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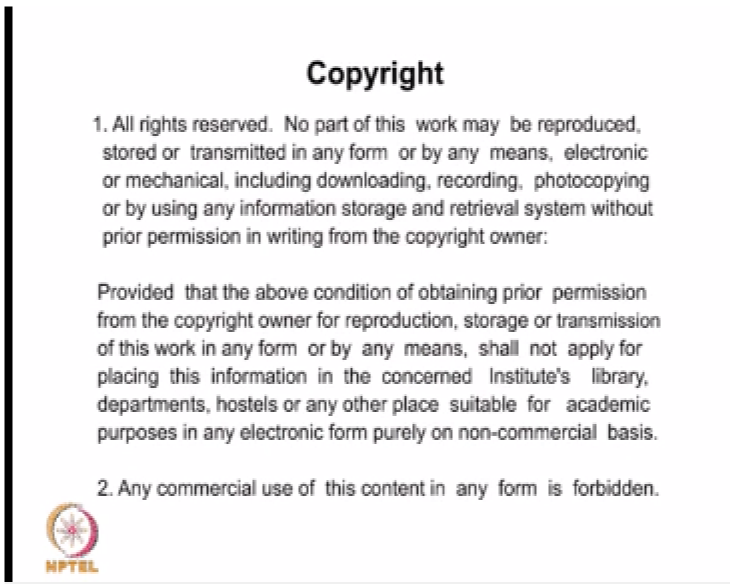

Global Supply Chain Management

Lecture – 02

Introduction to Global Supply Chain Networks Part – 2

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We will continue with the introduction of the global supply chain networks.

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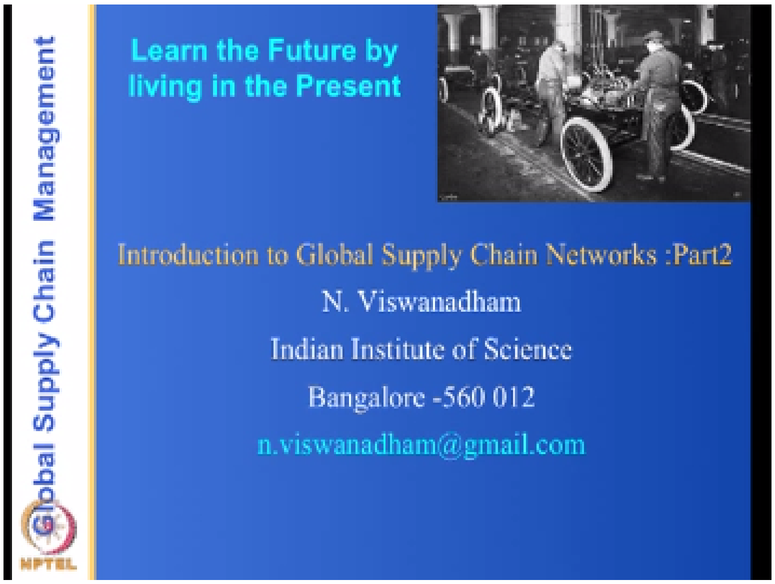

So what very briefly what we did last time was summarized is summarized in this slide we said we have a number of players in a supply chain Network.

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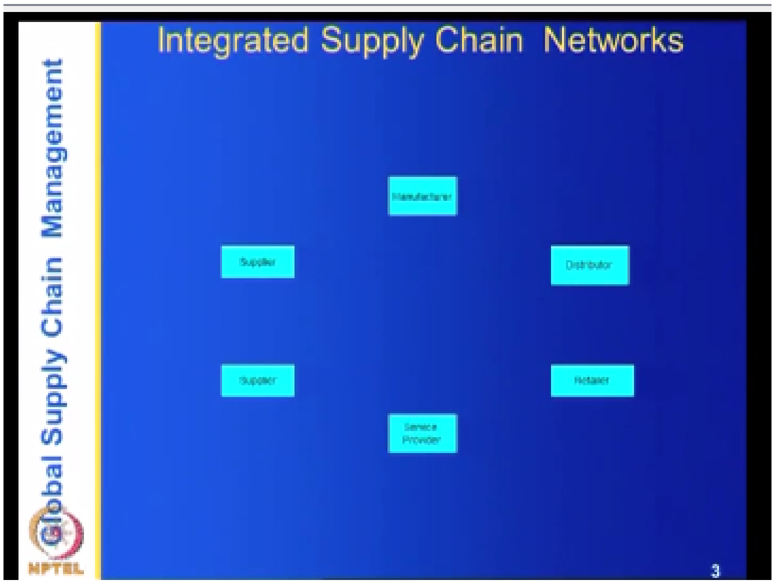

There are suppliers from various countries the manufacturers either multi site or single site or distributors and retailers and several service providers the service providers could be financial service providers logistic service providers or fright forwarders whatever there are several kinds of foreign service providers that are required and we also said that there is a logistics network that is connects which basically transfer of which enables the transfer of goods from one place to the other.

For example from supplier to the manufacturer to the distributors to the retailers and so on and also the network is enabled in terms of the information transfer by means of a web Network and information network which connects all the players in the supply chain and this is a secure Network which basically transfers information the information could be financial information or it could be information regarding the ordering requirements the designs and other kinds of things.

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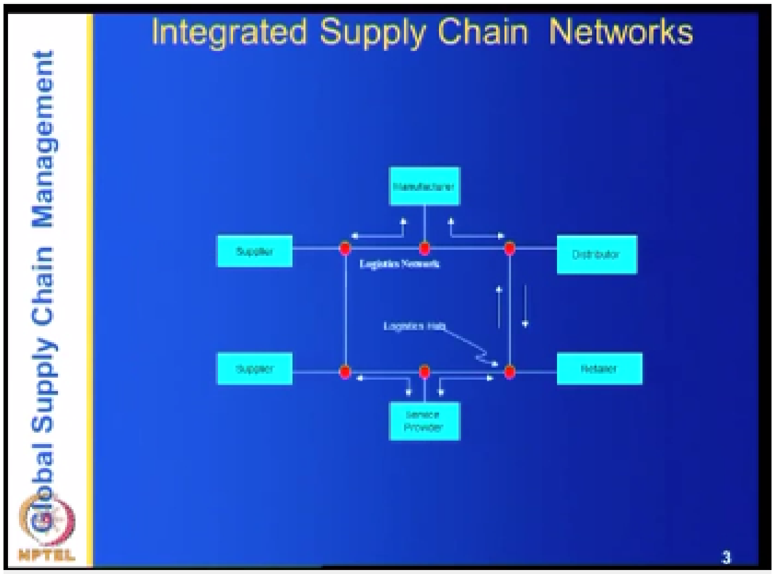

So and next this one that is connected is the financial Network so unless as I said before unless money moves nothing moves so the network consists of a finer Network which basically are the banks of various institutions and the transfer of money happens through the banks as I said this kind of integrated supply chain network has three net sub networks and the sub networks are basically the demand Network basically this is the network which connects the manufacturers to the distributors and retailers and depending on the customers demand the retailers order from the distributors and from the distributors will order from the manufacturers so this is called the distribution and retail process.

