FOUNDATION OF DIGITAL BUSINESS

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Week 01

Lecture 02

Lecture 02 : Drivers for Digital Transformation

Good morning, coming back to my lecture number 2 in this first module, which is an introduction to digital business transformation. I will talk about what the drivers for digital transformation are, what you need to achieve to get into this digital transformation journey, and what the background history was. All of these things I will explain so that you get a better understanding of what is behind the whole thing. This is part of module 1. We will have just the second part of module 1.

We have two parts. The first one was the introduction; now I will talk about the various drivers, and then we will move to module 2 in the next session. We will talk about driver number 1, and then I will also discuss what the emerging technologies for digital transformation are. I will touch upon the 8 levers of digital transformation. This will give you the fundamentals, the foundation of digital transformation. To begin, drivers are classified as internal and external.

We are talking about basically an organization. Digital transformation of an organization. Something like, for example, Tata Motors, Tata Steel, SAIL, or some industry like that. When you talk about drivers, we classify them as internal and external, as I had mentioned earlier. Internal drivers will be those within the organization, internal to the organization, such as leadership, dynamic leadership, and growth.

Dynamic means a leader has to start the whole thing—the driving force for transformation. It always comes from the top, the CEO. He wants his vision: 'I want my company to be a digitally enabled company.' We do the transformation, and then he

transfers his vision to his team, who then develop the various missions behind the vision. What will enable reaching the vision? What are the steps or actions?

Then it is the question of growth, because I need the company to grow. So, not only survive, but you have to grow because we know the mantra: if you do not grow, you do not survive. It is very clear—every year, every day, every company tries to report performance, and their share value will increase only if they are growing. If they are not growing, if they are static, you will find that for those companies, the share values will fall.

Public shareholders will not like such companies. We like companies to grow, and make a profit, of course. Operational efficiencies—that is profit because if I have more operational efficiency, then I have less cost, and less cost means more profit. Need to globalize.

Thriving in the Indian market, but I have to go to the world market, the global market. You are all following what is happening with this tariff war and export and US and China, all these things the world global economy, how it is changing, how it is getting drastically some could be political, but here we will stick to technical stuff: digital transformation. We do not get into politics at all. US tariffs, etc.

But we have realized that it is very important for us to globalize because we cannot become dependent for everything, or many things, on some countries—let us say China, for chips, for example. So, I have to make chips. If I am making chips, I have to make more so that I can export, influence other countries, and attract the right talent. If I do not become a smart company, a digital company, I will not get the best people because the talent in the market—the good ones coming out from IITs, IIMs, etc., the top talent— They will prefer a company that is progressive, growth-oriented, and moving forward. They will not like to work in a company which is very traditional, nothing new is happening because unless you go digital, nothing new will happen because these technologies they do not change every day.

But digital technology can change even every six months. All of us know. So, all these AI tools—I mean, you know, ChatGPT 3.0, 4.0, whatever—it is happening every quarter, every six months; we are getting new GPT tools. And we are using them. People have started using them—making videos, making pictures, making whatever, whatnot, etc. Art, music, and everything can be made—stories, literature, poetry.

All of that is the characteristic of digital technology. That is one of the important things. If I have to attract talent, I must have technology used in my organization; other people will come. The external drivers will be industry and competition, customer expectations and needs, governing agencies, availability of third-party platforms, and government push. All of this is coming from the external part, like competition for example.

If I have to keep up to face competition, I have to become smart, I have to have lower costs, and my operational efficiencies have to improve. So, they are linked. What is the customer expecting from me? Quick response, service requirements, they want to be heard, their problems, their issues—am I giving them the platform so that I can hear their problems and find out what they need? Do they have such a platform?

Have I provided that? These are all part of the digital transformation. Governing agencies have got a lot of regulations, stipulations, and statutory requirements which force me to go digital to keep records for 5 years, 7 years, etc. And then, the availability of third-party platforms like Amazon, Azure, or Google platform is making me do business in a cheaper way, in a smarter way, and in a quicker way, because today I do not have to buy a server to increase my storage capacity.

I can take it on rent, and I can take it on rent just today itself or tomorrow. But if I have to buy a server I have to wait for 3 months to get the product delivered. And also government is pushing people and companies to become smart, and become competitive, you become global. You become as good, and equal to what the global multinationals are. You also have to become like them, embrace digital technology in all your processes.

