Organizational Design Change and Transformation
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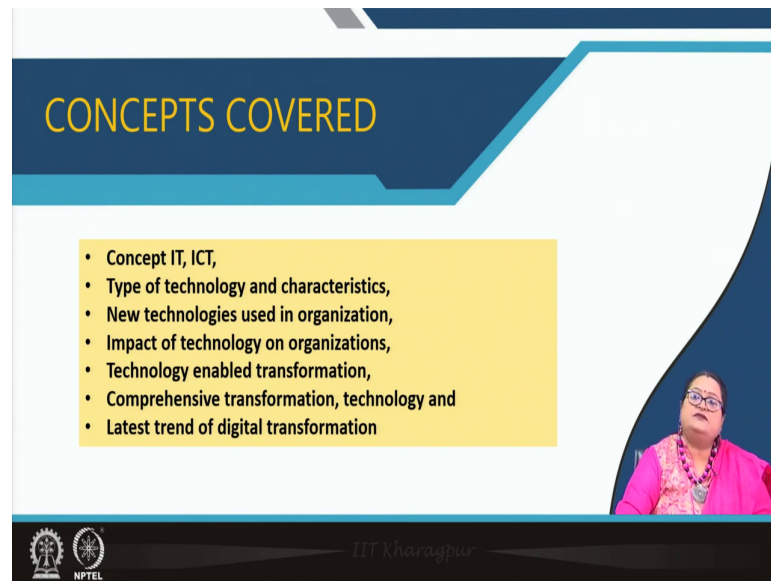**Indian Institute of Technology, Kharagpur**

Module - 12
Lecture - 58
IT and ICT Intervention

Welcome to the course on Organizational Design Change and Transformation. We are now on week 12. We have already discussed about Organizational Innovation in the past few lectures in the past week. This week we are going to concentrate on organizational design at length, organizational development, the third generation of organizational development, turnaround and transformation strategies. We will look into various aspects of organizational designing in terms of the different interventions possible.

We have already discussed in the last lecture about organizational development, the third generation, what is expected in turnaround situations and transformations. In today's lecture onwards we are going to discuss on some of the interventions which are there which happens in as a part of organizational designing.

So, that we can transform the organization into a like what is expected for the future performance, so how the organization can turn around with the help of the interventions and how it can transform with the help of the interventions. Today, we are going to start with the technological interventions starting with IT and ICT based interventions. So, let us see what is there in today's discussion.
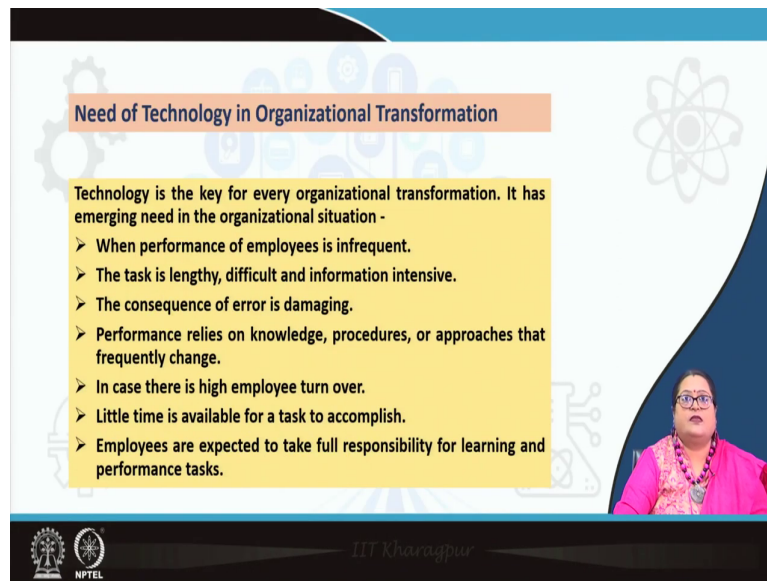
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The concepts covered today are on IT and ICT, type of technology and characteristics, new technologies used in organizations, impact of technology on organizations, technology enabled transformation, comprehensive transformation, technology, and latest trends of digital transformation.