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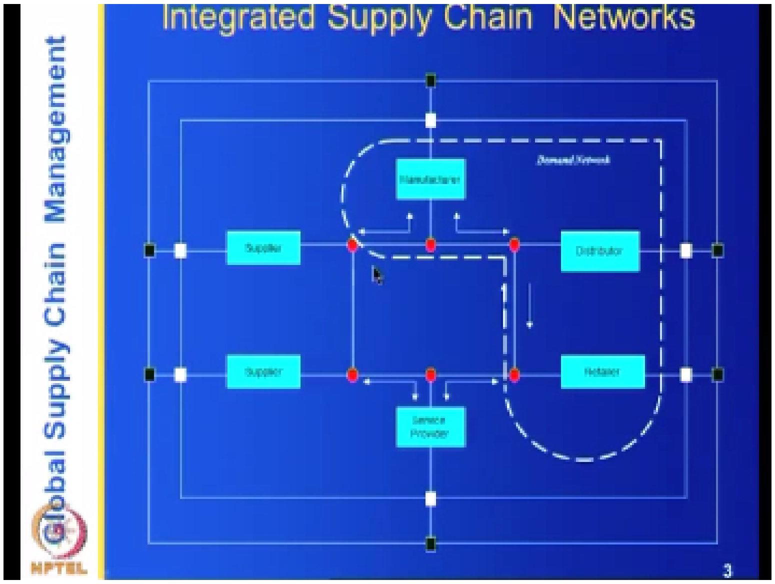

And the other one is a supply network where the suppliers and manufacturers are connected and the logistics that is involved connecting the suppliers to the manufacturer is called b2b Network business-to-business logistics network and heavy transfer of material or Goods happen through this particular network and this is also called a procurement Network.

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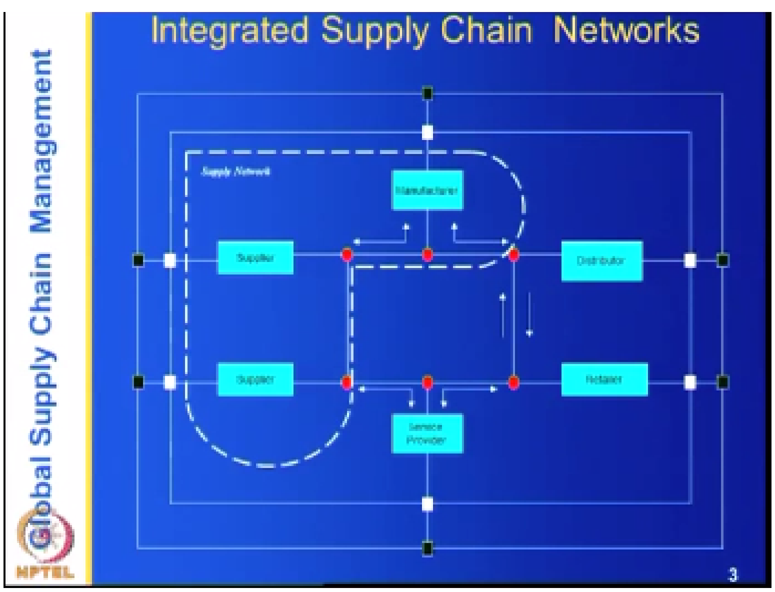

And finally we have the service network where the customers the retailers and the service providers and the suppliers are all connected for space parts as well as after sales service and so on so these are the 3 networks that we have sub networks the service network the supply network and the demand Network and we also said there three business processes and last time one in the procurement manufacturing and third one is the distribution and retail.

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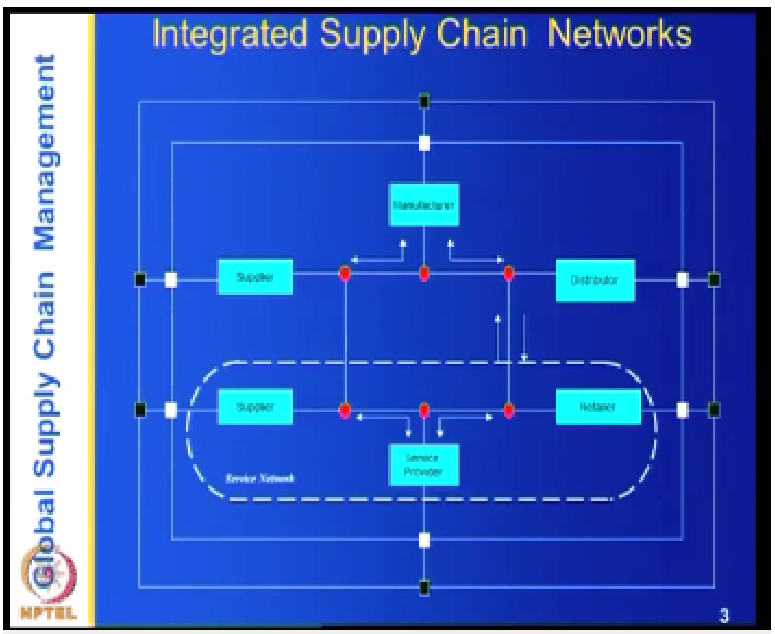

So here what happens is if you want to look at as an example supposing you are making a Barbie doll and the Barbie dolls are famous and they're sold in the US and such a network Barbie doll Network let us look at what happens here the plastic and hair are sourced from Taiwan and Japan and the molds and paints are decorating the dolls or from the US and assembly in low-cost locations in Indonesia Malaysia China and China supplies only cotton cloth for dressing up the labor and also the labor.

For all this so if you look at this kind of globally distributed Barbie doll I mean it is difficult to imagine that so many countries are involved in making a doll like the Barbie doll and the export value of the doll at Hong Kong is $2 and out of that 35 cents for Chinese labor 65 cents were material and the rest for transports warheads and profits so if you look at what happens later is the doll sells at $10 in the US $1 for metal who sells who is the boy AMR manufacturer of this one and the rest covers transport marketing wholesale and retail in US. so you can see how the cost is involved in this and why you know the companies in the US like matter for dolls is sourcing from Asia-pacific like Taiwan Japan China Indonesia and so on so this is what we call this integration of production of the Barbie doll so even a simple thing like a Barbie doll is made in several countries and you require the cooperation of several countries for making this particular doll.

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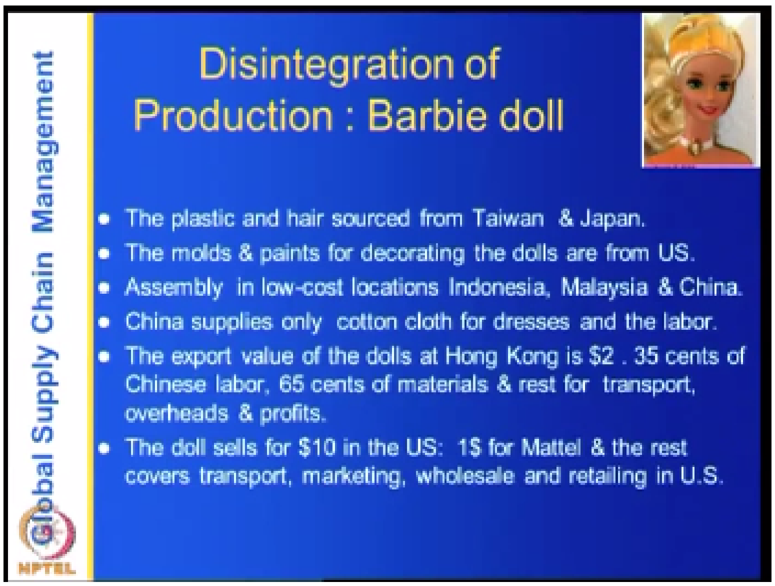

Now one thing I would like to see is that we found that there are several dominant players in a supply chain last class we have found that and they are the suppliers Logistics players for business as well as the business to customer and there are several contract manufacturers original equipment manufacturers distributors and retailers but one of the very important players in this are the logistics players so I want to yes have briefly touch upon what is above the logistics players.

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And how they are involved so the logistics depends on the life cycle in other words if the product for example is the movement of semi-finished items from one machine to shop to another it is called manufacturing logistics in other words if you have a big machine shop and you have items at one machine and they are transferred to another machine then it is called manufacturing logistics and the other one is movement of finished goods from one end of the production line to the consumer it is called out born logistics in other words the products the finished products they go from the manufacturer to the distributors to the retailers.

And finally to the customers this is called outbound logistics and movement of raw materials from source of supply to the beginning of the production that is through the suppliers to the manufacturers is called inbound logistics and movement of spare parts from manufacturers to customers wire dealers is called spare part logistics and movement of used Goods from consumer to the manufacturers is called reverse logistics one word about this reverse logistics.

