

International Business
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Lecture – 57
Supply chain Management, Global Production and Distribution, Manufacturing Strategy, Global Sourcing

Welcome friends, welcome to the course of International Business. Today we are standing in a very difficult time so there has been lot of supply chain, disruptions and there have been numerous you know difficulties due to the recent attack of the corona virus the pandemic which has occurred to the world. So, now, at this moment the world is seeing a difficult time right.

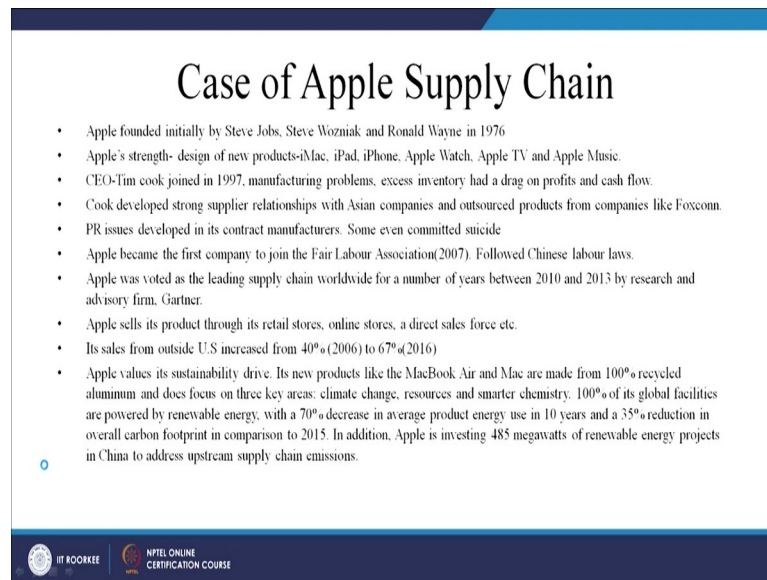
In last lecture we were discussing about you know the how companies would market globally their products. So, during that session we discussed about the importance of marketing and how companies would segment on country wise or on product wise region wise how they would you know segment the markets right.

And after that we also discussed about the 4 ps of marketing like what should be the product when you talk about global markets, what should be the you know how the pricing should be designed, how the promotion should be made and how the distribution should be done? We had briefly discussed right in the last session.

So, today we will talk about one of the most important aspects or one of the most important factors that affects the global you know international business which is called the global supply chain management. So, today's topic of discussion is global supply chain management. Now, let me start with a small example I am sure you must have all I think whoever is listening to me everybody must have heard of the company called Apple right.



So, Apple is one of the most the profound one of the most successful companies in the globe. And today it has it can be easily said to be successful just because one major reason is it is successful supply chain management system right. So, what exactly is Apple and let us talk about the case of Apple to start with and let us discuss it.

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Case of Apple Supply Chain

- Apple founded initially by Steve Jobs, Steve Wozniak and Ronald Wayne in 1976
- Apple's strength- design of new products-iMac, iPad, iPhone, Apple Watch, Apple TV and Apple Music.
- CEO-Tim cook joined in 1997, manufacturing problems, excess inventory had a drag on profits and cash flow.
- Cook developed strong supplier relationships with Asian companies and outsourced products from companies like Foxconn.
- PR issues developed in its contract manufacturers. Some even committed suicide
- Apple became the first company to join the Fair Labour Association(2007). Followed Chinese labour laws.
- Apple was voted as the leading supply chain worldwide for a number of years between 2010 and 2013 by research and advisory firm, Gartner.
- Apple sells its product through its retail stores, online stores, a direct sales force etc.
- Its sales from outside U.S increased from 40% (2006) to 67%(2016)
- Apple values its sustainability drive. Its new products like the MacBook Air and Mac are made from 100% recycled aluminum and does focus on three key areas: climate change, resources and smarter chemistry. 100% of its global facilities are powered by renewable energy, with a 70% decrease in average product energy use in 10 years and a 35% reduction in overall carbon footprint in comparison to 2015. In addition, Apple is investing 485 megawatts of renewable energy projects in China to address upstream supply chain emissions.

