Indian Institute of Technology
Bangalore
NPTEL
National Programme on
Technology Enhanced Learning

Global Supply Chain Management
**Lecture – 20**
The Orchestration Governance Model

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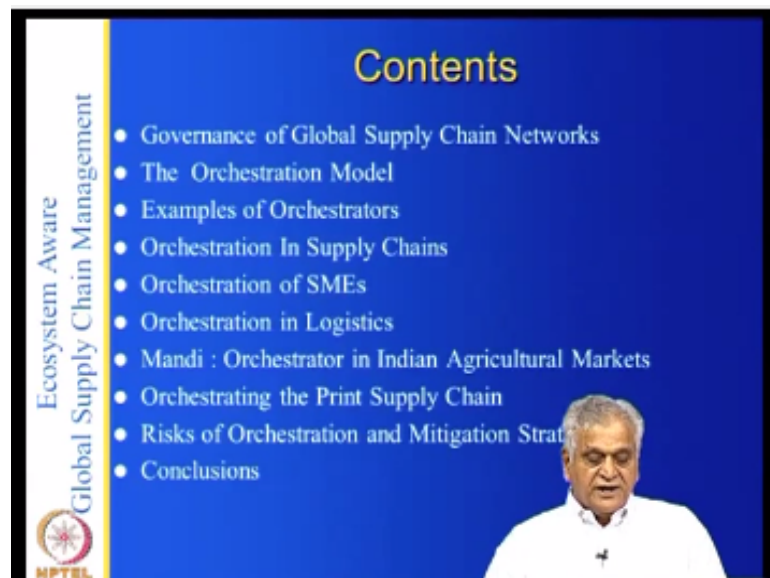**Indian Institute of Science**
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Today we are going to continue the lecture on the governance models in a globally dispersed supply chain and we will especially concentrate in this and next lecture on the orchestration model.

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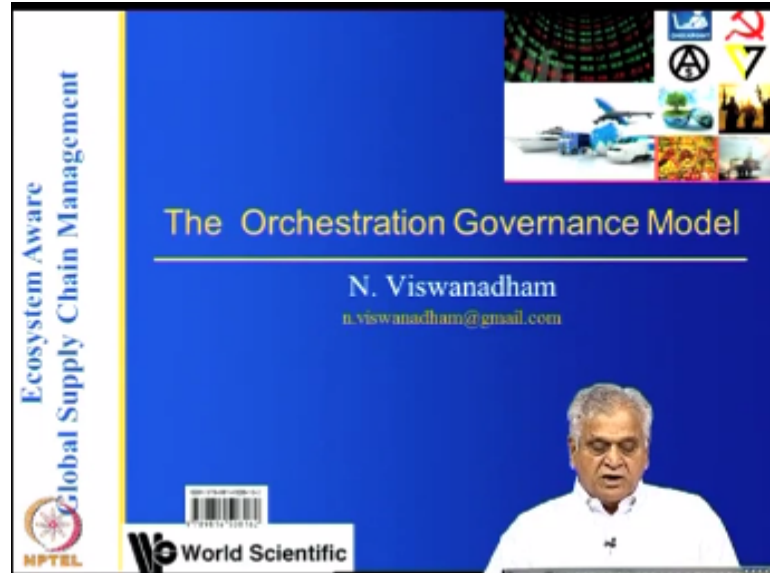
First what we would do is to do a recap of.

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What we have to carry on in the last two classes on the governance of global supply chain networks then I will introduce the orchestration model and some examples in the real world like Airlines like grain supply chains like logistics and all that where there are lots of orchestrators in principle although they are not theoretically well studied when we talk about an example of orchestration in supply chains and orchestration of small and medium enterprises.

Which are a very important topic particularly in emerging markets like India an orchestration and logistics and one important thing in the agricultural markets in India is the Monday. The Monday's is basically is a place where it is a German control or government-owned place where all the farmers come and also all the retailers and others who want the fresh vegetables like onions the potatoes and other things they come there and that is a trading that happens in the money so currently Monday is like a place.

Where people come it's like a market place but if we can convert that into an Orchestrator it is going to be beneficial for in several ways in ND well then we will talk about authorization and print supply chain and that is particularly for a back for it is a very interesting example then finally if you are following this kind of governance model and orchestration means you want nothing you basically outsource everything but you manage everything.
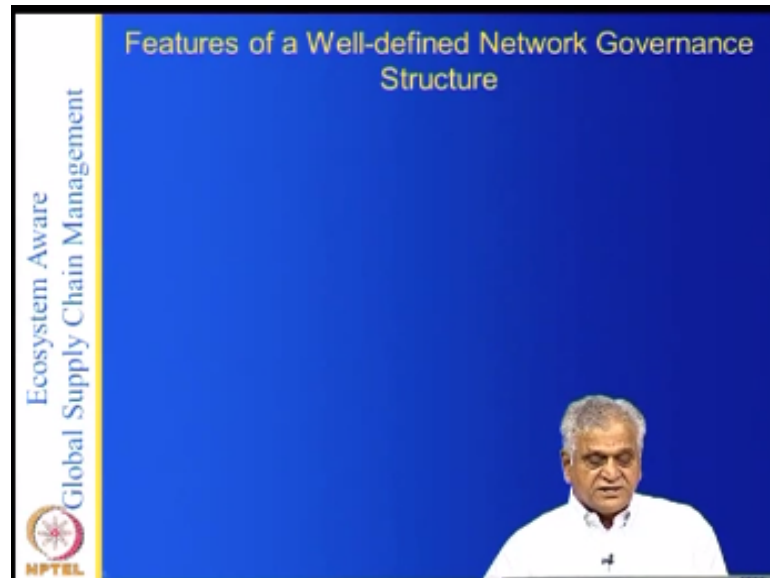
So in the risks of orchestration and imitation both for the people who are with this one as well as for the orchestrators and we will conclude this lecture.

