

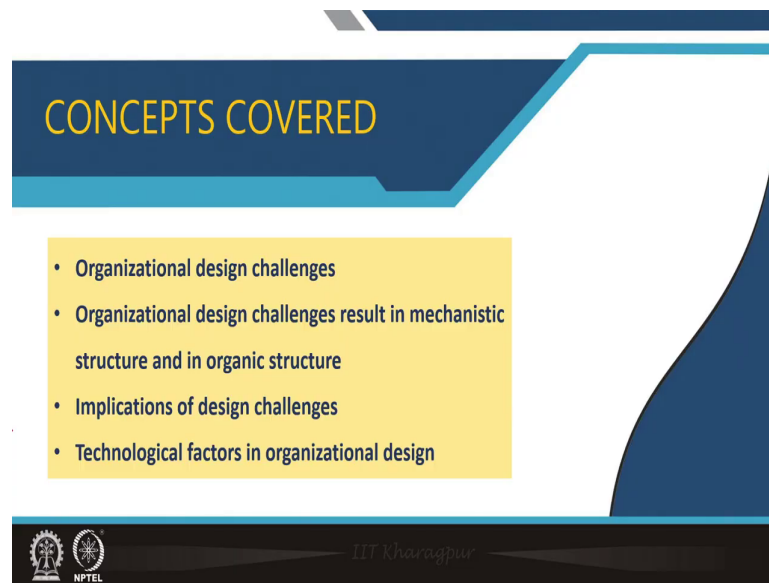
Organizational Design Change and Transformation
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Module - 08
Lecture - 39
Organizational Design and Technology: Challenges

Welcome to lecture 4 of week 8 and the previous lecture we were discussing on the theories of technology. We discussed on three technologies. One is on technical complexity and we discussed about routine and non-routine task then, the third theory which is primarily talking about how task are dependent to each other.

Now, that gives a you know certain understanding to move to this second at this lecture. So, today's lecture we are primarily going to discuss about the challenges of organizational design, keeping in the you know the advancement in technologies. So, what we are going to discuss today is that we are going to primarily discuss on Organizational Design Challenges, what as an organizations will experience challenges with respect to designing their organizations.

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The slide features a dark blue header with the title 'CONCEPTS COVERED' in yellow. Below the header is a yellow box containing a bulleted list of four items. The footer is black and contains the logos of IIT Kharagpur and NPTEL, along with the text 'IIT Kharagpur'.

CONCEPTS COVERED

- Organizational design challenges
- Organizational design challenges result in mechanistic structure and in organic structure
- Implications of design challenges
- Technological factors in organizational design

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We also talk about what are the challenges resulting in mechanistic structure and on organic structures. We because we will also when we are discussing about the challenges in the mechanistic structure and organic structure, we will also find out a differences between this organization which follows mechanistic structure where is more bureaucratic structure, where an organic structure where in more of a flexible structure.

And, we are also look at what are the implications for design challenges. You know how does this technological factor involved in the organizational design and how does this organizational design is going to help an organization you know prosper well ok.

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Organizational Design Challenges

Robbins has pointed out that organizational design which will best support and facilitate employees doing their work efficiently and effectively in the present dynamic environment, certain challenges arise that managers must contend. According to him, these challenges include –

- Designing office space →
- Keeping employees connected →
- Building a learning organization, and
- Managing global structural issues

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Now, let us go further try to understand what type of a challenges organization generally experience. See, Robbins has pointed out that you know organizational design is very critical. As you all started this course, everybody would have you know built in understanding now that you know organizational design is very important, that is very critical for what? It will make sure that work is happening efficiently and organization is able to run more effectively in a dynamic environment.

But; however, given that organizational design offers lot of you know benefits in terms of running an organization more efficiently and effectively and managers will contend and employees feel comfortable in working in organization; there is more clarity on what should I do, how should I do and when I should do.

Now, this design has a lot of you know benefits to offer, but there are challenges with respect to designing. Now, let us say designing in the aspects we are going to talk about you know various aspects, what is about designing the office space. So, structural designing is one, but now talking about a physical designing where how should I define my office space.

Now, especially at this context it is even more relevant where you know industries are thinking about what should type of a office space we should go for, where you know now say co-sharing is coming up you know, office sharing is coming up you know where we were talking about more geek economy is happening. People are sharing their office spaces where now some organizations are coming up with you know ok, then we do not keep any computer and systems.

You come up and sit wherever you feel like you know where you want and then it is a very open space, there is no IT infrastructure created, because they create ok. So, now, organizations are evolving and discussing and thinking about how should I define my office space. Why? Because, office space how do you define office spaces? Lot of implications, let us say when you talk about office space when I say lot of implication, it talks about how people are going to be connected.

