

**Indian institute of Science
Bangalore
NPTEL
National Programme on
Technology Enhanced Learning**

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Global Supply Chain Management

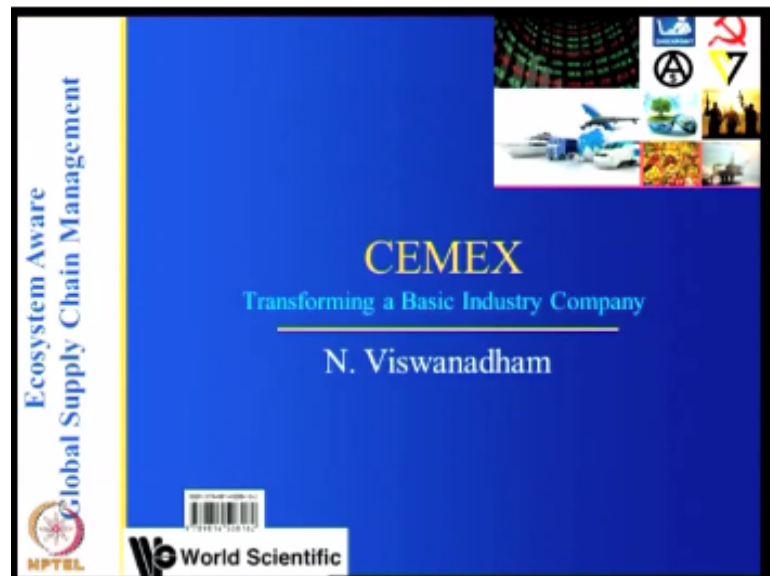
**Lecture – 16
CEMEX – part 1**

**Prof. N. Viswanadham
Department of Computer Science and Automation
Indian Institute of Science
Bangalore**

This lecture on the next one where we will deal with a company which is an outstanding company and we will then try to learn how although the ecosystem framework is not known to them but still all the ecosystem parameters they follow and they are outstanding in three accounts the first one is it is a cement company the cement company all of us know is energy intensive it is a low value and high weight and a commodity product so how can a cement company be an outstanding company let us see that is what transforming a basic industry company into high it is the third largest cement company in the world its global.

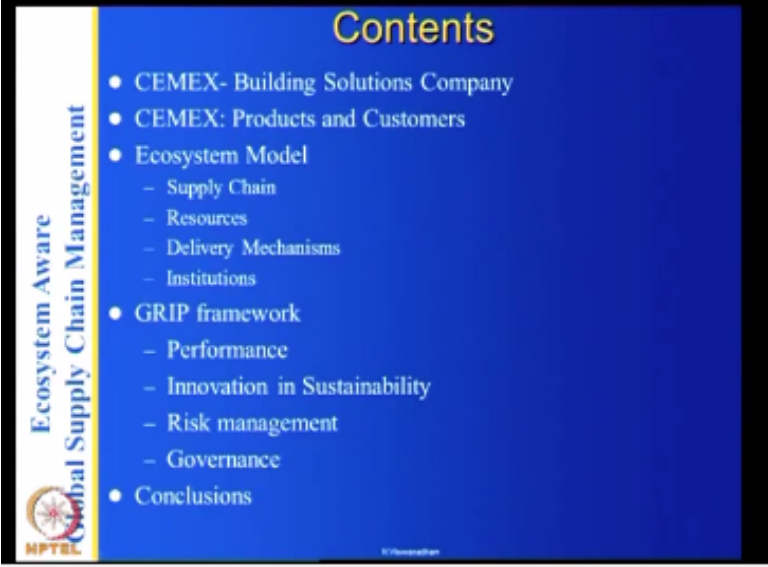
It is there in 50 countries and moreover their performance is outstanding even during the financial crisis I think the AMX has done very well and then risk responsiveness in other words to both demand variations as well as financial and other institutional risk they have they can mitigate them outstandingly so I think it is all the more reason why we should study this it's from a company from Mexico which is an emerging market and they have businesses in all emerging markets like China Vietnam and other places so let us learn about CEMEX.

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And how we will map of course the ecosystem diagram for CEMEX and see how the grip framework what from work who gives out of CEMEX and what we can learn from CEMEX. So we will first talk about.

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•	CEMEX: Products and Customers
•	Ecosystem Model
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–	Institutions
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–	Performance
–	Innovation in Sustainability
–	Risk management
–	Governance
•	Conclusions

Some makes some axis not a cement company I mean although they manufacture cement it is a building solutions company in other words it basically cement is used in milling in buildings so submit by itself has no value but unless it is with steel gravel and other kinds of products so what is the next does is it calls itself a building solutions company. So it not only although it produces CEMEX with cement it also has connections with the steel gravel and others and it has several other features like they sell what are called? Value chains to all its customers and who are the customers will go through all that the products.

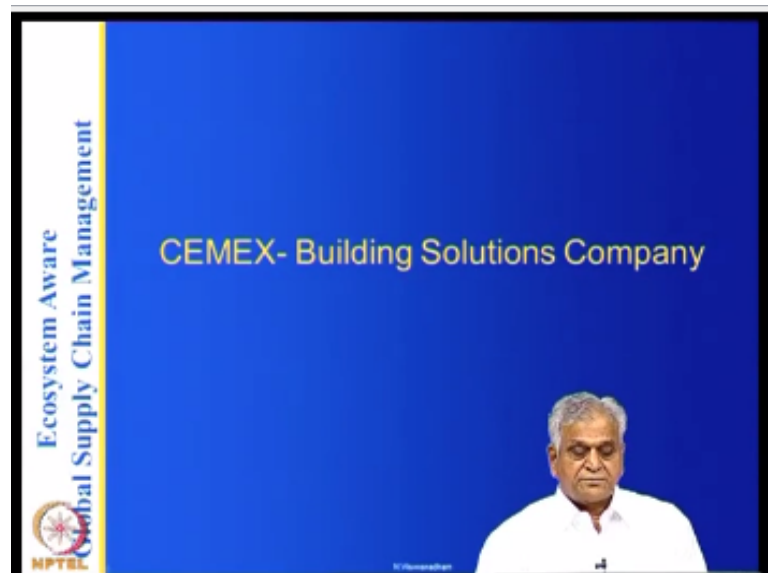
And customers of CEMEX and of course will map the ecosystem for this and go through the supply chain resources delivery mechanisms and institutions and we will find that the sincere it is a cement company and almost every country has a cement company inside their own in-house cement company so in a cement company that is coming from abroad it has to be a horizontal transfer in other words it has to be in a foreign direct investment and cement is an energy intensive company and it emanates a lot of GHG gases.

So there could be a lot of social pressures that could be government pressures and it is also you cannot increase the price regarding the price the government may come down a very heavily and so on it surprised sensitive so and it is highly a sentence so how does the echo the echo system model compare in such a environment and we will go through the great framework how this the performance and innovations and innovations in sustainability.

So it is a cement company and they not only the factories the cement factories I think they use a lot of fuel and power and they emit emanate lot of gases so sustainability is an important parameter and some axis does the sustainability there are green supply chain is outstanding but also risk management they face lot of this and usually risk management is done the people think it is a board level and their risk management officers and all that.

So if you look at what is risk what is risk is something unusual that happens in the company like I will demand variations or the suppliers value or a bag failure whatever it is the risk management is cynics considers it as an operational matter because as we saw in our earlier lectures that most of these global supply chains are subjected to race day in and day out so then it happens every day it becomes an operational matter so the CEMEX staff or train to make the risk management decisions and of course! they there is awareness and also there is the control the control tower by the CEO on the risk or sl and so on and finally we will look at the governance and will conclude this two lectures so let us look at what is what has CEMEX and XS I have Building Solutions company.