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So, as you can see Apple was founded initially by Steve Jobs the most popular name if I ever talk of in a business circle people always talk about Steve Jobs and Apple right.

So, Steve Wozniak and Ronald Wayne in 1976 Apples strength was designing new products. So, it has been always a very innovative company and it has always come out with ah a very new product right to the market. For example, they came with the iMac, the iPad, iPhone, the Apple watch, Apple TV, and Apple music. So, there were some of the very profound products of Apple.

In 1997 Tim Cook joined Apple right and today Tim Cook is the CEO of Apple. And when he joined he is considered to be a supply chain expert, he found that Apple was going through several manufacturing problems, excess of inventory was a problem and which had a drag on the profit and cash flow right.

So, what happened was Cook had to now correct this issue correct this problem; which Apple was facing. So, Cook developed very strong supplier relationship with the Asian companies and outsource its products from companies like Foxconn which is one of the largest manufacturers for apple. But in the process there were several PR issues also during you know these outsourcing process many the contract manufacturers used to hard press their workers and there are cases of suicidal also which Apple had to face the brunt.

But among all this Apple saw an opportunity also because it saw that the Asian economy was growing and it had a large market. And as well as what was happening is it was there are there was a high labor you know there was a low wage you know economy. That means, you can say the labor cost was very low in the Asian economies and they were equally skilled also. So, Apple to take this opportunity it became the first company to join the fair labour association and it followed all the Chinese Labour laws right.

Apple was voted as the leading supply chain worldwide for a number of years between 2010 and 13 by Gartner right. Apple sells its products through it is retail stores, through online stores, and a direct sales force, too. Now, as of you know recently if you see by 2016 the sales from outside U.S increased from 40 percent which was in 2006 to 67 percent in 2016 that is you can understand; that means, from here how global Apple had become in the recent times.

Apple values it is sustainability drive it is you know it has a lot of social it does a lot of social marketing; it has a lot of shows a lot of concern for the environment. For example, it is new products like the Mac book air and Mac are made from 100 percent recycled aluminum and does focus on three key areas; climate change, resources, and smarter chemistry. 100 percent of it is global facilities are powered by renewable energy with a 70 percent decrease in average product energy used in 10 years and a 35 percent reduction in overall carbon footprint in comparison to 2015.

In addition Apple is investing 485 megawatts of renewable energy projects in china to address the upstream supply chain emissions. So, why we started with this example is that; Apple has been a very very strong you know an expert in supply chain management and because of this they have been able to be a successful company and their profits have been very very high the sales also.

Similarly, if you see there are several such stories for example, Samsonite, if you talk about Dell, you talk about you know the there are several Ford example. So, there are several companies and most of these companies have been successful just because they have been able to manage their supply chain very well right. So, what is this supply chain all about and why it is important in international business?

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Supply chain management

- Supply chain management is the management of the flow of goods and services and includes all processes that transform raw materials into final products. It involves the active streamlining of a business's supply-side activities to maximize customer value and gain a competitive advantage in the marketplace.
- SCM represents an effort by suppliers to develop and implement supply chains that are as efficient and economical as possible. Supply chains cover everything from production to product development to the information systems needed to direct these undertakings.