It will determine the social connections, it will determine the effectiveness of communication, it will determine how your employees are tied to each other, social ties they create and it also talk about; obviously, it will impact on the productivity of the employees. So, now that becomes a challenge. So, how do I define my office space? Now, comes a second challenging ok. I am touching upon some basics of how do I define design my office space.

Then, comes how I am going to keep my employees connected that is very important now which where organizations are going for hybrid or you know remote work cultures or half of my employees work wherever they are. Now, how I am going to make sure that they are connected to each other so, that they are able to deliver effectively. Then, comes building a learning organizations, why it is very critical?

As you see in the current context that you know organizations are experiencing challenges, organizations are keep evolving. Companies wanted to come up with the new products and services, there is more expectations, demands from my customers and consumers. So, organization has to be a learning organization, you have to be more you know have to learn more. So, that you know you will be able to keep evolving. Then, comes managing global structural issues.

So, now, as a company progresses and prosper, you are going to operate in multiple locations or probably having you know virtual offices or virtually connected, the small teams working in my you know different you know continents you are operating on. So, now how are you going to manage this global structural issues? So, these are the certain you know major challenges that organizations are encounter. We are going to discuss in detail for each of this aspect ok.

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The slide features a blue header and footer. The main content area is white with a yellow box containing text. The speaker is a man in a purple shirt. The slide includes several icons: a gear, a lightbulb, a network diagram, a hard hat, and a chemical structure. The footer contains the IIT Kharagpur and NPTEL logos.

Organizational Design Challenges

- Designing office space:
Office space has always been a battle between freeing employees to work and maximizing space to minimize costs.
Today's office spaces are collaborative, accommodating virtual workers with group spaces to engineer interaction and foster creativity. That means employers need to provide office environments that facilitate interaction while allowing freedom from interruption.

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Let us start from designing the office spaces. So, office space always been a battle between you know freeing employees to work and maximizing the space to minimize the cost. Now, you know where we are talking about you know the office space organization as I was talking about you know office space is a critical.

And, it also requires lot of you know infrastructural creations and you have to you know apply a lot of thought process; how do I you know design my office space so, that it enables my employees to feel connected, other the same time they are being productive and their work they are able to do a better job as well.

So, now if you look at today's office space, then it is become more collaborative. You know now look at you know accommodating virtual workers, my employees are virtually connected, remotely working wherever they are, now with the group spaces to engineer

interaction and foster more creativity. Now, my office space have to be more collaborative rather than you know isolating my employs.

Right more of a collaboration so, that now I can foster more creativity and innovations and; that means, employees need to provide office environment that facilitate interactions while of course, allowing freedom from interruptions. So, now it becomes more challenging right. Because, when I want more collaborations and how as an organizations I am going to design my office space, that promote this type of a collaboration and interaction that brings more creativity at the work places.

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Organizational Design Challenges

- Designing office space (with reference to Toronto):

Office Style	Space	What got right	What got wrong
Action Office (1960s-70s)	Average space per employee is 500 sq ft	<ul style="list-style-type: none"> • Flexibility to choose elements. • Well designed desk space 	<ul style="list-style-type: none"> • High quality components were very expensive • Open environment was noisy and distracting
The Cube Farm (1980s-90s)	Average space per employee is 144sq. ft	<ul style="list-style-type: none"> • Cubes offer some privacy and ability to personalize. • Business found cubicles flexible and affordable 	<ul style="list-style-type: none"> • Quarters became cramped • Bad air and artificial light left workers unmotivated and anxious to leave

So, now let us look at you know how this office space been evolved you know. So, now, if you look at this you know size is with reference to Toronto as a reference point, we are referred from this particular book. So, we are looking at you know now if you look at office

stage, how it was and how it is now ok. Let us say you know action offices in 60s and 70s where average space per employee is 500 square feet is relatively larger, where if you look at what went really right in during that time.

So, flexibility to choose elements, what type of an element to be I mean part of my job and well-designed desk space; you know you have more space now, that was went well in this action office. What went not so good is about high-quality components were very expensive, you cannot afford to do it and open environment was very noisy and distracting. You know though office space are you know relatively larger so, but it was more distracting you know open spaces.

Now, comes as it was evolving organization moving into cubicles a cube farm where average space for employees you know 144 square feet. Each employee has got an you know cubicle space where what does it actually got it right? It got right you know it has given more privacy and ability to personalize where it was not there in the previous one. It was able to create privacy and personalize your office places and you know business founds cubicles flexible and affordable.

Organization found it ok; it is you know possible because I am just creating certain cubicles. So, that I am just you know physically you know separating a space between each employee and that becomes your workspace in an office desk right. But, what went wrong? You know become cramped and bad air and artificial light left workers really unmotivated and anxious to leave there are cubicles, did not work really well.

