ISB CTO

Week 2: CTO as Strategy Catalyst

Video 1: Module Overview

An important role of the CTO is that as a strategy catalyst. So, what does that mean? What type of specific skills does a CTO need to have? What knowledge does the CTO need to have? How can he or she help an organisation as a strategy catalyst? Why do we need such a role? These are some of the questions we will explore.

Let's think about a couple of examples to place this role in a context. Best Buy is a traditional brick and mortar retailer. They are in the business of selling electronic equipment for the home. A legacy company which predates the internet, with the arrival of the dot-com businesses, they realised that they were at extinction level threat. There were stories about how Best Buy would be disintermediated, made obsolete by the rise of Amazon and other internet retailers. So, the challenge for Best Buy was how do we transform ourselves from a brick and mortar retailer to be a modern digital retailer? The story of Best Buy today is their growth and renewal as part of their renew blue strategy, where Best Buy has gone from being a traditional brick and mortar retailer, to being a digital omnichannel retailer.

Another example, Asian Paints. Asian Paints is a paint manufacturer, long legacy. They are a traditional paint company that sold paints through a B2B distribution channel. Today, Asian Paints is a story of digital transformation, revival and transformation into a data science company that sells paints, who has transformed themselves from selling paints to helping customers find decor solutions for their homes and apartments. And doing so, they have gained market share, they have repositioned themselves and made themselves to be a modern company that appeals to the millennials and the digital generation.

There are many such examples of how companies have recognised the threat and the opportunity of digital transformation, of the emergence of digital strategy and innovation, and how they have transformed themselves. Central to their success in digital strategy and innovation is the role of a Chief Technology Officer. So, we will look at and understand the role of a Chief Technology Officer as a strategy catalyst. For you as an aspiring Chief Technology Officer, what do you need know to be an effective strategy catalyst?

Topics we will include are: What is the digital economy? What challenges and opportunities does it present for disruption and innovation? What are the new partnerships, what we call the new digital ecosystems? And what are the competitive moves for success?

Video 2: Digital Economy

Let us begin by first talking about the digital economy. What is the digital economy, because it's a word we have been using frequently. There are many ways of defining the digital economy, but fundamental to all these definitions is the rising prominence of a whole suite and a wave of technologies. There are technologies such as the cloud which provide connectivity for transferring information seamlessly from place to place, device to device, so we call it being connected. Then of course, the cloud is also a resource for storage of data. In an economy and in a world of big data where the data that we use is characterised by volume, velocity, variety, there's a need for storing massive amounts of data, and the cloud is a solution to this data storage problem. We also live in a world of social networking and collaboration, so the prominence of social media technologies has given rise to a whole set of opportunities for social commerce, another element of the digital economy. And then of course, we are seeing the rise of platforms for content, for commerce and connection. In other words, we're finding new forms of collaboration between companies to serve the needs of the customers.

Fundamental to all of these are a group of technologies which we will call social technologies, such as Facebook, Twitter and other forms of social connection. Mobility technologies, with the rise of the smartphones and the tablets. Analytics, the rise of analytics software and engines, and data. Cloud, we see increasing proliferation of Amazon's AWS, the Azure solution, Google solutions. And we are seeing the migration of platforms from inside the company, the infrastructure from inside the company to the cloud and then marry that with the Internet of Things.

So, think about the acronym SMAC; social, mobile, analytics cloud plus IoT, SMAC plus IoT. These are the technologies which are the foundation of the digital economy. And we continually see evolution; think about the growing excitement around wearables. Wearables are an example of mobility, so we continue to see more and more technology innovations. But fundamentally, this framework of social, mobile, analytics, cloud, plus IoT is a way to think about the digital economy.

Video 3: Drivers of Digital Economy

What are the fundamental drivers of the digital economy? Why are we seeing relentless wave of technology innovation?