It becomes important when the items are of either plastic or steel or something if you want to reuse after the consumer has disposed of the particular product whether it is a car or a cell phone or whatever then the reverse logistics plays a very important role so depending on at what stage they of supply chain you are dealing with the logistics varies from manufacturing to inbound to outbound to spare parts to reverse logistics and each of these logistics this one have their own peculiarities and you have to treat them separately.

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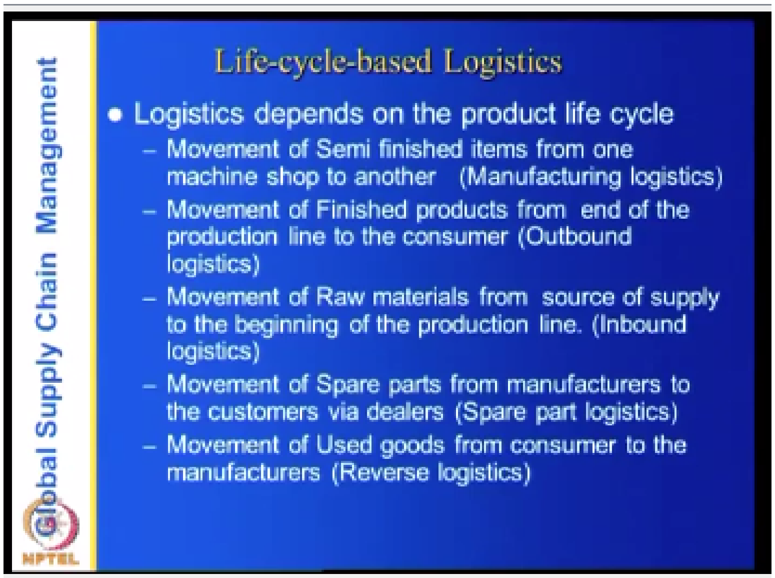

Now if you get into the logistics literature or logistics vocabulary the people call it single party logistics player - quality second part is logistics players and third-party logistics players and fourth party logistics players so let us just briefly see what is 1 players most manufacturers handing all logistics functions including trucking and warehousing they are called single party logistics players that is you do your own logistics you have a separate division.

For logistics you one your trucks and you one your warehouses and all that so you do not depend on anybody else for the logistics function then it is called a single party logistics then second party logistics is basically transportation and storage providers and that is warehouse Warner's and trucker truck owners they bill and they basically provide the services to other manufacturers in other words if you are a manufacturer you do not want the truck but you outsource the transportation to somebody else or you hire it on contract some other trucker and you hire on contract some other warehouse and container loves and so on so the reason.

For outsourcing misses these trucks warehouses container lines these are high asset intensive in other words they basically have this you had to spend a lot of money on these assets and there is a lot of capital that is needed so people tend to outsource these particular functions and the airports and seaports are categorized or two piers now for example if you have an outpour Airport one bike mostly the government is and the government basically provides the services to all the players and so on so and the logistics are the manufacturers do not want the airports they use the airports by paying the fees third party logistics players are very important and they provide end-to-end value-added logistic solutions in other words if a supplier is applying to a manufacturer then the truck the third party six player collects this from the supplier the material from the supplier the shipment and he delivers it to the manufacturer now here in the middle if it has to be there is a distribution center or if it is a truck hiring the driver hiring all these management of the end-to-end process is taken care of by the logistics provider.

So it is not just outsourcing they truck like in the 2p a lot of warehouse but it is an end-to-end solution so the supplier the manufacturer need not have to worry they have to just hand it over to the third party logistics player and he will deliver it to the manufacturer and sometimes some of these manufacturers have a lot of insurance and other kinds of things if something happens on the way so they are a part of the total supply chain this one so you have single party logistics players two party logistics players and third party logistics players.

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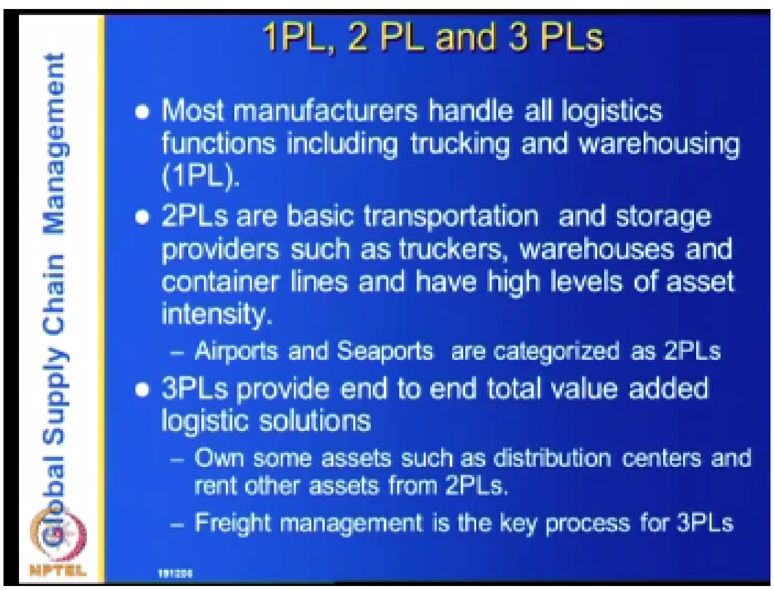

And there is another this one called Liege logistics players or 2 piece this LLP piece they do not own any assets in the case of third party logistics players there would not be warehouses they would not the trucks are they outsource their trucks and so on so but here the lead logistics players they follow what is called leverage growth model they are just orchestrators and they mobilize the needed assets and capabilities with other companies to deliver value to its customers so here this is wanting nothing but managing all the processes.

Here and the assumes responsibility for the logistics and management of the collaborative relations or in the network and alliance participants objectives with those of a complete chain so the whole responsibility of correct delivery perfect delivery of the particular assignment from the supplier to the manufacturer or from the manufacturer to the disease to the dealer or to the retailer rests with a little date logistics players leave logistics players of course are becoming very common nowadays orchestrators must be competent at recruiting right providers.

And developing strong ties with them in other words if you do not want anything and you are just managing or orchestrating then it is important when there is an assignment of delivery of a logistics issue then you should be able to provide the right or I will select the right providers and develop strong ties with them so this is basically and management issues like a broker issue and leave logistics players are very important and IT connections social networks play a very heavy role in the design of lead logistics providers their functions and all.

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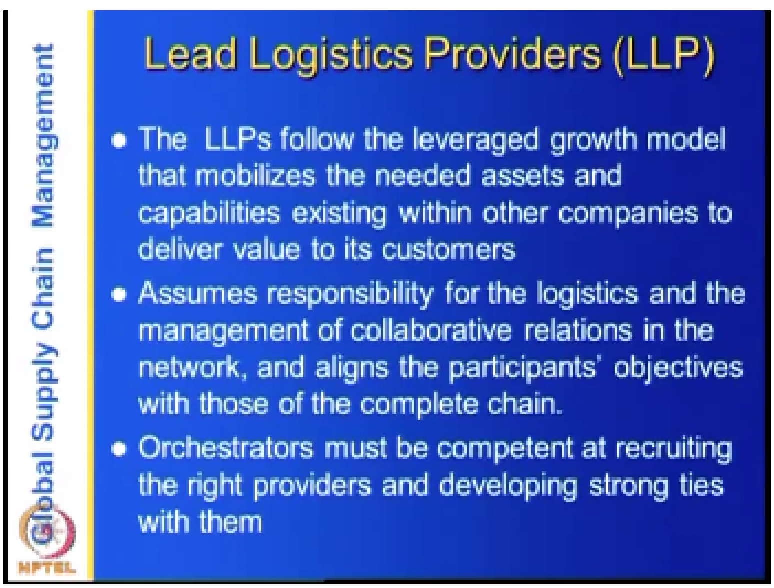

So on so once we had this we basically have covered so far the supply chain network and we have covered some examples and then we look at the integrated supply chain Network global diagram it has three flows the goods flow the information flow and the financial flows and we have the corresponding networks and the good flow is happens through logistics providers we have seen that their single party to party third party your fourth party logistics providers and so on now to look at the other issue which we have not covered so far is the globalization issue we said it is a global supply chain network.