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What is the need of technology in organizational transformation? Technology is the key for every organizational transformation. It has emerging needs in the organizational situation. When performance of employee is infrequent. The task is lengthy, difficult and information intensive. The consequence of error is damaging. Performance relies on knowledge, procedures or approaches that frequently change.

In case there is a high employee turnover. Little time is available for a task to accomplish. Employees are expected to take full responsibility for learning and performance of the task.

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The information technology in organizations. Information technology comprises of computers, networks, mobile and wireless devices, satellite communications, robotics, video texts, cable televisions, electronic mail, electronic games and automated office equipment. IT has played significant role in business communications, organizational development and transformation.

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Information communication technology resources on organizational development and transformation in different ways such as human resource development, business value enhancement, decision making process, system efficiency, productivity and performance, social development and economic effects.

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What are the new technologies used in organization? In addition to computer, there are some new technologies used in the organizations and business houses which include mobile technology, video-based management, virtual environment and avatars, HTML 5 and responsive design, automation and adaptive technology in training of employees, big data management, artificial intelligence, and automation.

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Mobile technology. Mobile has become an effective technology for HR management and organizational development. The widespread adoption of mobile phones as well as well as other mobile devices in the organizational operation such as tablets, e-readers etcetera which is encouraging organization to leverage mobile based information sharing, recording, conferencing, etcetera.

Video based management. Video based management has become a sudden upsurge in the online streaming space. Newer training technologies tools increased network bandwidth and widespread access to the internet is enabling organizations to create an affordable and advanced video based management and employee performance.

Virtual environment and avatars. Organizations are using virtual training coach also called Avatar who engages with the learners like a real human being. The human looking avatars in the form of a cartoon a 3D character instructing and engaging with learners to bring human touch with their e-learning process.

HTML 5 and responsive design. Among all the technologies used in the organizations, HTML 5 is the latest version of HTML is also used. It is accessible on all platforms, devices, and browsers. It is adaptable and faster, providing the ability to design interactive and engaging learning experience, without leaving the mobile users behind. Offline storage and data management can take place, even when the user is not connected to the internet.

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Automation and adaptive learning in training of employees. The recent practice of using new technologies in organization is that content providers and Learning Management System providers are using a vast number of automated solutions to create new courses and learning materials. These are reducing the cost and development time required in the conventional processes.

Big data management. Some training based organizations have more learning activities and data gathered to them. By using external big data analytics tools or the ones, which are built into a variety of Learning Management Systems, organizations are getting to know about their learner's usage patterns, behavior, and training courses effectiveness. This is enabling them to create a customized and personalized training courses based on facts and insights.

Artificial Intelligence. Artificial Intelligence holds both great promise and may benefit as its efficiency and productivity because of multitasking, execution of complex tasks, available 24 into 7 without interruption, time-saving, avoid human error, and use insight to predict customer preference.
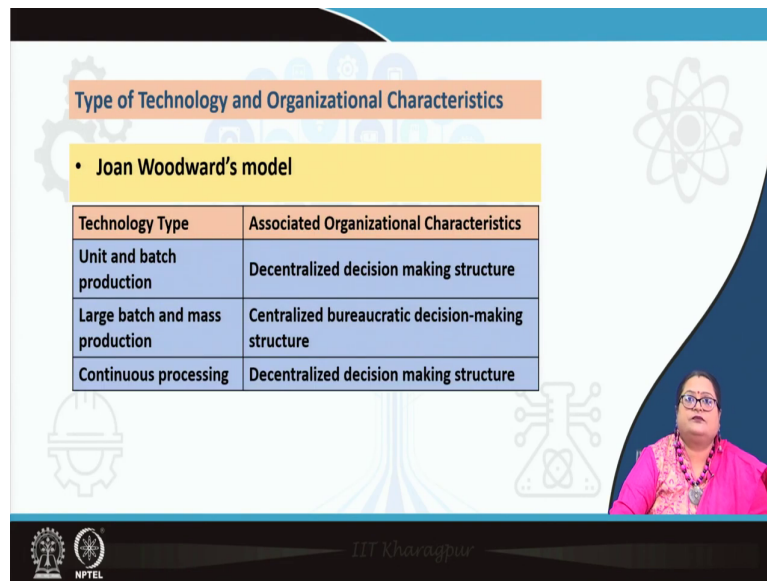
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Automation. Automation is the use of technology to make processes run themselves. Business organizations will now need to follow automation practices in order to smoothly streamline the deployment of processes. Some different types of automation include robotic process automation, the use of software robust to automate repetitive tasks. Low-code platforms, "drag and drop" features for non-technical skills.