How do we begin? It has to be enacted at the chief level by digital evangelists and not just technologists. It is not the CIO, the chief information officer or the chief digital officer. They do not start the journey. It is started by the CEO, because he is the digital evangelist in the sense he wants to bring in the digital technology as part of his vision for the whole organization. It only works as a whole organization activity, it cannot be one department or the IT department project to make digital transformation, no.

That is one thing which is very clear, it is not the IT departments responsibility to make it digital a company. It is the responsibility of all departments, everybody has to change. It needs a high level of collaboration and leadership from all the head CXOs, the chief finance officer, chief marketing officer, chief manufacturing officer, chief purchase officer, chief HR officer. So, all the chiefs of various functions must collaborate. It

cannot be done by one person, like the CIO, I appoint a CIO paying lot of salary and then asking please change my organization to make it digital, it will not happen.

Be prepared to make mistakes and learn, so take risks, do not be afraid. You have to take risks, and you have to become agile. Agile means you have to do things fast. You cannot say that you will take two years to come up with something. No, nobody will give you the time because, within those two years, your competitors will go much, much ahead.

You have limited time. You have to think in terms of months—2 months, 3 months maximum—start something, test it out. It might fail, but if it fails, you learn a lot of things from your mistakes. Do not avoid taking risks. Now, to go a bit further into this discussion: a simple thing—technology and digital. The difference is, technology is about building the platform, and digital is about exploiting the platform.

Here, 'platform' does not necessarily mean the classical platform we talk about, like Amazon Cloud or something like that. It is just saying that you have implemented or bought a lot of technical or digital stuff. You have created a technical atmosphere in your organization. People come in, everybody works on a computer—like the bank of 30 years back and the bank of today. Today, you walk into any bank, all employees are sitting behind a computer. 30 years back, you had to go and see counter after counter—people sitting there with registers, etc. There was a glass, you stood here, talked, and they did something, etc.

But today, in any office you go into, any bank you enter, you see all employees— everybody sitting behind a computer. This is the platform, technical platform, but that is technology. When we talk about digital means that am I exploiting that investment, all these computers that I brought and people are using, am I really exploiting the system. There is a difference between actual using it and also exploiting. Exploiting means I am taking the maximum out of it all the benefits that it is it can give I am using it for my organizations benefit.

That is the main purpose. Company has invested in technology, am I able to exploit that technology to get the benefits for which it was originally planned for the organization. That is becoming digital. First step is technology, next step is move to the digital. The emerging technologies what we were talking about, so we have classified them into six core groups.

You have to consider all these to understand how they are helping your digital transformation or how they can help you to go for digital transformation. It starts from here like cyber security, social media, cloud, big data and analytics or AI, then internet of things and mobility. I am sure you have heard about all these things, but I will just quickly briefly explain. Cyber security there is nothing to explain, it is all about risk to business and consumers, your data can get hacked, banks your money can lose money and things like that. That is the bad part of all this digital environment, cyber security.

Now mobile, if you talk about mobility is the technology helps you to reach your customers wherever they are and at all times of the day. You are sort of mobile. You are carrying your phone and you can do your business transaction using your phone. Approach a customer and you ask him what you want, you go to a retail, suppose you are doing to retail business.

The retail sales engineer or the sales person says Hindustan leavers. He goes to the retail shop somewhere in any small town, village, wherever and he asks him what do you want, what is your requirement. He says I want so many Surf, so many Colgate, so many this, so many shampoo, so many that etc. and he can enter all of that in his handheld device which could be a phone or a tablet. He puts in all his requirements, so that becomes he is connected to his company's The information goes to the headquarters of and that becomes a order.

The company knows that they have to supply this material, this quantity to this dealer or retailer or whosoever is placing the order. This is all about mobility that you are going closer with technology, help of technology closer to the customer. The customer is not coming to you, you are going to the customer. Social media we all of us are very familiar. It is one of the platform again it is also a platform for improving the customer experience because you can send out lot of communication using social media and vice versa.

Customers also can interact with you with the organization through social media. There is an interaction and change transfer of the whatever the value you want to give to the customer or what are the problems the customer wants to tell you. Using social media, it could be anything Facebook or Twitter or something like that. Cloud is a virtual data center. It is nothing but again your servers and data centers, but it works on a rental model.

The difference is you do not have to buy your digital servers. There are companies like Amazon Azure or Microsoft Azure or Amazon AWS or Google platform or IBM cloud.

All these big companies have built clouds which other organizations can take on rental basis that you pay per user per month, you do not have to invest anything. This is helping in a major way this digital transformation. We will explain that gradually as you move you will understand.