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Organizational Design Challenges

- Designing office space (with reference to Toronto):

Office Style	Space	What got right	What got wrong
The Collaborative Office (present)	Average space per employee is 176 sq ft	<ul style="list-style-type: none">• Open designs encourage interactions• Workers can adapt to the environment that is best for them.• Smaller footprint equals lower costs	<ul style="list-style-type: none">• Open-concept offices distract from the ability to be deep in focus.• Less efficiency in shared spaces

Source: Robbins, S.P., Judge T.A. and Vohra, N. (2018).

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Now, as the time progressive that now we are currently we are talking about collaborative office space here, average office space per employee is 176 square feet and with reference to Toronto, I am again I am talking about it here. Now, what went really well in this collaborative space?

So, open design encourages more interactions where organization want to you know break this you know hierarchical differences, where you look at the you know open offices, where the collaborative offices wherein everybody sits in an open office. Every desk is open and anybody can walk in and talk to their bosses.

So, bosses also do not sit in a separate room or in a cubicles rather they sit in an open office space where as and when you require you can actually walk into a manager, walk into your boss talk. And you know there more interactions, more collaboration you know that is that

was actually more promoted and workers adapt to this environment that is best for them and smaller footprint equals a lower cost.

Now, what went wrong actually? Open concept offices distracts from the ability to be deep in focus. So, that was one you know negative aspect of going for this collaborative offices and less efficiency in shared spaces, where there are shared spaces being given or there are people are little not efficient as we. Now, if you look at there is now comes a question. So, I have been discussing about ok, we are evolving moving from you know chemicals to collaborative office space, now despite that we are still having a challenges.

So, now, that itself reminds a challenge right. Now, what should be the future of an office space? How should an organizational design their office spaces? Now, becomes a more you know dependent on what type of an organizations are you and what type of a product services you are offering and what type of a culture you have created. If you look at now you connect the culture, organization culture.

The lectures we learnt in you know week 7; now it has lot of relevance's that will drive how what type of an office space I should create. And, at the same time the of course, your work and the final output of the organizations or the service or product you produce also will be a greater determining factor in what type of an office space you have to design as well ok.

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The slide is titled "Organizational Design Challenges" in an orange header. Below the title, a yellow box contains the text: "Keeping employees connected: Many organizational design concepts were developed during the twentieth century, when work tasks were fairly predictable and constant, most jobs were full-time and continued indefinitely, and work was done at an employer's place of business under a manager's supervision." To the right of the text, there are handwritten notes in red ink: "Gig Workforce", "Micro-Skills", "Remote Work", and "Hybrid Work". The slide also features a blue background with a white atom symbol and a gear icon. At the bottom, there are logos for IIT Kharagpur and NPTEL, and a small video inset of a man in a purple shirt.

Now, let us next challenge is the about keeping employees connected. Now, you know because we are talking about the current sensory where we are talking about you know work task were fairly predictable and constant many people were full time now, but this is still evolving. Now, as the progressions of a technology happens this technology is created more revenues meaning that more of a gig economy.

So, gig workforce where you know we said ok employees are skilled or a they have a niche skill set. So, they have a niche skill set on specific aspects rather they do not want to be full-time employee rather they are engaged in a project. Now, how are you going to keep your employee connected? Now, comes you know remote work right.

So, hybrid work. So, now, if you look at my employees are disjointed or maybe are operating various locations or maybe for a brief time, the time period is less. Now, organization still has

challenge of how do I keep my employees connected, in what way you are going to keep your employees connected, in what type of a communication system you are going to develop that.

So, that you are going to make sure that your employees are connected, that is what the you know very challenging part for an organizations. Looking at the differences or looking at the you know new changes which are happening in the workplaces that even increases the complexity and more challenges are again for an organization to especially talking about how are you going to keep your employees connected.

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Organizational Design Challenges

- **Building a learning organization:**
It is always a question on the structural characteristics of a learning organization how it ought to be? It is the members of a learning organization, who first, must be able to share information and collaborate on work activities throughout the entire organization across different functional specialties and even at different organizational levels.
- **Managing global structural issues:**
Researchers have concluded that the structures and strategies of organizations worldwide are similar, while the behavior within them is maintaining its cultural uniqueness. One study showed that formalization—rules and bureaucratic mechanisms—may be more important in less economically developed countries and less important in more economically developed countries, where employees may have higher levels of professional education and skills.

Handwritten notes:
- Organic / Flat / Small
- Structure / Informal / Collaboration / Levels / Formalization
- Less formalization

Video inset: A man in a purple shirt speaking.

Logos: IIT Kharagpur, NPTEL

Now, let us look at the next one is about a building a learning organizations. So, now, it is very important. Now, comes a question of ok it is always a question on structural characteristics, what is the structural characteristics of a learning organizations. So, how it should be? So, these are the questions right. When we talk about ok, we are talking about a

learning organization, how what should be the organizational structure of a learning organizations? And, what how it should look like?

