

Logistics & Supply Chain Management

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Lecture 03 : Manufacturing Logistics: National and International Scenario

hello dear friends welcome back to NPTEL online course on logistics and supply chain management so today we are into the third lecture and we'll continue with your this logistics concepts and we'll see how these concepts can be implemented into manufacturing industry and then we'll talk about the logistics concept the current industry scenario international and Indian so Under this session, we will try to address some of the concepts like manufacturing logistics. I will talk about the architecture, what are the elements in manufacturing logistics and what are those factors which are affecting the development of logistics and then we will talk about the current industrial scenario as far as logistics industry is concerned. So as you can see, manufacturing logistics is basically overseeing the materials, resources, and procedures integral to producing goods within a manufacturing setting. So it involves tasks such as procurement, inventory control, scheduling, production, managing transportation, and distributing finished products. So why manufacturing logistics specifically? with quick view on logistics, manufacturing logistics versus services logistics. See, services other than services are intangible in nature and your manufacturing physical products are tangible in nature.

So, when we talk about manufacturing logistics, this is something we are storing these products somewhere maybe in the warehouses as inventory right at in different settings maybe warehouses or transportation center distribution centers we are storing these products but the problem with the services industry is that we cannot store the services so if let's say if one flight is flying from calcutta to delhi and 10 seats are vacant so once it has take off so we cannot utilize that unutilized those 10 seats later on right so that unutilized capacity will remain unutilized forever but in case of manufacturing what we can do is we when we don't have demand we can produce the product we can store it in our inventory and whenever there will be may be rise in the demand we can leverage on that inventory right we can push the inventory in the so this inventory management is important concept as far as manufacturing logistics is concerned but in case of services we don't have such inventory management there what we are managing we are managing the queue so you might have seen when you are visiting a bank or post office there is one channel huge queue is there and if for maybe first hour very few people or there is no one so no customer is standing in the queue so during that time the bank people cannot process anything right and whenever customer is coming and handing over the services

same is the case if you are visiting the barber shop if barber is not having any customer right now so that is unutilized capacity and we cannot even produce the semi-finished kind of services right so once your customer will enter So, because the customer is also the integral part of this manufacturing process when we are talking about services, but in case of products customer is not part of manufacturing process, because customer is continuously providing the inputs these kind of, because services is a kind of industry which are very customized, so depending upon the needs of the customer. so here we will talk up only about the manufacturing logistics how we are storing the goods obviously then only we will talk about storage and warehousing so the architecture of manufacturing logistics these are some of the elements first is your supply chain management so supply chain management will ensure the raw material supply and other components not only raw material there can be I talked about the sub assembly parts as well if any sub assembly is there that will be provided to the Let us say we have supplier 1 that is supplying some raw material to supplier 2. This raw material is being processed by supplier 2 and is finally reaching to us as manufacturing unit. Let us say we are the manufacturing unit.

then again this is one component may be other components raw material also coming to our unit right and from so many different vendors so this from this manufacturing unit we will be converting all those components into finished goods and these finished goods will be moved to the final customer and in that supply chain this supply chain there may be so many different stakeholder let's say we may have distributors in between We may have wholesalers in between. We may have carry and forward agents in between. We may have retailers as well. So, this is a long chain. So, this is a forward chain which is actually connecting the customer with the manufacturer.

So, this is a supply chain. So, logistics component here is that it will ensure the smooth flow of this sometimes may be raw material, sometime may be sub assembly, sometime may be the finished good through this supply chain so that it reaches to the end customer. Inventory management, when we talk about inventory, so we are usually maintaining three different types of inventory. First is your raw material. Second one is your semi-finished goods.

not finished completely and on the production line maybe you have some semi-finished goods and then the finished ones right obviously we have some inventory in terms of if rejection is coming some in terms of repairs are coming back so those things are also there right but usually intentionally we are maintaining the inventory raw material semi-finished and finished goods and now when we are maintaining these inventories three different types of the first thing that comes in our mind is holding cost so if we are