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And why do not you study a cement company CEMEX? Because, such a commodity this one what is the reason for this one the select cement industry is conventional and low tech that sonic starts out as an emerging economy trend so we will see how and some the best practice model since the late 1980s it has grown rapidly from a local cement producer to become the

third largest cement company in the world it will soon or it may be by now the best company in the world the success of the company.


Is because of it has superior information and logistics capabilities we will see that although it is a cement company it has high it has CEMEX high and several others and it wants it once fleet of ships and so on it has a heavy product cement is a heavy product so it has to be only you shipped and usually so that is sold in the country where it is manufactured so you have a cement factory and in the surroundings only people sell because it has heavy material and transportation is very expensive but still I think in case of down towns.

And so on to match the supply demand problems CEMEX can use its logistics capabilities to basically ship products across countries particularly in Eastern we will open strong Europe and so on it has excellent business models for example the business model they have instead of selling cement it sells builded business solutions it is also architecting it sells financing it sells everything excellent business models and an efficient supply chain with risk responsive operating practices so it is an efficient supply chain and risk responsive operating practices.

So the risk that any company CEMEX faces some extra it as an operational matter and the local managers will take care of it and if the in case of need of course they can always raise up to the CEO and so on but this is in contrast to most companies where they think that risk is the CEO matter and there is a risk officer who comes in and so on who comes in tries to consult the operations experts and gives a solution.

But here since the people operations be affected by people who are practicing day in and day out they basically know what the problems are and they can be more risk responsive then somebody who is coming once in a year in case where when the risk occurs it is not an after-the-fact but it is a fact it is a part of a control on line control that happens so that is why we study CEMEX.

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Ecosystem Aware
Global Supply Chain Management


Why do we study a Cement company, CEMEX?

- The cement industry is conventional and low-tech, but CEMEX stands out as an emerging economy Giant
- CEMEX is a “best-practice” model—since the late 1980s it has grown rapidly from a local cement producer to become the Third Largest Cement Company in the world.
- The success of the company is because of it has built superior information and logistics capabilities, Excellent business models, and an efficient supply chain with risk responsive operating practices.

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It is a transforming a basic industry solutions.

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Ecosystem Aware
Global Supply Chain Management

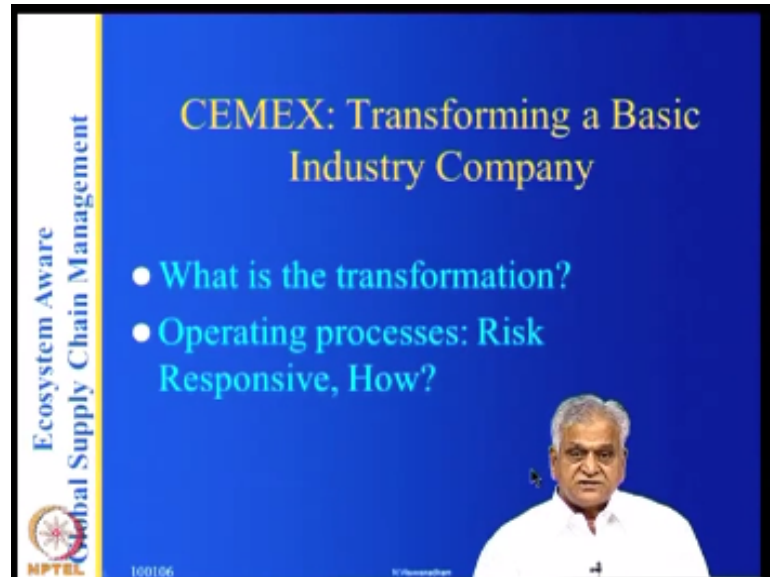
CEMEX: Transforming a Basic Industry Company

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And what is the transformation. What is the transformation? Of course! the transformation here is as I already told you it is transformation from being a CEMEX very a cement company into a building solutions company and it is a transformation of supplying solutions to the to the people to the builders you know they can architect they can give you maintain a supply happen here the largely linked solutions if it is a small building they can provide you with operating capital

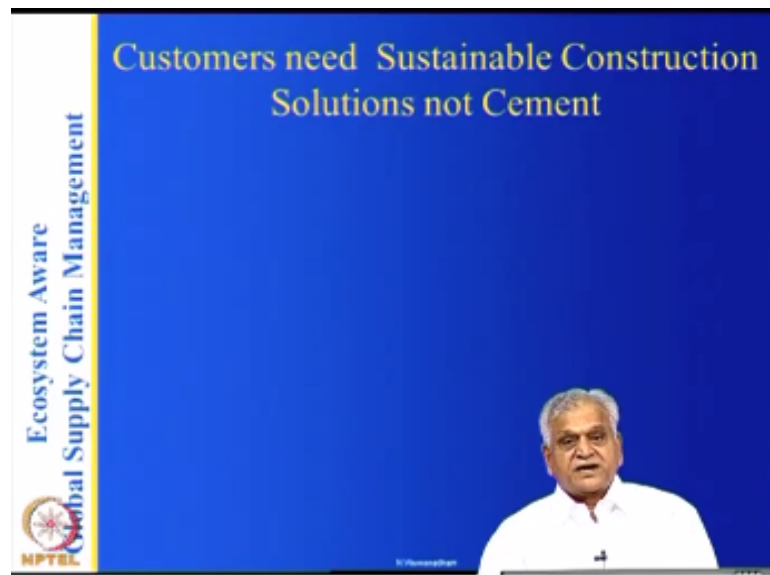
and so on and operating processes are risk responsive. How do they do it so I take these questions as we go along very large are these two questions.

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So customers need sustainable construction solutions not cement.

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And that is a the motive of that is the this one what they are say you were said in 2001 we need to supply not only cement but also a broad range of other building materials leveraging our world-class logistics and distribution capabilities to help our customers succeed so this is the

2001 Moto of CEMEX and this what the CEO has said but in 2011 as the largest concrete producers of the world we have an obligation to define and support a sustainable construction industry so now if you look at the construction industry now people are talking of green supply chains people are talking of GHG gases carbon footprint and production and so on and cement being it's also highly energy consuming this one.

So unless the cement company cannot succeed you cannot pass through all the regulations and all that unless it has sustainability as an obligatory Moto here so that is why this one and you can find that for being a cement company what is an X does is there is an outstanding sustainable construction industry solutions. So this is what the CEMEX CEO has said.

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Customers need Sustainable Construction Solutions not Cement

We need to supply not only Cement but also a broad range of other building materials leveraging our world class logistics and distribution capabilities to help our customers succeed. 2001

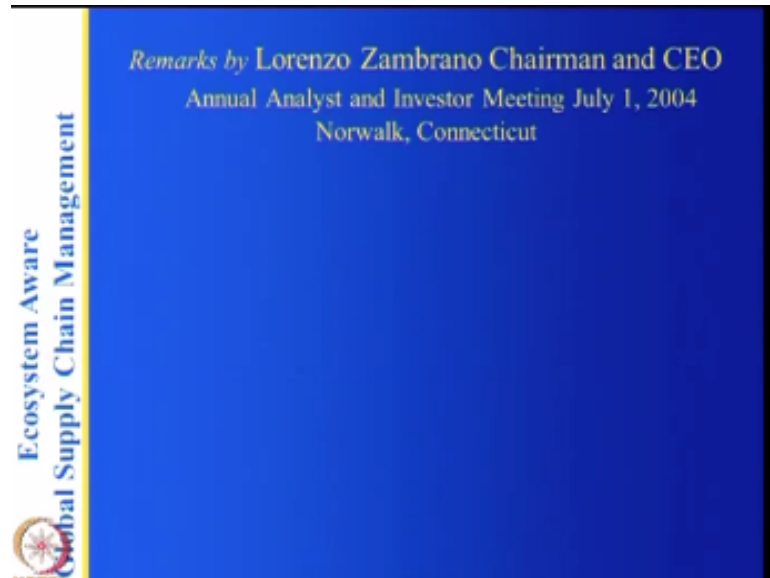
- *As the largest concrete producer of the world we have an obligation to define and support a sustainable construction industry 2011*

Lorenzo Zambrano- Cemex CEO.