You know it generally it is a member of a learning organization, who first must be able to what is the basic characteristics that should be part of the learning organizations, that will have to be a major factor that will determine what type of a structure you should have. Right, rather than talking about this structure will give you a learning organization rather than the qualities are the main features that should be a part of a learning organizational structure.

One is that employees are able to share information; learning organization should create a structure wherein it is able to make their employees share information and collaborate on work throughout the entire organization across different functional specialties even at the different organizational level. So, now if you look at what are the key features? It should enable sharing of information, sharing information and collaboration.

So, collaboration of what? Collaboration at across levels and functions. So, now, this is very critical. So, learning organization should create a structure that actually promotes sharing of information and more collaboration. What does it indicate? It indicates you have to go towards more of organic, where you cannot go with more you know mechanistic structure, we are not you know promote of this sharing of information's you know there are tall structure.

Now, more of organic you go for a flat structure, hierarchic are less and you know decision making are decentralized right and less formalization because you want to do share information. So, this is what tells me what type of a structure my if I am a learning organization, what I what type of a feature my structure should have, what type of a structure I should embrace to make my organization keep as a learning organizations.

Now, comes managing global structural issues. So, now, researchers I have done a lot of research to understand how do you manage these global you know organizational structure issues. So, what did they conclude is that you know structure and strategies of organizations

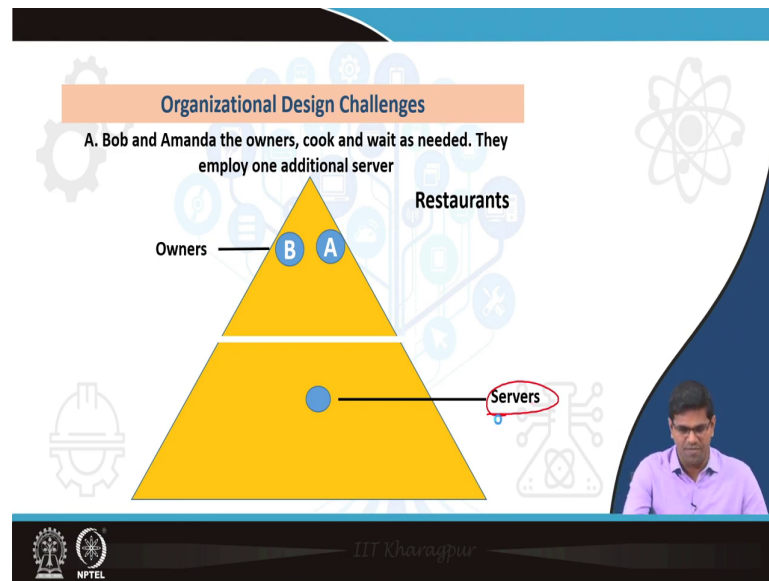
are very more or less similar, while the behavior within the team is you know maintaining its cultural uniqueness is very challenging ok.

So, now one of the studies we showed that formalization, you know where rules and bureaucratic mechanisms may be more important and less economically developed countries and less important in more economically developed countries. So, if you look at now formalization is very important in a developing economies, we could put it that way. And, you know formalizations in less important in more economically developed countries, you know where higher level of professional education.

So, now if you look at you know the look at a global organizations and you need to understand what type of an economies we are operating on; are we in a developing economy, are we in a developed economy. So, developed economy there is the more educated people, more professionals, more skilled people are available where you do not need to have less you need to keep less formalizations, less standardizations in those workplaces.

Whereas, in those economies where we are talking about you know more of more of a mass productions or maybe in a transition phase from mass production to the advanced technological and technology based organizations. Where you need to still to follow high level of a formalizations that would naturally able to help you to you know better you know handle the organizational effectiveness and efficiently in a workplaces ok.

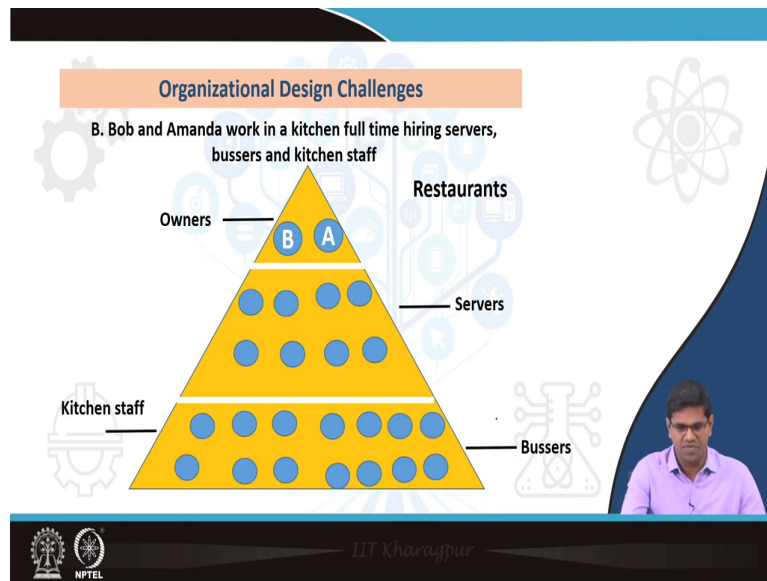
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Now, having discussed about these challenges, we are moving to the next level of you know understanding this design challenges where we are talking about a certain situations ok. So, where we are talking about Bob and Amanda so, we are talking about a restaurant in context. So, they were only two people, there are the owners and they additionally employed only one server ok; because they are in a very in the initial level of a business.