There are three explanations for this, and they are based upon historical observations, and in the form of three laws. One is called the Moore's law, the second one is called the Metcalfe's law and the third one is called the Bandwidth law. Let's understand them to recognise why we arrived at this moment in time with phenomenal opportunities for digital innovation.

Gordon Moore predicted more than 30 years ago that computing capacity would double every 18 months, and we have gone through at least 10 or more waves or cycles of such exponential doubling of computing capacity. Think about a mainframe computer that filled a room 20 years ago. These were the massive computers that led to NASA launching missions to the moon, but they took room full of mainframe computers.

Today, the smartphone that you have with you or the smart watch that you wear on your wrist has far more computing capacity than that mainframe, which filled the room. But think about the scale of miniaturisation and the exponential growth of computing. So, we are bringing massive computing capacity to the users wherever they are and giving them access to phenomenal amounts of information. Marry that with the Metcalfe's law, which explains the exponential growth in connections, and we call it the law of networks.

Let's understand that with a simple example. Suppose there were only two people who were able to buy a telephone in their homes. How many people could they talk to? The answer is one because it takes two phones to connect users. So, the value of two phones is one, one's connection. Now let's think about five owners of telephones. How many connections are possible? And the answer is 5C2, it's called the law of combination. 5C2 is 5 * 4 / 2 = 10. So, people who have five telephones, they can have 10 possible connections. So, if you graph this, two phones; one connection, five phones; 10 connections, you can do the same math with 10 phones. 10 phones lead to 10 * 9, 90 / 2 = 45 connections. That explains the rise of social media and the explosion of social media, social connections, social commerce and all those things.

The phenomenon of Facebook, Twitter and having thousands and millions of followers, where in the past we could maybe have conversations with 5-10 people who lived on the block. The third foundation is the Bandwidth law. Think about 20 years ago, the only way we could transmit data was through a modem with a narrow band network. It would take a large amount of time even to transfer modest amounts of data.

Today, we have 5G networks. Let alone data, we can actually shoot images. We can send video content onto people's smartphones. People can watch their favourite sport game, they can watch their movie, or they can watch the YouTube videos while they are sitting in a car or while they are riding a train or in the plane. In other words, bandwidth has liberated us and given us the opportunity to send multimedia content. So, think about shopping. Now, on your smartphone, you can look at product pictures, you can look at product images, and you can buy products without ever visiting the store.

So, these elements have given rise to the social, the mobile, the analytics, the cloud and the Internet of Things, and we call the Moore's law, the Metcalfe's law and the Bandwidth law as the drivers of the digital transformation. These laws don't stop. If you have been following the more recent explosion in AI, and think about companies like Nvidia, which have become the new platforms for AI computing. It's an extension of the laws and it tells us that these forces will continue to grow and give us greater computing power, greater connections and greater storage capacity. So, imagine the implication that the digital revolution hasn't stopped. It is still going on and it's going to present us with more and more opportunities.

Video 4: Digital Economy: First Wave

In the digital economy, we have seen relentless technology innovation. How do we make sense of this? We can say that, that innovation has occurred in waves.

The first wave is a group of technologies which we call today the foundational technologies. What are they? They are the social technologies such as Facebook and Twitter. They have given us capabilities for social media engagement. They have given rise to the connected customer or the customer communities. The implication of customer communities is that word of mouth is as powerful as advertising and influencing customers decisions about what to buy and who to buy it from. Similarly, social has given rise to increased collaboration. Companies can now build planes and cars by having designers located all around the world and being able to collaborate with each other in real time. So, it creates a whole new way of thinking about R&D and innovation. It also creates crowdsourcing. Companies are beginning to realise that the customers are a source of innovation, and that gives rise to crowdsourcing. Again, a social phenomenon.