carrying all the time let's say big store departmental store carrying all the time 10 crore inventory right so that is they are thinking depending upon the market analysis that this is the safe inventory right so that much every day they need to store So, 10 crore, that much money will remain unutilized forever because always we are maintaining that much inventory. So, that holding cost is always there, right? But we should not compromise this holding cost when we are saying that demand, we need to meet the demand as well, right? We cannot go below the safety stock so that we are sometimes stock out, right? So, that should not happen. So, inventory management will ensure this. Production planning and scheduling. so when we talk about operation management and the broader perspective we discuss with four or five questions what should be produced where should be produced what quantity we should produce when we should produce and in what order we should produce so these are some of the basic questions we are answering when we are talking about production planning and scheduling what we should produce that will define your whether which type of product you are producing or you are sometimes coming up with the services right so that will answer your first question where you will produce whether you will produce in-house or you are going to outsource this so obviously that again depends upon we have different session on outsourcing versus in house production so we will see what are those things when we are going for outsourcing for here quick point here is that when we don't have expertise and we don't have that much economies of scale and we want to reduce the initial investment cost right so then we are usually going for outsourcing right otherwise when we have enough demand in the market we have the technology we have the expertise then we should produce it in house so what quantity that will again will predict the demand pattern when we should produce right when so this will your define the scheduling and sequencing in what order you are going to produce.

So, let us say we have different models running on the same line A, B, C. So, when we should produce A? How much of A should be produced? When we will start B? When we will start C? And may be in one box you are packing four items of each. So, once you will not prepare four of these, the final one cartoon will not be ready. So, we have to produce in equal quantity. If that is the combination, that is the basket designed by your may be marketing team or production is offering in the final market.

The next point here is quality control. So, quickly quality control usually we have three different segments in quality control incoming quality control, process quality control and outgoing quality control. Incoming quality control addresses the issues with the raw material. So, incoming quality control is the department which will ensure that whatever is coming even the final packaging. it's not that that packaging is not important equally important because it is carrying your logo brand image and inside that beautiful product

right so that should be tough enough to bear all those bear and tear during the supply chain process quality control will ensure the quality of the product when the raw material is moving on the production line.

Let us say we have down the production line, we have 500 different stages. So, process quality control will be observing all the stages obviously and then we will may be identify out of those 500 stages may be 10 stages are very very critical, where the chances of errors are So, then we this is the responsibility of the process quality control to define the parameters. Outgoing quality control once your product is ready to be shipped then it is the responsibility of the outgoing quality unit that you inspect that outgoing lot and if it is ok as per your sampling plan only then it will be distributed to the end market. another important element when we talk about manufacturing logistics is material handling so whenever we are talking about material handling the first very basic objective is it should be minimum because when we are handling the material within in manufacturing unit in manufacturing unit also i told you many different stages are there when we are converting the raw material into finished one so material is moving maybe from first to second stage from second maybe it is moving to the next fifth or sixth stage right or maybe sometimes we are temporary storing in others storage house right so so whenever we are storing when we whenever we are shifting that raw material sub assembly from one stage to other stage this is material handling but it should be minimum we should design our production lines in such a way that material handling should be minimum because during this we can damage the products and if you are using some electronic components and using with the naked hands you are not bearing those wristbands which are usually preferred for proper arcing system so then also you can damage the electronics if you are handling the fragile items so during material handling if so many stages are there even then you can break that so these are some of the points we need to take care when we are talking about material handling under logistics function then talking about transportation so transportation connecting from the first supplier then the layers of suppliers are there in between manufacturer is there to the end customer the transportation will ensure the physical distribution of the product from one end to the other end warehousing warehousing usually we are doing this before distributing the final product to the and customer it is not only storage and handling sometimes we will see we are doing some value adding activities also in warehousing right so that is also very important component we will discuss when we discuss about this warehousing as a separate chapter then the next point is reverse logistics so I told about the reverse logistics can happen if the customer is not happy or simply wants to return the product or some defective item is there right or even excess material or it may be in terms of when the end of life of that product happens. So, again you need to recycle, reuse or remanufacture that product.

So, in that way that closed loop supply chain should be there and that is again very important part of your logistics. So, here I have included some video links. You guys can just quickly go through these videos and then we will continue our discussion on the topic. So, because after delivering that kind of product, we need installation of that product as well. So, you might have seen that how they are storing in between and then they are storing pin code buys and finally distribution happens as per the requirement of the customer, right? So, this is just a quick review how the logistics flowing through your supply chain.