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Now, what are the different types of technology and organizational characteristics? We will discuss here various models regarding it. Joan Woodward's model, type of technology and organizational characteristics.

Here we are going to discuss the various types of technology and associated characteristics with respect to it. We are going to discuss various models here. Joan Woodward's model, technology type, unit and batch production. The associated organizational characteristics are decentralized decision making structure.

Why we are discussing these things over here? We may think like we will be implementing certain technologies in the organization, but the organizational characteristics per se need to be equally like fitting for it. So, there must be a complete fit between like what is the

technology and the type of organizational structure which requires to assimilate it. So, these models are going to focus on that.

Large batch and mass production. The associated organizational characteristics are centralized bureaucratic decision making structure. The technology type of continuous processing requires an associated organizational characteristics of decentralized decision making structure.

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Thompson's model. Technology type is long linked technology. In that case, the associated organizational characteristics are standardized sequentially interdependent linear processes. Mediating technologies. The characteristics of organizations are standardized procedures mediating transactions. Intensive technology. Unstandardized applications of machines and knowledge with the associated organizational characteristics.
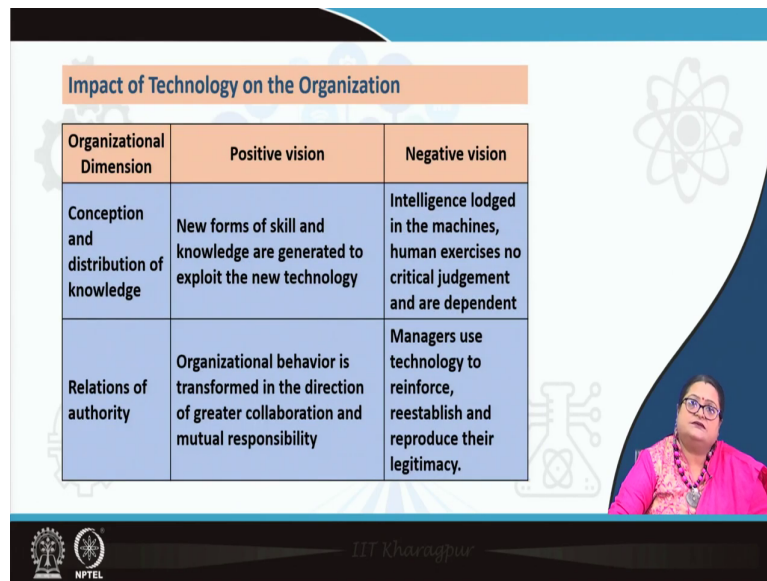
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Perrow's model. If the technology type is routine technology, associated organizational characteristics is low task variability and high task analyzability. If it is a craft technology, it is low task variability, low task analyzability. If it is an engineering technology, high task variability, high task analyzability. Non-routine technology, high task variability, low task analyzability. So, you can see like each for each of the techniques there are associated organizational characteristics.
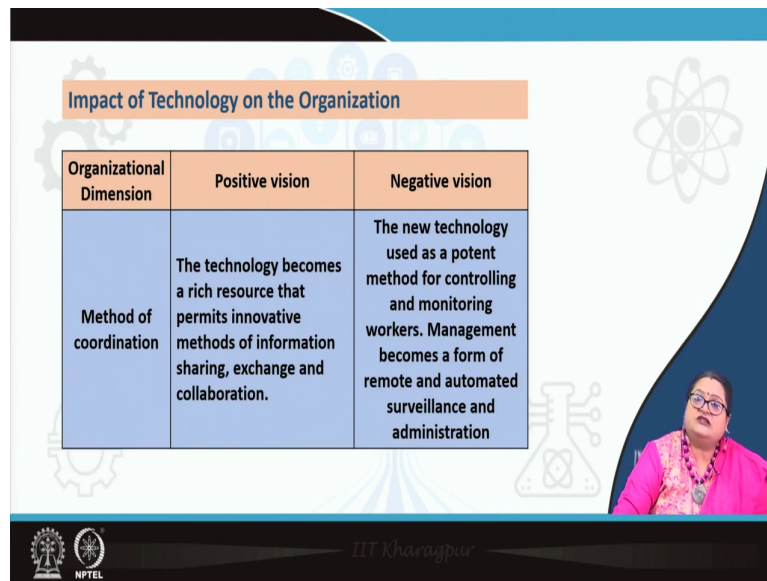
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Now, fourth are the impacts of technology on the organization. The concept and distribution of knowledge. The positive vision about is new form of skill and knowledge are generated to exploit the new technology. Negative vision is intelligence lodged in the machines, human exercises no critical judgment and are dependent.