Then we move to analytics. It is nothing new, primarily now it has increased in a big way because today we have plenty of data. Without data what you cannot do anything analytics. But today with all these digital tools and technology it is generating data in terabytes, huge volumes of data is coming. What do I do with the data unless I analyze them for getting insights or business intelligence. That I can do using various analytical techniques and AI is one of them being used other than the traditional statistical models you can also use AI for that. Internet of things is basically connecting things, devices, sensors, actuators using internet.

We will talk about internet of things subsequently. That is one of the very important system which is helping us to connect things and also generate lot of data. One of the IOT device is your smart watch for example, the watch you use smart watch the digital watch that is IOT device why I will talk later I will explain in details. Now, I will talk about the eight levers for digital transformation. So, the growth drivers, we are talking about the drivers internal and external.

One of them is for example, is a demand generation. That is brand awareness and brand interest through social media marketing. Now these are all new tools which has come to us. Social media marketing, Facebook, Google, I mean use the Google search which you do. How is Google earning money?

You do not pay anything because you search, but Google is earning money because when you search some of the advertised information or product or service comes out in your page and you view those advertisements and Google makes money from the Same is true for Facebook, it is free for us to use it, but how does Facebook ensure they have to make money, otherwise how will they be in business? The way they make money is because advertisers are seeing or participating in that platform and when you post anything or when you see anything you also see lot of advertisements being pushed in your screen.

You are forced to see those advertisements and because you are seeing those advertisements, advertisers have to pay money to Facebook. Then use big data analytics to discover new customer segments, when you do internet or when you do e-commerce shopping, the clicks you make is being recorded and is being analyzed by somebody

somewhere, you do not know who is doing what, but if you like say black and you have purchased one black shirt. So, next time you go to that same site myntra.com or whatever amazon.com or anything else, you will see advertisements of black shirts coming into your view.

Somebody is trying to push you with more and more black shirts. How are they doing it? Because they have studied your likes in your previous web browsing or transaction what you did on e-commerce. they now know your what you like and what you do not like. What you like they now try to push you, may be red shirt, black shoe or whatever.

This is what is happening and it is helping to create demand, through analytics and whatever transactions you are doing, whatever website you are surfing, is getting recorded and then studied. by somebody who wants to make money out of your likes, dislikes and of course, ultimately your purchases. Reach and selection, being where customers can easily find us, this is about mobility which I was talking before 5 minutes back. Location based services and access to customers across multiple devices. I am a retailer, shop in a small town, the Hindustan leavers person comes to my shop, takes my order, goes back and I get my material.

I do not have to do anything, either I have to go to the dealer or the wholesaler or neither do I have to login to some website and place my order. Somebody comes in, has a device in his hand, an iPad, notes everything and goes. This is all about mobility. Now I can give you an example of a taxi service in Calcutta in the station, railway station, Howrah and other places. They started a mobile app called Yatri Sathi.

Nowadays, there is no taxi where you can stand in a queue, the taxi will come, you take the taxi and you go. No, those things are stopped. So, everybody has become smart. So, taxi drivers they do not now use meters. They have become smart.

They have nap. That is Yatri Sathi. When you go to the railway station, either you have it on your mobile, or there is somebody standing with the iPad in that counter outside the station. If you do not have a mobile or if you have those old mobile phones, you go to that person, he will book the taxi for you. The taxi driver comes and you get in and the taxi driver is paid online.

This is location based service which is bringing that taxi , Uber, Ola or whatever from your app from your phone while sitting in your house. You also can track when it is coming. These are I mean were unthinkable even a few years back. But today even a you

ask a school children of class 9, class 10 student they will book a taxi and then tell you it is 2 minutes away and it just took that corner across the road. This is the transformation which is happening. Customer experience, the third one improved understanding of customer expectations via ongoing engagement with customers, the social listening across all digital media channels.

Are all organization listening to us? Or if you think if you have used a device called Alexa, you know Amazon has that device Alexa or Apple has got that Siri or Google and such are similar app. These devices which are sitting in a house and you ask Alexa, Alexa play me a song. It will play a song. Ask Alexa what is the news of the day, it will give you the news. Ask Alexa what is the weather, it will give you the weather.

Whatever you ask Alexa will give you, through voice audio systems, but it can happen also that Alexa is also listening to you. When you are talking with somebody else probably Alexa is capturing your discussion. Suppose you and your wife or spouse are discussing a travel plan. Kashmir, Shimla or may be South India whatever Tirupati.