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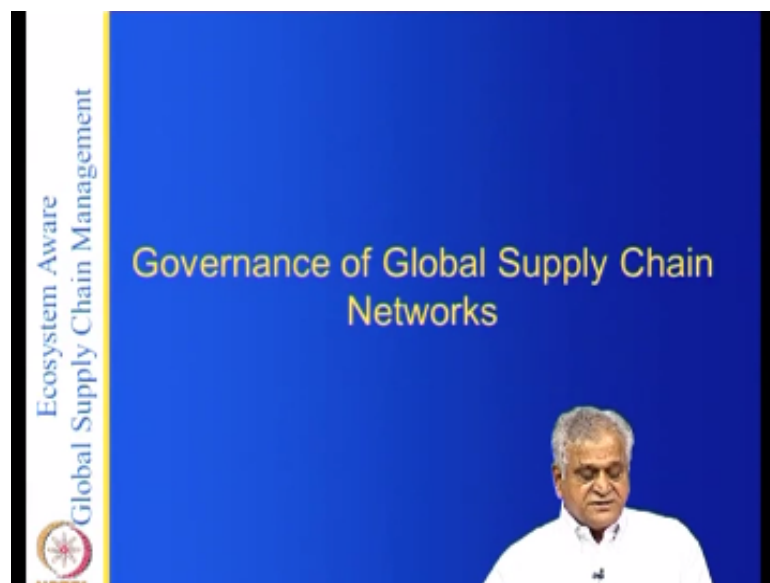
So let us do a recap of what we did in the last two classes.

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So we said you know no organization structure is something which basically governs the delivery process for in other words after all any network has to deliver products to the customers and somebody has to specify what is the product and how it is to be delivered and so on so all that is done by the by the governance structure so identifies managers relations with the government trade social groups the other resources b2b b2c delivery mechanisms in other words all the players they are to be contacted unknown then these business models and relationship but growth enhancement.

In other words whatever what has the kind of business model is it outsourcing is it doing it yourself or is it joint venture what is the kind of business model that you want to follow and then build systems for effective communication collaboration and coordination among the network partners it's very important that people should be on the same page for the kind of when they want to work together and so on and identify and categorize just the risk from various ecosystem sources and puts in place Miska and strategies in operation readiness so there's a little race as we have seen in the previous lectures in the global supply chain that can happen it can come from resources like oil price increases it can come from the government or it can come from various other sources.

So in this kind of thing is it possible to identify all there is and then mitigate them it's a reveal customer order select partners allocate the past responsibilities and from the network so the network formation becomes a very important thing particularly once there is a there is a

customer order we have to select the partners tell them what to do and so on and ensures libel laws and environmentalist standards are followed because they are you know global supply chain they're live basically their latter this one need to be followed yeah manages the control room for monitoring the execution after all that you may have they planning that the planning need to be executed properly.

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So the governance partner selection and coordination and control.

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Are the three things the governance means the partner selection coordination and control the supply chain is an intern organizational network the supply chain is formed for each order partner selection is based on structural features relational ties and coordination is determining who does what when and communicated to everyone and execution is monitor order status so that the process is forecast for plans. So we have seen the definitions of this in the in the coordination.
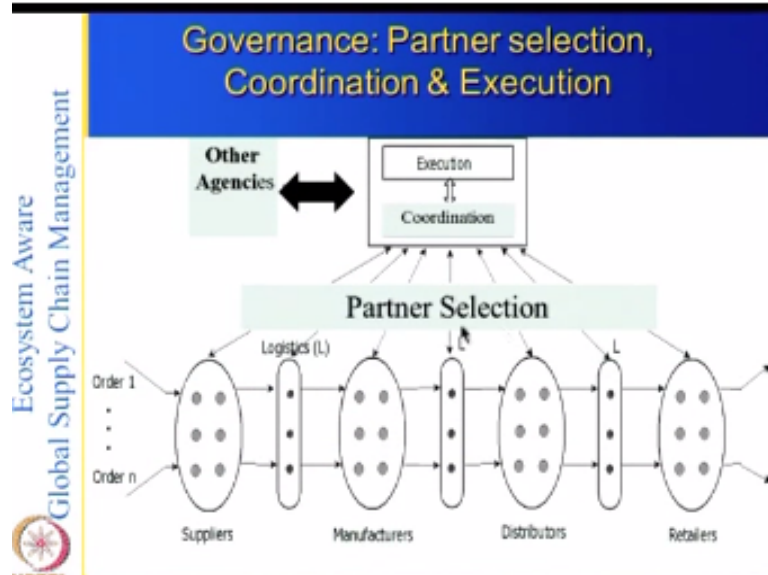
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And we see in this diagram.

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Where we have we select all the partners based on the requirements that we have particularly the suppliers logistics providers manufacturers and so on once there is an order then you coordinate to find out who are the people for the best for that order if the order is from the United States you select those people so that the costs are minimum and then finally execute the order so first we said there are three types of governance models that can be followed one is highly centralized external broker that is called also called an Orchestrator which we are going to talk about in this lecture second one is participant shared governance by electric board this is very popular in Diaries cooperatives and health care and third one is participant shared by late player like producer driven like Cisco Naik. And so on our buyer driven so we said all the three governor's forms are in practice and are not proved to be superior.

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Three Types of Network Governance

- The Network Governance model
  - Highly Centralized External Broker (Li & Fung, Olam Intl.)
  - Participant Shared Governance by Elected Board (Healthcare , Dairies, Cooperatives)
  - Participant Shared Governance with a Lead Player
    - Producer-driven (Cisco, Nike)
    - Buyer-driven (Wal-Mart, Carrefour, Levi)
- All three governance forms are in practice & None proved superior.

So let us look at the artist at a model in this detail.

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The Orchestration Model

So that is an orchestration?

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Leveraged growth : Orchestrate , Do Not Own

- The traditional business growth – organic expansion and acquisition require investment in proprietary assets. To grow organically, you build new assets. To grow through acquisition, you buy them. Either way, you own them.

Ecosystem Aware Global Supply Chain Management

If you look at the traditional business it is an organic expansion I get magician in other words you know basically either have you know all the assets you want to build new assets and to grow through acquisition you buy them so you own all the assets that you need but what is that is the traditional business that they need to known as Hertz when the physical ones are intangible once is what makes the traditional cloth model risky in other words you have to invest a lot of money into the assets building up rather I let it be human resources let it be let it be buildings or a missionary whatever then you have the assets you want to invest on flower front and payoff comes later.

So the leverage growth or the artist of a model mode largest you need other such existing within other companies it is important to be meat not how to learn all the assets you need do not warn all the assets but to your list rate their growth so all the leaders has within other companies to support your own growth initiative developers using contractors on marketing so for example these are the examples let us use contract manufacturers control zone in another country orchestrating terrorist attack in another country. So basically you know whenever there is something good something bad also can be done there is a lot of orchestration that goes on in terrorist attacks.

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So what are orchestration marketers?

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That are learning algorithm graduations with privileged relationships so there a policeman ever touch a product such organizations mobilize other companies assets and capabilities to deliver value to the customers Levelers growth captures economic benefits and allowing the economic burden of asset ownership.

