

International Business
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Lecture - 25
Technology and its Impact, IT, Technology Transfer

Welcome friends. So, today we will discuss about one of the important factors that affects International Business. So, in the earlier lectures we discussed about the effect of economic factors, the effect of political factors, the effect of legal factors, the effect of cultural factors on the international business and today we will be talking about how technology is and the change in the technological environment is impacting international business in a significant manner right.

So, I am sure when I am talking about technology few things have already come into your mind. For example, you must have started thinking about how internet has you know entered into our life and how there have been major changes in e-commerce platforms.

There have been you know today the world has in telecommunications also through telecom the world has become such a small place and we are globally connected across the world. So, things have become very easier right. So, today we will talk about how these technologies have entirely changed the landscape of business right.



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What is technology?

Technology
Technology includes the tools both machine (hard technology) and ways of thinking (soft technology) available to solve problems and promote progress.

Since the end of World War II, the world has seen major advances in communication, information processing, and transportation technology, including the explosive emergence of the Internet and World Wide Web.

- J. K. Galbraith defines technology as a systematic application of scientific or other organized knowledge to particular tasks.
- The type of technology in use, the level of technological developments, the speed with which new technologies are adopted and diffused, the type of technologies that are appropriate, the technology policy etc. are important to business to survive in global market.

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So, what is technology? Technology basically includes the tools which are both machine and ways of thinking right. So, when it is a machine it is a hard technology when it is a thinking it is a soft technology available to solve problems and promote progress. So, the challenge has been always that technology or anything for that it has always been done for the development or improvement of mankind right.

And so to solve this problems and promote progress technology has played a vital role right and using this technology firms have made money right and economically they have made achievements right.

So, if you look at the since the end of World War II the world has seen major advances in communication, information processing and transportation technology including the explosive emergence of the internet and World Wide Web right.

So, these things that have come in the recent times has made magnificent changes in the entire connecting the entire globe and making the globe a very small place right. So, J. K. Galbraith defines technology as a systematic application of scientific or other organized knowledge to particular tasks.

For example when the first time assembly line mechanism came. So, before that things used to take lot of time to would be done right, but with the assembly line mechanism the same you know car makers or whoever it fore started it.

So, the car makers now could assemble a car in much very less little time right. Similarly, the very famous Moore's law for example, when Moore said Robert Moore said that you know the number of transistors would in a microchip would double every 2 years right. He said our almost 18 months he said.

Now, because of this change right, the you know the need that the phase has which it has changed you see the phase in which are computers are working how fast they are working millions of you know informations per second right they are able to cater to that.

So, all these has made our calculations are you know very easy for example, processing speeds are very very high. So, that is why we are able to develop super computers. You look think of the bullion market, think about the world you know economy the you know

how the currency changes every second every minute and how they have been calculated so fast right.

All these things have and from the physical side also if you see when for example, like containers and new designs in containers all these things have led to a distributional change and you know and access to information all these have changed dramatically.

The type of technology in use, the level of technological developments, the speed with which new technologies are adopted and diffused the type of technologies that are appropriate, the technology policy etcetera are important to business to survive in this global market.

Today, almost I can see the all the young businesses that are coming up are working through the internet right. So, if somebody is selling handicrafts over eBay or if somebody is selling jewellery's on Meesho or somebody is selling you know is transferring money from one person to the others account for example, through Paytm in India or Google paisa you know. There are so many things. So, everything is an involvement of technology.

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Importance of Technology in International Business

- **Telecommunications:** it is one of the important dimension of technological environment being faced by international business.
- **Transportation:** the development of commercial jet aircraft and super freighters and the introduction of containerization, which simplifies transshipment from one mode of transport to another.
- **Globalization of Production:** A satellite based communications system allows MNC's to coordinate on a global scale; its production planning, cost accounting, financial planning, marketing, customer service and human resource
- **Globalization of Markets:** Low-cost global communications networks such as the World Wide Web are helping to create electronic global market places.
- **E-Commerce:** Because of the low entry costs of the Internet it has permitted firms with low capital resources to become global marketers
- **Technology Transfer:** is a process that permits the flow of technology from a source to a receiver.

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Now, you look at this you know importance of technology in International Business. So, telecommunications the it is one of the most important dimension of technological environment being faced by the international business. So, with the emergence of

technological growth right for example, we earlier started with a you know very basic telecommunication systems.

But, then today we are talking about we started with 2G, then 3G, 4G. Today we were talking about the 5G right in some countries it has even started. So, the kind of fastness and the kind of abilities we have developed in telecommunications has really you know fastened thing right.

