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Course Name

Strategic Communication for Sustainable Development

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Lecture 21: ICTs in Sustainable Development

Welcome back to the course titled strategic communication for sustainable development my name is Aradhna Malik.

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And I am helping you with this course. And today in this class we will talk about the information communication technologies and how they can be used for sustainable development. So in planning communication methods communication strategies for the purpose of sustainable development.

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Okay ICTs what communication research has shown that people in economically and socially marginalized communities spend an inordinate amount of time and energy seeking and managing information related to survival and security, people need information people need information to survive, people need information to feel safe, people need information to feel comfortable, and research has shown that people need, they spend a whole lot of time trying to get the information that they need to survive, that they need to feel safe.

Then information and the ability to communicate, to receive and impart are necessary but not sufficient conditions for communities to develop and for inhabitants to thrive within them. So the information that we get and the ability to share that information to make sense of that information are necessary conditions, but not sufficient we need more than just this information we need more than just the interpretation of this information in order to survive with this information. And so in order to survive and thrive within communities and progress within communities.

Appropriately designed ICTs scan fulfill such needs. So appropriately designed ICTs what they properly designed information and communication technologies can fulfill these needs. And so,

you know the way we use communication strategies, the way we use communication tools will help us understand the community we are working in, people need information I need to know where I am, I need to know what resources I have, I need to know how to use those resources and information and communication technologies can help us figure through this maze of data that we have and create information out of this data.

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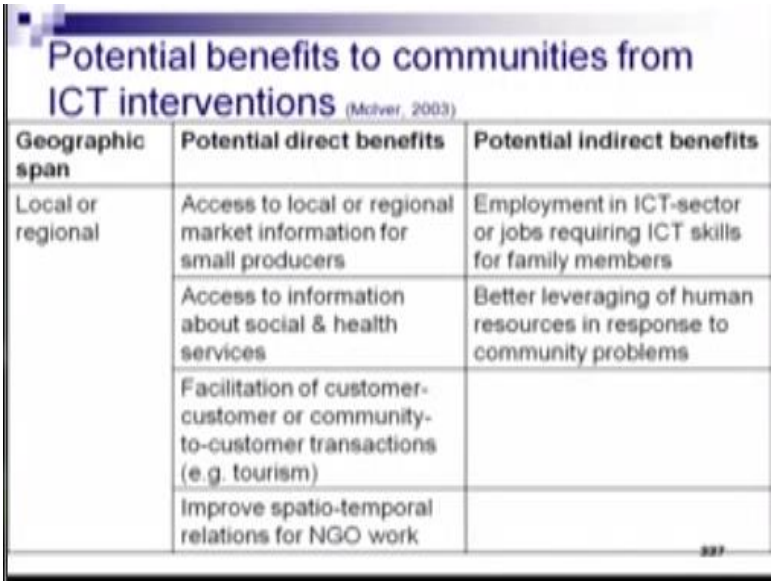

Okay some potential benefits to communities from ICT interventions. The first benefit here is the local or regional benefit, local or regional benefits or we let us go in a geographical way, you know or at least focus on different geographical regions, local or regional at the local or regional level the direct benefits that people have from using interventions ICT interventions are access to local or regional market information for small producers. So we are talking about the profits here, we were talking about the three pillars of sustainable development people plan it and profit.

Now how do we make profits we need information access to local or regional market information for small producers. Then access to information about social and health services, so now we are talking about people, social services, health services where is the hospital, where are

the social workers, what can they give us, the resources we have in order to be healthy to survive and to be healthy. Facilitation of customer to customer or community to customer transactions.

For example, the tourism and again we are talking about people and profit here improves spatio-temporal relations for NGO work. So, you know where the NGOs can be setup, how much time will it take for them to be set up, how much time will it take for them to be integrated within the community etc.. All of this can be facilitated through the ICT interventions or interventions using the new and upcoming information and communication technologies. And that is the direct benefit we have at the local level.

The indirect benefits of using information and communication technology interventions in, you know developing areas are, the first one is employment in the ICT sector or jobs requiring ICT skills for family members. So people who are, you know once we set up something in a region than the people in that region need to learn to use it, I mean we cannot just have outsiders doing things there all the time.