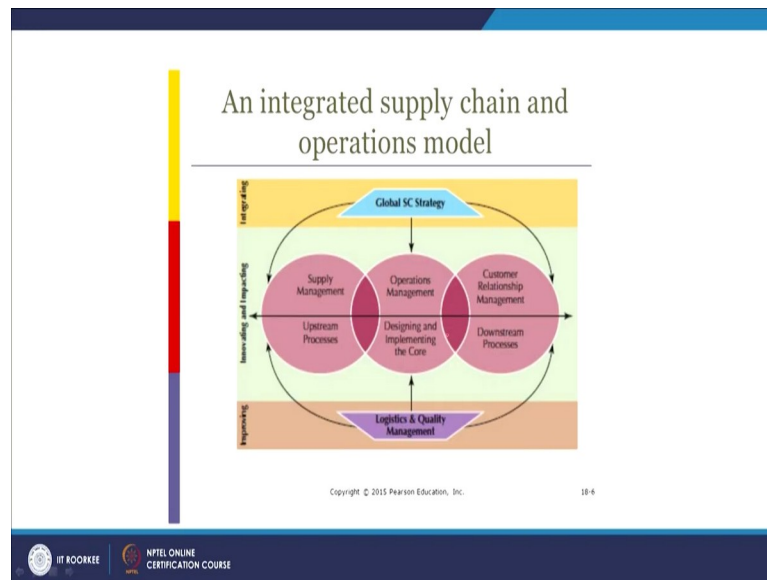
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Supply chain management as defined is the management of the flow of goods and services and includes all processes that transform the raw material into final products right. It involves the active streamlining of a business supply side activities to maximize the customers value and gain a competitive advantage in the marketplace. So, what it says is supply chain management is the process of which where the flow of goods and services and it includes all the processes that even transforms the raw materials.

So, even operations can also be considered to be a part of supply chain although it is a very debatable thing some books would say some things and you know that operations is different, but if you understand supply chain is a holistic approach. It covers everything from; the inbound logistics, to the transformation of raw materials, to the outbound logistics everything.

SCM represents an effort by suppliers to develop and implement supply chains that are as efficient and economical as possible very rightly somebody had said that you know nowadays companies are not competing anymore. In fact, the supply chains of these companies are competing against each other right. So the supply chain s cover everything from production to product, development to the information systems, needed to direct those undertakings everything right.

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So, this is how an integrated supply chain and operations model look like. So, if you look at the supply chain management. So, this is the supply chain management right. So, the global supply chain strategy the entire global supply chain strategy and this is the logistics and quality management right.

So, what it is saying is this is the improving this is innovating and impacting and this is integrating. So, so now, what it is saying the arrow is in two continents is heading towards both directions. So, this is the if you look at this is the downstream process which is the customer relationship. So, the when you move downstream; that means, you are moving towards the customer and towards the upstream is the supply management right and this is the operations in between.

So, downstream is generally you know to if you understand it downstream and upstream it is like you know to understand how to manage the entire value chain downstream and upstream when we talk about; so it is like managing the entire value chain. So, this talks about this model this method talks about how the global supply chain strategy is managed by companies. So, the supply management issues are there, then operation management and the customer relationship management issues. All three of them when handled together it creates an integrated supply chain and operations model.

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How Supply Chain Management Works

- Typically, SCM attempts to centrally control or link the production, shipment, and distribution of a product. By managing the supply chain, companies are able to cut excess costs and deliver products to the consumer faster. This is done by keeping tighter control of internal inventories, internal production, distribution, sales, and the inventories of company vendors.
- SCM is based on the idea that nearly every product that comes to market results from the efforts of various organizations that make up a supply chain. Although supply chains have existed for ages, most companies have only recently paid attention to them as a value-add to their operations.
- In SCM, the supply chain manager coordinates the logistics of all aspects of the supply chain which consists of five parts:
 - The plan or strategy ✓
 - The source (of raw materials or services) ✓
 - Manufacturing (focused on productivity and efficiency)
 - Delivery and logistics
 - The return system (for defective or unwanted products) → reverse logistics.

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How the supply chain management works now? Now, typically if you see SCM attempts to centrally control or link the production shipment and distribution of a product right.

Many a times people confuse as if supply chain is only distribution, but that is not correct right. It is rather a more holistic one and it is a it is in totality one has to see. By managing the supply chain companies are able to cut excess cost and deliver produce to the consumers faster.

So, if as I said if today companies are not fight competing against each other, but the supply chains are competing and whoever has a very efficient and flexible supply chain or an efficient supply chain that company would do better than the others in the same maybe you know even the industry.