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So this is basically what we say is instead of selling cement.

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They are selling solutions what are these solutions they are billing solutions they are sustainable or they agree the answer is yes. So I think this is just to generate curiosity how CEMEX does this you should be asking whether we have just been lucky or whether our business model is really better than our competitors so in 2004 there is an investors meeting and CEMEX has been doing very well it has basically acquired lot of companies and it is finances are doing well stock market is going up as price.

And so on although it is from Mexican and they enter entire Europe their entire United States and all our Asia and so on so then there the question? Is you should ask another which has been lucky or our business model is really better than competitors because it was doing better than competitors so in other words is it is a success by design or is it just by luck the answer is by design if you look at our industry value chain including aggregates ready mix the distribution and others as well as cement total revenue generation could be four times larger than cement alone.

With more than double operating cash flow so in other words what has how could they do very well with this business model of supplying building solutions rather than cement now when you add up aggregates ready mix cement steel and so on then revenue generation could be four times larger that has helped cement alone if you sell cement alone then your capital and other costs are X then if you are taking add to other building solutions like gypsum to steel to gravel to everything then you are actually increasing the revenue by four times and.

So if you negotiate say for steel with steel factory for all your customers then you know because of this scale you are going to get it cheaper so you pass it on part of it to your customers and part of it for you or your cement selling your cement is selling your cement is automatic because when you are selling a solution nobody is going to ask you where are you getting this cement from even if they ask because you are providing a total solution near their venue whether it is an airport new airport building or another new office building or a new small house all the solutions are given so nobody is asked going to ask you cement becomes is taken for granted and it comes from CEMEX.

So sell in cement is not an issue and adding others you are going to increase your purr your flow in four times five times under your revenues also increase and that is the secret of success of cynics the business model but of course when you are dealing now not canceled so if you look down so basically what is happening here is in the in the case of some ads is that it is supplying all the materials other than cement so but we you know it is not easy to supply all the materials you have to negotiate for cement you have to negotiate for steel for other materials you have to store them have a distribution system.

And you have to maintain do other things are just selling cement so it is that case that your organizational value chain becomes very complex and CEMEX is able to manage all this through using logistics using IT and also through a governance mechanisms and so on.

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Ecosystem Aware
Global Supply Chain Management

Remarks by Lorenzo Zambrano Chairman and CEO
Annual Analyst and Investor Meeting July 1, 2004
Norwalk, Connecticut

- You should be asking whether we have just been lucky, or whether our business model really is better than our competitors.
- If you look down our industry's value chain—including aggregates, ready mix, distribution, and others as well as cement—total revenue generation could be four times larger than cement alone, with well more than double the operating cash flow.

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That is where the study becomes an interesting one so and then if you look at what are other global cement companies.

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Global Cement Companies

- Lafarge, Holcim, CEMEX, Heidelberg, Italcementi, and Blue Circle are the six largest multinationals
 - They have clearly identifiable national origins and control large market share of their respective home countries.
 - Each operate production facilities around the world
- In 1988, the 6 large MNEs accounted for only 12% of capacity worldwide. By 2000, this figure had gone up to 25% - 30% excluding China.
- International trade in cement accounts for significantly less than 10% of world production

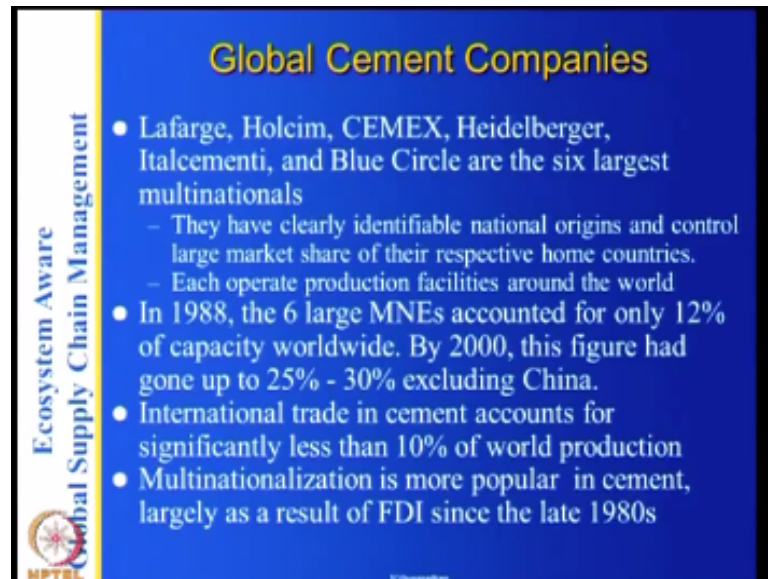
Lafarge, Holcim, CEMEX, Heidelberg, Italcement and Blue Circle or the six largest multinationals these have been clearly identified national origin so I mean you can see that where they are coming from and control large market share of their respective home countries for example CEMEX itself is from say is Mexico and it has 90 percent of Mexico market and each operating production facilities around each operate production facilities around the world now if you look at the cement this one in 98 the six large enemies multinational enterprises accounted only for 12 percent of the capacity worldwide but by 2000 it has become 25 to 30 percent excluding China.

So with multinationals or the ones that get into similarly you personal trade in cement international trade in cement accounts for significantly less than 10% of worlds production you know in other words cement is such a you are able to see what is happening it is coming again so international trade intent this is less than 10% of the world production and so because it is a high energy intensive heavy and low cost multinational hydration.

That is horizontal transfer off the production facility is a small popular in 70 Nutley largely in terms of FDI that is foreign direct investment since 1980s this multinational iteration is there are two kinds of trade and horizontal trade and vertical trade are gentle trade is you go to a country

and then you establish your factories there in that country either by yourself or as a joint venture with some partners of that country and so on so the foreign direct investment becomes a route for global cement companies to get there.

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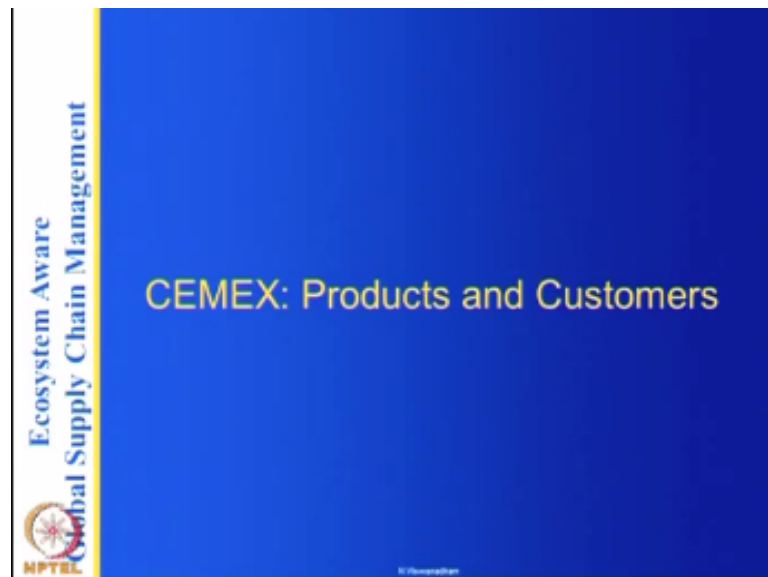
Global Cement Companies

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- In 1988, the 6 large MNEs accounted for only 12% of capacity worldwide. By 2000, this figure had gone up to 25% - 30% excluding China.
- International trade in cement accounts for significantly less than 10% of world production
- Multinationalization is more popular in cement, largely as a result of FDI since the late 1980s

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So what are the products and customers of CEMEX?