So when we, when we intervene through or when we go into a community with these latest technologies the local people get involved and they need to get trained. So that means that more jobs are created for the local community that we are trying to serve, better leveraging of human resources in response to community problems. So, you know we use human resources, we use these skills, the skill sets that we come with, and the ICTs help us use our or pitch our human resources in response to community problems in a better manner.

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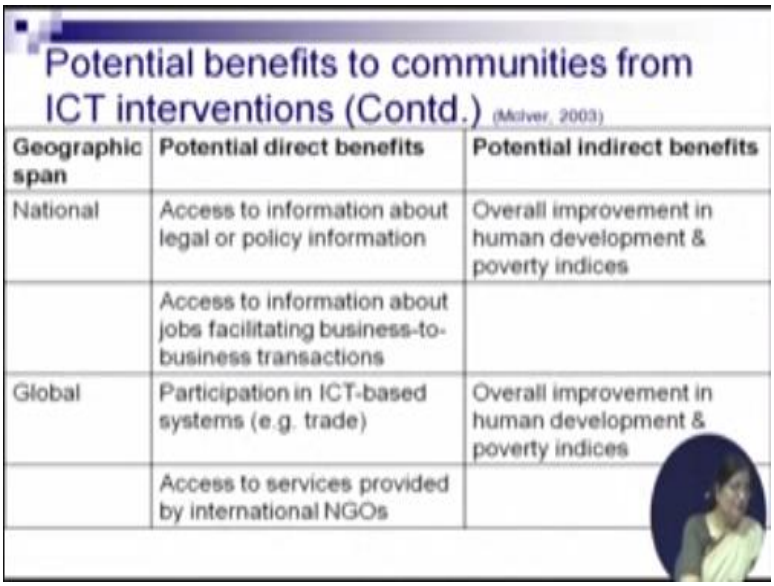

More effective manner, then the next, you know then we move out of the local area and we move to the national area. The direct benefits in the national context are access to information about legal or policy information. So, you know let us take the example of the internet we have websites on which everything is put up. Now sitting in Kharagpur I can find out what is happening say in Tripura, or in Nagaland, or in Himachal Pradesh, or in Kutch area of Gujarat, or in Kerala or even in the Andaman or Lakshadweep islands.

So what kind of policies are, you know what kind of policies exist at which level and, you know and again I will take you to through a very nice initiative that has been going on for the past many, many years about connecting, you know different people in different regions, but then we have access to policy information, legal information where which kinds of policies are being applied in what way, what are the national policies what are the local policies. So that is the kind of direct benefit we get by using ICTs information technology in interventions.

Then access to information about jobs facilitating business-to-business transactions. So that is another term help of we get from these ICTs. Then potential indirect benefits are overall improvement in human development and poverty indices, we help each other we go as a

community we offer support, we share our resources across state borders, so at the national level this is something that, you know overall it helps improve the quality of life in different regions of the country then and the global level participation in ICT based systems.

For example, trade, you know I mean connecting small and medium enterprises are put on the national and international maps through ICTs some small handicrafts business in one district of Himachal Pradesh can be publicized very easily with or in West Bengal or even in the Kharagpur region, I mean if we meet these people in the villages here through our national service scheme program we go there we meet people and they say I have this very unique thing can you help me sell it, put it up on the internet and a lot of people are using it.

An example that comes to mind is the use of the water hyacinth or water weed in Assam. And, you know I visited Guwahati several years ago and I found this, you know I found this very nice little workshop next to the state emporium and I went in and they told me that, you know I said what are you doing and they were weaving out of the water weed. Now that is something very local and you will probably not see it till you actually visit that area in Guwahati.

But then once it is put up on the internet then everybody sees it can be marketed, it can be promoted, I mean they there, you know it is an ecologically sustainable handicraft they are pulling weeds out of the running water. So they are actually clearing the water these weeds block the passage of water and they are using it to make handicrafts, hats, and bags and all and these things do not get spoiled, because the one thing that spoils these things is the fungus.

And fungus does not grow on them because these things themselves grow in the water. So, you know that kind of symbiotic the benefit is there, and so how do we know about all this, I mean I visited that place, but a lot of people now know about this because it is up on the internet. So that kind of thing that is what happens global people outside of India know about this also. So, you know that is how these things can be promoted access to services provided by international NGOs.

I mean various international NGOs are working in the area of poverty alleviation, sustainable development access to, you know or promoting renewable and nonrenewable, renewable sources of energy extra. So I mean we can just share the information through the World Wide Web, we can share the information through various portals on the World Wide Web, we can, you know call up people things can be broadcast on the way can be telecast on the only television and so people can come to know about what is happening.