So, cutting excess cost and delivering products to the consumer faster is the goal of supply chain. So, this is done by keeping tighter control of the internal inventories, internal production, distribution, sales and the inventories of the company's vendors. So, when you talk about supply chain or when we understand about supply chain; please remember that today supply chain management is so interlinked that today the manufacturer and it is vendors they are it is like you know they work in unison right.

So, the vendor even manages the inventory for the buyer this you know the buyer. So, vendor understands when the management the companies the producers you know

inventory, what is the level of his inventory, and how much it is down and accordingly he would you know make his supplies right. So, SCM is based on the idea that nearly every product right that comes to the market results from the efforts of various organizations.

So, today as you can see if you can think of any product that you can talk right for example, let us go back to the Apple you know an iPhone. Now, if you see an iPhone; it is not that the iPhone is you know made up of only you know products from one company there are several products from several countries involved in making of the iPhone. For example, there are some products from China; there are some products from Taiwan and some from the US itself.

So, in if you see there are several organizations involved and when several organizations are involved; obviously, the complexity would be very very high. Because they are in different time zones, they are the distances you know they are far of from each other and their cultural activities the cultural behaviours are different. So, how they work and what to what is the perception of quality perception of timeliness; so all are different right.

So, in accordingly when so much of complexities are there it becomes very important for the company to integrate and work and take it together right. All though supply chains have existed for ages most companies have paid attention in the near in the only in the near time in nearby time right.

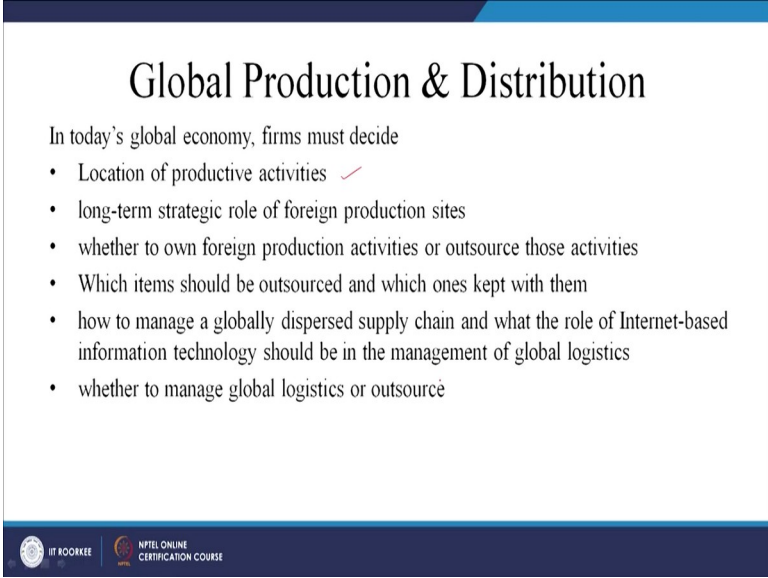
So, in SCM the supply chain manager coordinates the logistics of all aspects of the supply chain right which consists of five parts; what are the five parts? First the plan or strategy right. So, what is the plan? What is the strategy or action that should be taken right. What are the sources of the raw materials and services right; they have to coordinate they have to first coordinate the plan, then coordinate the source of raw material and services then coordinate the manufacturing process which is focused on the productivity and efficiency.

Then focus on the delivery and the logistics generally when we talk about logistics we. Generally mean you know the movement of the goods logistics when we talk about logistics we mean the movement of the goods. So, how would you deliver the products and how would you manage the logistics how would you keep a control of the logistics for example. And finally, the return system or we also term it as the reverse logistics

right. So the written system for defective unwanted parts if suppose there are some products which are broken or something was damaged or something in that condition they have to be brought it back right. So, this process is a very costly process and there.

So, companies have to ensure that it is minimum. So, to ensure it is minimum first of all your production should not have a defects itself. So, first is to minimize your defects and once if you have some defects; how do you bring it back at a minimum cost. So, this reverse logistics cost has to be decreased also right.