Second is the transportation. So, for example, the development of the commercial jet aircraft and super freighters and the introduction of container right containerization or containers basically which simplifies the transshipment from one mode of transport to another.

All these things have and this is only not the hard side you know the other side. For example modular designs. So, this is a soft side technological we have thinking. Now, has changed the entire way transportation is happening in the world right. Because of modularization itself there has been almost a 5 6 percent of savings for the you know and optimization or you know productivity improvement.

Globalization of production. A satellite based communications system allows MNCs or even any company for that to coordinate on a global scale. What its production it is planning should be, how what is the cost accounting process, what is the financial planning, how to market, how to service the customer and human resource for example, how should they maintain the human resource.

Now, for example, look at. So, many companies today have for example, there are offshore shops out here. For example, we have call centers for many US companies out in India just because we have a very economical human resource right. So, because of this most of the services have been done through the complaints have been handled through India right. So, this is the win-win situation for both. They are saving money and we are also gaining employment and money.

Globalization of markets. Low cost global communication network such as the World Wide Web are helping to create electronic global market places right. Then e-commerce because of the low entry cost of the internet it has permitted firms with low capital resources to become global marketers.

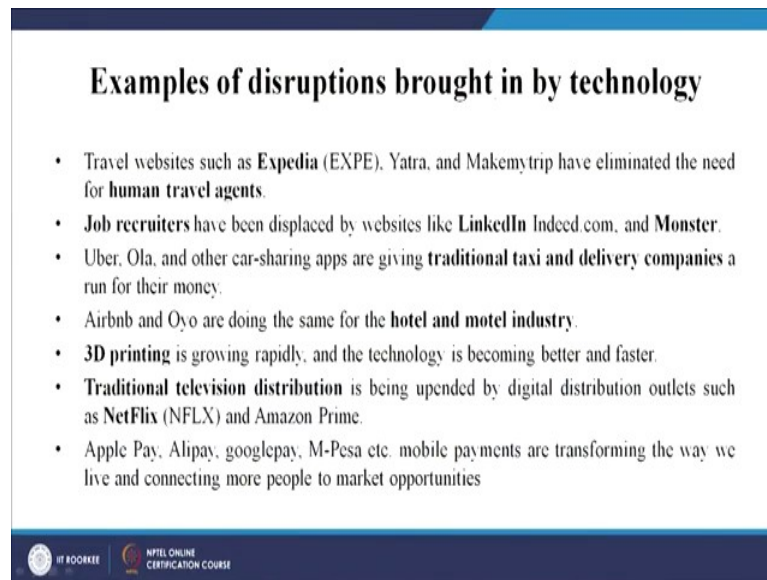
Think of an Amazon, think of Flipkart, think of Paytm you think of anything you want to you know Makemytrip you know anything you think of today right all these has become possible technology transfer the final thing is it is a process that permits the flow of technology from a source to a receiver. So, how it is being done and what are the parameters involved in it will see.

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So, this is how the world has become. Today the whole has come on your mobile right. A smart phone with an internet connection and the whole world is on your you know is close to you right.

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Examples of disruptions brought in by technology

- Travel websites such as **Expedia** (EXPE), Yatra, and Makemytrip have eliminated the need for **human travel agents**.
- **Job recruiters** have been displaced by websites like **LinkedIn**, **Indeed.com**, and **Monster**.
- Uber, Ola, and other car-sharing apps are giving **traditional taxi and delivery companies** a run for their money.
- Airbnb and Oyo are doing the same for the **hotel and motel industry**.
- **3D printing** is growing rapidly, and the technology is becoming better and faster.
- **Traditional television distribution** is being upended by digital distribution outlets such as **NetFlix** (NFLX) and Amazon Prime.
- Apple Pay, Alipay, googlepay, M-Pesa etc. mobile payments are transforming the way we live and connecting more people to market opportunities

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Some examples of disruptions brought in by technology. So, far this is just to make it more interesting and clear. Travel websites such as Expedia right, Yatra and Makemytrip have eliminated the need for human travel agents right. Job recruiters have been displaced by websites like LinkedIn, Indeed.com and Monster.