You know various organizations are working in this area. So overall improvement in human development poverty indices, I mean we see all these programs through the, through various channels on television I am not trying to promote a particular channel, but I am very fond of the discovery channel, history channel, national geographic I mean these are amazing because they pick out the stories like these of sustainable development efforts of development efforts in various regions, the unique stories about how people are managing their resources differently.

And then, they show them I am sitting in a small town in West Bengal or Himachal Pradesh or Southern India, I come to know what is happening in Kenya or Uganda or maybe Bolivia. And so I can get all this information and replicate things if I need to, so we share our understanding of how to deal with our problems and we all sort of, you know instead of reinventing the wheel in every part of the world we share our information, we share we come to know how similar we are in terms of the problems we face, in terms of the way we can solve them and we all work towards improving the quality of lives that we lead.

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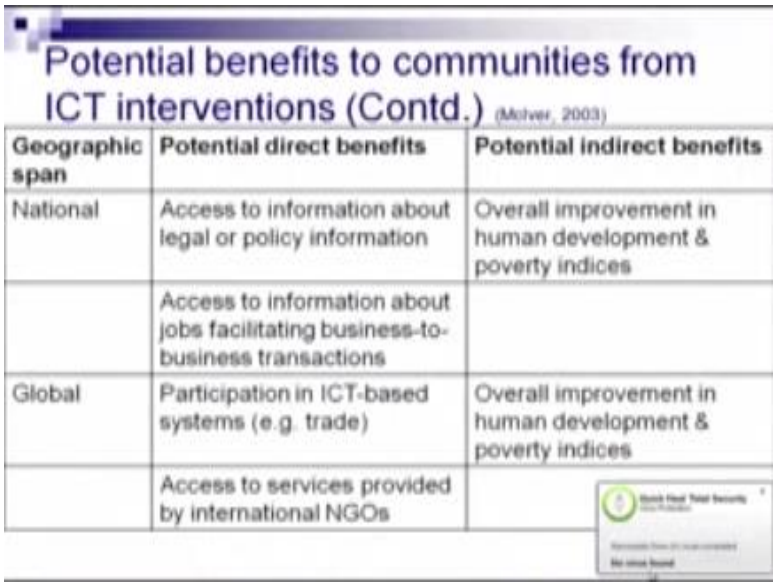

So that is one very big benefit, okay.

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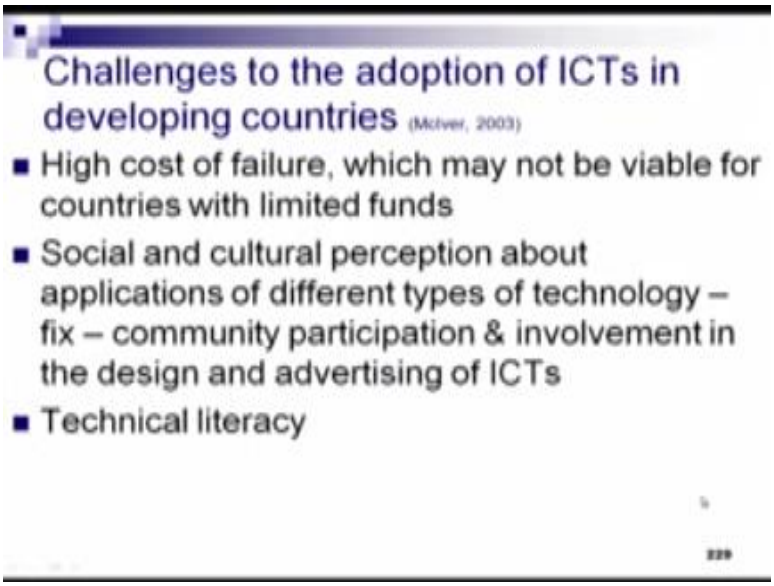

Challenges to the adoption of ICT's in developing countries, the high cost of failure now ICT's cost money, information and communication technologies are physically very expensive, they cost money, they are very helpful but they cost a lot of money. And they may not work in certain areas, they may not be, it may not be possible to have them in certain areas. And in such cases we end up losing a lot of money which may not be viable for countries with limited funds.