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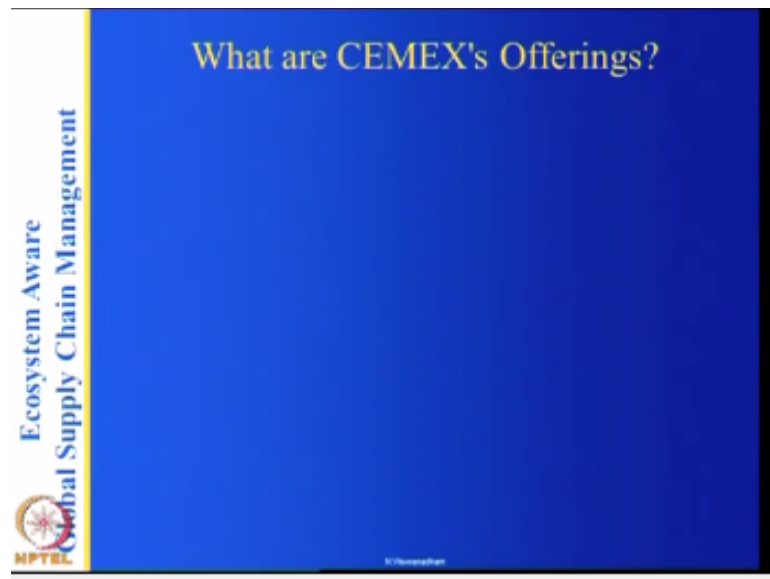
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CEMEX: Products and Customers

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So what do sub X offer CEMEXs Offerings?

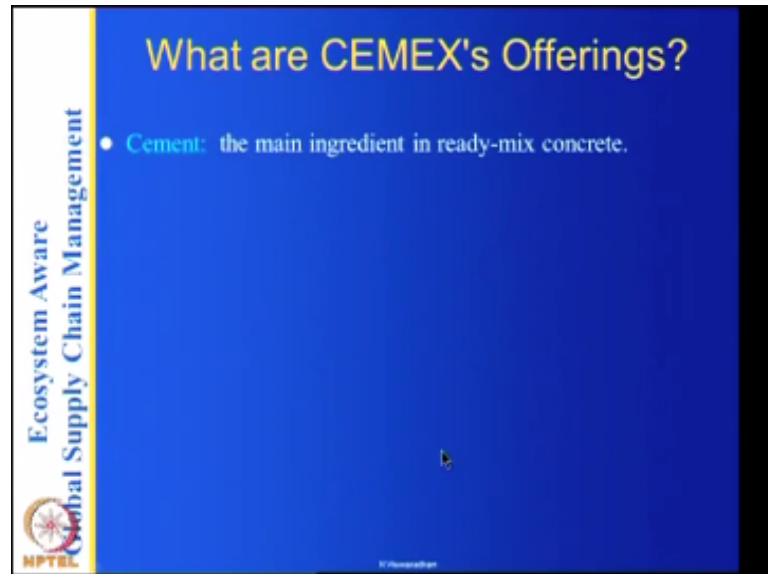
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Is a growing global Building Solutions company that provides products of consistently high quality and reliable service to customers and communities in Americas, Europe, Africa Middle East and Asia so it is all over the world and the operation Network for producers distributors and producers distributes and markets cement ready mix concrete aggregates and related building materials to customers or 50 countries.

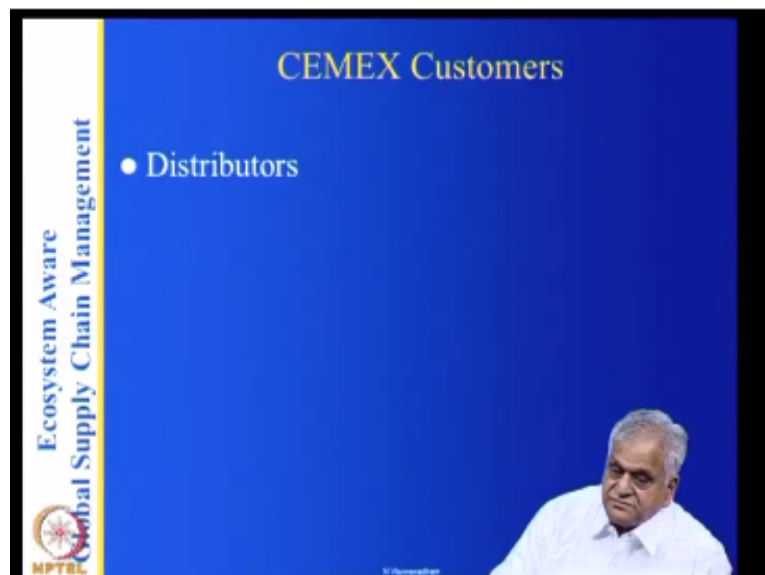
So that is the reach of FMX in this so what does it offer symmetry office building solutions and its high quality and reliable service to the customers whether you are a small customer you are a big customer whether you are located in the United States Europe and so on and all that so if this cement ready-mix concrete aggregates and related building materials that is. What it supplies and what are the offerings?

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The cement the main ingredient in ready-mix concrete aggregates includes stone sand gravel and primary ingredients in ready mix and ash fault and mortar and supply ready-mix concrete it is an extremely durable building material from a mixture of cement aggregates water and mixtures and can be cast into many different shapes and other related products include gypsum fly ash wise concrete blocks roof tiles architectural products concrete pipes another precast products such as concrete floors box culverts bridges drainage basins their barriers excreta. So basically these are the products or that is annex offers so we see in the product offerings and they products and who these CEMEX customers are.

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They are the distributors in other words if you are a cement distributor cement basically then selects basically gives you cement which you can sell to your customers but in this distribution it will also help you to procure steel and other building materials because the distributors are not only distributors of just cement that is distributors of cement so it has established a company and with itself and it actually mentors that that distribution company.

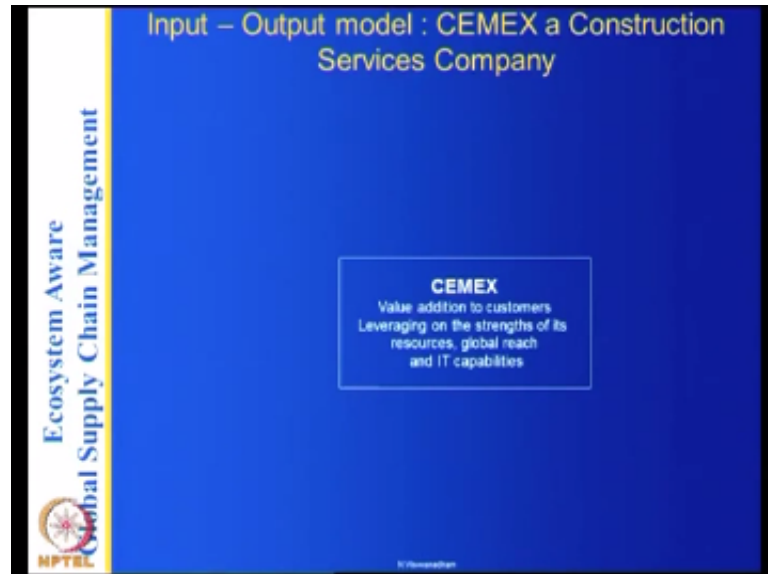
So that they do well and small house constructors so anybody who is trying to construct a small house particularly in Mexico they provide the architecture of the this one they provides the architecture they provide the cement and other bending materials they provide Lee loans and if someone is working in the United States they collect money in the United States in dollars and give the corresponding building materials in Mexico.

So basically this is how they do some kind of corporate social responsibility as well and ready mix concrete dealers whoever is there not only their supply but they are also ready mix concrete dealers and where you are a transformation of company slabs prefabricated concrete blocks and so on large infrastructure project companies airports roads housing complexes and so on so these are all the CEMEX customers so and what does it supply to these people they supply cement if you want cement they supply building materials.