When we are talking about either e-commerce websites, you are ordering the product or you are ordering the product through your retail chain. so now we'll talk about quickly the factors contributing towards the development of logistics so globalization is one factor which is forcing our logistics system to evolve right if you want to commit compete in the market so you have to be with world-class facilities and with world-class services right having said that world-class facilities right so then this your transportation system inventory system distribution network should be very very efficient right so efficient doesn't mean that whenever i am asking for the product it is available and then you are maintaining use inventory no so how you can maintain the minimum inventory while meeting all the customer needs right so then transportation also we need to find out the best combination of intermodal modes and then we need to talk about the fastest delivery as well with the minimum cost right so globalization how it is impacting because the players are coming from the international markets not only flipkart who is there in the indian market so when it is we talk about the e-commerce industries so amazon is another player which is emerging very fast and because of their promises and how they are doing deliveries within two days managing all the network so obviously even if any local player is there so they have to compete right so this is one factor which is contributing towards that the other factor already i talked about e-commerce growth and it has reshaped the customer expectations you can see in terms of delivery times very short delivery times are required adaptable fulfillment options so adaptable fulfillment options in terms of when they want the product where they want the product what type of product they want in terms of flavor color whatever right so these are different fulfillment options and then we are talking about payment terms then also different types of options are there either you are going through for cod kind of option or you are paying through your internet banking you are paying through your credit card debit card any other option any other digital wallet you are using customer can use that so you have to integrate your system in such a way all the options should be open to the customer and then this will happen only when this there is integration throughout the supply chain next factor is supply chain collaboration so collaboration with your suppliers manufacturer distributors and logistic service provider as i discussed that long chain so that if there is collaboration only then

you can share the quick information right and then it will help you to streamline the operations let's say if through my distribution network i'm getting some information about the demand so this whatever information is i need to send this information to the maybe the distributor distributor will process it to maybe the wholesaler wholesaler will process it to maybe the manufacturer the manufacturer will process it with maybe the supplier one supplier one will process it with supplier two and likewise this keeps on going right so if there is collaboration among the players and quick information sharing means if there is a kind of digital information sharing so then it will be quick and will help you in decision making. so advanced technology when we talk about advanced technology GPS RFID cloud computing data analytics these are some of the technologies which we are now frequently using talking about the logistics see this technology will help us in two ways first how it will help the services providers or the manufacturers and then how this these kind of technologies will be helpful for the final customer for manufacturer analyzing the demand patterns they can only do when they are analyzing the buying pattern or behavior of the customer when they are analyzing or they are getting the information from all the fragmented industry in the world or wherever they are operating right so because it's not very organized kind of store where you can collect information at one point of time right so you might have seen if randomly you are checking maybe ticket price from Calcutta to Delhi right so you checked it once just for information maybe you are not in the mood your tour is not even finalized but still you checked you will see in the very next moment that information related to the pricing from for that particular tour will be reflected in your your social media account so this is how information is being shared so quickly that you first for some product similar kind of products will be advertised to you right so that you you can make up your mind and can finalize the things on our platform right so this will help only when I'm I'm closely observing my customer so then it will help us to provide the customized services right when talking about customer customer also wants quick information so like i talked about the information that what is the price of flight from calcutta to delhi so i have different platforms i can check on make my trip i can check go ibibo i can check the website of that local whatever player is indigo or airlines indian airline or whatever it is right and then i have some other platforms like exigo which is comparing all these platforms right and will give you the best option whatever you can pick as per the price as per the route as per the time and services right so customer is also in that way empowered because he is also getting the enough information so this is how the technology will help infrastructure development now this is the promise and now obviously already all the governments are working on that they have to develop that infrastructure only then the economy will be boosted up right so we have those ports airports railways and highways obviously some limitations are there will be there throughout but still the connectivity is growing better and better so that is also one kind of maybe factor and giving opportunities for improving the logistics performance emerging market so when you are