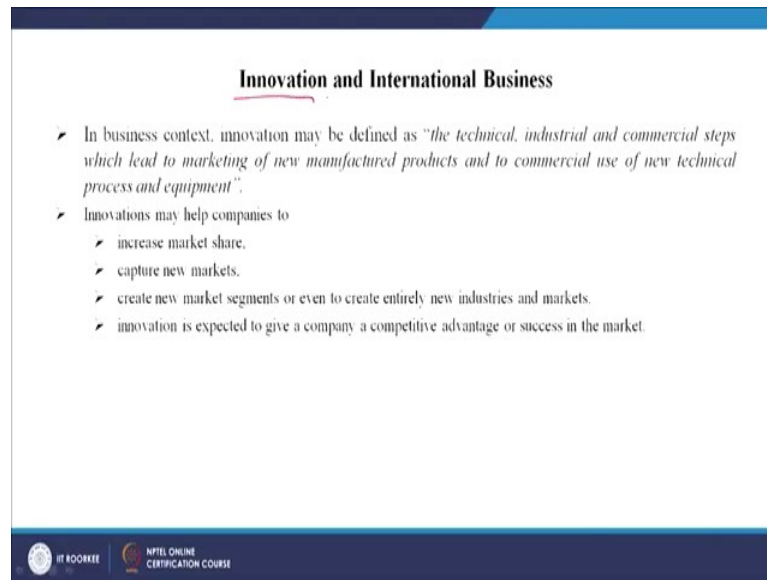
Who would forget Uber and Ola and other car sharing apps which are giving traditional taxi and delivery companies a run for their money right. So, even today the in order to compete with these people like Uber and Ola the taxi unions they are thinking of having their own apps so that they can connect right. So, this is all happening. Airbnb and Oyo are doing the same in the hotel and motel industry right.

Now, concepts like 3D printing is growing rapidly and the technology is becomes faster and better right. So, with 3D printing tomorrow it is possible that you develop your own house, you design your own house, you design your own pizza right anything. Traditional television distribution is being upended by distribution digital distribution outlet us such as Netflix and Amazon Prime.

Now, Apple Pay, Aipay, googlepay, M-Pesa etcetera are transforming the way we live and connecting more people to market opportunities. So, the opportunities that technology has provided if somebody ask me I would say the greatest you know change maker is technology in this world.

There is nothing that can be compared with technology because when technology has made our life so simpler yet yes the complications are also there. But that is man made, but what has happened is it has largely made our you know transactions are you know communications very very simpler right.

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What is innovation which is connected with technology and how it is connected with international business? So, when I say a technology the world innovation automatically comes in right.

So, innovation may be defined as the technical, industrial and commercial steps which lead to marketing of new manufactured products and to commercial use of new technical process and equipment. So, innovations is basically when you say it is like after the invention right when there is a invention of a new thing right and then you get into a innovation where you try to improve up on the existing product right.

So, innovations help companies to increase the market share capture new markets right. So, you can innovate a product for a new market right. Create new segments in the market and even try to create entirely new industries in the markets. Innovation is expected to give a company a competitive advantage or success. So, all these are you know basically this innovation we talk about is from the technological front right.

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Product Innovation and Process Innovation

Product innovation
It refers to a change in the product. It can be in two different forms

- First, an improvement in the performance of a product. *For example, an increase in digital camera resolution.*
- Second, new features in a product. *For example the new iPhone 7 has dual cameras which did not exist in the previous iPhones.*

Process Innovation
It involves improvement in the process of producing a product. It includes improved inbound logistics, better media planning, or improved manufacturing process.

- *For example, using instant demand data to plan production run is a process improvement. It can lead to lower inventory and lower stock outs.*
- *An assembly line production process: that breaks the manufacture of a good into steps that are completed in a pre-defined sequence. Assembly lines are the most commonly used method in the mass production of products.*

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When I am talking about innovation there are 2 ways to understand one is the product innovation and the process innovation. So, what is product innovation? It refers to a change in the product right. It can be in 2 different forms. First an improvement in the performance of a product. So, you had earlier your mobiles right. So, these mobiles were very dumb mobiles.

Today, if I see if I compare with any old Nokia phone I would say it is a dumb phone right. Today I have a smartphone in my hand and it is even same price or even lesser to the earlier dumb phones, but it has got given me a so many different opportunities and you know features.

For example, in increase in digital camera resolution you see who could understand or think about that Kodak like companies Polaroid like companies would be extinct. A company which was holding 80 percent of the market share in the world these companies almost you know the camera market today are nowhere.

Just because technology they could not stand or move with the technology and there then they became obsolete right. So, today everybody who has a mobile can take a photo right. So, who would require the camera, the roles and alright.

Second new features in a product for example, the new iPhone 7 has dual camera which does not exist. So, these are all the product changes are that are coming up right. In

process innovation, what we are saying it involves improvement in the process of producing a product. So, what kind of changes we have made in the processes so that the product has become much simpler.