So, what do they need they? So, both of them ah you as the owners and they cook and they only need a server to manage this restaurant ok. So, it is a when it is a nascent stage. So, you can you know connect this analogy with any organizations you have coming through where you see you know small organization. Small organization they may start very small right. So, here we are talking about a context of a restaurant where Bob and Amanda where the owners and they also a cook and then and they had only had a server.

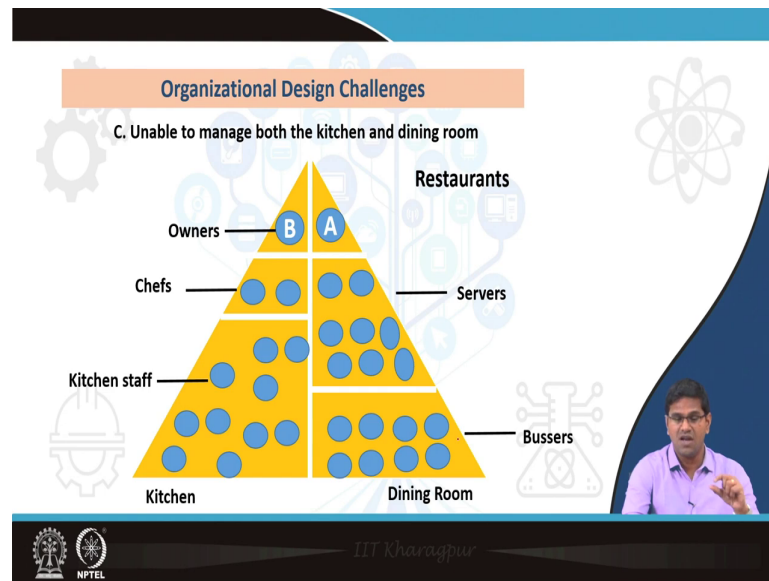
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Now, as they are growing and they started to they are the owners Bob and Amanda are still there and they are in you know kitchen full-time hiring, they had a and in kitchen they had a full-time hiring hire the services servers and bussers are there, they hired people. Now, as they are growing as a bigger organization.

Now, look at you know look at the challenges, design challenges because when you are hire more people, you need more coordination, you need structure. So, you need the flow, how the work activities will be delegated. Delegation of work activities, the division of labor is comes into a picture; coordination comes to the picture right.

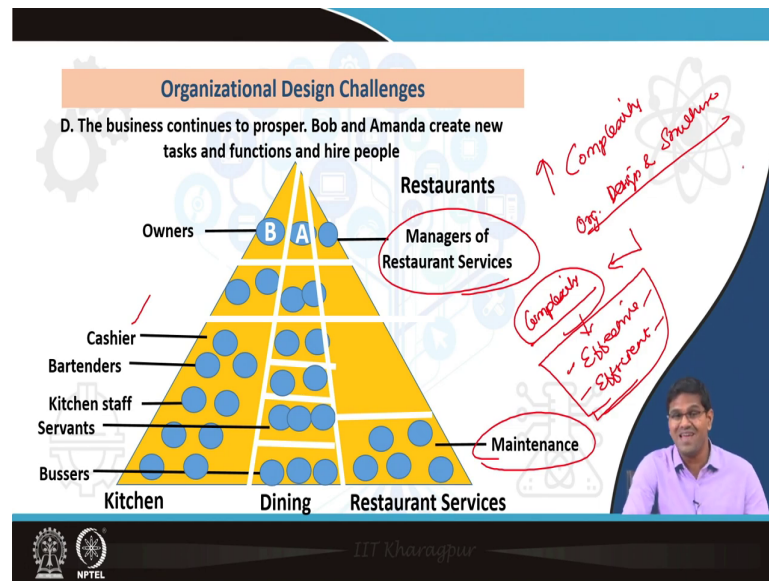
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Then, let us say you know they are also growing further. So, now, as they are growing further. So, let us say they have created multiple you know business opportunities. Now, we require they are not able to manage both kitchen and dining room. So, Bob looking after one side of a kitchen and then you know Abanda is looking up to the other side of it. Now, as the complexity is increasing right, as an organization grows where you literally you know visually see that you know yes challenges are increasing.