If you want them if you want the slabs roofs the other thing you know whatever you want this team that is required for your buildings they supply and in case of large infrastructure projects they also do maintain a supply hub here at the project so that everything can be obtained on time for construction and so on so basically they are best they want customers to succeed and that is what the motto of some axis.

So given this kind of Sanyo of CEMEX which is a Mexican company is an emerging market company and it has basically manufactures cement but it says look I am not only magnifier i may manufacture cement but i supply building solutions and using it social network because it's a big company it is used as a social network with the steel and other manufacturers to supply other building solutions. So what will be Eco system model of such a company if you take say max.

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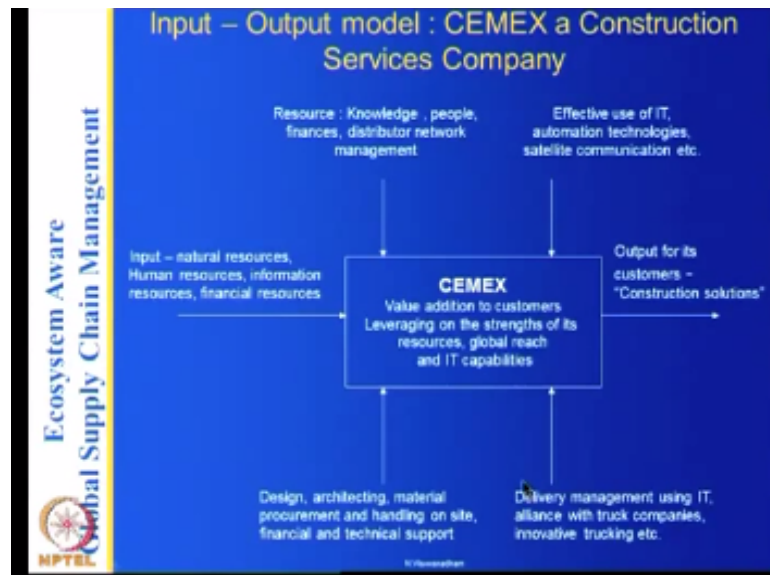


It is a value addition to the company to customers leveraging on the strengths of resources global reach and IT capabilities of cynics so if you are delivering CEMEX then its evaluation so what are the inputs to select factory input natural resources human resources information is also some financial resources there are the resources and outputs are the construction solutions for building materials and there are other inputs as.

Well like knowledge people finance distributed network management and so on and you have effective use of IT automation technologies satellite communications etc so there use IT and out Meehan technologies satellite communications etc to communicate with the ready-mix providers they will communicate with their trucks drivers to communicate with their factories and so on and also designed architecting material procurement and handling on-site financial and technical support so then supply this i architecting material procurement and handling and on-site and financial and technical support to any building and building Warner's and delivery management to UT alliance with what companies innovation.

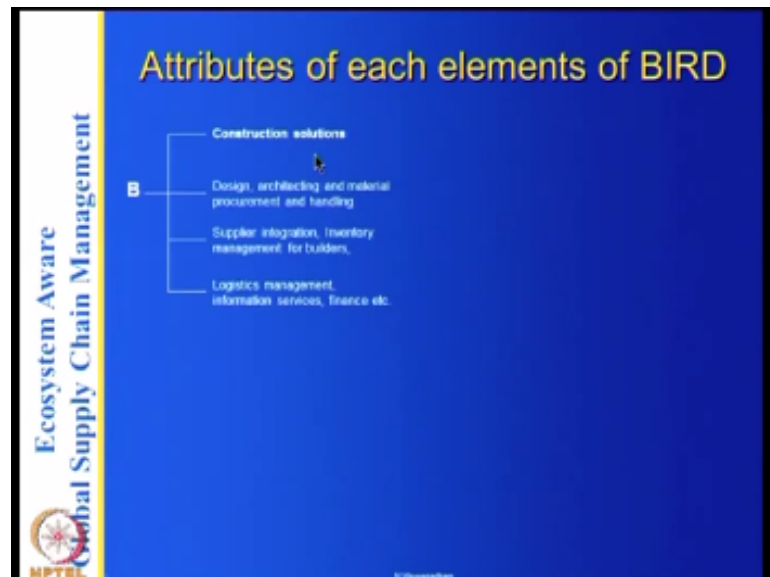
Innovative tracking etc so basically they have they have company over themselves and so on so basically if you look at CEMEX it has the input which is the natural financial and other resources and output its construction was solutions it has IT and it has management knowledge and management capabilities and it has other capabilities inputs that are required for building that a like design architecting procurement of other materials and so on so that is the input-output model of this company.

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So if you look at what are the businesses attributes of the business construction solutions.

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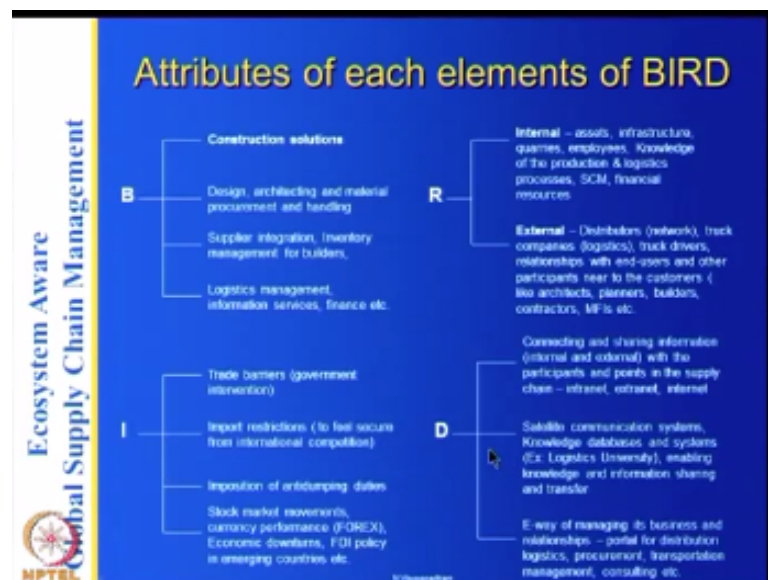


Is design architecting and material and handling as we said supplier integration inventory management and logistics that is the business be stands for business and you have resources which are internal and external internal our assets infrastructure employees knowledge and so on external or the distributor networks logistics network truck drivers and so on.

And the trade barriers the institutions trade barriers the government intervention import restrictions and imposition of anti-dumping duties you know it is because then I say if the local cement companies they are practiced then the government has no other go other than just imposing anti-dumping the rules and stock market movements currency performance economic downturns FDI policies and so on and we have delivery mechanisms connecting.

And sharing information with the participants that is internet extranet intranet and satellite communication systems they have a logistics university enabling knowledge and information sharing and transfer and a way this is the one that that is unique to some acts a way of managing business and relationships a portal for distribution logistics procurement transportation management and consulting and so on so these are the attributes of each of the elements of bird we call this is the business this is the institutions this is the resources and delivery mechanisms.

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Now it is easy to map the CEMEX ecosystem.

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So we look at the CEMEX value change the design architecting then supplier integration logistics management and finally the construction solutions. So these from design to the construction solutions of course we have the inventory management of course this MX manufacture is comes here and under the material procurement so we are treating here as well as Amex is concerned although it manufactures cement the it is it is procuring firm itself.

But it is comes under material procurement the other one is resources like assets infrastructure quarries employees knowledge capital and distributors drug companies and logistics architect as planners and so on so these are all the inputs that are needed for final construction companies so we have them as resources and you have the institutions which are the governments customs sport and other government regulations anti-dumping in other words cement.