We see the benefits, but unless whatever we put there, unless the technology is not going to change very fast, unless we know that it is there to stay unless we know that there will be some use of whatever we put in a particular region. You know we do not want to put it there, and or sometimes what happens is like for example, the cables, you know we used to have surface cables for everything we have power lines, we have electricity lines and phone lines.

And I have seen this in the hill regions, in the mountain regions in India that phone lines especially, I mean there is so much of a problem when storms and all come. So, you know trees fall down and there is snow fall and then power lines break and phone lines break. And so, you know initially we did not have phone lines that were beneath the, you know we used to have open phone lines.

And so these things are then, I mean the local region in many regions it was not possible to put up poles for power supply or a phone line and it was the terrain is so rugged in the Himalayan region that you just cannot have these wires and who is going to maintain them. If a wire breaks then who is going to maintain, so all of those problems exist. So you do, you take the help of the latest technology, you take your cranes, you put a pole there and then the next day there is a snowstorm and the pole falls down who is going to go there and repair it.

The amount of money it costs to maintain these technologies is very high or in some regions where there are a lot of storms and all I mean, you know unless you have voltage stabilizers that can handle these very, these extremes of voltage fluctuation it becomes very difficult to keep the equipment safe. And so how do you manage with that, so that kind of stuff is there or the air is very corrosive.

For example, in the coastal regions the air is very corrosive. So, you know so how do you maintain equipment and this becomes, it is very expensive and the cost of failure is very high or the cost of, the equipment becoming obsolete and being replaced is very high, so many countries that have limited funds cannot afford it. And social and cultural perceptions about applications of different types of technologies.

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So many times technology may be a scary thing for people, there are social perceptions, there are cultural perceptions what do people feel about these technologies, what do they feel about how these technologies are used, what do they feel about how these technologies should be used or what they can and cannot do, and that becomes a problem that it becomes difficult to deal with many times the society itself does not know.

For example, the cell phone, you know you are carrying a cell phone everywhere I mean yes, now it is become a necessity and but many times I am answering a cell phone in the middle of a meeting, or answering a cell phone in the middle of a religious function is not appropriate or constantly using your cell phone when the elders are talking to you is not appropriate. So that kind of thing, so, you know the applications of different types of technology and the fix here is community participation and involvement in the design and advertising of ICTs.

For example, using say a phone application to book your train tickets. Now a train ticket booking counter is available in your town maybe a ticket counter is there and the person who goes there and sits there helps you with your ticket booking and suddenly you have this application on your phone and you just know you get a credit card and you use a credit card and your booking is

done. Now this person who is sitting there feels that his importance is going down because of something that has come up on the phone.

So this person we feel left out or the doctors these days are facing this. So we all check, you know about our treatments with Google or other internet applications. And so, it becomes very difficult for us to, you know for, I mean obviously doctors do not like it when we say okay, we found this on the net and that on the net and unless whatever we have found is relevant information our doctors do not want to listen to us. And, you know you feel that your expertise is being questioned, you feel that your role is being diminished somehow, sometimes the culture does not accept this technology.

So television, the kinds of programs that come on television, the openness that the television has brought in is challenging cultural beliefs people see how people in other regions are living, how they are behaving, and many times it poses a threat to the traditions that are there in any community and people who are very traditional, who want to preserve the culture in a particular place do not like this invasion of their homes, you know by the technology. So that can be a big limiting factor.

Then technical literacy the fix to the social and cultural prog, to the social and cultural perception is community participation and involvement in the design and advertising of ICTs. You take these information and communication technologies to the community and you get there and puts on how they should be designed. Technical literacy is another issue how do you train people, how do you train people to use this technology that becomes an issue.