Previously, what we had? We had only Bob and Amanda and servers. Now, you see as a company was you know organization is growing, let us they are kitchen staff and servers. Now, if you look at they had chef, they had kitchen staff, they have dining room bussers are there and servers are there. Now, this is even more complex in the complexity. They could not manage unless otherwise you have a better organizational design and structure in place.

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Now, we let us look at the next scenario wherein they are having more challenges now because, the business continues to prosper. So, Amanda and Bob have to create new task and functions to hire people. Now, they have created a lot of this. So, they have created different task and functional. Let us say they have a you know cashier, bartenders, then kitchen staff, the servant, bussers, there has the maintenance staff, the restaurant services dining and kitchen.

Now, you look at you know managers of restaurant services. Now, you see as the business progresses and you see more task are coming up you know and now comes you know application to understand like the complexity right. The challenge, the complexity, as the complexity increases as your organization grows.

Now, comes the organizational design and structure comes into place ok, how do you know create this design and structure in place that is able to manage this complexity right. So, this complexity is managed so, that I become more effective and efficient, that is the very critical component of making sure my organization functions you know more profitably right and you know we are concerned about effectiveness and efficiently.

So, addressing this complexity through the structure and design so, as you will be able to understand how critical this as possible, because organizational design challenge is always very critical. You know as I grow and as I my numbers are increasing, what is the span of control I create, you know how many employees I should have.


And, you know what type of a design I should go with and you know what level of should I go for a tall structure, flat structure. What type of coordination, should I you know standardize, should I formalize, should I you know go for decentralization, what type of decision making you know I should follow. So, these are the design challenges that one generally encounters.

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Organizational Design Challenges Result in Mechanistic Structure

- Individual specialization: Employees work separately and become specialized in one clearly defined task.
- Simple integrating mechanism: Hierarchy of authority is clearly defined and is the major integrating mechanism.
- Centralization: Authority to control tasks is kept at the top of organization and most communication is vertical.
- Standardization: extensive use is made of rules and standard operating procedures to coordinate task and work process is predictable.

The slide features a diagram on the right showing a vertical hierarchy of boxes connected by arrows, with a box labeled 'SOP' (Standard Operating Procedure) in the middle. A small inset video of a man in a purple shirt is visible in the bottom right corner of the slide area.

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Now, let us look at you know certain design challenge with respect to mechanistic structure. As I was said in the beginning of the lecture, that we will you know also look at you know this organizational design challenge with respect to mechanistic structure and also organic structure.

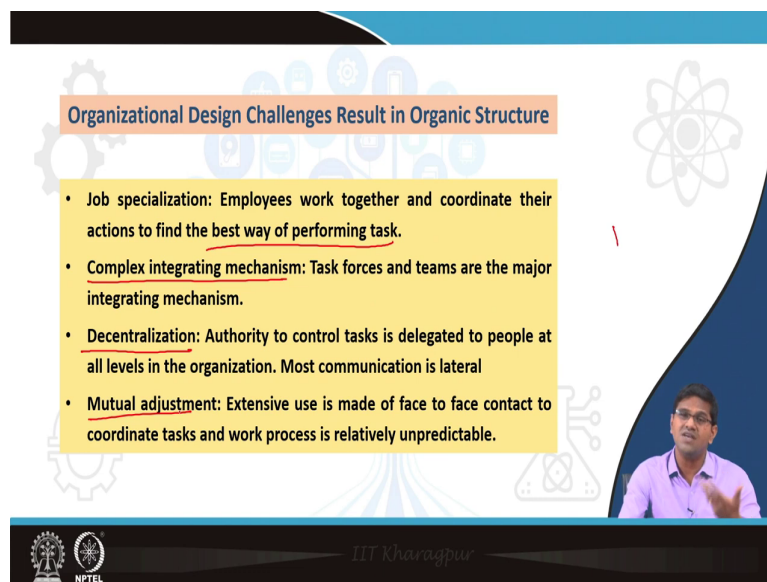
Now, let us look at you know mechanistic structure where individual specialization, employees generally in this mechanistic structure where they work separately and they specialize become very specialized in one clearly defined task. Because, the task are divided and you know where they become more specialized in a particular task and you know simple integrating mechanisms.

So, hierarchy of other is clearly defined and there is a simple integrating mechanism. So, hierarchies are clearly defined, let us say this is how the hierarchy goes you know. So, they

will say this is ok here is a person, the hierarchy is very clear and simple integrating structure is followed. And, centralization where decision making always lies at the top level where the decision has been made and then it is gone and communication is always vertical ok.