Relations of authority. Organizational behavior is transformed in the direction of greater collaboration and mutual responsibility. Negative vision, managers use technology to reinforce, reestablish and reproduce their legitimacy.
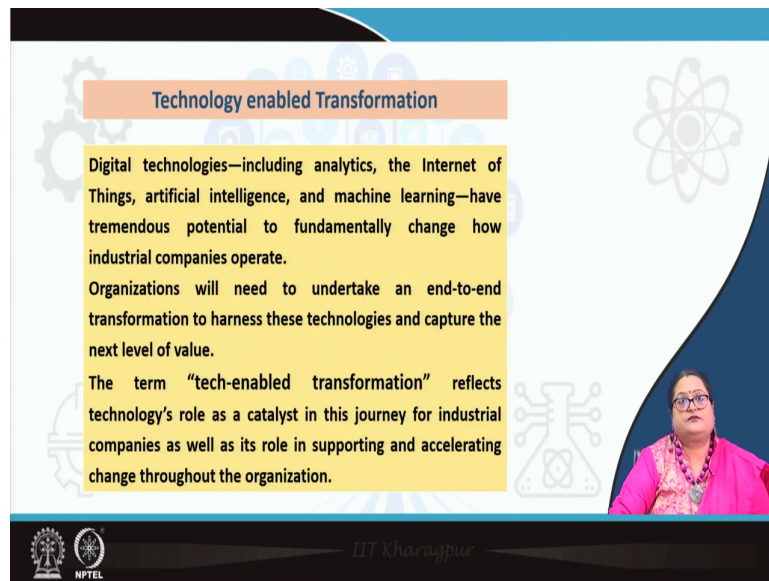
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The organizational dimension is a method of coordination. The positive vision is the technology becomes a rich resource that permits innovative methods of information sharing, exchange and collaboration. The negative vision is the new technology uses the potent method for controlling and monitoring workers. Management becomes a form of remote and automated surveillance and administration.

So, we are discussing both the positive aspects and negative aspects. So, that before implementing a technology we need to be aware of the negative aspects of it also and take care of it, so that the positive aspects do not get overshadowed by the negative aspects. So, how to take care of the; we must be aware of the negative aspects and try to work on it, so that we can reduce it.

Now, we will discuss here technology enabled transformations. Digital technology including analytics, the Internet of Things, Artificial Intelligence and Machine Learning have tremendous potential to fundamentally change how industrial companies operate. Organizations will need to undertake an end-to-end transformation to harness these technologies and capture the next level of value.

The term "tech-enabled transformation" reflects technology's role as a catalyst in the journey for industrial companies as well as its role in supporting and accelerating change throughout the organization.

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Now, there are five domains across which organizations can generate values with the help of technology enabled transformation such as running the corporation, innovating and developing products and services, making and delivering, servicing, and selling.