planning to expand your market right the first thing is you should have the distribution network to distribute your product to that market right so when I am saying new market so you need to understand the dynamics of that market right every market will not behave in the same way because there are some regional factor cultural factors the same advertisement will not work in India and same will not work in US right you cannot do in that way and then the kind of product offerings are there may be the climatic conditions also sometime playing role or may be the cultural values are also playing role in that and then local regulatory whatever your obligations are there you need to complete those obligations as well right when you are going cross borders or even interstate you are going so even then you might have seen the tax structure is there different tax structure is there even if you are operating in SEZ special economic zones or if you are working in outside of those zones or you are transporting your goods from one state to other state within one country even then those documentations and those a custom clearance is required the another factor which is contributing toward this is sustainability initiatives so green packaging and energy efficient transportation moves right so like we talked about if we talk about ships if we talk about electronic vehicle so when we will talk about these kind of transportation mode we can save energy as well and then we can be efficient right when we are saving energy we can be efficient and then efficiency is also directly related to sustainability and how we can use the renewable energy resources that also we need to see so fuel some alternative we can check for the uh what in traditional way petrol or diesel we are using right so that is another thing we can customer expectation is something we can never delight our customer right we can never delight if today i'm giving five percent next day that my customer will be expecting seven percent next day he will be expecting ten percent right so in that way the expectations are increasing day by day but then the minimum expectation expectations are fast delivery accurate tracking and hassle-free returns if you are allowing the returns so obviously i'll place the orders i will be you know more comfortable while visiting your website because if anything goes wrong during the service channel or maybe with the product functioning or safety related parameters I can return it on any day right. then regulatory changes are there as we talked about when we are going overseas or when we are going from one state to other state even then there will be regulatory changes and we sometimes we are bound to those environmental standards like recently whenever there is you know hike in the pollution level in delhi or ncr region so they are banning the truck where you may be 15 years old right or more than 15 years so those trucks cannot enter the delhi region so because of the pollution and all that they want to control right and then you might have heard about how the supreme court and government also they banned bs4 engine right so these are some of the regulatory measures we need to keep in mind when we are going from one reason to other reason So, if we talk about this logistics industry, you can see what is happening globally. Here you can see, if I will, randomly I will see, so 15 to 20 percent increase is

there and we are expecting of more than 14 trillion US dollar economy, just this logistics industry which is contributing towards the world GDP, right.

talking about how different countries are performing you can see indonesia 24 percent logistics they are contributing to the gdp and republic of korea is just 7.8 we are here somewhere in between so in this way we can say that we need to improve our performance because still logistic cost is higher than the big nations or we can say the developed economies all the developed economies they are having lower logistics cost just because of their the streamline operation is there they need not to wait on the road for customs clearance their systems are automated here also one very recent movement is that fasttag but if you go through only I think 45 to 50 percent they are paying through using fasttag right so in that way it can ensure the continuous movement of the vehicles on the road right but yes any technology new technology is coming so it will take at least a decade to commercialize it at fully right So, if we will talk about the industry size, so logistics industry was worth over 8.4 trillion euros in 2021 and it is worldwide and now it is expected that it will exceed 13.7 trillion by 2027. so total logistics cost if we will see is 10.

7% of global GDP right and if we will talk about regional insights so Asia Pacific regions accounts for the largest share of logistics cost because of the population and then we are doing so many deliveries right so that is one obviously big factor and then if we will talk about the third party logistics United States hold that position third party logistics is an another player which is doing all these kind of services logistics distribution warehousing on behalf of the manufacturer or the seller right and there are some emerging markets India is one of them and because of this e-commerce industry you can see the supply chain pressure index is increasing obviously because of those demands increasing from the customer side and then the trends are also changing because now we are usually we are going for online shopping where we are fixed with our mind so if we talk about indian logistics industry so now if you talk about india is second fastest growing nation after china and if you talk about compound annual growth rate it is eight point four percent behind just china yes obviously world economy was hit by this covid 19 pandemic and india is also affected by that and we can see 23.9 percent down but yes we are recovering and we are recovering in a faster way than expectations so if we talk about asian players so we are faster and if we talk about the global average even then we are doing fairly well in that so market size in 2022 the indian logistics market was approximately 274 billion dollar right and the projection indicate that by 2030 the market is expected to grow by 563 billion usd dollars annual growth rate of 9.4 percent which is huge right so but the challenge major challenge is the logistics cost where we are saying that we are contributing towards 14 percent and if you talk about bricks average that is 11

percent so we have to reduce this we have to cut down this logistics cost that's why there is so much pressure so much research is going on how we can find out the optimal routes, how we can minimize the consumption of the resources so that we can be more efficient and if we will reduce the time of delivery as well even then we will be saving the fuel as well. So, those all points are interlinked we will work on one obviously we will reduce the total overall cost. so efficiency challenges we are lagging behind the big nation and the basic thing here is because we are not perfectly using the intermodal mixture right i talked about the global averages that 60 percent your road transportation is contributing towards the total overall logistics cost but if you talk about indian scenario so around around 70 to 75 percent is going through road right So, that is another very important point we need to take care.