So, you know goes vertical. Then, standardization extensive use is made for rules and regulations or standard operating procedure to coordinate task and work process is predictable. Because, they come up with lot of SOPs, very standardized procedures are already defined more formalization is high in a mechanistic structure.

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Organizational Design Challenges Result in Organic Structure

- **Job specialization:** Employees work together and coordinate their actions to find the best way of performing task.
- **Complex integrating mechanism:** Task forces and teams are the major integrating mechanism.
- **Decentralization:** Authority to control tasks is delegated to people at all levels in the organization. Most communication is lateral
- **Mutual adjustment:** Extensive use is made of face to face contact to coordinate tasks and work process is relatively unpredictable.

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Now, comes the organic structure. In an organic structure, job specialization where employees work together, coordinate their actions to best find the best way of performing task. They are more of flexible right, you know job specializations where they always go for you know

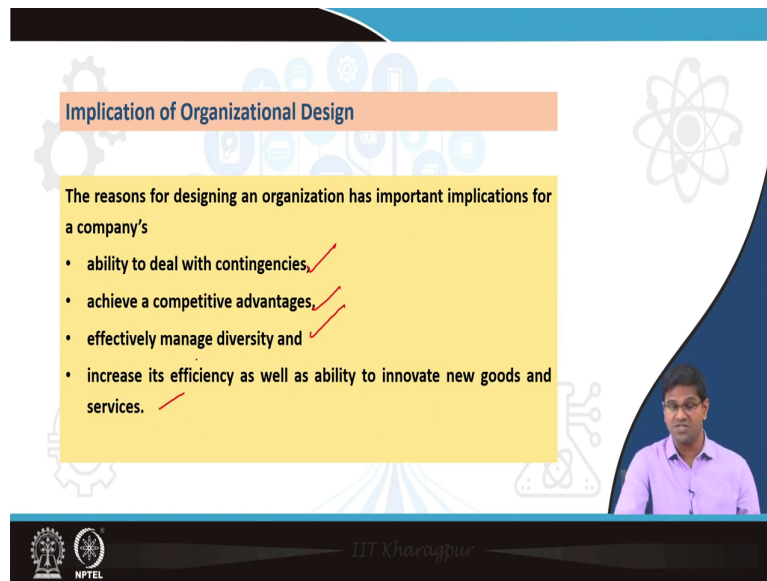
working with together to find out in what is the best way that you can perform the particular task.

Then complex integrating mechanisms whereas, you know mechanistic structure what did we see? It is very simple integrating mechanistic system whereas, in an organics little complex because task, forces and teams are major integrating system rather than it is (Refer Time: 23:11) task and the teams are the you know integrating factors rather than the sequential steps you seen in a mechanistic structure.

Decentralization where decision making or authority is actually you know delegated to people at all levels in the organizations and communication is more of a lateral ok. So, where I said you know that is whereas, in a mechanistic where decision is always made in the central level whereas, in a organic structure decentralization, decision is been made at the each level and with a certain level of you know power is assigned to it.

So, certain degree of freedom is assigned to each level of the people so, that they can take decision on their own. Then, mutual adjustment extensive use is made to face-to-face contact to coordinate the task and work process is relatively unpredictable because they go for mutual adjustment in a organic structure ok.

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Implication of Organizational Design

The reasons for designing an organization has important implications for a company's

- ability to deal with contingencies.
- achieve a competitive advantages.
- effectively manage diversity and
- increase its efficiency as well as ability to innovate new goods and services.

The slide features a blue header with the title, a yellow text box with the main content, and a video inset of a man in a purple shirt. The background includes a gear and atom icon. The footer contains the IIT Kharagpur and NPTEL logos.

Now, now what are the implication of this organizational design? What does it actually does? This organizational design helps in organizations in making company's ability to deal with contingencies. There are contingencies, you know untoward, you know uncertain challenges are coming up contingencies, this the organizational design able to make you deal effectively and achieve the competitive advantage design helps you to achieve the competitive advantage.

It creates competitive advantage for you and it is effectively, you will be able to effectively manage the diversity, you know employee diversities. And, it increases efficiency and ability to innovate new goods and services, that organizational design has lot of implication.

You know it has you know able to help you to manage the contingencies, you know creates the competitive advantage and manage the diversity. And, also it helps you to become more

efficient and help you to create more you know innovate more goods and services that is how the organizational design helps an organization ok.

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The slide features a title box at the top: "Technological Factor in Organizational Design". Below it, a yellow box contains two bullet points:

- Technology has significant impact on organizational design in terms of creation of teams and department, the delegation of authority and responsibility, sequence of operation, etc.
- Technological complexity is most critical and it may be distinguished as small batch production, mass production technology and continuous process technology.