For example, one of them which I just now and said modular design. So, earlier you were designing a product there was several parts. So, can you have can you make it modules so that the shipment becomes easier. So, this is one. Reverse engineering also has helped in understanding you know in the process innovation.

So, it includes improved inbound logistics, better media planning, improved manufacturing process. For example, using instant demand data instant demand data to plan production is an process improvement right. Today you see most of the inventory is been managed at the vendors end right. You know concepts like just in time right. So, all these have been possible because of this process innovation. It can lead to lower inventory and lowest stock outs.

An assembly line production process that breaks the manufacture of a good into steps that are completed in a predefined sequence. Assembly lines are the most commonly used in the mass production of products. So, these are the process in changes that has happened so which may be is not visible to the end customer. But, in the B to B it is very important how the you know firms are making new changes new waves in changing the entire way of producing a product.

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Transfer of Technology

- "Technology transfer is the process by which commercial technology is disseminated. This will make the form of technology transfer transaction, which may or may not be legally binding contract." - M Blakeney
- Import of technology also known as technology transfer which involves sharing of skills , knowledge and facilities among government and business so that these technological developments are accessible to a wide range of users for commercial and welfare purposes.
- Technology Transfer Activities include: processing and evaluating invention disclosures, filing for patents, technology marketing, licensing and so on.

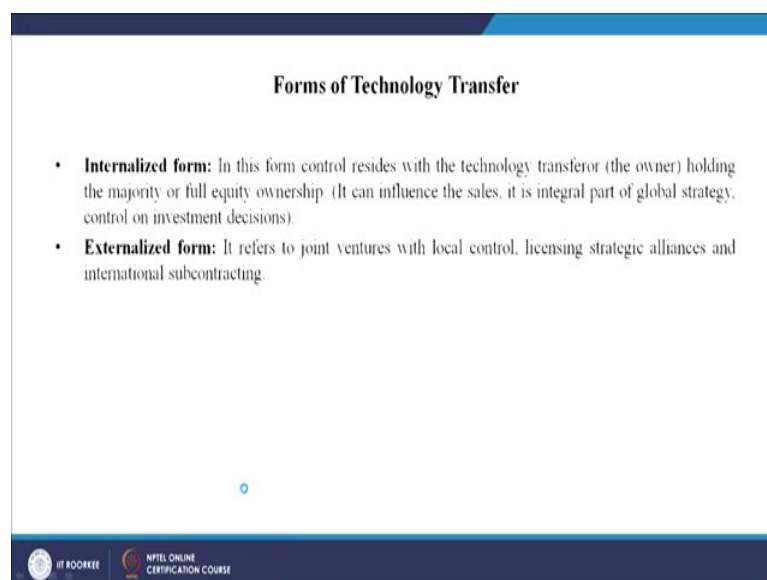
The last thing we will be talking about is transfer of technology. Now, what is this? Technology transfer is the process by which commercial technology is disseminated ok. So, this will make the form of technology transfer transaction which may or may not be legally binding contract may not be a legally binding contract.

So, Blackeney says this. Now, import of technology is also known as technology transfer which involves the sharing of skill, knowledge and facilities among government and businesses so that this technological developments are accessible to a wide range of users for commercial and welfare purposes.

So, technology transfer is simply you know trying to pass or disseminate the technology from one user to the other right. So, if somebody for example, most of the technology we get from the other developed nations or even some of the developing nations are a huge boon for a country like India which can reduce the cost of production of may be its medicines, may be the basic equipments that are needed.

So, this adds to a lot of social and you know economic welfare. Technology transfer activities includes processing and evaluating invention disclosures, filing for patents, technology marketing, licensing and so on right.

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The slide is titled "Forms of Technology Transfer" and lists two types of technology transfer:

- **Internalized form:** In this form control resides with the technology transferor (the owner) holding the majority or full equity ownership (It can influence the sales, it is integral part of global strategy, control on investment decisions).
- **Externalized form:** It refers to joint ventures with local control, licensing strategic alliances and international subcontracting.

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Now, what are the forms of technology transfer? Internalized form and externalized form. Internalized form in this form the control resides with the technology transferor the

owner right holding the majority or full equity ownership. So, when you are talking about technology it is very important to understand who holds the power.

So, in this case it is the owner who holds the full equity or the majority the power. It influences the sales. It is integral part of the global strategy and control on the investment decisions. Now, what is the externalized form? It refers to the joint ventures with local control, licensing strategical alliances and international sub contracting. So, it is more of decentralized now right.