A second important pillar of the first wave is the rise of mobile technologies. What this has done is created some business innovation opportunities. For example, we now say that there are opportunities to create micro moments. What's a micro moment? You are going past a Starbucks and Starbucks now recognises it's you. They can send you an offer saying your brand of caramel macchiato is being freshly brewed right now. Come on in, place an order and take 20% off. That's a micro moment, creating an impulsive purchase, giving rise to what we call geo-tagging, geo-sensing, and geo-location, identifying the customers in the vicinity of your store and creating micro moment purchases or impulse purchases. We can also create collaboration on the move. We have liberated people from the physical confines of their offices. The COVID introduced the idea that work can be done anywhere. It has given people the opportunities for hybrid work, virtual work, and a lot of it has also been made possible through significant advances in mobile technologies. So, implications for how do you manage your talent and how do you treat your talent? Mobile has also given rise to omnichannel experience, and an opportunity to give your customer an integrated experience in your store, on the Internet, and through an app on the phone. That creates new opportunities. And more recently, mobile has given rise to augmented reality. If you are a car company, you can now let your customer test drive your car virtually through augmented reality on their phone. Think about the possibilities for customer experience.

A third element is analytics. You are becoming smarter about your customers, about your employees, about your suppliers, because you can unlock the secrets in the data. We are seeing the rise of search engine optimisation and other ways of thinking, marketing and advertising. And the final element of the first wave is the cloud. Cloud is giving ability to be more agile. Rather than the customer following you, you can now follow your customer. Imagine you are watching your favourite Amazon Prime or Hulu movie or show. And at some point, you need to move your couch to maybe going outdoors and you want to transfer that movie from the TV to your mobile phone. You can do that seamlessly today because of the power of the cloud. So, imagine what does it mean for product innovation and what does it mean for new forms of customer relationship. So, this is the first wave. This gave rise to Internet commerce or what we call e-commerce. And the first wave typically was somewhere around 2000 through about 2015.

Video 5: Digital Economy: Second Wave

While the first wave of digital technologies were very important and influential, one of their limitations was, they were mostly connecting people to people. For example, people who had mobile phones, they were connecting to the owners of those mobile phones. Those same people were connected to each other through social technologies. Yet, there is a vast sector of the economy which was predating these technologies, and we call that the physical economy. Examples of which are people's cars, their homes, their refrigerators, their washing machines, if you walk outside all those billboards which have advertisements. So, much as advantageous social mobility, analytics and cloud were nearly 70% of the economy, which was in the form of these physical artifacts was being left out.

So, for the digital revolution, for the digital economy to be complete, how do we bring those into the fold? That's where the second wave made a difference. The second wave is the Internet of Things. Fundamentally, the precursor to the Internet of Things were the RFID sensors. But the RFID sensors were very limited in their ability. The arrival of Internet of Things suddenly created a whole new area of activity where every physical device suddenly became a smart device. A refrigerator became a smart refrigerator, a home became a smart home, appliances became smart appliances. And as a result, suddenly we could bring them and connect them. And this opened up a whole range of possibilities about products, services and innovations.

So, the second wave, the Internet of everything completed the revolution that was launched by the first wave. Think of an example, the wearables. The wearables is an example of smart sensors in your clothes. And by the advancements in the wearables, suddenly we are now able to connect your clothing to your refrigerator, and to your mobile devices. Your washing machine can now request electricity from the central server at a time when the rates are very low, because nobody else is using electricity. And therefore, run the washing machine while you are sleeping, but also procure electricity at the cheapest rates and help improve the conservation of energy, environment and things like that.

So, the second wave really can be described as connecting the physical and the digital worlds. Now, imagine with the second wave, we can convert these static billboards into intelligent billboards. They can sense you, and they can know what kind of things you like to buy, and they can display the ads which are people-specific, so they become dynamic. So, these are some of the exciting elements which the second wave brought on top of the first wave.

Video 6: The New Digital Reality

Having understood the drivers of the digital economy, the first wave and the second wave of digital technologies, we can now describe the new digital reality. What is out there in terms of technology trends and uses that influence digital innovation, that influence the need for rethinking business strategy.