So what does global me so global means you are different countries are involved in the delivery of the particular product so the supplier is in China a the manufacturer is in Singapore and the customer is somewhere in the US so the products are the components have to travel several countries and it has to visit several ports airports and it has to visit several warehouses it has to be uploaded downloaded from various warehouses and so on so then comes the issue of trade what are the global trade issues that are there in the very briefly in the supply chains.

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So if you have global supply chain networks it is the convergence of several technologies on co evolution of several global players this basically is what is happening in a global supply chain network and what are the reasons for this proliferation of this global supply chain networks decline and transport cuts now most of these 80 or 90 percent of the transport in globally happens my shipping so well over the last several years.

There were several innovations in shipping for example containerization instead of putting break bulk products into the ship you put them in containers and transport them that gives a lot of flexibility and also the ships are larger and oil prices have come down drastically till 2008 and so on so there was a decline in the transportation cost and second thing is there a lot of standardization in terms of product assemblies and that resulted in outsourcing third one is the emergence of Internet in other words communication has become more secure and fourth one is emergence of contract manufacturers and efficient logistics powers as we have seen the six dominant players in the supply chain network or the contract manufacturers and efficient logistics players Waller time there were several ports.

That have emerged like Singapore Hong Kong Bombay and so on and also there are very global logistics players and contract manufacturers that have come in all verticals including auto electronics and so on and greater integration of the economy by reducing the trade barriers now if a product has to travel from one country to another then the permission is needed from the country they are basically the global trade and WTO World Trade Organization and other global organizations.

Have several things to do the duty greater integration of these economies and this is also providing the improving the economic conditions of these economies so that is where there was greater integration of the economies and the trade barriers trade barriers are basically the customs and the rules and so on so you can say a particular product say a rice cannot be exported from this country or you can say auto parts are not allowed into this country so you can put barriers of con trade on this depending on the country is requirements and the local manufacturing conditions.

So but all those things are all well sorted out and there is a greater integration of economies by reducing the trade barriers so because of all this there is proliferation of global supply chain networks.

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And the in this as we have seen when things are global the institutions which means the governments and social groups they play a great role so because of the pass through several countries through ports and airports and they have to be managed to minimize the lead time and interview.

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What happens if the particular assignment or consignment waits at a port so if it takes for customs clear and say eight days or in places like Singapore or Hong Kong it takes 8 hours so between 8 days and 8 hours the inventory is lying at the port to that extent so much of inventory need to be maintained by the manufacturer or the supplier which means cost so the ports and the trade rules play an important role in the performance of the supply chain that is both the lead time lay time means how much time it takes for goods travel from one point to the other and also the inventory so the soft infrastructure.

There are two kinds of infrastructure one is the hard infrastructure and the second one is the soft infrastructure the soft infrastructure which is it is called trade facilitation trade facilitation meaning then when you are having the trade this one you have to fill in some forms there are some 100 forms that need to be filled in and it has to visit several people the customs officers both at the port and outside of the port and this is have to be filled in sometimes by on paper but if they are made online and they were done through email then that facilitation trade facilitation becomes easy and it becomes faster and till the these documents are fit.

And they are approved the goods cannot move so that is where the trade facilitation on the documents that you feel will this one and there are what are called free trade agreements between countries in this between two countries for example India has free trade agreement with the Thailand several other countries with Singapore and it has free trade agreements with Silone and others so these free trade agreements are very specific in other words they're for auto components or they are for food and so on so those free trade agreements will help in terms of the trade facilitation because when you have a free trade agreements then there are no customs duties and it all depends how much of quantities can be basically transferred.

Across the countries by the players another thing is mentioned in a free trade agreement that that means there are no taxes and the countries this is a mutual this one country allows the other country allows something else and so on and also the customs duties play room they pay ten percent 18 percent and so on and the business friendliness and economic diplomacy of the government's the business friendliness is an environment of the country in other words not only the government may say anything but what about the social groups.

What about the labor what about the other players who are there in the ports and outside of the ports whom with the these particular businesses need to deal with and social factors such as labor unions industry associations are also important for society superior performance see in other words you are not just dealing with as a particular supplier if you are transporting say a particular auto components from China to India then you are not just dealing with the total components you are dealing with the entire ecosystem you're dealing with the Train is coming you're dealing with the Indian government you are dealing with the port where you're entering and at the other port where you are leaving and also the customs duties you are dealing with the labor at most hands you are dealing with the industry associations.

And so on so it is basically in a core system that you are dealing so the global supply chains here becomes complex because of these issues and favorable Institute environment reduces the transaction costs and it will personally and positively influence the trade so the trade is something is one has to be extremely careful about choosing the country or dealing with the.

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Favorable institutional environment which is the soft infrastructure which I talked about it reduces the transaction costs transaction Rosslyn is the cost of final delivery if you are say going through from ports where it Sewed is for customs clearance. Then you are maintaining so much of inventory you are paying for that in inventory cost and if you have to pay a bribe if you have to pay if you if you are passing through some ports with a bad infrastructure and it takes a lot of time and there is damage of your goods because of various reasons so then your transaction costs also will increase so the favorable institutional environment it reduces the transaction costs so what people say is when you are looking at trade and when you are selecting a country and a supplier you are not just and selecting a supplier you are selected in the country and its environment. It is labor force its other social and other factors labor unions industry associations and so on so this is a part that one has to be very careful if you look at over of time.

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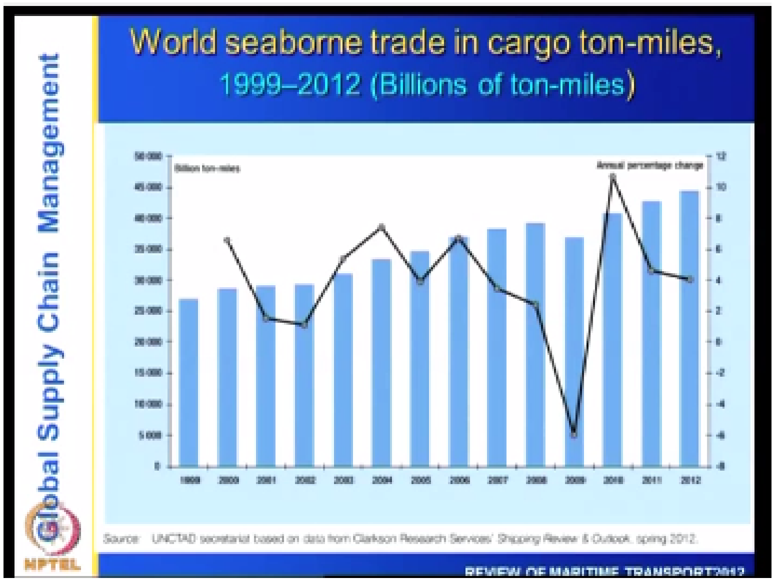

Like 1990 to 2012 here the world seaborne trade in car core 10 miles has increased enormously so if you look at the trade in 2008 for example now you know there is a that the blue thing is the race you will see that from 1990 onwards it is only raising it is never except in 2008 the reason for 2008 decrease in the trade is the financial crisis in the United States. So because of that there is a sudden dip in the percentage of trade in 2008 but of course from 2010 onwards 2011-12 it started increasing so basically the one can see that the sea trade 80% of the trade as I said happens through the seas and that is what happens here? In this one so here.