Is basically a heavy material it is shipped across continents or countries so when it is shipped then it goes into problems at the borders and quality control and environmental issues environmental issues as I said sustainability is a very important factor and that can that can be the factory closed down your factory if you are producing more GHU gases and if there is a complaint from the from the local people then the government has no option other than closing them so a lot mental issues are becoming important social stock market and traditions.

The delivery mechanisms are connecting and sharing information with supply chain partners the point is if same eczema could be could be a commodity product like cement it may be it is producing but you can see how it has transformed itself into a highly valued company by selling

solutions and when you are selling solutions to this you have to connect with steel gravel and other producers as well as their distributors and so on so you have a logistics and information network with your supply chain partners.

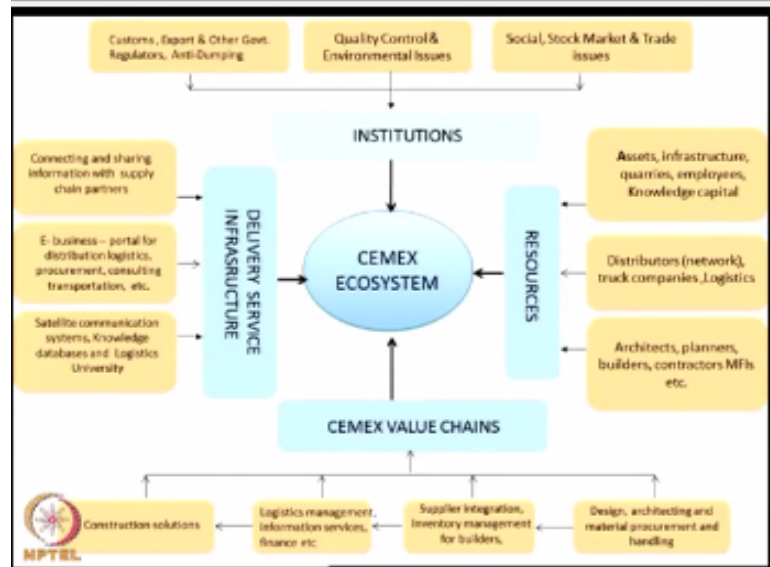
And you have a new business partner because you need not have to have to travel and all your who can have an exchange business-to-business exchange or a business portal for distribution logistics procurement consult consulting on transportation but satellite communication systems knowledge databases and logistics the University or the delivery.

Because they the people they skill-based training for the logistics movement of heavy materials I think the logistics University hands handles all this here earlier when there was no internet no Wi-Fi they were using satellite communications to communicate across with the vehicles so you can see that this CEMEX ecosystem like the ecosystem for any other company like whether it is auto or food or whatever it has all the features of the ecosystem the value chains the resources the institutions and the delivery service mechanisms now here you can see that the resources become very important because it has resource intensive and particularly the power water and so on and also it uses.

Of course the commodity resources this one but they are very heavy so it has to be produced to where it is sold because transportation becomes very expensive and the institutions the government problems come because of several reasons one is the fundamental one is the sustainability issue and second one is because their local producers if you are a foreign cement company then you can get into anti-doping and other problems.

And then third one is the price sensitivity you cannot have your own price it has to be the price that the people can pay and also there is the infrastructure issue because these cement bags or gravel already mix then is to be transported to the customer site or either do you do manufacture at the customer site or they to do transport to the customer site so that becomes the last mile transfer this also becomes an issue.

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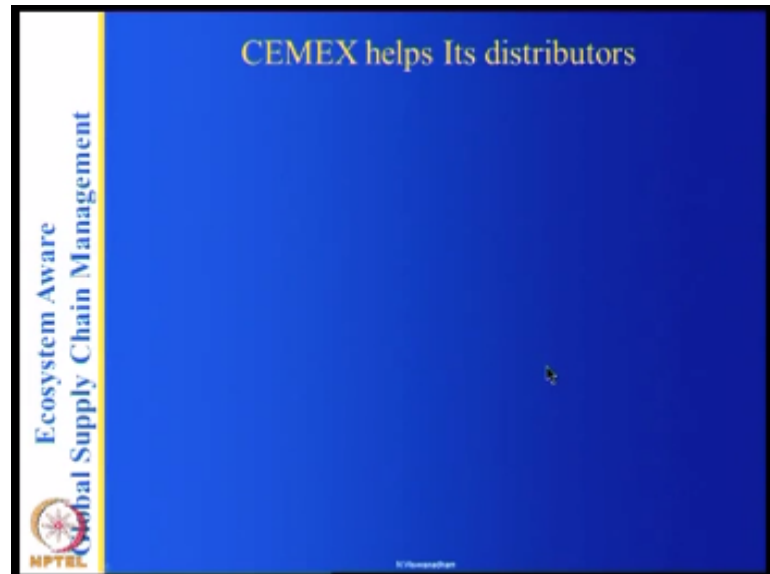
So let us look at the supply chain.

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Managers a multi-product building materials supply chain that is the CEMEX marriages this one so let us look at the supply chain.

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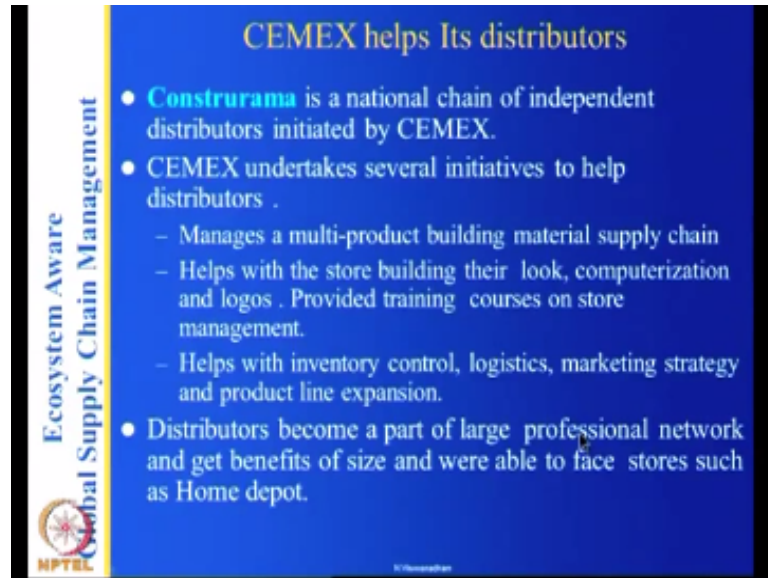


This one CEMEX helps these distributors there is a company called canister drama it is a national chain of independent distributors in a tech initiated by some acts so it says one of its customers as distributors so he did not issue it at a national chain and summits undertake several initiatives to helps the distributors managers multi-product building material supply chain basically the for the sake of it profusely cemented profuse of the gravel and others helps in store building there they are installed buildings yeah look computerization and locals provide training courses.

Training courses on stone management etc so basically it helps in the knowledge creation and helps with elementary control logistics marketing strategy and product line expansion so although the consumer is not its own company it basically helps them Mentors this much distributors become part of large professional network and get benefits of size and were able to face stores like Home Depot in other words Home Depot is there in Mexico in other places.

So if you want to be a distributor I think you have to be because a competitive enough as complicated ways Home Depot that is the one that creates issues so but then some acts has said that this consumer should be able to face stores like Home Depot.

