normally you have very lonely time because of good forecasting practices available in case of efficient supply chain, so lead is normally not important issue in case of efficient supply chain. But it is a very important issue in case of responsive supply chain.

Because in responsive supply chain we want minimum lead times. So we want to reduce lead time aggressively, so that our customers are always satisfied and for this purpose whatever cost we are incurring whatever additional cost we are incurring we are ready to pay for that, so this time lead time strategy is very very important for the responsive supply chain. Then suppliers selection strategy in case of efficient supply chain we look for cost.

And quality is not that important, but since our suppliers have developed over a period of time. So we expect a particular level of quality, a particular level of equality is expected because over a period of the supplies have been developed. While in case of responsive supply chain we expect flexibility, we expect speed, we expect quality, all these things we expect when we are selecting a supplier.

Because we need that supplier can supply one product also, supplier can supply 100 items also as per the requirement when we are introducing a new product into the market. But if suppliers says I require only one product, one component for developing a prototype. But if my supplier says no I cannot reply one item, I can supply at least 50 items. So probably that supplier is not my choice for a responsive supply chains.

I need a supplier if I want one component the suppliers should have capability to supply single component. If I need 100 components the supplier can supply me 100 components so

that type of flexibility, if I need a product in one day supplier can supply macro environment in one day. If I need a product in 3 hours supplier should be able to supply me in 3 hours. So that type of challenges with respect to speed challenges with respect to flexibility.

And obviously because I am introducing a new product. So I expect very high level of quality also because I have to make my mark into the market. So all these things are important when I am selecting a supplier. And then transportation strategy. So in transportation strategy in case of efficiency I look for low cost more of the transportation. So post office is again a very good example.

Post office is relying mostly on Indian Railways which is a very low cost of transportation board and in case of a responsive supply chain we respire take care of our supply chain through more responsive or faster mode of transportation and therefore companies like DHL and (()) (32:19) and all these overnight Express type of courier services are using air as the mode of transportation because that is much faster as compared to rail.

And therefore they are responsive and post offices efficient supply chain. So these are the comparison, this is the table which gives you in black and white the different type of strategic decisions which we take with respect to efficient and responsive supply chain and as I said in the beginning the diseases are primarily governed by the objective of these supply chains in case of efficient it is cost in case of responsive it is time.

So with this we are closing this lecture and now we are clear that how do we use supply chain drivers for getting a particular kind of supply chain strategy. In our next class we will discuss first lecture with respect to the data analytics practice and that is in the use of forecasting techniques. Thank you very much