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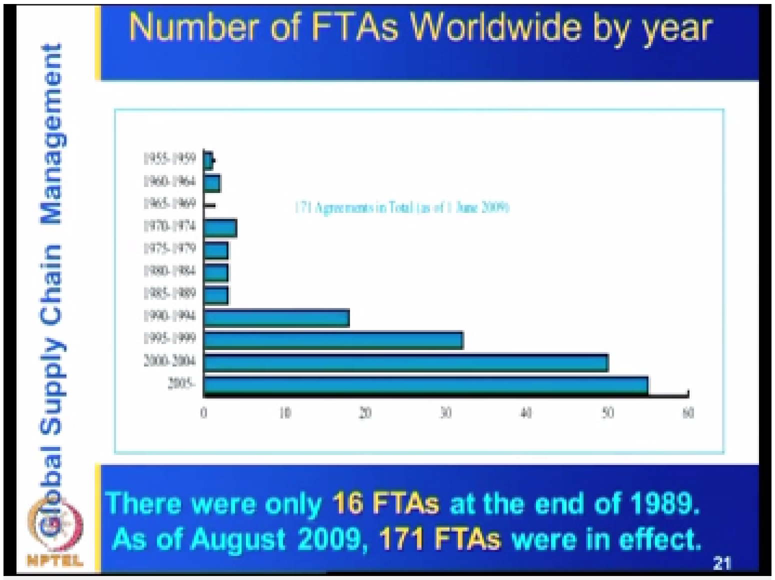

You can see that the countries are also trying to collaborate with each other the free trade agreements there were only 16 in 1999 and as of August 2009 271 free trade agreements so these free trade agreements which are between countries to countries. In other words there is between India and Singapore India and Thailand in the earned and the United States and so on so basically they these free trade agreements have increased enormously less well this free trade agreement shows and the 40 percent of the trade the statistics show that 40% of the trade happens to three free trade agreements.

So if you are an export oriented country then it is important that you have free trade agreements with your buyers if you are manufacturing say cause for example like Japan which exports a lot of cars then it must have with all the other players where there it is just customers exist so it should have tried to have free trade agreements so that it becomes easy both in terms of transiting as well as in terms of other factors that that matter in globalization so in global trade we have found that there are free trade agreements and they are shipping another cause and that happened and you have basically several factors that you need to worry when you are talking of a global supply chain and if it is a local supply chain.

That is a supply chain within India your supply chain within United States then all these factors you need not have to worry you need not have to worry about customs clearance you need not have to worry about free trade agreements and so on it moves within the country and you have a truck network a road network and the network is the one that matters but of course India you have several states you have several other problems that are associated when you will crossing the states but still you do not have customs clearances and these forms and so on. So basically what is happening here?

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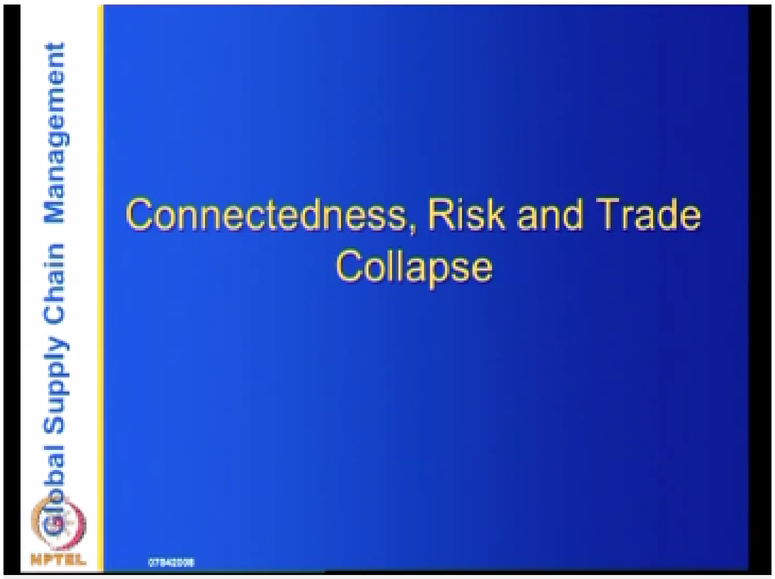

Is the we have seen so far that the supply chains are connected logistically that means through a logistics network and the logistics network whether it is you do your own logistics or you outsource it to a second party or you just give it to a third party or you hire somebody who organizes the logistics for you are all globe your goods are all connected the movement of goods between the suppliers to the manufacturers to the distributors and so on it is all taken care of there is a road network there is a train network or there is an air network or shipping Network all these networks are all basically exist.

Now they other issues are through trade facilitation and the global trade requirements and WTO regulations and free trade agreements so on so basically this connectedness efficiency improves but then what happens is the connectedness always brings risk and risk can bring threat collapse so far we have been talking about the good things of the supply chains and let us see what happens when the when you are very well connected both logistically informational II and financially then you are doing very well because your efficiency will increase your inventories will come down your lead times will come down and your financial problems are all solved because your banks are all well connected but since you're so well connected anybody anything happens in any country can transmit to your entire supply chain this is like a body where the supplier and if you compare it with a body where sir you have a headache where they have a leg pain whether you have a hand pain you cannot function so similar things happen to the supply chain once it is global that means anything happen and it happens anywhere in the world can affect your supply chain so that is what we are going to look at now.

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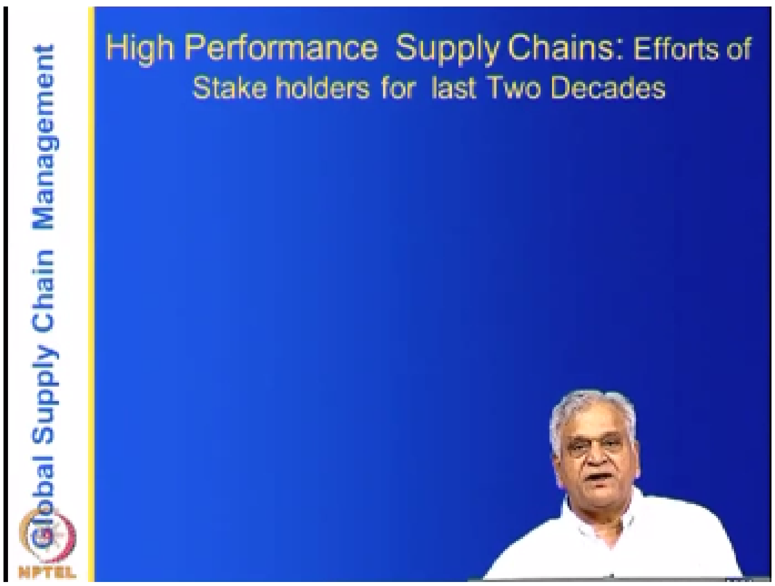

So high-performance supply chains for the last 2 decades. For the last two or three decades people have worked very hard and they have basically well you must have heard of what is called a lean manufacturing.

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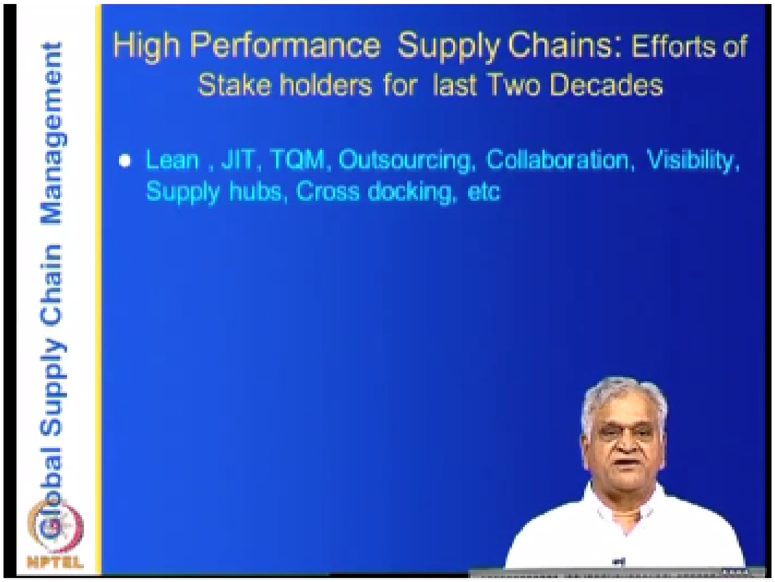

That is less inventory and JIT just-in-time do not keep any inventory you transfer the goods just-in-time and total quality management that is you just basically want quality everywhere quality of the process quality for the products and so on you can stop the process if the quality of goods are not good and then repair the process and start processing again. And there is outsourcing as we have seen earlier that.