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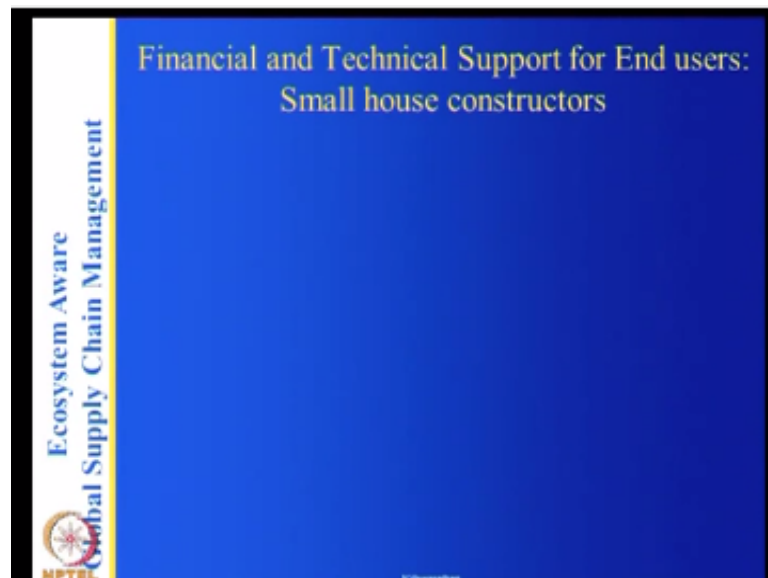


CEMEX helps Its distributors

- **Construrama** is a national chain of independent distributors initiated by CEMEX.
- CEMEX undertakes several initiatives to help distributors .
 - Manages a multi-product building material supply chain
 - Helps with the store building their look, computerization and logos . Provided training courses on store management.
 - Helps with inventory control, logistics, marketing strategy and product line expansion.
- Distributors become a part of large professional network and get benefits of size and were able to face stores such as Home depot.

And financial technical support for end-users particularly the small house constructors.

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Financial and Technical Support for End users: Small house constructors

So there are lots of you know people without houses or there are people with a small house but they want a another room they do not they do not want to build a new house they may want to only build another room for this so or they want to put a first floor on this because this these are small house constructors they are poor and they cannot afford all the money at one point in time either some ex provides them the with the loans and which reckon their connect then later.

At some point time on a weekly so construct card a credit card offered in partnership with GE Capital accepted by consumer stores so their distributors will accept that and they have a they have a credit card which is and patrimony ahoy is a micro lending program like a kitty party in the in India so this is a micro lending program for building houses so most of the are the people pull people then a build their own house but then acquire help in terms of architecture and in terms of the finances as well as in terms of building materials.

So sanics produces gives all this to them and they saw that they can build their own houses and construe backs is a program to help Mexican workers to send money back to their families for construction so some ex receives the money in the US and their families get construction materials so this is this one that this is done with the permission of both the United States and Mexico and in mentally management for builders so CEMEX does invest inventory management for the builders selects management supply hubs you know supply hubs are the ones there are basically warehouses with all the materials that are that are required for manufacture of a particular product it is there near the manufacturing site.

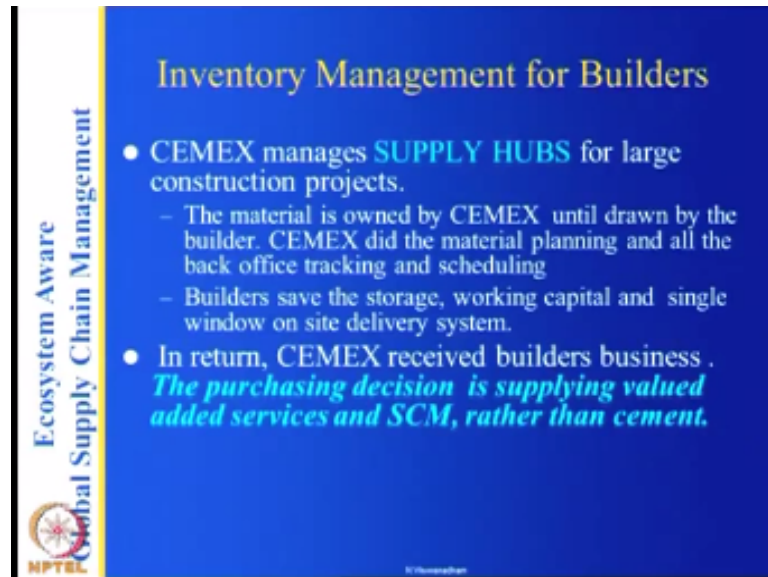
So all that depending on what are the products that we are assembling at that particular point in time or that day they depending on the order you receive at the warehouse staff are going to put together all the materials that are required for manufacture and then send it to the factory and same thing here so here since it is our buildings when the buildings of a large projects all the materials steel cement other thing is stored by the air the construction site by CEMEX.

And it is owned by some eggs until drawn by the Builder this is the typical supply hub concert and selected the material planning and all the back office work and scheduling so for the Builder he does all this and it tells look you require this materials at this point in time and it keeps them ready so that the Builder can draw them and the Builder pays only after he uses the limit in you I will now say one storage working capital because they need not have to pay until they use it and a single window on-site delivery system it is on site.

So you are there you know where it what it is and so on in return some extra see with the builders business and investor returns Imax gets the purchaser initiation is supplying value-added services and supply chain management rather than Sennett so it is getting that Building Solutions architecting and so on all that other value-added services than cement if they sell only

cement then you know there would not be a prominent and they will not be able to making so much money as they are doing right now.

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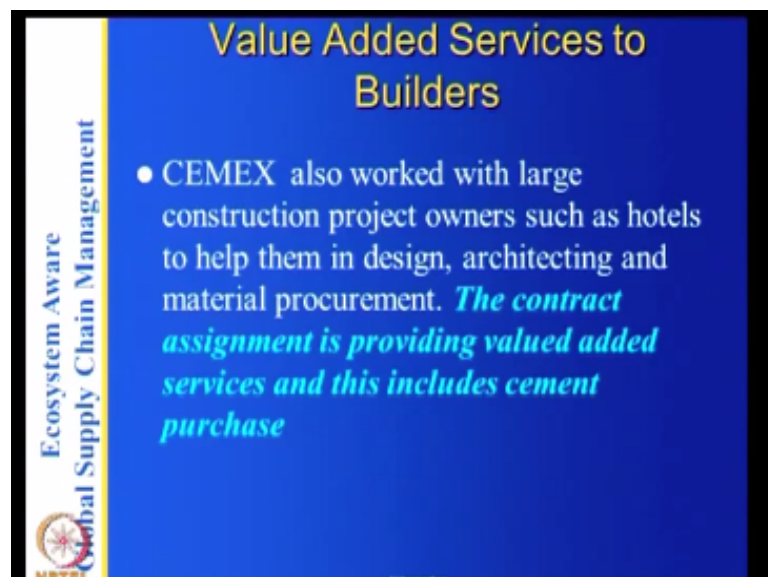


Inventory Management for Builders

- CEMEX manages **SUPPLY HUBS** for large construction projects.
 - The material is owned by CEMEX until drawn by the builder. CEMEX did the material planning and all the back office tracking and scheduling
 - Builders save the storage, working capital and single window on site delivery system.
- In return, CEMEX received builders business . *The purchasing decision is supplying valued added services and SCM, rather than cement.*

So some acts also work with large construction project owners.