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Global Production & Distribution

In today's global economy, firms must decide

- Location of productive activities ✓
- long-term strategic role of foreign production sites
- whether to own foreign production activities or outsource those activities
- Which items should be outsourced and which ones kept with them
- how to manage a globally dispersed supply chain and what the role of Internet-based information technology should be in the management of global logistics
- whether to manage global logistics or outsource

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So, now, once you have understand the supply chain. So, at this point of time we have or we can understand that supply chain is an integral or a very in complex matter because every company whatever they are making they are using several different components in it.

Maybe for example, let us take a large machine; now this machine might have 50 products and this 50 products might be available in different places right as I said for Apple. Now, getting the raw material and adjusting it is to it is production line and you know assembly making the assembly and doing everything is a challenge right. So, supply chain management is become the factor which has which becomes a decisive factor for companies to be successful or not successful.

Now, after this we will talk about the global production and distribution. Now, in today's economy right firms must decide few things like for example, what is the location of the production productive activities. So, a company has several productive activities for example, the sourcing of the raw material, the production right itself, and managing the warehouse, or material management. So, there are several things which are of importance.

Now, so when you are talking about to make a firm a profitable or the successful the firms must decide the location of the productive activities this is the first thing. Then it should talk about the long-term strategic role of foreign production sites. Now, suppose for example, you see today's most of the you know MNE's MNC's they are producing their products in the in countries like; Taiwan, Philippines, Mexico, India, right China and all.

So, how right is it? For example, during the recent you know outbreak of the corona it was seen that too much of dependency on China became a major factor or a major disturbing factor for the companies because their most of the supplies were now blocked because of the outbreak of corona in Wuhan. Now, so that is a very dangerous thing because when you have one you have too much of dependency it could be a strategic failure right. Then the question is whether to own foreign production activities or outsource those activities.

So, that is also what the companies have to look at; should they maintain it themselves, should they produce it on their own, or they should control it or they should completely depend on the you know vendor and believe in the vendor which items should be outsourced and which ones should be kept with them right. How to manage a globally disperse supply chain and what is the role of internet right in managing this global logistics.

So, today thanks to internet and the growth of online systems that it has become very efficient and very simple to manage this global supply chain right. Otherwise imagine a company making any product which has almost 100 items components and it is being let us say gathered from 20 different countries or 30 different countries and ah there could be multiple vendors also among them. So, if you do not have had the you know internet

backup right in such a condition it would have been nearly impossible very very tough right.

So, that is why you know it is not a very great thing to understand that in the past supply chain efficiency was very poor right which has grown significantly and tremendously in the in today's time right.

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Manufacturing strategy

- Success of global operations strategy depends on compatibility, configuration, coordination and control.
- Compatibility: it is the degree of consistency between the foreign investment decision and the company's competitive strategy. Low cost or differentiation strategy.
 - ✓ - Efficiency/cost (Cost minimization strategy, offshore manufacturing, high training cost, risk of stockouts and high inventories)
 - ✓ - Dependability (Prompt deliveries, Availability of components in time, Reduce the supply chain length, trust in quality, price promises)
 - Quality (performance reliability, good service, good maintenance)
 - Innovation(develop new products and ideas)
 - Flexibility(variety of products, adjust production volume)

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Whether to manage global logistics or outsource so; this is a similar point. So, the companies have to understand this what they have to do right. So, should they control the activities by themselves or should they depend on the outside vendors' right. Now, what should be the manufacturing strategy? When you talk about international business international business is not about only selling it is about even producing and then selling it at an effective you know way in effective way.

So how does manufacturing going to affect international business? So, let us see successful success of global operation strategy depends on the compatibility, configuration, coordination, and control. So, the any global operations strategy will depend on these factors; how compatible is it to use various let us say components.

So, suppose you are using different machinery different technique technology. So, are they compatible? If they are not compatible maybe the end result might be poor. Then

the configuration right the how is the specification the configuration; how do you manage it, how do you coordinate this entire process and how do you control them.

So, so let us see one some of them. So, when you talk about compatibility it is a degree of consistency between the foreign investment decision and the company's competitive strategy. So, low cost or differential strategy for example, a company can have a low cost strategy, a company can have a differentiation strategy right.