Alpha status must be competent at recruiting the right providers capturing right modules and while we are seeing the performance of the network so basically orchestration is you want

nothing but you manage the product delivery through this through your relationships and so on so that is where you should have enough competent people to recruit right providers and do the right kind of things and what was seeing performance after all you know the reputation if something goes bad the reputation of our constructor also goes bad.
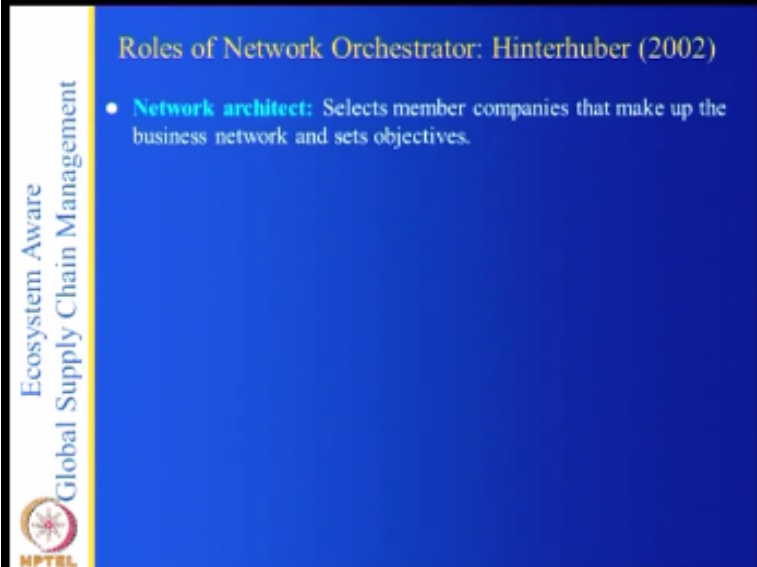
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So most of the network Orchestrator.

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There is a this one is a network architect selects number of companies that make up the business network and network to judge Orchestrator the key interface for the end consumer so to make sure that the network output is promised one the artisan has such monitors and our ops the performance standards so in other words once the performance standards are used one of these partners has to be set by the orchestrator and network a development developed the network physical and material assets including knowledge acquisition knowledge transfer across member firms and creation of strong brand image.

And he is also the Clarisse Matic later it creates a manager switch texture of interactions in the network taking a long-term view of the relationship and expect partner companies to do likewise so basically you are managing but in the manager you should have some capabilities what happens capabilities or architecture you have to be a judge we should know what is the performance of the total and what should be the performance of the individual system.

So that the torture performance is reached and you should also develop the physical and non-physical assets for knowledge acquisition and all that and it should be a charismatic leader so because you know the interactions people should listen to you why should anyone listen to you unless so you should provide enough incentives and you should be you should have enough market power so that people listen to you so basically what we are looking at is an Orchestrator who owns nothing but manages and tries to build up a business.

So for such a kind of people when these before are the qualities that are needed but orchestrators and partner succeed or fail together so it is important for people to realize although you do not want anything and let no risk of assets but there is always a risk of your reputation and also a risk of your business failing.

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So what is the value of orchestration and global supply chain?

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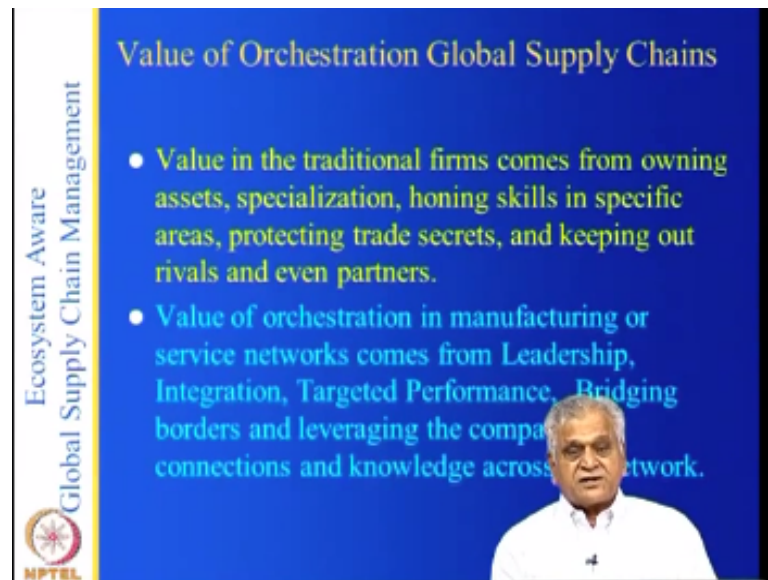
Value in traditional forms comes from warning assets specialization owning skills in specific areas protecting trade secrets and keeping out rivals and even partners. So it is also called competitive advantage you know either your assets or your soft skills whatever but what about in orchestration the value of orchestration in manufacturing a service comes from leadership integration targeted performance reaching borders and leverage and companies connections our knowledge across the network.

So what is your competency is your competency is connecting to others competencies in other words if you had to make a product you find out what are all the competencies nekron it. For the design for the manufacturer when the distribution for retail and for selling it in the market and so on and then you connect to the appropriate people that is your competency.

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So let us look at some of these examples of orchestrators.

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In this and the orchestrators are for example. In the real world a contractor of a large commercial building suppose I mean there is an airport or a seaport that is built the construction project orchestrates and broad array of highly specialized service providers for construction electrical wiring fitting lumping interior decoration furniture design security systems and all that he may not have all the capabilities that but he can orchestrate he sub contracts or largest writes this.
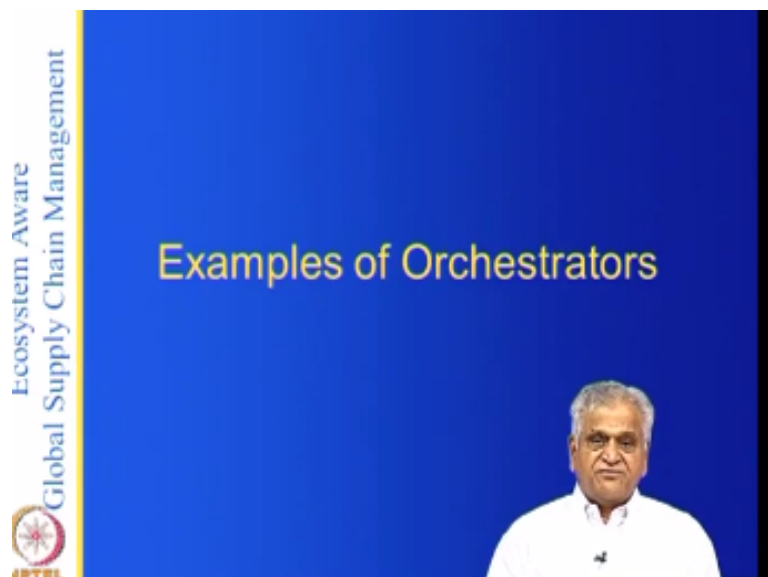
So basically a contractor may not may not have any of these capabilities but he has the corrections and a cement producer artist as complex process required to make a movie cinema producer orchestrates the complex process required to make a movie so in the movie producers or the directors they only know the this one they do not have the script they get the actors and everybody and they may not want the studios they rent the studios and the rent the cameraman and finally make the movie in an apple business the alien front provide support.