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Channels of technology flow

- **Foreign Direct Investment:** Through this technique organization transfer its technology to target nation through its subsidiary i.e. by investing themselves for example Toyota Motors brought in its technology of invisible mirror through its subsidiaries in various countries
- **Licensing:** License is provided for the use of technology to the user Under which only a license holder can use the technology for example software like operating systems of Windows or Linux etc. comes with specific code and identity of the system through which they can be used on authorized system only by the authorized user of that system.
- **Franchising:** It is quite similar to licensing where organization set up there franchises and transfer there technology to the franchisee. The franchisee operates on behalf of the organization under this the company have direct control, the franchisee only carry the name and trademark for example KFC, McDonalds, Peter England,, Nescafe etc

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How the channels? What are the channels of technology flow? How does technology flow? What is the how does it disseminate? So, some of the ways are for example, through FDI right, through licensing, through franchising right. So, earlier you know we have also discussed several times, but still through this technique organization transfer it is technology to target nation through it is subsidiary right by investing themselves.

For example, Toyota Motors bought it is technology of invisible mirror through it is subsidiaries in various countries. Now, what is licensing? License is to provide for the use of technology to the user. So, the user can use this the license to use the technology basically the license provided to use the technology under which only a licensee holder license holder can use the technology.

For example, softwares like OS of Windows or Linux etc. comes with a specific code and identity of the system through which they can be used on authorized system only by the authorized user of that system. So, today you talk about all those you know different software products and the antiviruses and all.



So, there is a license connected. So, the permission is given to use it right. Franchising is also quite similar to licensing where organization set up their own franchises and transfer that technology to the franchisee say that it could be own also it could be some other person, but there is like a lot of control in involved.

So, the franchisee operates on behalf of the organization. Under this the company has the control the franchisee only carries the name and trade mark. For example, you can be a franchisee of KFC, McDonalds it will be largely controlled, the quality and everything will be controlled by the parent company, but what you can do is you can use that name and the brand name the brand name and the trademark right.

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- **Management Contracts:** Here technology is transferred under certain terms and conditions or by establishing projects for host and training there personnel to operate it and transfer the control to hosts. A management contract can involve a wide range of functions, such as technical operation and of a production facility, management of personnel, accounting, marketing services and training. Example: Schools, sports facilities, hospitals, office buildings, malls and large businesses have on-site cafeterias, restaurants
- **Contract Manufacturing:** Contract manufacturing is outsourcing entire or part of manufacturing operations. Example: pharmaceuticals, Personal Care products etc. The iPad and iPhone, which are products from Apple Inc., are manufactured in China by Foxconn. Hence, Foxconn is a contract manufacturer and Apple benefits from a lower cost of manufacturing devices
- **Joint Venture:** A joint venture is an entity formed between two or more parties to undertake economic activity together. Technology is transferred to joint venture partner and technology is provided to host nation through a partner from host nation. Example: (1) BMW and Toyota co-operate on research into hydrogen fuel cells, vehicle electrification and ultra- lightweight materials, (2) Renault-Nissan, (3) Google and NASA developing Google Earth

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Again management contracts, contract manufacturing, joint venture also a few of the other techniques for example, in management contracts the technology is transferred under certain terms and conditions or by establishing projects for the host and training their people to operate it and transfer the control to the host.

So, in the management contracts for example, you see it can involve a wide range of functions as technical operation and of a production facility, management of personal, accounting, marketing services. Examples schools, sports, facilities, hospital, office buildings, malls, large businesses have onsite cafeteria restaurants etcetera. So, what it says basically management contracts are given. So, they tend to give this service right on basis of a fee.