So when I when you say low cost strategy; that means, what a company produces in huge bulk and then sells it at a low price right it destabilizes the market through the help of an low price system. So, for example, most of the Chinese companies have been doing it for the last many years; they have been producing at low cost and supplying it to the world right. So, and the companies have been even ready to buy almost most of their products from China right.

So, we you talk about this compatibility what issues come into let us say for example, efficiency or cost. Now, cost minimization strategy, offshore manufacturing, high training cost, risk of stock outs, and high inventories. So, when you are talking about compatibility right so first point that comes under compatibility is efficiency or cost efficiency you can say. So, cost minimization becomes one of the core points for any company to be successful.

So for example, if cost minimization is the core you know idea then the company may go for offshore manufacturing; that means producing it is in some third country right; But and it could also you know be subjected to high training costs because suppose you are you know producing it in a country like let us say Malaysia, or let us say Sri Lanka, or Bhutan. Then maybe the training cost would be very high and there could be a risk of stock out, maybe there could be a quality issue, or high inventory issue. So, managing this becomes very important for the companies right.

Second thing is that when you talk about the manufacturing strategy you need to understand [FL] whether how important is this point of dependability; what do you mean by dependability? So, when you are talking about supply chain and you as I said you there is a very complex system you are getting products from several countries and several vendors.

So there might be a problem right that some vendor are not able to deliver it on time or maybe deliver it on the with the right quality. So, dependability becomes also an important part of the strategy when you talk about global manufacturing system. So, for example, prompt deliveries, availability of components in time, reduce the supply chain length; trust in the quality and price promises.

Will the company will the vendor supply me at the price as we had discussed earlier; will it keep the price promise the promise, will is it is quality trustworthy right. How do I reduce the supply chain length? Because if I cut down the supply chain length by techniques; for example, like through modular, manufacturing processes, or through you know integrated ah internet online systems. So, we can reduce it, but then how efficiently the each you know the both the parties are reacting to it

Then it is quality right and their important part is the quality. So, when I talk about quality we will talk about the performance reliability, good service good maintenance. Most of the most important thing when you talk about manufacturing because in manufacture when you talk about manufacturing you generally talk about the industrial marketing you know the big machines and all. So, these processes have to be very highly reliable because you see there are lots of components in a machine.

For example, you talk about a laptop now there are so many components and if each component just works at even 99 percent efficiency and there are 10 components. So, the overall reliability of the entire system will go very much down because 0.99 into 0.99 into point 9 if you do it 10 times it will be very less right. So, and just imagine there are not 10 components in a even a computer there are much much more right.

So sometimes if a small you know you know even reliability issue can at the end become a major problem for any company right. So, so the performance reliability and how do you what is the kind of service being produced or provided by the vendors is a very key question right.

The next is innovation now today everybody's talking about innovation and innovation has also become a very important part it was always there, but with today with the growth of technology and you know internet systems and all innovation has become a more discussed and more hot topic right. So, how do we develop new products and ideas right; how do we generate new products. Suppose there is a condition in which we do not

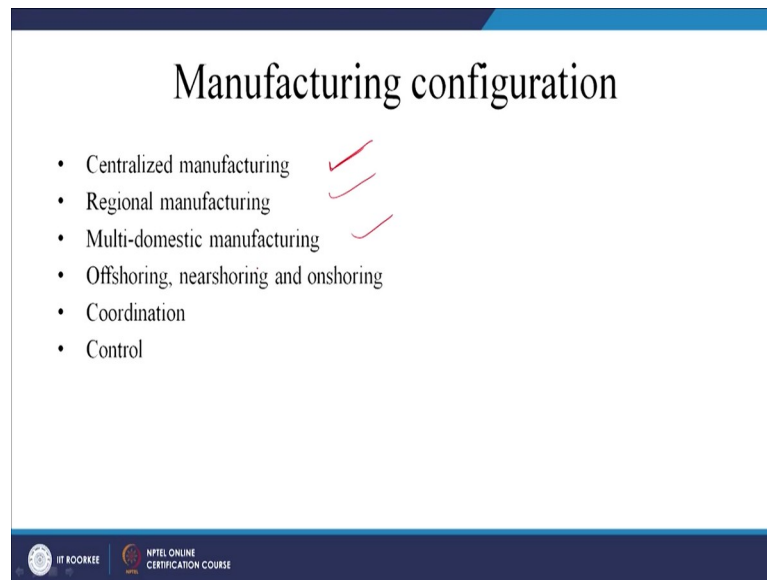
have time right for example, the corona pandemic how do you innovate a new product which can tackle this problem.