Outsource into low-cost countries and so on there is collaboration between various players they are connected through internet they're connected to logistics players their banks are connected there is visibility in other words whatever is happening anywhere in your suppliers and so on you can visualize you can get information you can throw faxes through video audio and so on and their supply hubs where you maintain the inventory before the manufacturing to maintain.

So that as soon as an order comes the order can be executed immediately there is the cross docking where you do not want to keep the inventory in a man fat you name warehouse but you want to transfer from one truck to the other so these are the kinds of processes that you have basically designed so that your processes are highly efficient in other words this time you spend from end to end transfer of goods it is going to be the least and also the cost is less because you are not maintaining inventory on the way and you do not need any warehouses and so on and also any problems are fixed right away now there are basically.

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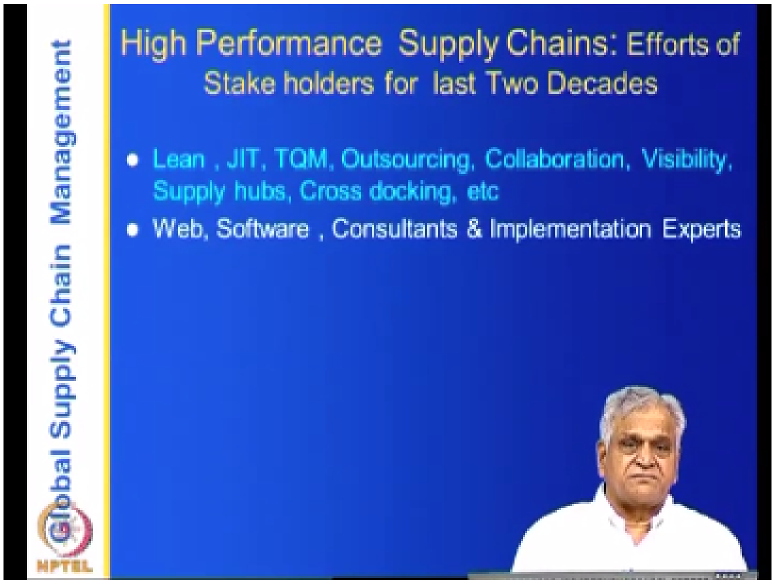

The web that is the internet and also there are a lot of software's which are given by ASAP Oracle and other organizations for supply chain planning on others there are lots of experts consultants who basically are map with the processes like the procurement process like the distribution process like the manufacturing process and they have given the soft ware's for efficient implementation of these particular processes and they are basically consultants like making the exchanger. And others who are doing this kind of software and consultancy and so on so high performance low inventory just-in-time.

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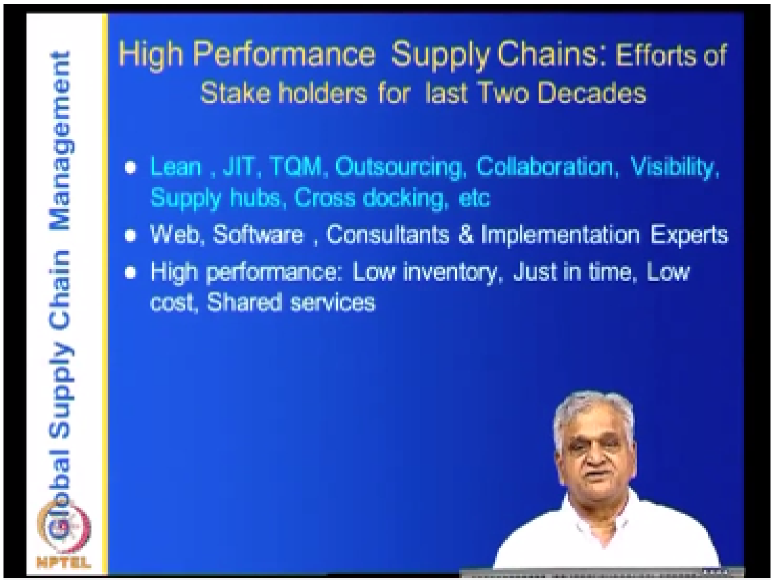

Low cost and shared services like if you are outsourcing a logistics provider and you are sharing the service all the IT that is done that is required is outsourced to some third party place and where is your data or the regarding your supply chain it is all somewhere with your Infosys or TCS or some other company in the United States is handling or IBM is handling your IT services then all your data is stored somewhere in some memories of some shared memories of some service providers so all this is giving leading to high performance. And low cost and global sourcing from low-cost countries is another thing that you are doing.

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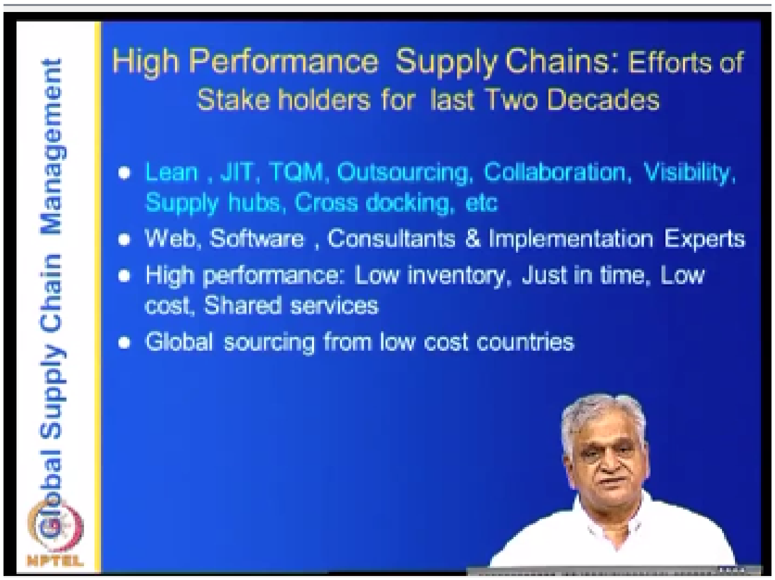

So high connectedness as we said which is logistically informational II and financially is the result of and that results in high performance as I said both in times of cost both in terms of time cost and also in terms of efficiency they have become very efficiency so the final goal of any of these supply chains over the last 2 decades have been in supply demand in other words the supply chain should not lose any customer demand so they do not the customer is the king is the in this one so you want to make the entire supply chain.

That is from the component to the customer product you want to make this whole thing very efficient and the time as short as possible and the cost as low as possible so that was the final goal now but then you have a such a supply chain which is lean and which is high performance and so on then it is brittle in other words anything happens anywhere can affect your supply chain so that's what is what is happening here because you are keeping low inventory if your truck fails you don't have inventory your production stops since your you are following just-in-time principles so in case there is a fire in your suppliers factory.

Then your supplies of your that particular component stocks so and if you have a shared service and if some service provider has this memory services outsourced to somebody in some country and there is a war in that country and there is an IT outage then your services get affected so this high connectedness either foreign for there is a financial crisis say in the United States all the banks units USR got connected that leads to credit squeeze and that gets affected your supply chain so whatever happens anywhere in anywhere in the world affects your supply chain and that is the price you are paying for the high performance.