For example of a new kind of sophisticated Orchestrator coordinating a very broad process network you know inform basically takes six weeks what others take for more than six months in types of orchestrating and supplying design from design to delivery it takes only six weeks in a pro this one and finally in fashion business so there are certain examples human you know they only know that you know contractors cinema producers apparel manufacturers who are basically orchestrators.

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And what are the very important examples in the Adria Food Network.

Is well I am international one I am international long planes and global leader in agricultural communications   it is the best out of Singapore from a   large small Nigerian company so basically what the Olam International does is it collects it does not it collects all the material from the farmers and it supplies to the big stores so in other words if they have cashew they collected the farmers clean it and package it and then sell finally supplied to the people in various in various forms and this is true for a does it for all the fruits dry fruits to other things.
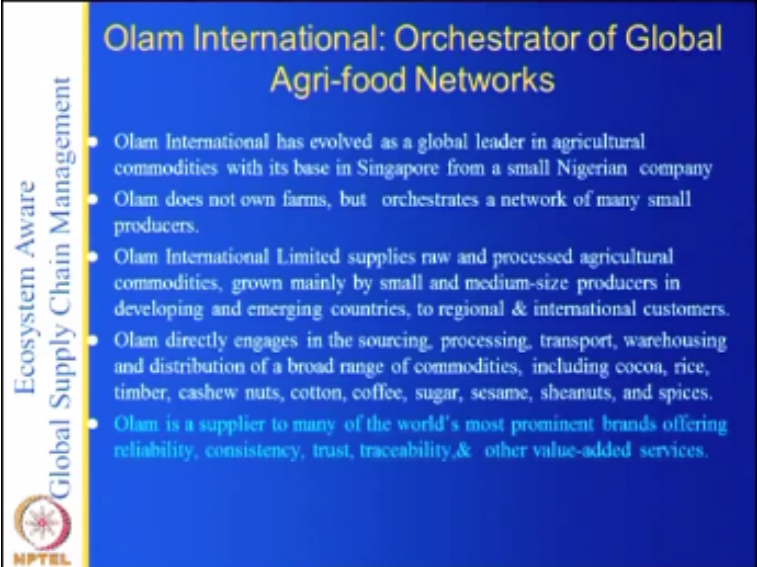
So it does not want any forms but orchestrates a network of small producers and on our means had one of international limited supplies raw and processed a great agricultural community is grown mainly by small and medium sized producers in developing and emerging countries to regional and international countries so it takes from Africa India and other places from small farmers and basically takes these things packages them sometimes process system like right and so that they last long and fix them you know a temperature-sensitive environment and supplies it to international customers or retailers well I am directly engages.

 In sourcing the rather word set sources they whatever they vegetables and processing transport warehousing and   distribution of broad range of commodities including cocoa rice timber cashew nuts cotton coffee sugar sesame she nuts and spices so this order these are items what it does is it collects from the farmers and basically processes them so that there are clean hygiene and transport them warehouses them and establish them.

To various kinds of retailers and one of the supplier to many of the world's most thoughtful prominent brands offering reliability consistency trust traceability and other value-added services now in food products one of the very important things is adulteration or some kind of contamination so desperation is done by with the knowledge of the people who are doing it whereas contamination is when it may happen without the knowledge of the suppliers so traceability is very important if you have an item a package which is of cashew nuts or whatever or some spices and if some food poisoning happens.

It should be possible to trace up to the form where it came from and this is also true with other kinds of items but well I'm basically and supplies only agricultural commodities.

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So that is another very popular this one which is in the airlines.

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Network Orchestration in Airlines
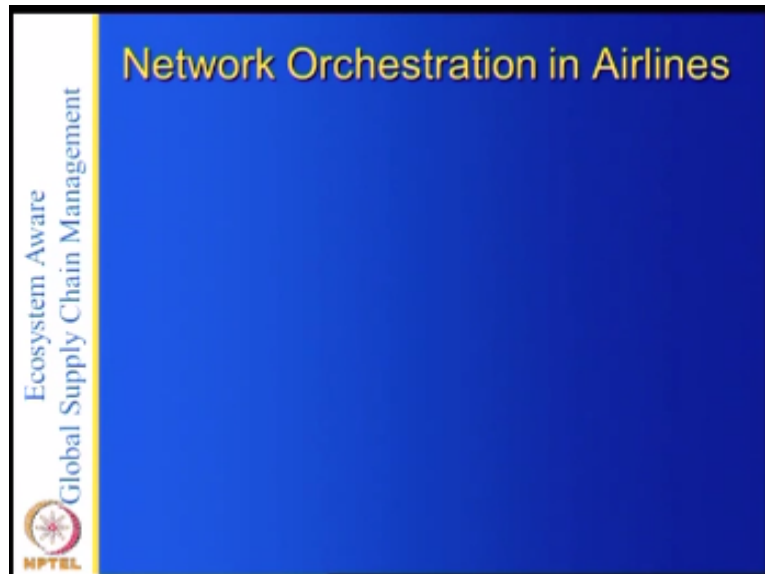
Now many of us think the airlines would not the aircrafts they have the one they staff there were only this one and all that but it is not true major airlines were assert its in two and one aircrafts reservation systems maintenance teams like eight schools and catering services and all that but this is one way you know of warning everything but there are several other examples of recent times for example Southwest Jet Blue and Ryan Air retained only the core of branding in other words they use their only the reservation systems on the internet and they basically have some staff to run the aircraft and help the passengers.
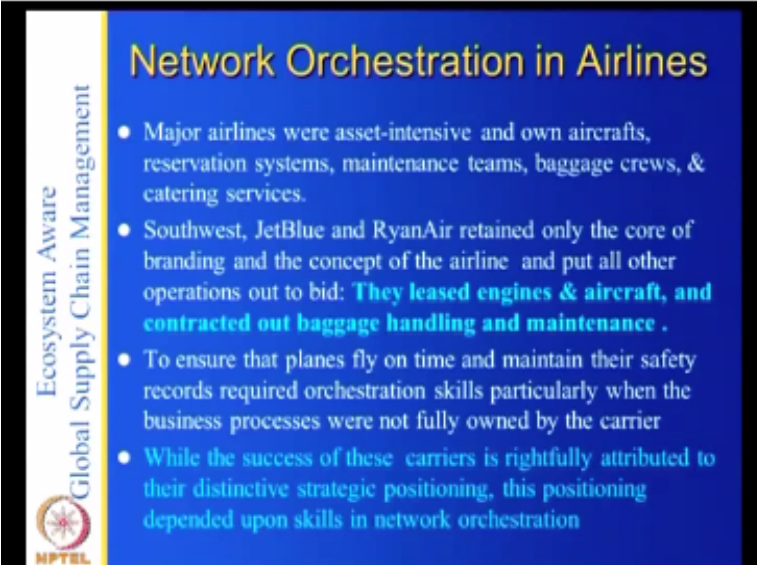
But it took an hour options their knees the engines their craft and contracted out the baggage handling maintenance etcetera so they would not the one nothing else other than the passenger reservation system and also the staff like the pilot and the people in the in the aircraft help the passengers so the passengers you may go there then no seat allotment you go whoever goes first gets the seat so these are the kinds of things but what I mean and what I mean is they are just like their take as I tell this unit but then they are basically tickly this.