So these are issues where innovation becomes say how do you innovate to even survive for example, many companies lost their businesses. Now in such a condition how would they survive. So, what innovation can they do is a very important question and companies tomorrow would survive if they are innovative right if they are not innovative it becomes very difficult for them to survive.

Finally, flexibility right the variety of products right and how to adjust the product volume. So, how flexible is a company also is very important part of the manufacturing strategy. So, is the company flexible does it have sufficient variety of products to attract the customers? And how does it adjust the products production volume because suppose there are 20 products in the production line the company is manufacturing. Now, for example, there is a company called Avon right Avon manufacturers cosmetics and it makes there are number of different products with Avon right.

Now, the question is how does Avon maintain the volume of production? Because in some countries one produce might one product might be in demand and others might not be some other products. And in country b the you know the first product which was in demand in let us say country might not be in demand in country b. So, it becomes very difficult to forecast and manage the entire process. So, these are some of the problems that are during manufacturing the company faces.

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The slide is titled "Manufacturing configuration" and features a bulleted list of manufacturing strategies. The first three items are marked with red checkmarks. At the bottom of the slide, there are logos for IIT ROORKEE and NPTEL ONLINE CERTIFICATION COURSE.

- Centralized manufacturing ✓
- Regional manufacturing ✓
- Multi-domestic manufacturing ✓
- Offshoring, nearshoring and onshoring
- Coordination
- Control

Now, another point when you talk about the manufacturing strategy is the configuration. Now what is manufacturing configuration? Now the question here is how to configure the entire manufacturing system right; the process. So, there are few points we will discuss for example, do you does the company should the company go for a centralized manufacturing system, should it go for a regional manufacturing system, should it go for a multi domestic system, how should it do, how should it coordinate the process, and how should it control the process.

So, when you talk about let us say centralized manufacturing ok. So, when you talk about centralized manufacturing a company might have production in one central place right to in the home market and then it would export the production to the other markets right sometimes it goes for a regional manufacturing. Because centralized manufacturing might not work in some cases because the cost of supply chain might become very high right and even the raw material cost might be very high.

So, regional manufacturing is a next step where in different regions the country can the company can produce. For example, it can produce in a country which is closer to the you know home or the largest market. So, that you know it can take advantage of the low cost of wages maybe the low cost of you know or the expertise of the skill of the workers all these things they can take advantage. So sometimes the companies also go for a regional manufacturing system right.

And then finally, some MNE's MNC's go for a multi domestic manufacturing; that means, they say they have to be close to the customer. So, it is better to have a local production system. So, if you have a local production system you can easily keep a track of your customers and accordingly you can be very flexible as to what the customer desires and you can make a change right.

Finally, is the to coordinate the entire process and to control the entire process. So, organizations have been doing everything to do all this. So, that they do well right and all these things when they when somebody does well affects the; obviously, the international business performance.

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Global sourcing

- Global sourcing refers to buying the raw materials or components that go into a company's products from around the world, not just from the headquarters' country. For example, Starbucks buys its coffee from locations like Colombia and Guatemala.
- The advantages of global sourcing are quality and lower cost. Global sourcing is possible to the extent that the world is flat—for example, buying the highest-quality cocoa beans for making chocolate or buying aluminum from Iceland, where it's cheaper because it's made using free geothermal energy.