We will discuss each of them in details now. Running the corporation, how digital transformation can help is in modernizing the financial function, optimizing workforce development, building a scalable technology backbone. Innovating and developing products and services, extracting value from connected products, creating data enabled business manage models and optimizing research and development processes.

Making and delivering, optimizing procurement, enhancing forecasting and demand planning, digitizing manufacturing and assembling, streamlining distribution and delivery. Servicing, managing customer demand, optimizing labor, managing the parts and delivering superior customer experience.

So, through analytics, through digital technology transformation, we can get to understand the demands, find out like what could be the optimized labor like that is required for answering to these demands. So, machine learning techniques and big data analytics, these are going to help real-time answers for these questions that we have.

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Selling, enhancing pre-sales and discovery through digital marketing, transforming customer experience, optimizing pricing and enabling IoT at dealers and retailers.

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There are transformation playbook to capture the values which include assess, building the strategic roadmap. Build and implement that is scaling the change. Capability and talent are the muscles. Technology and data are the backbone. Performance infrastructure is the brain. And organization and mindsets are the heart.

So, why again we are discussing these things over here in the course which we are discussing on organizational design change and transformation is, if we do not know the requirements that the organization has to build in its processes, in its structures, in its like way of doing things, the interconnectivity of the systems, it may not be able to use the technologies to its fullest advantage.

And it has to change its mindset also from a traditional way of looking at the problem to like accepting the changes in technology and making oneself like prepared for it. So, organization and mindsets are therefore, at the heart of all these things.

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Assess, building the strategic roadmap includes ambition and vision, business domain prioritization and size, enabler's diagnostics, strategic context and imperatives, implementation roadmap, enabler's roadmap.

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Build and implement scaling the change includes agile deployment model of the tech backbone, use-case portfolio, phasing of capability, technology, and data deployments.

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The capability and talent, the muscles which has the following talent roadmap like recruiting on boarding and upskilling, capability building program, partnership ecosystem, centers of excellence.

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Here we would like to suggest like you can understand one intervention is associated with other interventions also. So, the technology intervention is associated with the structural intervention with the HR interventions and all interventions when are blended well together that only can lead to the redesign of the organization and help it in turn around and transformation.

Moving ahead technology and data which is the backbone, it leads to digital infrastructure, technology strategy, internet of thing platform, data lakes and data architecture, data governance and analytics platform.
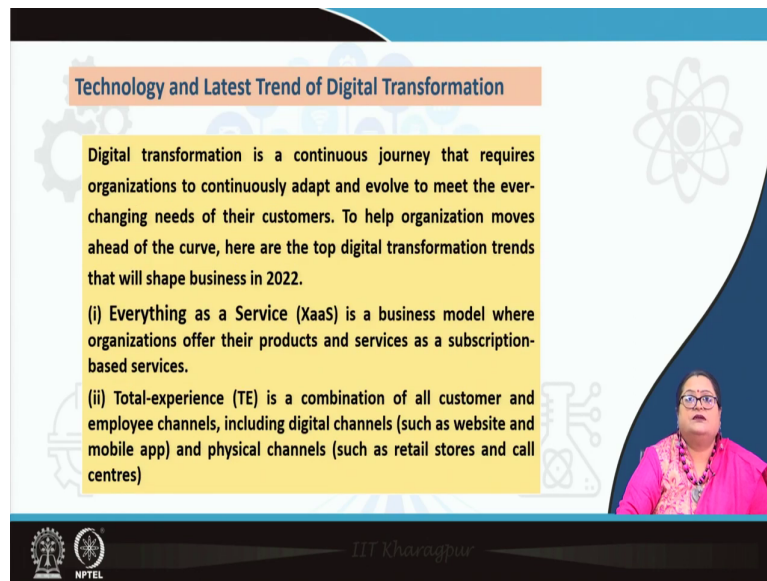
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The performance infrastructure brain includes transformation office, metrics, tracking and value assurance, incentives and recognition. The organization and mindsets, the heart includes organization, operation model transition, solution adoption and change management.

What are the technology and latest trend of digital transformation? It is a continuous journey that requires organizations to continuously adapt and evolve to meet the ever changing needs of their customers. To help organization move ahead of the curve, here are top digital transformation trends that will shape the business in 2022.