One out of the bus city bus transport intercity bus transport they took a leaf out of that and try to arrange this so here they are just basically orchestrating the entire thing but they are not they are not wanting any of these any one of these things so but then Southwest people like Southwest have a lot of our jet now has a lot of reputation how did they get it that reputation because they were able to orchestrate very well they have the connections with others and their aircraft maintenance everything is done properly.

And passengers are taken care although they are not supplied food on the aircraft and all that but the aircrafts are clean there is there on time and so on so basically there are other things what the passengers look for they had those things and to introduce a plane fly on time and maintain their safety records required orchestration kills particularly when the business processes whatnot fully won by the carrier.

So then you do not want the this one for example the repair and maintenance of the aircraft you do not want the aircraft so the maintenance teams may say oh the aircraft is worn by somebody else so like Boeing and so Boeing has to tell us so there could be lot of administrative and other kinds of problems and so the connections are the people and others is it becomes very important while the success of these carriers rightfully attributed to their distinctive strategic positioning this positioning depended on the skills in network orchestration so basically trying to find out like the network church they perform is this one I have been out I look at all the four qualities apply to the airlines so what is that the passengers expect and what is that that should happen at various places so all your partners from the passengers expect safety so for the safety the passengers should that safety comes here from the aircraft and the airline carriers the airport people and they also expect good behavior from the staff and all that so they get all the suit in the network orchestration yesterday we were strategic advantage comes in connecting right people and make them behave well so that you are successful and they are successful.

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So what are the talents needed for this one is deep domain knowledge.

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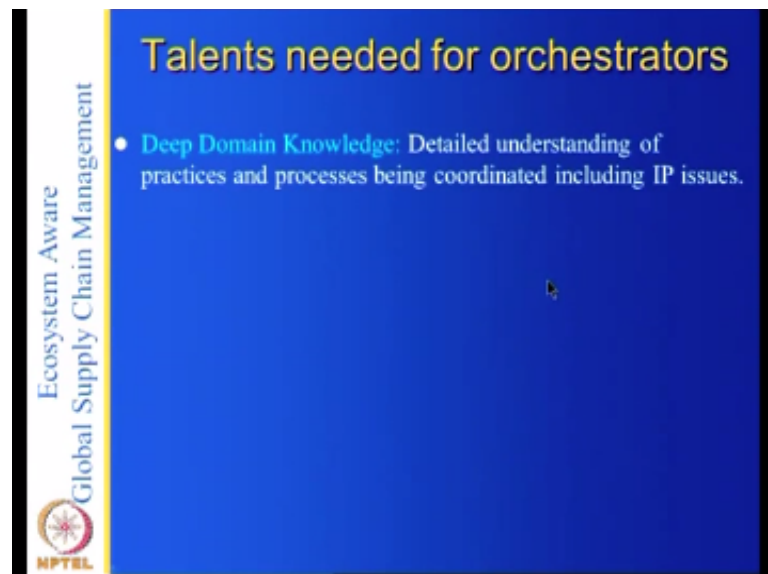
Whether Israel and business or construction business or logistics business details understanding of the practices processes followed being coordinated including the IP shows and building capabilities for management you know for procurement requisition for partner selection monitoring supervision and visibility across the entire value chain so whatever business you are in I mean once I guess we may not want the assets but to here to manage the manage.
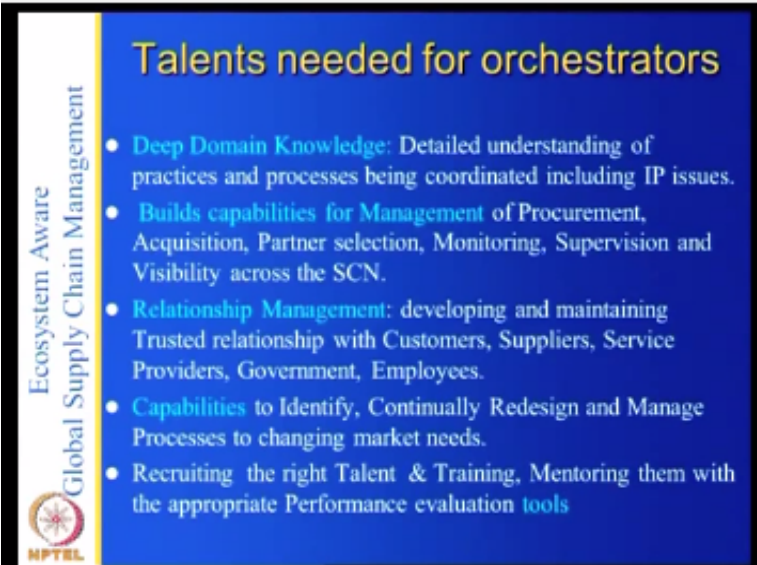
The delivery of or the delivery process of your products through the through the value chain to somebody assets somebody else assets that is where the problem is you do not want the asset somebody else wants it but your product goes through them so you should have the right kind of connections so that you get a priority you are not treated badly and you get the right kind of service that that you require and relationship management.