Now, Alexa is probably reading you and probably it will make an analysis that you like to visit religious places. Next time you surf Amazon or whatever and Alexa information is sold to some travel site. They will push ads to your screen about holidays at various religious places or things like that because somebody has found out without your knowledge that you like to travel go to visit religious places. How is this happening?

This is happening only because of this digital technology. We do not even know that Alexa can listen to. Not only it tells you, what you ask but it can also listen to. That is a two way communication. Ethical or not is a different discussion altogether. Many people can question that, is this ethical ? Eavesdropping, spying kind of thing, listening to us are not ethical.

Similarly, whatever web surfing I am doing, it is not private anymore. Somebody knows what sites I am visiting, what thing I am clicking, what I am liking, what I am disliking, etc. The privacy part is gone. We will talk about that later again. Customer purchase process, has become clear, seamless and secure ways to purchase using mobile payments.

Most of us are using UPI payment. Going to a shop, buying vegetables, buying fish, buying chicken, buying anything, even just paying 5 rupees, 10 rupees. You simply take out your phone, pay and seller is happy, you are happy and you walk out. No cash transaction, no problem of giving change or finding change. It was 20 rupees; you have a

500-rupee note—no problem. Just pay by UPI, and it is done. This is a major digital transformation. Operational improvement, process efficiency, digitized and automated processes.

Process, governance, and efficiency through real-time insights—and we had talked a little bit earlier about something called a Digital Twin. We are automating our processes—digitization, of course, is conventional. Even all industries were doing it for quite some time. Now, we are doing something better with the internet. Now we can do things much better, like IoT, for example, or something like blockchain—we will talk about it later. Now, a digital twin is when you build a replica of whatever you want to study—a process, say you are running a power plant.

You have a digital twin of a power plant, and if there is any process change or you want to try something new, you can feed that data into your digital twin or you can connect the two—the actual plant and the digital twin—using IoT. So, if any change is happening in the real system, that information, the data, will be fed to the digital twin, and it will tell you what impact it can have on the actual process. You can immediately predict that something will happen—change, etc. To give you an example: if you are traveling, like on the supply chain, the transporters move across the country on the road, and through IoT and digital twins, it can be fed with climate information—

that if there is a cyclone going to happen, suppose it is coming from Chennai to Calcutta along the coast, and in the Bay of Bengal, there is a likelihood of a cyclone. The digital twin can say that if this cyclone comes at this particular time, then the roads will get blocked, and the truck should take an alternate route to avoid the cyclone. All of these things are now possible. The driver on his phone gets a message that a cyclone is coming and to take this route instead of the regular route, taking a diversion to avoid the cyclone. These are the ways you talk about operational improvement through process efficiency and asset utilization.

It is optimized production inventory planning based on demand forecasting. This is what ERP does—enterprise resource planning. Using that software, it can plan very accurately the material requirements to make any product. Say, for example, a car, if you want to make a car, a truck, a bus, or whatever. It has a bill of materials, and based on your stock position—because the ERP has digital records of all actual stocks available, what is being consumed, and what is being moved in real time—that is the data today. Now, if it is exactly 12 noon, it can tell you the stock position.

Based on that, you can do very optimized inventory planning—how much more you need, the exact quantity. You do not order too many extras or too few. If it is too few, your production will stop; if it is extra, you will be holding unnecessary stock, and that is money blocked because stock means you have paid for it and are not using it. Then, IoT-fed data-based preventive asset maintenance, where, the machines can have these sensors that can detect problems—vibration, noise, or something going wrong, maybe the temperature becoming too hot. These sensors will tell you through an IoT device—because it is connected through a network, the internet, to a device, which could be a phone or any other computer—that in that place, somewhere, the temperature is rising unnecessarily or there is too much noise, so you can take immediate preventive

action—preventive maintenance—and it can do this on a continuous basis because the sensor is put into the machine and is recording all the time. Something like your CCTV camera—the camera is there. You can continuously monitor what is happening there. So, if anything goes wrong some intruder or some unknown person comes you can immediately see even in your phone. That is how you can utilize your this sensor based asset utilization purpose.

Task automation optimization through digital technology such as sensors is what I was talking about. You can also help to both detect preventive maintenance and also achieve automation etc., because there are live sensors which is continuously feeding a data and then some action can be automated. If the temperature goes high maybe some more air can be blown in to cool it down. That could be automated. This is also you do not need any manual intervention.