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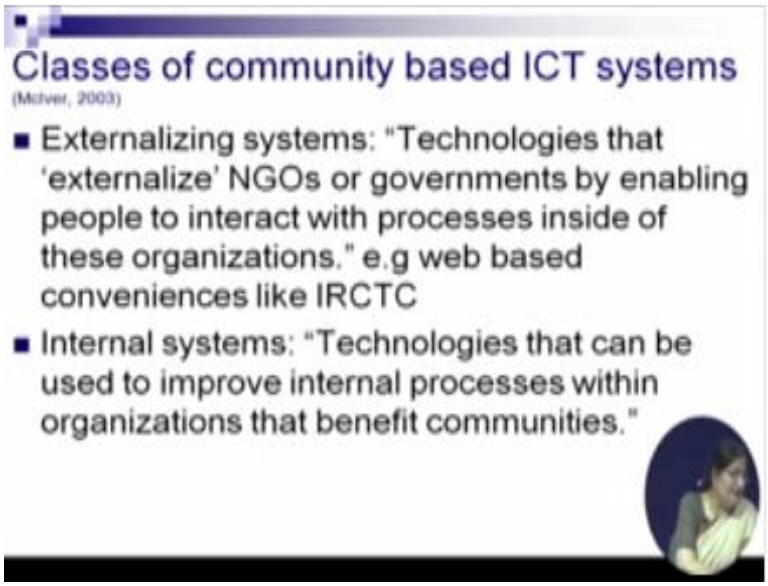

Then some classes of community-based ICT systems, we have two broad classes of community-based information and information communication technology systems. The first class is technologies that externalize NGOs or governments by enabling people to interact with processes inside of these organizations. For example, the web-based conveniences like the IRCTC. So Indian railways, catering and something I forgot the full form anyway, web-based conveniences like the railway booking in India.

Then the other is internal systems technologies that can be used to improve internal processes within organizations that benefit communities. So externalizing systems are, you know you have these web-based conveniences.

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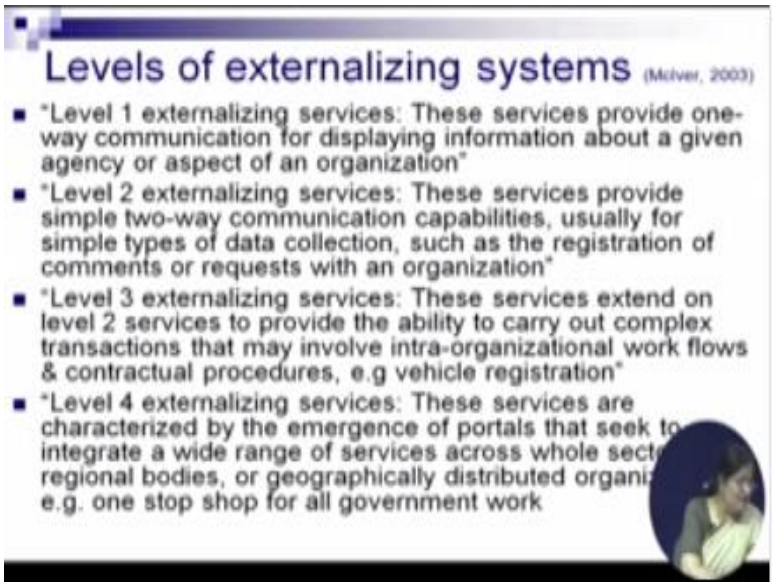

And various levels of the externalizing systems are level one externalizing services provide one-way communication for displaying information about a given agency or aspect of an organization. So you go to the website of a particular organization or, you know ministry or someplace and a whole bunch of information is listed on their website that is level one externalizing services, it is one-way communication and the purpose of this communication is to give you information.

Level two externalizing services are the services that provides simple two-way communication capabilities usually for simple types of data collection such as the registration comments or request within an organization. So you can make requests, but these requests, you know and the organization may answer them it is simple two-way communication, but it is still more of a process of data collection or registration of comments people ask you for feedback you provide the feedback it is not really two-way but some channel is open for you to give your comments.

Then level three externalizing services extend on the level 2 services to provide the ability to carry out complex transactions that may involve intra-organizational workflows and contractual procedures. For example, vehicle registration so it is not you giving feedback it is you doing

something through that service. So or your, you know ticket booking for example. So you provide the necessary infrastructure over there and, you know you get one thing done.