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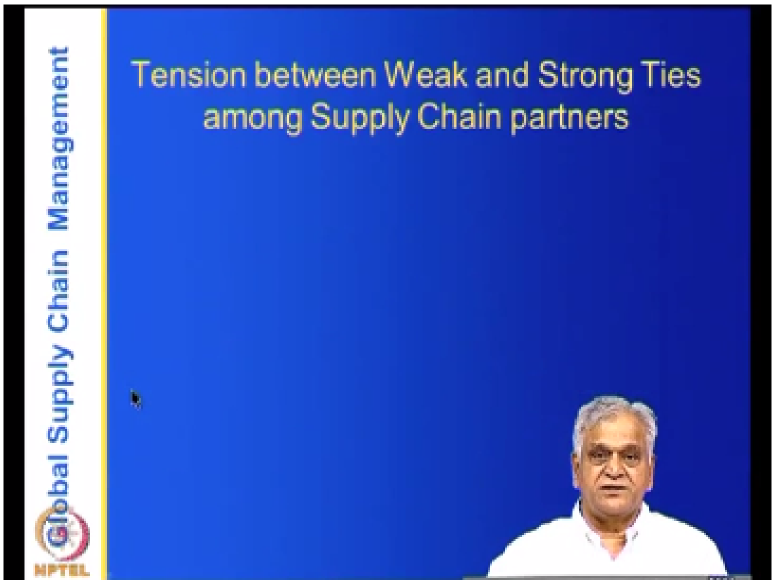

So let us look at some of these so there are basically tension between while weak and strong stress m1 supply chain partner supposing do you want to have a 10-year contract with your supplier and we want to show that you can share all the information from him you can share their designs so he keeps on to me and if you follow Adam Smith's principle if somebody is doing something for you he does it better and better and better and so on and also the you are basically having strong ties with them so they trust you trust them.

And so on but what happens here the buyers may socially obligate themselves to partners with absolute capabilities and ignore potential new partners now this is a world where technology is changing very fast so you have moved from PCs to laptops to and else to cell phones and so on so basically if you are tied up with one with absolute technologies then you may be able to there is a risk of you are getting absolutely yourself so there are weak ties that is the arms and relationships they're in centralized partners to be on the cutting edge.

In cost and innovation so you tell somebody look I am going to service 30% of your capacity but the other 30% you should get from others you should be if I if there is a change in the technology then I will shift to some others so but on the other hand if you yourself or renovate again ask to change to that technology and source from you so basically you are trying to keep the people on their edge and then that army length and relationship will provide you flexibility you can move from one supplier to another supposing there is a problem if the Japan there is a tsunami and so on then you can move to somebody else in some other country.

Who is manufacturing this so for whatever reasons so if you have there is a this one between strong ties and weak ties but on the other hand if you have weak ties. When somebody if that fellow steals your intellectual property then there are nothing much you could do about it but another hand if you in strong ties then you have trust that is built up over years and so on so there is always this tension of weak ties and the risks associated with both strong ties and weak ties.

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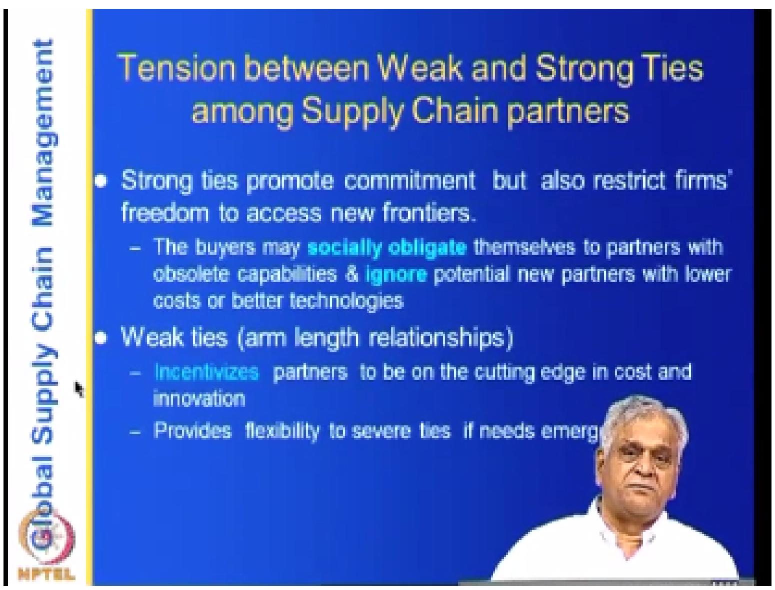

So what people were immensely was that recently in 2008 there was the financial crisis in the United States now this financial crisis is basically what is called home loan crisis people have bought homes and they did not pay the loans so the banks went bankrupt and when banks Bank wrapped up that basically transmitter to other banks.

But why should a supply chain be affected because of this two reasons one is when banks go bankrupt the other banks that is what is called credit squeeze most of the products like automobiles or the big products they basically bought through a mi so you pay monthly installments and so on and for providing this EMI there is a interest that is associated with it so the credit squeeze means that you have to pay high interest so people start postponing the buying of these items which means the demand Falls so once the demand Falls you have a just-in-time connected supply chain so that means the people start canceling the orders so when you start canceling the orders the suppliers will basically lose this one so basically.

What is happening the efficiency of the supply chains have become risk creators outsourcing international logistics internet credit through letter of credits and trade and financial flow liberalization all these are acting as risk creators so 2008 financial crisis and decline entry it basically I'll show you in the next slide how the decline has happened in 2008 fourth last quarter and 2009 first quarter there was heavy decline in terms of trade and this reasons for this is the financial crisis in the United States.

Why should financial crisis cause this one thing is the bank interest rates have increased and second thing is banks also provide what are called a letter of credits or LCS now the LC means if the payment from the foreign supplier to a manufacturer now if you supply some goods to the manufacturer I do should collect cash immediately or should have confidence the manufacturer is going to pay you after sometime now what is the guarantee that the manufacturer will be able to pay so they guarantee is the letter of credit from the bank of the manufacturer to the back of the supplier now this there is a price the letter of credits can be traded you can take loan on the letter of credit and these letter of credits you have to pay a price for it and interest for this so the interest have increased in the letter of credits and also people started suspecting the foreign banks.

And so on so there is a sort of financial insecurity that is associated and that has crossed the decline in trade and similarly the earthquake in Japan and 2011 march 11 that has caused tsunami and a nuclear explosion and that has shut down the electricity in parts of Japan and that supplied threatened supplies to require parts and also the electronic parts across the globe because Japan supplies the auto parts as well as the electronic parts across the globe and you can see at the top but the financial loss due to the Japan tsunami is around 213 billion dollars.

210 million dollars and Thailand flights is 30 billion using an earthquake 20 billion United States tornadoes 15 billion Australia flat 7 billion so each of this is affecting the supply chain and there is basically lot of losses that are incurred by the supply chain due to the various cross so whatever it is whether it is a natural disaster or a financial crisis or a fire in a supplier that transmits across the supply chain so the supply chains acts as risk transmitters and amplifiers so in addition to your efficiency that you create in the supply chain in addition to the products.

And the information and the financial flow there is also the risk that transmits and sometimes get amplified it gets amplified because a financial disaster can cause a supplier ineffective because the supplier is a sole supplier he cannot nobody else can make those things so the supplier cannot supply those parts and the production stops and you have to basically go to another supplier in another part of the kind of the world and train them have deals with them all this takes time so it becomes amplification of this particular risk so that is what happened. In 2008 and it is a big awakening to all the supply chain people.