Handwritten annotations in red ink include:

- A diagram showing "Technology" leading to "Product", with a downward arrow to "# Employees".
- A diagram showing "LOA" (Level of Automation) leading to "LOA" (Level of Automation).

The slide also includes logos for IIT Kharagpur and NPTEL at the bottom left, and a small video inset of a speaker on the right.

Now, the technological factor in an organizational design so, technology has lot of impact on organizational design, you know in terms of the creation of teams and department. Because, as we see there are type of a technology use whether you have mass production or advanced technology that has lot of impact on how many people to use, how many teams to create. So, the moment you say the technology is driving.

So, let us say in a simple form, technology will tell you ok, the technology will tell you ok how technology is going to help you to produce a product. Now, technology will also tell me how many people needed to operate this technologies, manage this technology and produce

this product. So, now it also tells me number of employee required, what level of employee required, how many departments I require.

So, all that has a lot of impact, that will definitely have an impact on the designing of the (Refer Time: 25:57) things. You know the technology will complexity is more critical and it may be distinguish you know small batch production, where we look at you know technology complexity, where from high to low; this also determines you know have an impact on the structural aspect of your organizational design ok.

Let us try to understand and certain parameters of the organizational design and structure factors. So, that we will be able to appreciate how does this technology is been including into the design part of your organizational culture ok, organizational structure.

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Technological Factor in Organizational Design

Structural characteristics	Technical Complexity		
	Low		High
	Small batch technology	Mass production technology	Continuous process technology
Level in hierarchy	3	4	6
Span of control of CEO	4	7	10
Span of control of 1 st line Supervisor	23	48	15
Ratio of managers to non-managers	1 to 23	1 to 16	1 to 18
Approximate shape of organization	Relatively flat with narrow span of control	Relatively tall with wide span of control	Very tall with very narrow span of control
Type of structure	Organic	Mechanistic	Organic
Cost of operation	High	Medium	low

Source: Jones, G. (2013)

Now, let us look at you know technical complexity, you know from low to high you know low technical complexity to high technical complexity, where low technical complexity talks about low involvement of technical technology and high complexity talks of high involvement of technology. Now, where it is more of an automation, it is more of a people based right. So, now, let us just look at the structural characteristics.

So, level of hierarchy because small batch technology, large mass production technology to continuous process technology. Now, let us look at hierarchy level. So, what is that? You know optimal level; we are discussing about you know sub optimal level referring from zones. Here is discussed that you know hierarchy level in a small batch technology, you require is a 3 level of hierarchy is sufficient.

You know you know mass production, you need hierarchy at 4 level and you know continuous process technology you need 6. Span of control of a CEO, how many people the CEO can manage? Let us say he is a CEO. Let us talk about 4, he can actually supervise 4 people; 1, 2, 3, 4 whereas, in a mass production CEO can manage 7, CEO can manage 10 people. You can look at you know the span of control.

Now, span of control of first line supervisor, there is a under him there is a supervisor right. And, the first line of supervisor, he can actually supervise 23 people whereas, in this mass production he can supervise 48 and here in a continuous process 15. Now, ratio of managers to non-managers so, for every you know for there are 23 non-managers for each manager. So, if you look at 1 is to 23, 1 is to 16 and 1 is to 18.

So, approximate shape of an organizations, here it is relatively flat with the narrower span of control because the span of control is relatively less because 1 to 4 right whereas, you know flat because you are talking about hierarchy level is only 3 right, 3 levels of hierarchy whereas, here the mass production technology relatively tall with a wide span of control.

Because, the span of control is relatively little wider because instead of 4, it becomes 7 whereas, in a continuous process technology, it is very tall with a narrow span of control you

know relatively lesser. And, type of structure where you know organic, mechanistic and here it is again an organic.

And, cost of operations is relatively higher because you have you know mostly individually employee based, here it is more of a machinery based where medium operation cost. Again, it is automations where less number of people have been used and the operation cost is relatively less ok.

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So, I mean today's lecture is actually given you a more insight and trying to understand how you know technology has been involved and what are the challenges of a organizational design. You know ranging from designing the office space and you know keeping the employee connected, how are you going to manage the global organizational structure. So,

now we also looked at you know how this technology has an impact on what type of a structure my company should have.

So, this lectures have given a larger perspective to understand how technology has become an inseparable component or maybe to put it in a different way how technology is actually you know demanding a type of a structure organization should have. Because why? We wanted to manage the organizations more effectively and efficiently, but at the same time keeping the technology you know included in an organization set up.

So, now it is kind of a more of you know redesigning your organizational structure, integrating the technology for better functioning of your services. So, now, we have understood ok what type of a changes I should make to you know include the technologies in my you know organizational functioning.

So, and the next subsequent lectures, we are going to look at on the competencies and then we are going to complete this module of week 8. So, looking forward to see you all in the last lecture of this particular module on week 8.

Thank you.