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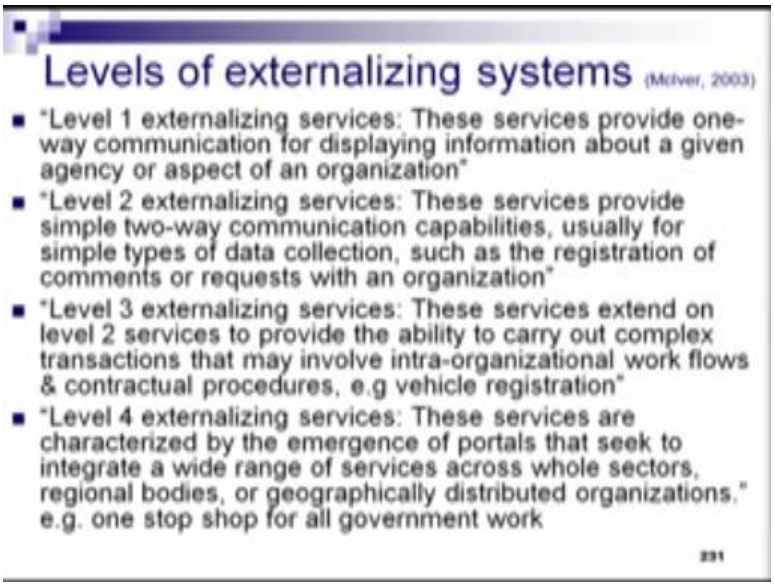

Then level four externalizing services are the characterized by the emergence of portals that seek to integrate a wide range of services across whole sectors, regional bodies, or geographically distributed organizations. For example, we have the enterprise resource planning system in many organizations, so you have one portal you log in and through that portal you can check your salaries, you can enter the grades of the students, you can find out, you can make requests for your leave, you can put in your leave applications, you can make requests for your project etc.

So a whole bunch of things is done through just one login system. So that is level four externalizing systems of course this is for an internal thing, but then maybe, you know one stop shop for doing everything related to your tag so income tax returns, filing of income tax returns, checking pre past years return, maybe it is linked to your bank account or your bank account, you know generates a whole bunch of things so you can do various types of transactions.

So that is level four externalizing service, I think that is a better example your bank, you can transfer money, you can pay your bills through the bank account, you can send money abroad, you can pay your fees, you can pay your electricity bill, you can also pay your taxes through a bank account, so that is level four externalizing service that through one portal you can do a whole bunch of things in a particular domain and here it is the payment of money to government agencies.

So the bank is not only a place where you store your money, it is also one stop shop for paying any money that you need to pay to any government or non government agency, but this is where, you know the money is, I mean it is being tracked but at least you have to just, you know through with a few clicks you can connect to different portals.

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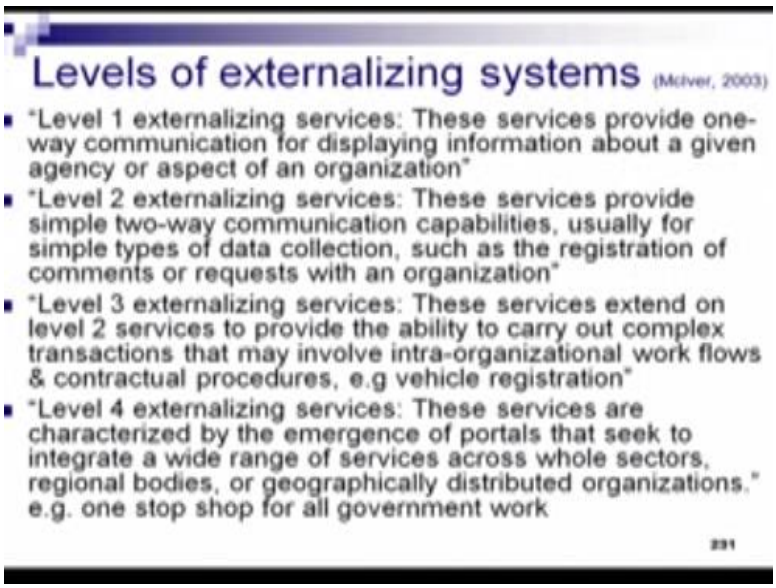

That is the externalizing systems.