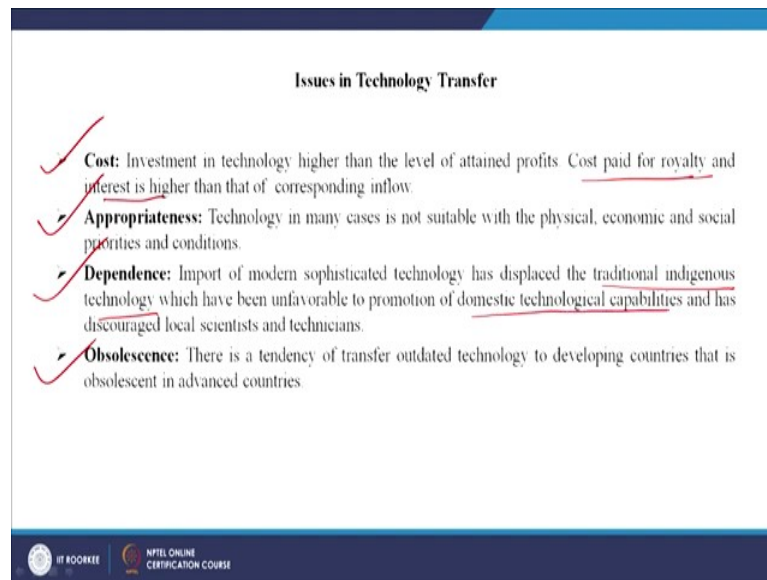
Contract manufacturing is an is outsourcing entire part of manufacturing operations. So, pharmaceuticals, personal care products the iPad and iPhone which are products from Apple are manufactured in China by Foxconn right. Hence, Foxconn is a contract manufacturer.

So, in India also for example, if you see Nike as a lot of Nike, Puma, Adidas all the they are made in India in several places like Tiruppur and all where they work as a contract manufacturer they work for these companies at again a you know some fees or some money they are paid. So, why these companies give it because it is helpful to them. So, that the because the cost of manufacturing the labor cost are very cheap in India. So, this is where the technology transfer also happens.

Joint venture is an entity formed between 2 or more parties to undertake the economic activity. Technology is transferred to the joint venture partner and technology is provided to the host nation through a partner from the host nation. So, basically these are some of the examples BMW and Toyota on you know hydrogen fuel cells Renault-Nissan, Google and NASA developing Google Earth.

So, these are some of the ventures which have largely been very helpful and they has been lot of technology transfer involved. But, technology transfer process is not that much simple also. There are few issues involved like for example.

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The cost of you know the issue of cost appropriateness dependency and obsolescence. Now, what it says investment and technology higher than the level of attained profits. Cost paid for royal royalty and interest is higher than the inflow right. Technology in many case is not suitable with the physical economic and social priorities and conditions.

So, maybe you know the physical condition the environmental condition is not suitable right for one place or the cultural conditions dependence. Import of with modern sophisticated technology has displaced the traditional indigenous technology which have been unfavorable to promotion of domestic technological capabilities and has discouraged local scientists. So, this is something where a dependency has been generated right. So, this is an issue right some countries.

For example, today the government of India you see why is it talking about the make in India the prime minister our prime minister is talks lot about the make in India and tries to develop this concept. So, that we are not dependable we will not sorry we will not be depending on others to a large extent and we can indigenously built our own facilities ok. Last is the obsolescence.

There is a tendency of transfer outdated technology to developing countries. There is a obsolescent in advance. This is a serious problem that is happened and is an impact of technology transfer that many of the in the especially the pharma industry most of the

drugs that we get are the are coming from the first world countries in the second you know.

So, the first these drugs are basically they are considered to be obsolescent in some of the nations also. Similarly, in some of the technologies which are obsolete in the first developed nations are then moving in to the developing and the not so developed nations right.

So, these are some of the issues or criticism against the technology transfer, but it is not a problem of technology transfer. It is how you handle technology transfer which is a which results in all these problems ok. Information technology and globalization. This has completely changed the landscape today.

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Information Technology and Globalisation

The information technology redefined the global business through its developments like internet, www sites, e-mail, cyberspace, information super highways. Computer Aided Design (CAD), Computer Aided Production (CAP) and on-line transactions brought significant development to the global business

These facilities, help the global companies in:

- Reducing the size of inventories ✓
- Reducing delivery time ✓
- Reducing unproductive waiting time ✓
- Reducing the incidents of stock-outs and lost sales ✓

For example: use of MIS (Management Information Systems)

MIS is a collection of systems, hardware, procedures and people that all work together to process, store, and produce information that is useful to the organization.

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Now, you see that information technology has redefined the global business through internet, the www you know sites email cyber space information super highways cad cam right cap and online transactions. So, all these have changed the entire way business have being done.

This facilities help the global companies in reducing the size of inventories because today you are so well connected that every change in an inventory is known to you right. So, unnecessary capital blockage and you know inventory buildup is not desirable or not required it can be handled well through you know this technologies.

Reduce delivery time, reducing unproductive waiting time right, reducing the incident of stock outs and lost sales. So, all these problems today has been can be handled well because of the reach of information technology right. You see MIS for example, is largely helping.