So, let us talk about quickly the logistics sector in India. So, logistics sector now we understood till now that this is backbone of any industry. Whenever you talk about your manufacturing industry or you talk about services industry, health care. any type of industry even healthcare you need equipment right you need medical supplies right so those medical supplies will be ensured timely only when you have that strong logistics infrastructure right and you can just imagine the emergency situations related to healthcare industry so how efficient our supply chain or logistics should be there so and because this is interconnected kind of thing right between one player to supplier 1 to supplier 2 supplier 2 to manufacturer so if supply is interrupted or delayed at one point obviously it will be delayed at the next stage as well right so to reach at the final end on time all these points should be perfectly connected information should be perfectly shared right how much time is required from stage 1 to stage 2 so let's say if we are having 10 stages all should be streamlined right so we should avoid that ripple effect and if we will talk about logistics sector in India these are some of the challenges which we are facing in India right so quickly we will go through one by one first talking about high order intensity ratio so because of this is the first very big advantage that because of the huge population we will also reduce we will get those many orders right so any day you will start you will get those kind of minimum orders this is kind of opportunity but yes this is kind of pain also for the logistics manager because they need to organize the products in that way because there may be some products which require some priority there may be some products which you can delay little bit or whatever your promises are if you are into pharmaceutical industry also there are also some perishable medicines or vaccines you need to deliver on the same day or you need to deliver the urgency is like that you need to deliver within 30 minutes right so then also you need to prioritize so it takes time only manually if you will talk about we cannot count on fingers which one is you need to prioritize and which one you can delay so that also you need to set up the technology where we are still working on that and we need to reach at that level where quickly we can share the information next important point here is the payment cycle how quickly the

payment will be done so that it reaches from the customer end to the first supplier because first supplier when it is reaching to the customer end he may be in a flow of supplying the second or third or fourth load right but he is still he has not received the payment for the first one so then it will be problem right so that also we need to ensure how quickly we can ensure the payment cycles second point is transportation road blocks so because i told you that seventy percent share is because we are going through road so that much is contributed by road transportation and road conditions today it is okay maybe tomorrow there will be some accident or maybe landslides or maybe weather conditions so then again these no one can predict right so when we cannot predict so we cannot plan for that so then how much inventory or stock you need to keep with you because you are not sure when you will get the next lot right and then this is not the end even if you are going through road transportation so many checkpoints are there toll stations are there so how we can streamline these toll stations with single payment or document you can move across the borders right this how we can ensure so only digitalization will help into that so that will help us to save the time so rail tariffs if Obviously, if we talk about the cost, road transportation as I told you this is 70 percent contributing towards the total intermodal share if we will talk about 2.5 rupees per kilometer, but if we will talk about train it is 1.

5, if we talk about ship it is only 0.25. So, this is the most efficient way of transporting your goods, but the problem is whether we have that infrastructure. everywhere it is not available so how then we will deal with this right then air transportation is if we will talk about globally it is less than 1 percent because it is very costly but yes then we are doing for emergency kind of things or high priority products we are doing that right but then we need to find the perfect mixture of all this so that we can ensure the timely delivery with the minimum cost port and shipping problems. So, probably taking this kind of transportation of mode is taking the longest time, but yet it is sustainable and the cost is one factor which is very very important and it will lower down the cost, but the problem is related with the infrastructure.

So, because usually these are shipped through large vessels and when you you want to you know import to some part maybe the depth is not that much which is required sometimes right and then you cannot ship through large vessels right this is another infrastructure limitation so even if you have port nearby you cannot ship large vessel to that point so then you are shipping it to some maybe far away and then again you are using the road transportation so that end-to-end connectivity is also problem as far as port shipment is concerned lack of skilled and specialist personnel it is not like that it is just simple you are packing and loading so there are professionals for this and right this is very very important because packaging is the first face right is the face who is going to interact with the customer so we lack with the trained staff and obviously training cost is

there and labor turnover is also there right so there are lack of skills even we are not going for proper training programs we don't have time because initial investment we think is very high so that somehow we want to cut down so there we are compromising and then people are coming people are leaving and we are not getting the right talent for this Slow transition into newer technology, if we talk about Japanese network structure, it is very fast. And how they are commuting from one point to other point is marvelous. So their strong network, distribution network, provide them obviously the competitive edge. But why the other countries are failing? the slow adoption of the technology is maybe the another reason and why slow adoption because the initial setup cost is very high so this initial investment is high and then we are sometimes the fear that maybe we will not be able to recover this cost fully or maybe other players are there who will be leading this industry and we are in that dilemma whether we will recover the initial investment or not so let's continue with the whatever technology we have Then when you are implementing the foreign technology or any new technology, you need to obviously import the expertise as well who will train your workforce. So, that is also time consuming and cost carrying activity.