Now if you will maintain interest rate relationship with customers suppliers service providers governance and employees so take the ecosystem that we have learned and find out where all the vehicles are your work to go and have a relationship with them this could be the government state governance the city municipality or it could be the doctors in a hospital or it could be the oil suppliers it could be the education institutions whoever it is you should have a good relationship management and capabilities to identify continuously redesign and manage processes to change market needs.

So it is important that you realize that your market changes so when the market changes you should basically redesign and manage your processes so recruiting the right talent training mentoring them with appropriate performance evaluation tools so since you cannot do it alone whoever at the orchestrator marketer is a company means employees so it has to recruit the right kind of talent and the talent here is much different from the talent in an ordinary vertically integrated company here the orchestration skills are different.

They are basically a lot of soft skills that are required it is not as though you're machining a particular product and Ayana NC machine but here you are dealing with people and you are trying to make things happen and you are trying to deal with organizations which basically you deal with them but you do not want them.

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So one of the examples says.

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Orchestration in Organized Crime

That there is a saying that whenever when you when the and there is this Sager Madonna happened there is some Buddha that came as well as the Olalla so whenever there is a good thing either technology or practice that comes that is both good and bad that happened so one of the things is that happened and the butcher shook India was there were ten men attack at the TajMahal Palace Hotel in Mumbai number two thousand eight and they executed one of the best artists rated most technologically-advanced terror strikes in history.
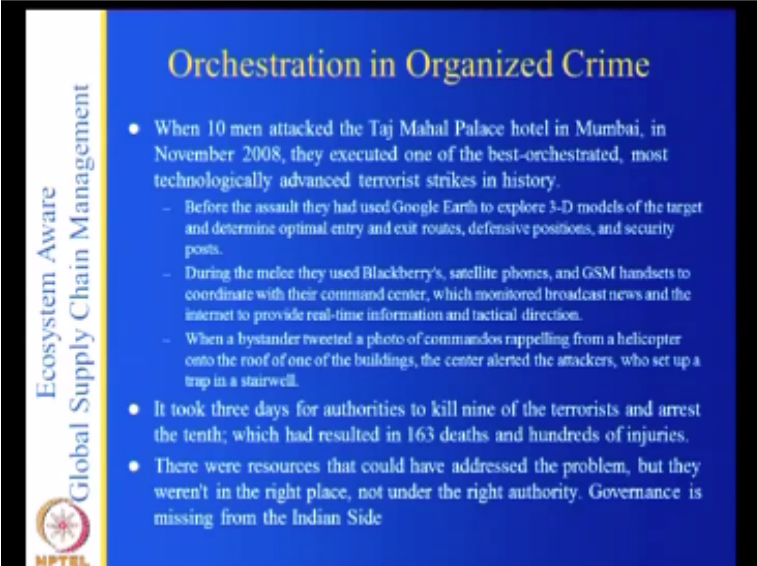
So there were ten people outside the whole of India they said I am in TajMahal Palace inside they entered that and before they assaulted they had used Google after to exploit the ad models of the target and determine optimal entry and exit rules defensive positions and security posts see how they have used the technology during the melee they used blackberry satellite phones gsm handsets to coordinate a command center.

So there is a command center which monitored broadcast news and internet to provide real-time information and tactical direction so the newspaper were there through these satellites there were there is an Orchestrator somewhere else it could be in Mumbai it could be somewhere else in other country and so on God knows where the other Orchestrator is but the artist has access to information which these people do not have what is that information they have you know they see they watch the TV news and also other real-time information.

So they are a bystander Twitter of whatever commanders rattling from the helicopter onto the roof one of the buildings this enter elected the attacks and which set up a trap in this toy walk in other words there was a helicopter which was dropping soldiers on to the hotel table and this

basically is invisible to somebody outside so he took a photograph and tweeted it and that to God they got access to that and the basically they know somebody is stopping down and they are photographed so it took three days for authorities to fill nine of the tethers and arrest a tenth which has resulted in hundred sixty three deaths and hundred injuries.

There were resources which would have address this problem you know we are talking of two orchestrators here one is the terrorists who are inside they were very well orchestrated but we're darker the people the safety from outside they may not be polish or another and the people so there were resources that could help address this problem naturally but they were not in the right place not under the right authority yeah once is missing in the Indian side so the point is how do you how do you go and handle these kind of organized crimes.

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So the people are controlled whom artist writing the Mumbai attacks.

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Control Room Orchestrating MUMBAI attacks

- Stocked with computers, televisions and voice-over-internet phones from a Foreign company and satellite phones, top commanders of the terrorist organization had set up a control room from where they controlled and directed the 26/11 Mumbai carnage

Start with computers televisions voice over internet falls from a foreign company and satellite phones top commanders of the terrorist organization have set up a control room from where they controlled and directed the Mumbai carnage the terrorist organization we have set up a remote command post in a safe house or a hotel in India or make believe it is some other country so maybe we do not know where it was one hand last med they attack interactive relying reports about television cover coverage.

To the government so you can see that you know this is a short two-day but this has happened in India and the control room so-called this one was basically highly interactive it was try to get information from the TV and other news sources maybe there are other terrorists who are outside taking photographs and tweeting to the control room so that the control room can direct the terrorists inside.

So you can see when we were talking about cyber security of somebody trying to move this one attack your computers put virus and so on the nature of war is also changing is becoming not only technology intensive it is also becoming the governances off this nature of war is also changing from the you know command centers like the army to orchestration of various kinds of groups who are placed in different places and so on.

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Control Room Orchestrating MUMBAI attacks

- Stocked with computers, televisions and voice-over-internet phones from a Foreign company and satellite phones, top commanders of the terrorist organization had set up a control room from where they controlled and directed the 26/11 Mumbai carnage
- The terrorist organization may have set up a remote command post in a safe house or a hotel in India and make believe that it is in some other country.
- The phone handlers made the attack interactive, relaying reports about television coverage to the gunmen.

So let us look at the orchestration and in the supply chain.

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Orchestration In Supply Chains

This one what happens now what is supply chain supply chain you have suppliers a group of them with this one and it could be co-located or they could be in different places in a country they could be in China India Hong Kong and so on but that of course manufacturers and we treat the suppliers and manufacturers so you can see the supplier is connected to all the manufacturers and so on so this is arbitrary connections.

But there were connections between them but what happens is if the manufacturer say is in Singapore and if the suppliers are in or in China Bangladesh or India and so on it may not some of them are connected some of them are not connected and the third-party logistics providers who transferred the goods from men suppliers in the manufacturers and so on they are also there and some of the manufacturers are connected to them but of course there are distribution centers iron consumers various of consumers these consumers.