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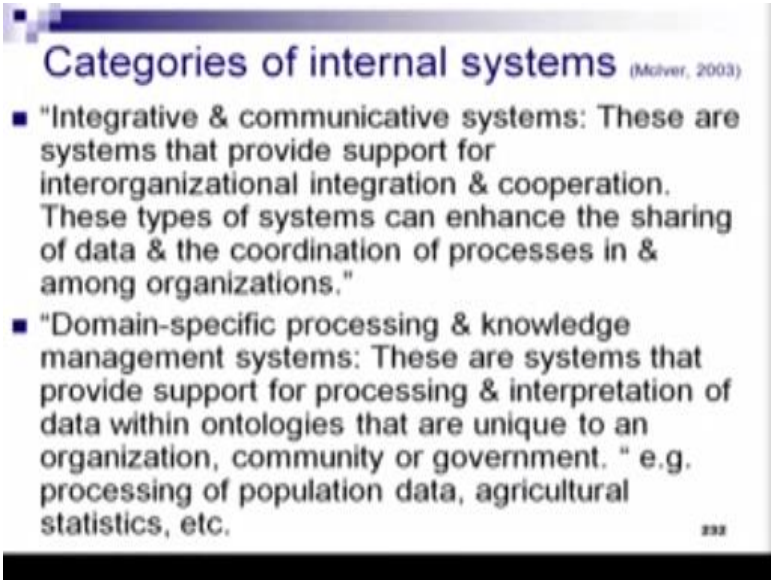

Now internal systems are integrative and communicative systems, these are systems that provide support for inter organizational integration and cooperation these types of systems can enhance the sharing of data and coordination of processes in and among organization. So this is what happens inside the organization. For example, the intranet we have in organizations domain-specific processing and knowledge management systems these are systems that provide support for processing and interpretation of data within on ontology's that are unique to a government or two to an organization community or government.

For example, the processing of population data agricultural statistics etc., so you have processing and knowledge management and we have integrative and communicative systems these are internal systems that take care of the work that happens within an organization. It is not the dealing of the organization with the external customers. Now taking this to the scope of sustainable development the application of externalizing systems would be.

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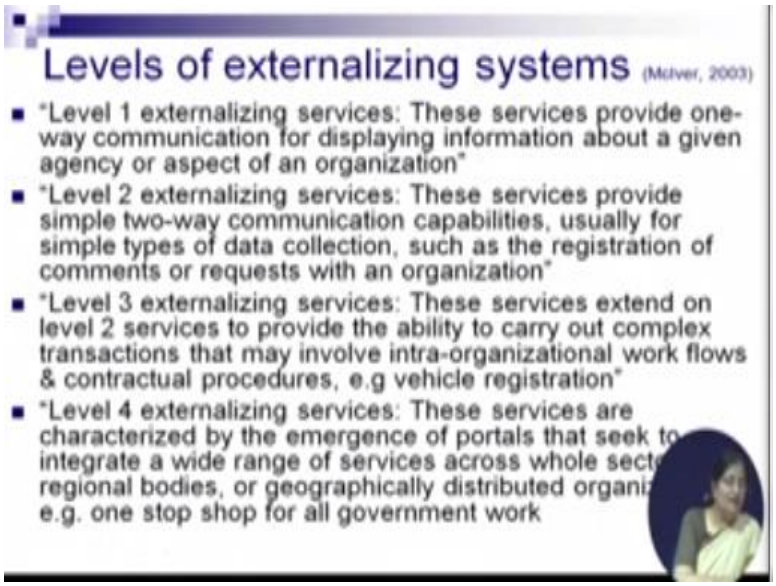

The contact that the community has with particular NGOs or the local government maybe the government can have a single office. And so, you know you have information offices that would be a level one place, you go to the office you pick up a pamphlet or there is one person who is just responding to your queries. Let us take the example of ticket booking counters in India you go to the ticket booking counter there is one counter, you know you have a series of counter.

So eight, ten people sitting in a row, the first one is only the information person. So enquiry is it say, so you go to the enquiry desk and you can ask them any question about, you know when the train is coming? You know the status of your ticket etc., so that is level one externalizing service where their only work is to give you information, level two externalizing system would be feedback forms in your ticket, train ticket counter.

So you have feedback forms you fill out the form and you drop it off in a box, level three would be to carry out complex transaction. So, you know you have one counter you can go to the same counter you can book the ticket, the same person will also help you, you cancel your ticket the same person will also help you change. I mean in trains we do not have change of date, but it is booking in cancellation so that can be done.

Then level four would be again, you know I cannot think of an example where you could do everything at one counter but maybe the example of the bank would work so this is the kind of thing that we do, you know when we talk about community development maybe one office is dealing with this and different people in the office have different tasks and the level of complexity decides the level of externalizing services and internal systems we take technologies, we have computers that help us run the organization.

So that is how these things, you know that that is a very simple explanation of how we deal with complexities, we deal with problems in our own environment. Now that is all we have time for in this lecture, but we will take this discussion about information communication technology is further in the next lecture, so thank you very much for listening.