It is a collection of systems, hardware, procedures and people that all work together process, store and produce information that is useful to the organization. So, today even if there is you know if a single even a you know packet of oil goes out from the shelf. So, the distributor comes to know about it and this reflects in the company's production processing again.

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- Responding to market changes at a faster rate ✓
- Reducing rush orders ✓
- Cutting down over production ✓
- Reducing unnecessary movements of forwarding and back-tracking ✓
- Reducing paper work and wasteful process (ERP)
- Planning production levels accurately
- Reducing/avoiding physical movement of employees, suppliers, and customers.

For example: A Smartphone alone provides half the human population access to artificial intelligence—from search and translation to cloud computing—geolocation, free global video calls, digital photography and free uploads to social network sites, free access to global knowledge, a million apps for a huge variety of purposes, and many other capabilities that were unavailable to most people only a few years ago.

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So, all these things are tremendously helping. How to respond to market have changed has become much faster. So, reducing rush order; that means, there are no certain spikes of demand because you know there is a smooth flow of your orders.

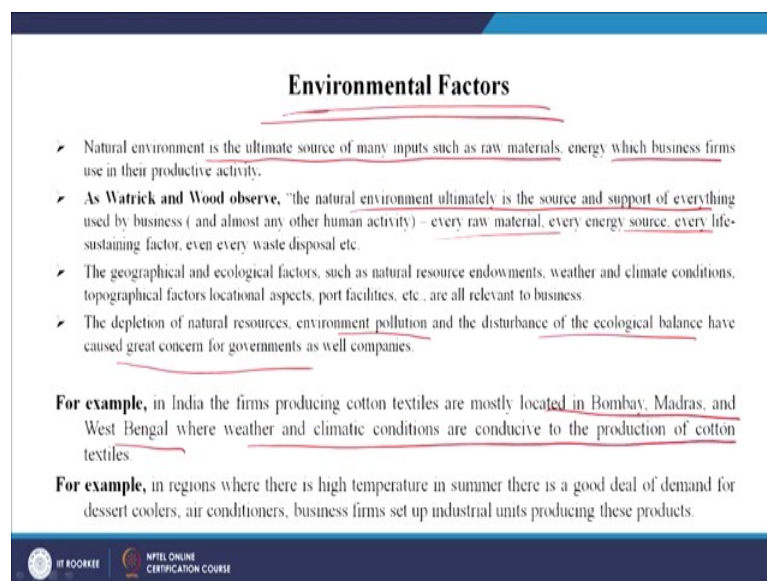
Until unless there is a sudden demand in the sense the there is a necessity which has been which cannot be calculated there is a general you know this is a truly you know increase in demand which has and this is in a very short time because of some catrastophy or natural disasters something that is a separate issue. Otherwise more or less it can be controlled.

Cutting down over production, reducing unnecessary movements. This is called time in motion right ah. Study reducing paper, work planning production levels accurately all these are very richly very nicely done because of this in developments.

For example, you see a smartphone alone provides half the human population access to artificial intelligence from search and translation to cloud computing, geolocation, free global video calls, digital photography, free uploads to social network sites, free access to global knowledge. A million apps for a huge variety of purposes and many other capabilities that were unavailable to most people only a few years ago.

So, all these things has I mean sometimes I feel as if we have come into completely new world a new thought process right everything has changed. Now, how we leave how we cannot leave in the way we use to 15 years back may be. It is as you know as good as that if the change has become so dynamic, so fast that you we have to cope with it and it is not difficult, it is so easy right.

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Environmental Factors

- Natural environment is the ultimate source of many inputs such as raw materials, energy which business firms use in their productive activity.
- As Wattrick and Wood observe, "the natural environment ultimately is the source and support of everything used by business (and almost any other human activity) – every raw material, every energy source, every life-sustaining factor, even every waste disposal etc.
- The geographical and ecological factors, such as natural resource endowments, weather and climate conditions, topographical factors locational aspects, port facilities, etc., are all relevant to business.
- The depletion of natural resources, environment pollution and the disturbance of the ecological balance have caused great concern for governments as well companies.

For example, in India the firms producing cotton textiles are mostly located in Bombay, Madras, and West Bengal where weather and climatic conditions are conducive to the production of cotton textiles.

For example, in regions where there is high temperature in summer there is a good deal of demand for desert coolers, air conditioners, business firms set up industrial units producing these products.

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Now, with all these when we talk about the technology we have to understand the technology cannot go alone. It has to be a sustainable way of doing things. So, how the environmental factors are also affected. So, natural environment is the ultimate source of many inputs such as raw materials, energy which business firms use in their productive activity.