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Value Added Services to Builders

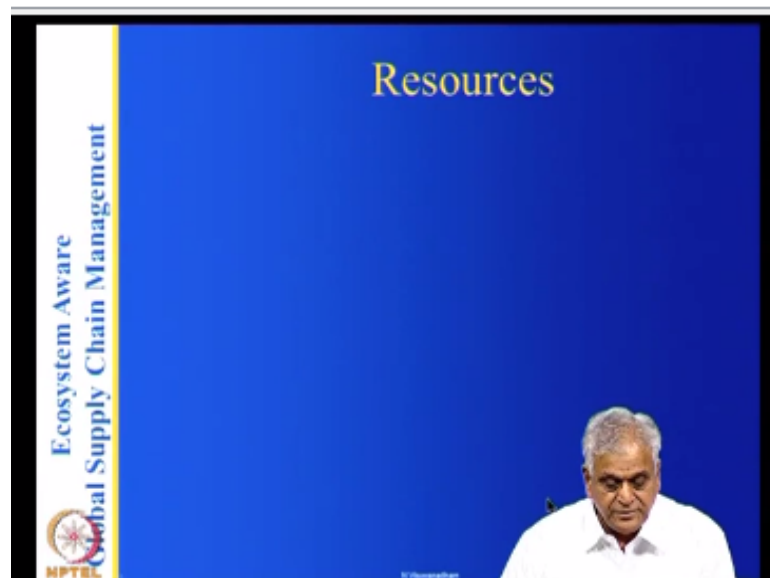
- CEMEX also worked with large construction project owners such as hotels to help them in design, architecting and material procurement. *The contract assignment is providing valued added services and this includes cement purchase*

Such as hotels to help them in design or protecting and material procurement so the contract assignment is providing value-added services and this includes cements purchase so you can see how cement has become an incidental it's a part of it auto maybe if you take all this cost of

these services and what is the what is the percentage of cost of cement maybe 10% so you can see how a value chain that some acts put together for its customers makes its manufacturing incidental and of course you know he says the we will see in the in the governance model that it is a complex organizational issue to manage.

So many services and not only providing those services and assurance of quality and timeliness it require a lot of governance so we will see that so what the resources are.

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That CEMEX has uses so internal resources or assets infrastructure quarries employees knowledge of production logistics processes supply chain management and financial resources so you have I mean one thing is that semi cement is a very highly asset intensive factory in other words you have to have all the factories and once you have a factory for cement it cannot be used for anything is it a set specific and all the infrastructure for example.

You want to have ready mix concrete vehicles and the and for quarries employees knowledge of production and logistics processes everything is highly asset specific so which means there is lot of capital that is involved which is which can be used only for this and you cannot be moved to other industries extra we are the distributors now Mr. Peters is a network and some explicit epic role and this is primarily in Mexico and truck companies because you require special loading unloading and so on and also the SIMEX that is cement when it comes out of

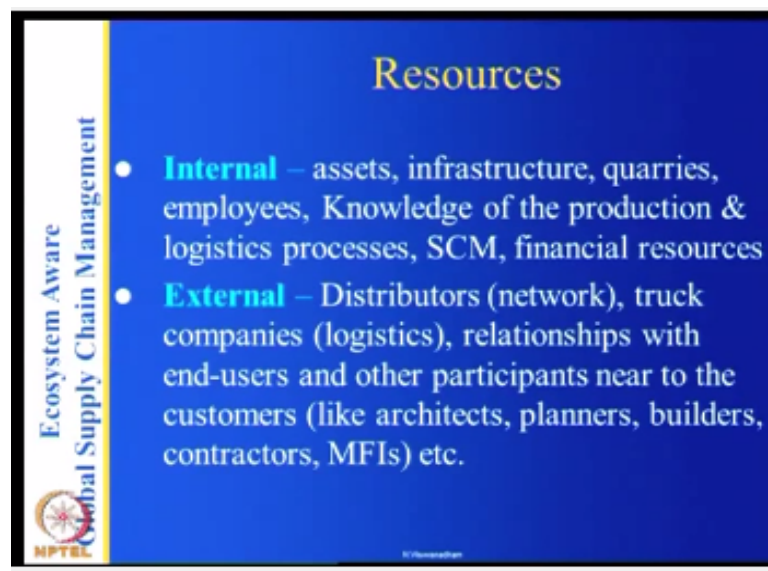
the factory it has to be bad date relationship with end-users and other participants near to the customers like architects planners builders contractors financial institutions.

And so on so you have two kinds of resources one is internal resources which are assets infrastructure and so on and external resources which is a social network basically and it has two social network with all the people that are in world and building construction from design or architecting to planners to build us to all the multinational foreign institutions and if it is doing FDI with the government and if the building permissions.

Need to be to get from the corporation and others that partner permission it has to know about the rules of building construction in every country and so on in addition of course it has to maintain its supply chain and it has to maintain financial resources for example if it is giving financial aid to some other small house construction constructors then it has to provide a insurance as well as you know banks to give microfinance and so on and the supply chain here this is a complex one.

Because it is not only the supply chain for cement it is the supply chain first to you it is the supply chain for gravel it is the supply chain for making ready-made mix it is the supply chain for somebody makes slack concrete straps and you have to maintain that inventory made to order on delivery to on time so these allow the assets would show which require a lot of this one.

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Resources

- **Internal** – assets, infrastructure, quarries, employees, Knowledge of the production & logistics processes, SCM, financial resources
- **External** – Distributors (network), truck companies (logistics), relationships with end-users and other participants near to the customers (like architects, planners, builders, contractors, MFIs) etc.

NPTEL

And what about the resource management and service orientation?

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This is asset management you know this is basically the this annex asset management is limestone deposits and cement plants and it has acquired a lot of plants and capital assets you know then it goes to a country it is through acquisition in other words the most of the multinationals really rule their followers when they go to inter country they will acquire in an existing capacity during downturns rather than trying to build a factory so when they do that when they acquire the plants and so on first of all the problem then is you have employees in the version of plant you have equipment and so on and equipment belongs to the previous owner.

You have to integrate the employees their mindsets their knowledge and also the factory the equipment into this CEMEX knowledge base as well as this annex way of doing things that is called say next week so sub X is very good in that and this MX here is the one that helps some acts to be risk responsive data and supply chain knowledge to plan the logistics processes and human resource management improving the knowledge.

The skill sets build up logistics university to train them updating of the process knowledge see if you are just doing a cement then that's fine you know it is a commodity project product and nothing has changed over the years but you are trying to provide building solutions then you are

providing solutions there are always a lot of substitutes that come in and there are a lot of rules regulations that are coming in you know for example.

The buildings want to be green so when you have to know what are the buildings with green this one so you have to train your employees for that you have to train your distributors towards that so it becomes a highly knowledge intensive well of course the organizational orientation focus a first-level on the customer who is the end-user and planned solutions by including all the stakeholders that is the one important thing that Sonics should is not is not the this one CEMEX is a hierarchical company but for producing cement.


But for providing solutions it acts like an Orchestrator in other words it plant solutions and all the stakeholders in constructing a building whoever is in wall and constructing building this strategy helped some acts to gain business since it is value addition to the participants using knowledge and relationships effectively to speed up activities and reduce cost so here is here is CEMEX which is acting as a hierarchical vertically integrated company in the production of cement.

When it acquires a plant outside for manufacture of cement it is immediately integrated to this so it could be a global company but it's still a vertically integrated company as far as cement is concerned but when it is supplying brilliant solutions to people then it has a social relationship with architects contractors distributors companies and governments as well as the producers of steel and others and then it basically acts as an architect or an Orchestrator customer prefix profession x1x competitors for a service-based business strategy.

So why do I shoot the customers prefer CEMEX oh there is only four it has for its service based business strategy so here the point here one should learn you know from this you have started with a commodity product you said I am providing billing solutions and then immediately you have the social network we become an Orchestrator for building solutions you become a hierarchical an integrated company to produce cement well we are still can a steel company do the same thing the answer is yes so this is the orchestration business orchestration plus what you call integrated business that cement season.

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Ecosystem Aware
Global Supply Chain Management



Resource Management & Service Orientation

- **Asset management**
 - Manages lime stone deposits, plants, Acquired plants & capital assets
 - Data & supply chain knowledge to plan the logistics activities
- **Human resource management:**
 - Improving their knowledge, skill sets, build up of logistics university to train them, updating of the process knowledge
- **Organizational orientation:**
 - Focus on the first level of customer (end-user) and plan solutions by including all the stakeholders (end-user, architect, contractor, distributor etc.) in constructing a building
 - This strategy helped CEMEX to gain business since it is value addition to the participants (using knowledge and relationships effectively to speed up activities and reduce costs)

Customers prefer CEMEX over its competitors for its service based business strategy

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