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Now, when you talk about IB international business another important thing that needs to be discussed is global sourcing. Now, first of all what is sourcing? Sourcing is the process of making the raw material available right. So, as I said an Apple iPhone might be having let us say 20, 30, 40 components right. So, all these components are coming from different places and let us say you are getting one product let us say from maybe multiple countries multiple vendors. So, this becomes a very complex issue as I said because of the cultural, time, distance, issues, right.

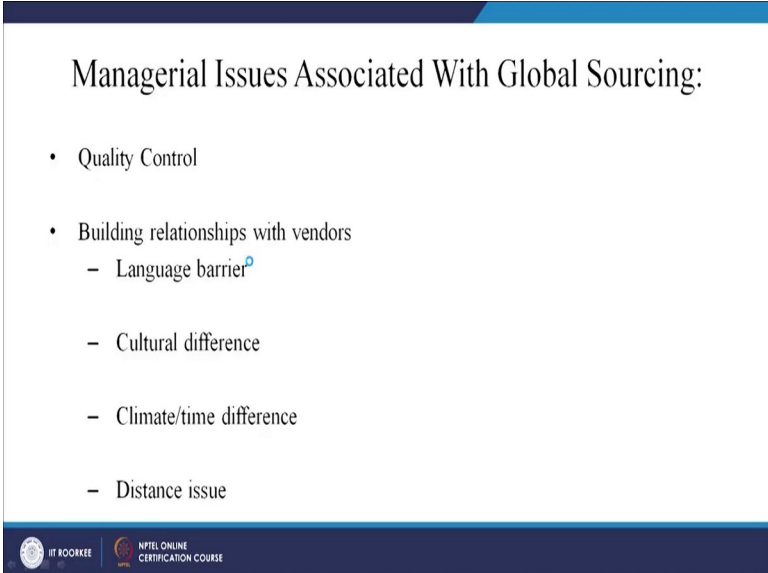
So, what is saying what is global sourcing global sourcing refers to the buying of the raw materials or components that go into a company's products from around the world not just from the headquarters of the country. Example you see star bucks buys it is coffee

from locations like Columbia and Guatemala right. And this is not all this is only a small portion of you know what star bucks does.

So, this is for a company like star bucks who's makes coffee, but what about a you know a company which makes let us say like let us say Caterpillar who makes an earth moving equipment and where there are large number of components or parts involved in it. The advantages of the global sourcing are quality and lower costs. So, global sourcing is possible to the extent that the world is flat. So, it says that you have to assume that the world is flat. For example, buying the highest quality cocoa beans for making chocolate or buying aluminium from Iceland where it is cheaper because it is made using free geothermal energy.

So, as very rightly Jack Welches of G E had said now it is a boundary less organization everything is the systems are boundary less. So, the world has become like one global market. So, in such a condition we have to see where we can get the raw materials at the cheapest price and the best quality. And if it is available then we have to source it from there in order to make the best product out of it right some, but there are issues it is not that you know global sourcing is devoid of issues.

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Managerial Issues Associated With Global Sourcing:

- Quality Control
- Building relationships with vendors
 - Language barrier
 - Cultural difference
 - Climate/time difference
 - Distance issue

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There are major issues with associated with the global sourcing for example, how do you control the quality. So, you cannot have a you cannot have a very significant control it is you can have, but it is very difficult right. How do you build relationship with the

vendors? Because there are language barriers, there are cultural differences, there are climate and time differences, and there is an distance issue right.

So, all this makes you know a global sourcing a very tough job right. So, but whatever it is today if companies have to survive if they have to survive in tough times they cannot ignore global sourcing because they have to get the best of the product from the maybe the farthest point.

But if it is available at a cheaper price cheaper in the sense the distance travel costs might be high the transportation cost, but because the production of the some raw material is available cheaply in that particular place the cost of production is low. So, if you make a trade off the total value the total cost might be coming less although the product which is coming from a far of distance. So, all these problems have to be very carefully thought over and then global sourcing has to be done.

So, what I will do is I will wind up here today. And we will continue from here in the next lecture and we will try to discuss more about the global supply chain management issues and how it affects the international business; right.

Thank you very much for the day.