As Wattrick and Wood observe the natural environment ultimately the source and support of everything used by business every raw material every life sustaining factor everything right. The geographical and ecological factors such as natural resource endowments, weather, climate conditions, topographical factors, locational aspects, port facilities are all relevant to the businesses.

So, how there has for example, recently there was a you know the Amazon Fire which happened that created a lot of issue and debate right. How this could have been avoided? How this should be further such conditions should not arise? So, all these things were discussed. So, natural environment place a very vital role right.

The depletion of these resources and creation of pollution disturbance of the ecological balance have cause great concern for governments as well as companies. For example today I would not mind saying Delhi has become one of the you know capital of India has become a very difficult place for business people to leave in or any person for that right and automatically when it affects the citizens automatically that also affects the businesses.

So, foreign companies would be thinking twice before even starting an operation in Delhi because of the huge air pollution concerns and the water scarcity issues right. For India for example, the firms producing cotton textiles are mostly located in Bombay, Madras and West Bengal where a weather and climatic conditions have conducive to the production of cotton.

So, cotton requires black soil which is largely prevalent in the Maharashtra and West Bengal you know region. In regions, where there is high temperature in summer where is very high temperature this is a good deal of demand for dessert coolers, air conditioners, business firm set up industrial units around this producing these products.

So, all these things have changed the way business the change in you know the weather conditions also has given rise to new forms of business right. For example, who would have thought one day that I would be buying a oxygen cylinder or a let us say a purifier air purifier why would anybody be thinking 20 years back 30 years back.

But, today that may become the next big thing right and it could be a hot cake and it could be a very important product. Because looking at the kind of you know the

pollution levels going up air purifier will become a mandatory thing for any household right.

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Examples

- **An auto hub located near Pune city in Maharashtra**, Chakan houses industrial parks developed by Maharashtra Industrial Development Corporation (MIDC). The well-known auto industry names in the Chakan Industrial belt include Germany based Volkswagen and Daimler along with Indian auto majors such as Mahindra & Mahindra and Bajaj Auto.
- It was in 1995 when the US automobile giant Ford Motors set up its plant in Chennai that marked the arrival of the city as an auto hub. Since then, the region hosts plants of BMW, Royal Enfield and Renault, Hyundai, Mitsubishi and Daimler. **Tamil Nadu is one of the top 10 automobile hubs in the world with Chennai having an installed capacity to produce 1.4 million cars per year.** Nissan, a Japanese car maker is all set to inaugurate its 'India Design Centre' in Chennai.

Automobile clustering started in this region due to its proximity to the coast, availability of power supply, skilled labour pool and exceptional infrastructure.

<http://www.makeinindia.com/article/v-india-s-automobile-hubs>

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And auto hub located near Pune city in Maharashtra right Chakan houses industrial parks developed by MIDC Maharashtra Industrial Development Corporation. The well known auto industry names in the Chakan industrial belt include Germany based Volkswagen Daimler along with Indian auto like Mahindra and Bajaj right.

It was in 1995 in the US automobile giant Ford Motors set up its plant in Chennai that marked the arrival of the city as an auto hub right. Since then the region host plants of BMW, Royal Enfield and Renault, Hyundai, Mitsubishi and Daimler. Tamil Nadu is one of the top automobile hubs in the world with Chennai having an installed capacity to produce 1.4 million cars per year.

Nissan, a Japanese car maker is all set to inaugurate its India design centre in Chennai. So, automobile clustering started in this region. Sorry, my spelling. In this region, due to its proximity to the coast, availability of power supply, skilled labour pool and exceptional infrastructure right.

So, all these things we can see you have understood the technology has been a major force that has changed the way business has been done and technology will make

many more changes. Tomorrow may be many people there is always a fear the technology will make us unemployed.

But, there are the truth is it has never happened because there has been new things which have come up and new ways of doing businesses and new services that are been required by the general public.

So, businesses have only grown rather you know it has, but still now I have not been able to see if I compare about 50 60 70 years back where about the Indian you know landscape and think people where in a much worst condition right if economically, in terms of hunger, malnutrition everything.

Yes, pollution these levels have gone up, but otherwise the basic needs where very difficult to be met by many people in India, but today India is in a much better condition. So, it has not rather taken away the you know the wealth of people rather it has added the wealth. So, people today are in a better condition. They are able to pay for their you know needs and wants.

So, all these has made life much better. Yes, it nothing goes without it is flaws also. So, there flaws would be there, but then that is not part of my course. Thank you very much for the day.

Thank you.