Everything as a service is a business model where organizations offer their products and services as a subscription based services. Total experience is a combination of all customer and employee channels, including digital channels such as website and mobile app and physical channels such as retail stores that call centers.

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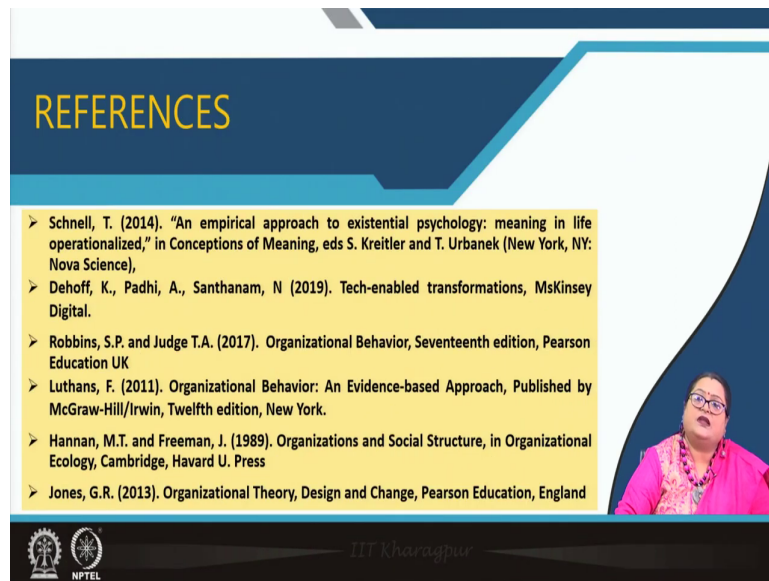

A customer data platform is a packaged software that combines data from multiple tools to create a single centralized customer database. Internet of things refers to the connection of physical devices to the internet and to each other, allowing them to collect and exchange data.

The distributive cloud distributed cloud gives businesses the power to connect data and applications across multiple locations allowing for faster innovation and better resiliency. Augmented reality cloud refers to the technology that digitally augments the real-world environment. Pokemon Go is a great example of augmented reality.
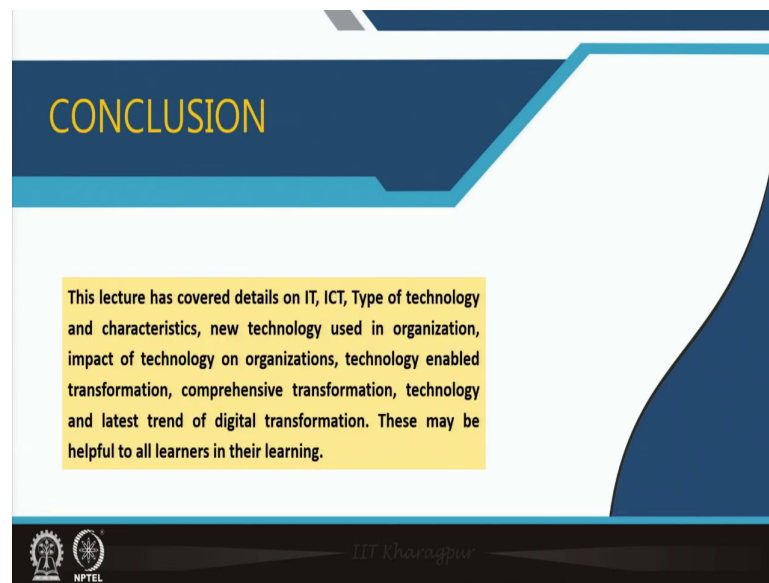
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These are the references that we have used over here.

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In conclusion, we can say this lecture has covered the details on IT, ICT, type of technology and characteristics, new technology used in organization, impact of technology on organizations, technology enabled transformation, comprehensive transformation, technology and latest trend in digital transformation. These may be helpful to all learners in their learning.

Thank you. We will be meeting next with another intervention which is the HR Interventions in the Organization. Till then, bye.