Are all in different countries and their distribution centers now the point here is you have somebody here whoa this willow has strong connections with all of them now where as you can see that this is a sequential connection in other words some of the manufacturers may know the suppliers but the distributors may not know who the suppliers are all relate to consumers may not know who supplied.

What are the components and so on right but on the other hand if the supply chain delivery process everybody somebody has to know everyone so that the entire process is very well orchestrated so here are constructor is highly embedded in the supply chain almost all actors interact with it so this fellow why is the orchestrator here and he is highly embedded and he knows everybody this is likely and found in the apparel supply chain the relationship between the focal form and who represents a strong type.

These are all strong ties in the sense providing access to valuable resources that in this case are the benefits arising from war know-how and relationships so each of them they are benefit from the relationship of these people so if this manufacturer want some supplier then this fellow knows this group of people here so he can he can help selecting or if this fellow wants if somebody comes some consumers are this one what the orchestrator to decide a product or a shoe or a salt or a pant or several of them then since we knows all this uses connections he can maintain the supply chain.

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So here if you look at the orchestration you should what is that Orchestra here.
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Does you know planning coordination and overall responsibility all our responsibility means execution so that's what the orchestrator does now what are the kinds of capabilities that you have a part whom we are always talking about talent and so on but there should be other kin abilities for planning and coordination and all that it has to have all the information from all the sources it should have the computing capability which would have a communication network it should be able to receive information as well as commit as well as communicate to others other this one so this is a control room which basically has information about this and here what do

you have you have suppliers third party logistics contract manufacturers and so on we're talking of the supply chain model.

Now what the orchestrator does is the end customer sends an order once the end customer sends an order then the orchestrator will contact all of them and find out what is the operational status in other words the end consumer wants the particular product in so many numbers what is the capacity that is available from these people so if the capacity that has available is less than what the orders require then they may have to have two suppliers or two contract manufacturers and also 3pl may have to make two visits.

And so on so the operational status is an important thing from this the second one is depending on the operational status if he makes plants and then he sends this is the coordination step and sends it to the each of these people the order and then it goes into the material flow and the payment so the payment the payment happens I mean once the materials flow the payment happens and the payment is done to all the people .

So suffice it to say here this the orchestrator has the planning coordination and execution responsibilities here and he has this control tower or a word room or whatever where he sits and managers they product delivery through all this so the end customer it has to pay after receiving the materials and so on so that is the kind of thing that they are considered a business model does.

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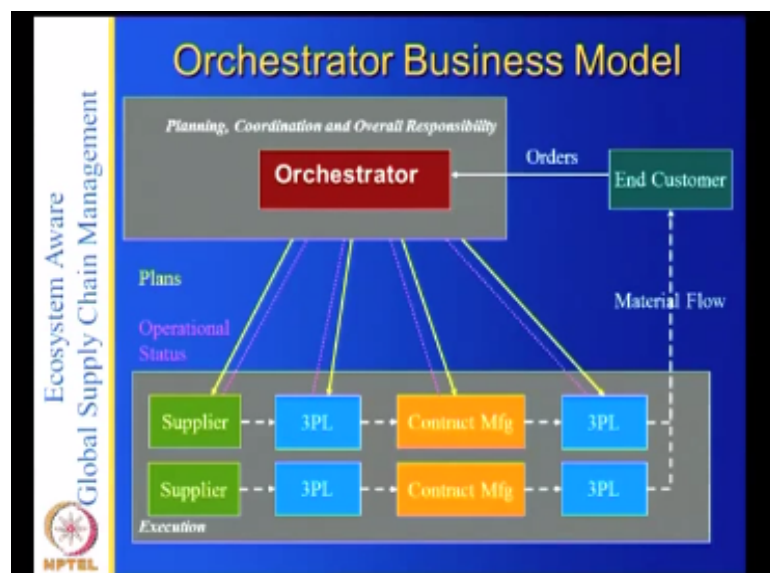
So let us look at the orchestration of the SMEs.
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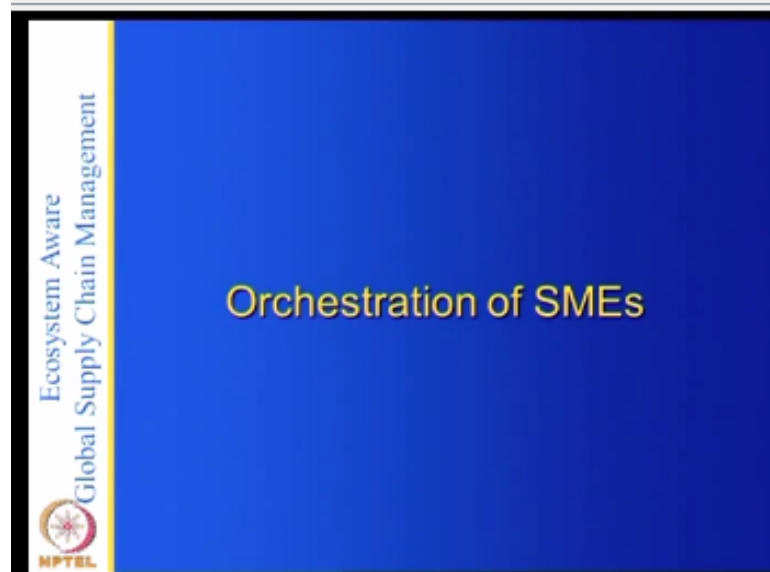
What our SMEs or a small and medium enterprises they are they will have much financial capabilities they may not have much connections so they develop maintain continuously upgrade the SME network in response.

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To the market requirements of sub here and either Apple business or Apple business or agriculture business or you are in you are into our business these small players you have to

develop maintain and continuously upgrade these people so depending on the market so if you are in the global if you want to integrate them into the global value chain you have to say what are the requirements or the global value chain in terms of the apples in terms of the toys and so on it be Barbie doll it could be whatever that all what are the requirements and what are the machinery that is required and what are the skills that are needed for all this recruit and develop.

Some it is providers into the SME network you have to basically get this and I don't have players in the ecosystem customers government and develop strategic relationships cultivate a deep understanding the underlying business processes and practices in the vertical if it is above it all manufactured twice manufacturer one has to understand what is the important processes that are involved in terms of the procurement and how many countries it is going through and what are the regulations that countries.