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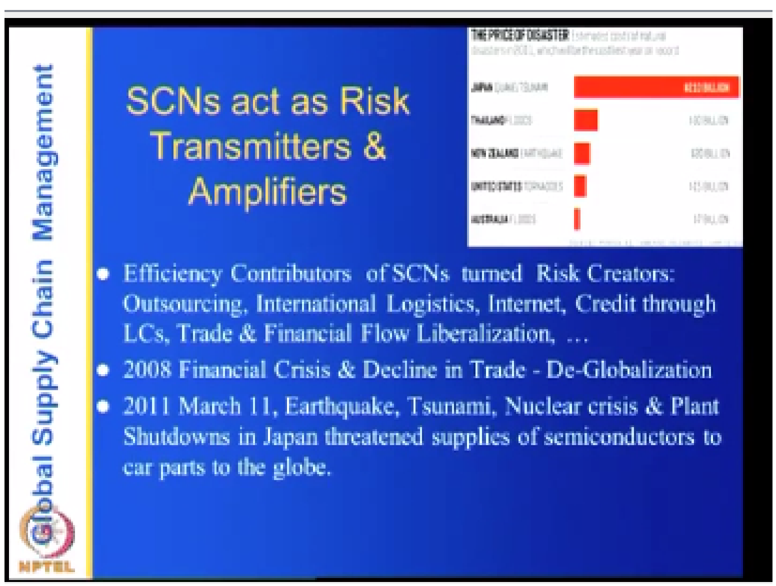

So if you look at the trade collapse this one trade flows dropped by more than 20% in 2008 quarter to two 2009 quarter two this is look at this one they this is the diagram here collapse that.

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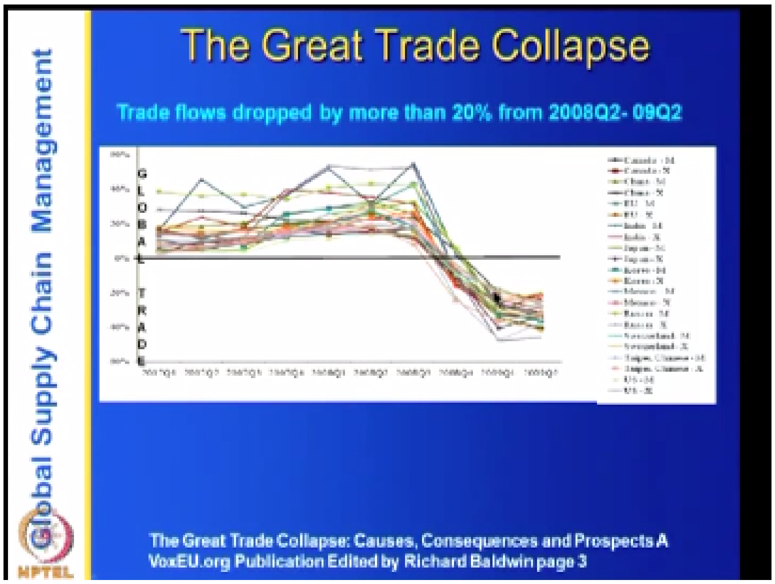

Now there are 2 aspects to this one is the connectedness in other words the trade collapse happened across the world for all the countries you can see the various colors here depends on the exports and imports of various countries both exports imports for India Japan United States everybody every country it has simultaneously dropped so there is the synchronous collapse of this Why should there be synchronous collapse of this so that is because of the connectedness.

So to explain this you can see that the supply chain says they are connected and everything happens just in time once the orders are canceled due to credit squeeze in the United States then the manufacturers have canceled the orders to the suppliers because they have a lot of inventory they are unsure of what happens to the demand so the tail end of the supply chain is in China for the manufacturing and they basically have lost your jobs and so on and the logistics providers who basically transfer the goods from China to the United States.

They also have a lot of vacant capacity so synchronization was due to the connectivity of the global supply chains that reacted just in time to the collapse and demand so it is very important ones need to know not only the advantages of connectivity but the disadvantages as well so the global supply chains were a great innovation and basically it has provided the employment it has provided connectivity it has provided several low-cost sourcing to several people but the only thing is when it falls it falls it the same thing. So what you have here.

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Is what is that we are studying in their supply chains here we inserted it in the global supply chain management we looked at the network we looked at the configuration of the network we have these players all over the world in the globe that is their suppliers in one country the manufacturers another country and the logistics players transferring from one port to the other there are banks and there are governments involved there are government rules and regulations as well as there are social factors like labor unions organizations.

And so on in addition there are resources that are needed in other words if it is a food supply chain we will require the rice water the right B water and power and so on their natural resources if you want for transportation you need oil and power and in addition to all this you need human resources so India has the IT companies outsource a lot of things to India because India has English-speaking IT trained professionals so that becomes a big advantage the low cost low cost labor is one of the advantages of globalization.

So but when you are dealing with all this you are dealing with a global supply chain what is interconnected biologist explains why our internet why all the financial banks and you are crossing countries ports and so on it is a complex network of various organizations and for its performance yes we have designed a system of performance over the last two three decades just-in-time high connectedness and so on and various kinds of deals between companies and they have ports which were developed for usually transfer of materials transshipment ports and all that and there are risk we have seen there.

Is now how do we study such a global supply chain now if you look at the supply chain literature so far then most of them are dealing with the inventory minimization there are a lot of books a lot of research papers case studies and so on but what they basically deal with or the ordinary networks and the this one but in other words they study in the inventory minimization but there is no framework study - global supply chain taking into effect all the factors that that supply chain is affected by in other words the supply chain is dependent on factors that are exogenous to the supply chain it is not just the supplier manufacturer.

And the logistics providers and all you have the labor unions you have the government's you have the resources you have educational institutions who are training these people you have logistics infrastructure and so on so all these things play a role so credit squeeze after the financial crisis and what mental regulations protectionist policies or the government political unrest economic stability natural disasters or non supply chain factors that affect the supply chain performance all right now do you have a framework that deals with all this in other words can I have one framework.

Which where I can study the performance where I can map the global supply chain or all the factors the governments the resources the infrastructure and into a particular diagram and then study the performance they perform at the risk and the innovations that are possible and so on so that is the one that is the aim of this course to present the supply chain ecosystem framework to holistically model all the factors that interact with the supply chain and visualize operational strategic management and execution issues and risk mitigation strategies.

So here although the material that we have covered so far can be found in the books but the emphasis in our course is going to be on factors how to design supply chains how to analyze supply chains how to innovate supply chains which are basically dependent on all external factors the economies the resources and the infrastructure or other factors and basically and how to decide minimize the resilient supply chains and that is going to be the subject matter of the future lectures in this.

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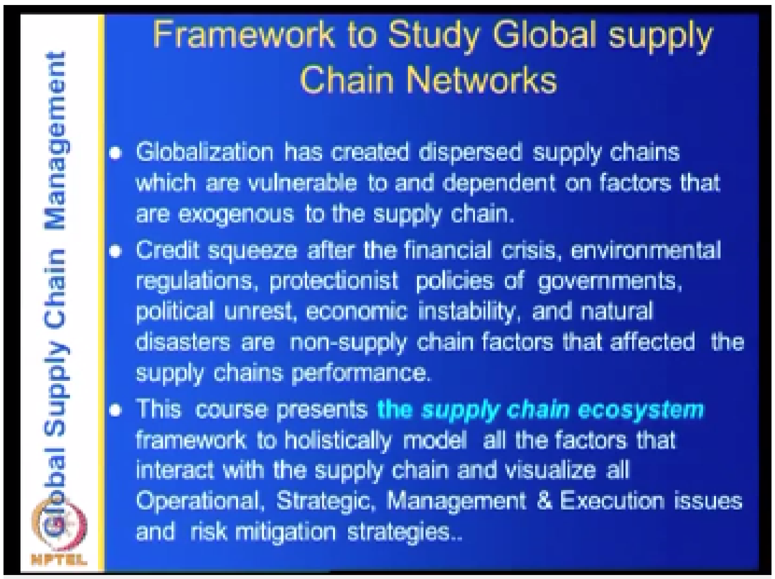

So yeah I am done you.

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