You have set in the temperature process this limit start these fans or start some water supply etcetera to cool it down. Then the last two are agility and the new business models. In agility it is basically all about doing things much faster, immediate. There you can use remote access, collaboration, mobility tools for employees, mobility tools I have told you how people are going to the customer on the field getting information. That is being agile.

You do not wait for somebody to come and tell you I need. I go and tell what you need, very proactively. Interaction with partner Ecosystem to optimize the service delivery because, again, you are interacting both with your various stakeholders, and maybe your customer or supplier, whichever it may be. The virtual organization is enabled by mobility and seamless cooperation. The organization becomes literally virtual.

Hindustan Lever, which I was giving as an example, is all over the place. It is not just in a few offices in a few cities. It was like that previously, but now everybody moving with a mobile device is an office. If you are moving with your laptop and you connect to the internet, it is your office. You are working from anywhere, working from home, working from wherever, even if you go for a holiday somewhere, you can work.

If you take your laptop and you have Wi-Fi or internet, that is it. You do not need anything else. It becomes a virtual organization. Back to business models, the new business models examples which I was giving you, this analytics-based commercialization, marketing, commissions, trade promotions. All these e-commerce, for example, are analytics-based because it is always recording what you are buying and then coming up with push advertisements, etc.

Customer self-service. Now many people, you know, customer complaints, etcetera, you can do this kind of self-service. You login and you put your question then they will have a drop down indicating what could have happened. You can select some more of the list which is coming out to describe the problem. So, finally, it will come up with a solution and ask you to try this etc. It is all done through automated chatbots. There is no person sitting and interacting with you or typing the responses.

It is all automated through the bots. Or the example of when you go to the airport nowadays you can do self checking through those kiosks that is customer self service. Then finally, in the cloud system everything is as a service . You can rent out anything - server space, business operations, mails or other functions. The journey for digital maturity starts with the digital Unaware and digital Aware , digital Starter, digital Proficient and finally digital Expert. This is where you know your journey ends literally you become a digital expert, you do not need to think anymore on digital. The breakups are like this the digital proficient means when you have a digital transformation roadmap.

It means you know what to do and you are actively implementing digital solutions. That is what we should try to reach as soon as possible. Before that whatever is required to reach this stage should be completed. Finally of course the end journey and if you see this diagram you realize the digital starter and digital proficient. Some of the industries , have made some good progress, like banking and insurance, hospitality like hotels, airlines, travel agents, media companies like content creators and ad agencies, content distributors. e-commerce, retail e-commerce and transport and logistics.

The experts who reach the very highest level is of course, the IT companies, information technology companies. The laggards the one who are behind digital unaware etc. The small and medium sector of course, because they cannot invest too much in digital technology because they are small. agriculture, process manufacturing, other manufacturing and then trading. These are some of these areas where lot of things can be done. Again here for example, this is for you to think about and do some self studies and try to find out with something you can do as a personal assignment. .

One of them is discussing the perspectives of an information society against the background of data security as well as personal and privacy rights. This is a big thing which all of us are discussing the data security and my personal and privacy rights. Today all my information is known to everybody, my pan number, my Aadhaar number, my date of birth etc. Everybody knows everything about me, but is not it you know encroaching too much on my privacy, do I want everybody in the world to know my data bar for example. Date of birth is an important information because you know you do your lot of KYC stuff with your banks and financial organization institute etcetera where date of birth is a mandatory field.

Somebody knowing my date of birth may not be good people whom I do not know. Also the other thing you can consider is discussing how the digital market model will change in the future, who will economically and socially benefit and who will not. So, how do you think will this market current e-commerce or whatever it is will change or may not change also it may continue for quite some time. These are just some of the pointers I have given you.

Such, that you can do some brainstorming yourself, do some self-study and then only you can really get into the depth of the matter. Instead of me telling you everything, some of them should come up from your side. Now, you have the background. I have given you the exposure to what we are trying to talk about, and then you do because everything is available on the internet. You make a search, and it comes up there. You can even use your ChatGPT tools, for example.

It can give you answers for all of these; you just type. I mean, there is nothing wrong in that. Since it is available, why not use that? But then study that and see because they may not be right all the time. Do not assume whatever comes from ChatGPT is right. Definitely never assume that because they are still to be proven. But it can be a starter.

You get something, and then you do your own research and come up with some opinion of your own. The idea is, finally, you should have some opinion of your own.

The last slide, of course, is always a reference. These are the same kind of books I referred to. You can buy them or go through them if you want to for further reading. So, thank you very much.