Yes and how do you transport them by shape by truck whatever and so on so basically you have to understand the procurement manufacturing and the distribution business processes and what are the practices defined standards with SMEs for communication coordination and execution so you have to connect with them structure tangible and intangible incentives for SME participants so when they participate you should give them incentives so what are the kinds of intensive so and then the point of these are small players.

Here and for the small players they do not have a global this one you are getting them giving them a global order and you should you should mentor them and so that they work well and communicate coordinate with them and so that your order is delivered well and for people who are doing well we should provide them incentives so develop and manage performance feedback loop the vessel test learning about individual SME performance and risk profile so basically in other words far away as an Orchestrator.

When you are dealing with SMEs who are skilled and semi-skilled then one has to be careful in terms of mentoring them making them understand all the processes and the importance of being this one what are the operational roles here.
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Operational roles of an orchestrator

customer demand, unbundle the service and
mically compose a service chain, involving multiple
ce providers.
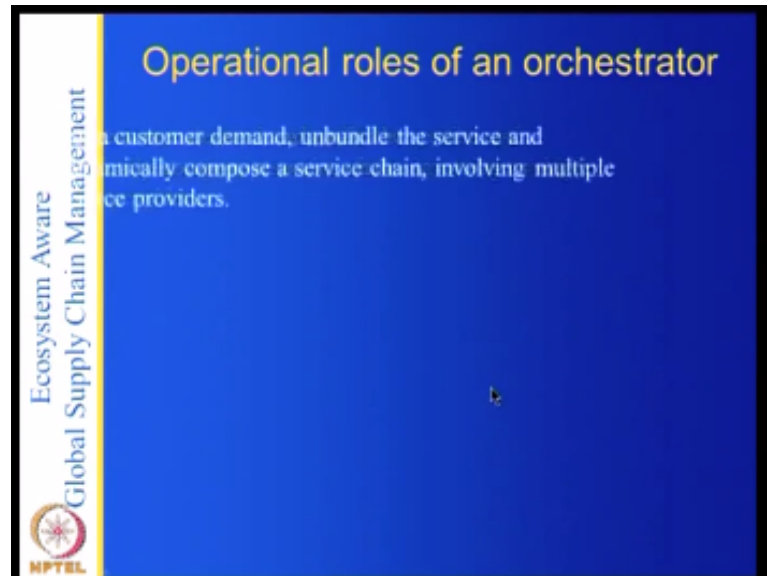
For a customer demand unburden the service and dynamically compose a service chain in valuing multiple service providers in other words you have basically every service every service you had let it be a Barbie doll or let it be providing some kind of a service in a hospital you can basically detect the entire thing into a set of tasks. So for each task you unbundled need to task and compose a service check in other words where is it done what like a Barbie doll you do it portion here somewhere the structure somewhere and the clothes somewhere else and so on all this you have to basically.

 write even for a service chain in the logistics for example you have to you have to collect it and put it in a warehouse or load it unload it and put it on a truck transport it and finally deliver it so every ever size chain service chain can be decomposed into various does and identify the quality suppliers help them design and manufacture products meeting stringent delivery requirements despise poor quality infrastructure you should understand most of these countries are in or in emerging markets like India China.

And so on whereas although they companies may have good that the surrounding infrastructure like logistics and information technology and other things could be poor so you should work instead of complaining about the Koala for quality infrastructure you should work with the poor quality structures to do it identified checkpoints targets deadlines and interfaces for each of the activities in the service chain and monitor at the higher level whether these are met so monitor handle exception so that the final service delivery is not effective supposing. You are making at

all something happens and that is more light on the this one in the paint so you have to abandon that and then do it do a fresh one so that all the conditions safety is ensured so these are the operation laws of our castration.

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So if you look at the orchestrator.

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This one you have an Orchestrator here this is for the supply chain you have the client and you sit there with the clients and then you try to try to get what is the kind of the product you want

and you get the design first so once you have the design this one then the orchestrator you communicate with the designer and you will find out what are the kinds of materials that are needed this so once you have the materials then you have to source the materials so the sourcing of the materials is the is an important task.

That is basically done so with the suppliers that are where for example if you are talking of an apple then you have to source the dyes you hurt the source the cotton we hope to solve a supersaver to sort the source the buttons you various other kinds of the hood for if you are talking of a jacket and so on the cloth and others sewing and so on so you have to basically get the materials and the services people in this.

And then you choose the fact is where these are being made and you have to basically ensure quality control what is the quality control requirements that have established the quality control being ensured in recent times a quality control is in earlier days teach people used to visit the factory and be in the factory and check the quality online as the process as the product comes out but nowadays people are using the video conferencing things and also.

Whatever data that is come down whatever measurements quality measurements that are taken all the quality measurements are he made they are put on the on the web and people can read analyze and find out the quality instead of being visit to the factory on site visits have reduced in recent times and people use either video conferencing or remote machine anime machine data mining to do to assess the qualities here.

And this of course there is logistics there is logistics in terms of procurement when you are sourcing the materials there is logistics then across many are transfer and immaterial to the distributors and also to the to the consumers and so on so then when you are talking of this kind of orchestration whether it is dolls whether it is food or this one it is sometimes very important to look at all the other aspects of here and this one is the logistics you have inbound logistics that is the material sourcing to the factories.

And from the factories today this one is outbound logistics but there is what is called reverse logistics or when there are called product recalls in other words if you don't want to have green technologies in this so if you want to be green what you usually do is you have what is called the reverse logistics the product is collected from the customer the product is collected from the

customer and it is sent back to the factories so this is called the reverse logistics and this also happens in case of product recalls suppose you know if there is a problem with a particular product let it be an automobile or whatever and or in a pet food that is whenever it is detected that there is something wrong is that these products are recalled now recall means from the customers it has to go back to the factory or to recite.

Where it is and there will be all signed all sorts of government regulations and inquiries and other kinds of things that happen so people have to be careful in also getting the reverse logistics in place because something can go wrong in here this happened in metal which is a Barbie doll company because there were child deaths just us then they lick the paint and they in they owned a doll then some people developed some kind of problems and this was complained and there were a lot of product recalls and metal the company got a very bad name.

So the issue here is that when you are doing is a thing you are in control of all these things but when you are outsourcing and when you are just managing you have to be extremely careful about the safety and also whether people are following the product specifications that right kind of products and so on so if there you do not do it then you will get into problems because if you are partners by mistake put a light paint then which I will get sick then you will get hit so as we said the orchestrator takes responsibility for all the products that are delivered and to that extent you should be being in the manage so although they do not want H one any of these assets but the responsibility increases because to make people work for you then they you would warn them is more difficult and that requires soft skills.

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