So, these are some of the reasons why we are slow in adoption the new technology, but yes when you want to compete at the world level you have to be updated with the technology. Warehousing and taxation discrepancies, warehousing facilities if we are having poor warehousing facilities. So, many damages are happening, leakages are happening. And then sometimes if you are talking about the perishable items, so those cold storage are required, but then we are not having that much infrastructure. This is another point which we need to strengthen up.

And then the different layers of text structure is also imposing so many hurdles in the smooth flow of that logistics. So, when we talk about competition with global giants, which are working on very short supply cycles, which are having that latest technology, then there is the challenge for the Indian logistics company. probably that may be the reason Flipkart struggled to you know but still Flipkart is carrying around around 48 to 50 percent share but yes facing tough competition from foreign player Amazon but now because Flipkart is also acquired by Walmart they are claiming around 60 to 70 percent share in that so maybe then Walmart is the world retail giant right so when once walmart is there so then you can just expect that level of technology integration that level of efficiency inventory the way they are handling will will do will discuss the full case on how walmart is so so cost efficient and delivery is perfectly done within the time and still they are managing selling the t-shirt at five dollars right so how they are doing that Then customer mindset, so many expectations, demands, the type of product they want, the level of quality they want, the level of services they want, the variety they want and the

time. So they also want a very minimum lead time, short lead time. So how this is possible? This is another challenge for Indian market.

So growing customer demands, how we can meet those growing customer demands. So still Amazon have internalized and streamlined their entire logistics process in order to meet the expectations of the customer. This is another very big challenge fuel economics if you try to understand the base price is somewhere around 30 rupees. and then layer over layer the taxes are added and then the cost is somewhere around 87 rupees so this is not the latest one now we are reaching around somewhere around 100 rupees so i mean this cost is something beyond our control so they they are obviously pushing down our margins the profit levels so this is one point how we can fight with we need to find out the alternative ways how we can make the last mile delivery using electronic vehicles or cycles or electronic cycles as well right and then you will be able to add into sustainability as well because you are reducing the carbon footprint as well and then you are cost efficient as well so and then proper mixture of all different types of modes of transportation will help into reducing the price of this transportation so government policies and bottlenecks Or the government is streamlining the process, fast tag, one document, so that kind of red carpet treatment is now done with all the players so that they should invest in India and we can even export to other countries as well. That kind of movement is going on.

Still we are trying to come up with the best infrastructure where we can provide those services. and shortage of drivers and delivery staff this is another problem with Indian logistics industry where we don't have the trained staff and because the motivation and the compensation may be sometimes they are getting is not enough to motivate them to keep them in that industry so they are also leaving so how we can you know empower those players because very important players. So, if we will empower those drivers may be in terms of the same driver is working as delivery staff also or may be some other value adding activities they can contribute. So, in terms of they will also find themselves connected with the distribution network part of means they will feel as one of the stakeholder and may be then we can retain them for longer period of time. so here we can conclude that manufacturing logistics usually now we are dealing with the products how we can ship that product so usually we will talk about the inventory cost how we can control that and in what order and quantity we need to produce those products and then managing the distribution and transportation So, storage is another point which is important in manufacturing logistics, but in we will talk about the services industry, there we will talk about the queue management.

There is no such concept of inventory management and the major forces as we talked

about the globalization is one big factor, the e-commerce, the way the e-commerce industries are coming up with the new innovations, 30 minutes delivery concept and promises. a very big force if you want to survive you have to come up with the technological investment you have to come up with the you know more infrastructure and also the sustainability initiatives also because now as a customer customer are preferring the products which are sustainable if it is written on the pack packaging like myntra is doing so they are writing on their packet that it is 100 percent recyclable and that packaging is made up of paper right So some customers are more conscious about that and they want their products should have minimum carbon footprint. So these are the text and reference books. Thank you so much.