So, let's summarise some of the new elements of what we call the digital reality. Today, big data, analytics and artificial intelligence, they augment decision making, they help us make smarter decisions. So, if you are a marketing manager, you have enormous amounts of data about your customers' sentiments expressed on social media, their purchase behaviour. And traditionally, where you have to rely on limited data to do market segmentation. Today, you can do behavioural segmentation. You can actually understand what are people's sentiments, what are they buying, and be able to recommend to them, things that they will actually buy. So, smart decision making.

Secondly, the social web creates new forms of interactions between customers and their firms and creates new ways of influencing their attitudes and consumption behaviours. What does this mean? Traditionally, there was only one medium for a firm to reach its customers and that was paid media or advertising. If the firms wanted to understand their customer sentiments, they had limited ways of doing that. The only way they could do that was through market research or common cards. In market research, you are lucky if you get 30% response rate, meaning that you get small number of responses. In common cards, what research has shown is that those are biased. The majority of the people who fill common cards are unhappy about something. Some of them are happy, but there are very few people in the middle who fill out common cards. But today, in addition to the firm directed messaging, which we call B2C, business to consumer, we also have the ability through social media to capture C2B, consumer to business messaging.

So, when the consumers go on to social media to express their sentiment about a product or a company, we have a new area of development called social media intelligence where you can gather the sentiment and learn what are the attitudes towards your brand or toward an experience with your company. So, we have B2C complemented with C2B. And then the third layer, we call that C2C, consumer to consumer. Consumers are more likely to talk to each other on their Facebook, Twitter and they talk to each other and reach thousands of others. So, mining that sentiment is again an important source of insight about how your brand is performing. So, the social web creates new forms of customer insight and influences new ways of marketing and customer relationship. Third, mobile apps and cloud computing are becoming the new platform to augment the delivery of services to consumers.

Today, think of any company that can do business without an app. That's the new frontier. Even the internet has become sort of outdated because the app bundles personalised information about the customer with their preferences for products and services, and with convenience of payment. So, with the arrival of smart and cloud and mobility, apps are the new medium, and that has significant implications for how do you redefine the customer interface.

Think about Starbucks. The enrichment of the customer interface between Starbucks and its customers is a large measure due to their apps. Because their customers travel, they carry phones, they have an app, and it makes it very easy to order their unique flavour of coffee and get reward points. This is a trend which cuts across all companies today. Fourth, the Internet of Things links all products through sensors and software.

So, the car today is a smart car, where you can build telematic services. You can track when your customer's car needs maintenance and automatically schedule maintenance or even pick up the car, finish the maintenance and deliver it. So, once again, making your customer's life easier because of the Internet of Things.

There are more recent developments. Robotics, drones, 3D; they are becoming key drivers and enablers of supply chain. Companies like Amazon are increasingly experimenting with drone-based home delivery. What does that do? It means that you can order something and have it be delivered to your home within an hour. Think about what does that do to groceries? Think about what does that do to immediate fulfilment? But also think about, how does that disrupt the trucking and the logistics industries when retailers bypass them in reaching directly to their customers. And then the beat goes on.

We have augmented reality, virtual reality and more new technologies that continually enrich customer interactions and ways in which they discover products and services with augmented reality, virtual driving, discovering what car you like, buying homes. Augmented reality: you can actually virtually tour a home. Buying furniture: you can use virtual reality to look at furniture and then use the virtual reality feature along with augmented reality to picture how that furniture would look in the corner of your room before you buy it. Clothing: you can now use augmented reality to match your shirt and tie and jacket without physically trying them on.

So, think about the possibilities which are endless and that's the reason why Chief Technology Officers need to step up as strategy and innovation catalysts because they are the ones who are more knowledgeable about technology, and they must learn how to marry their knowledge of technology with the business strategy and innovation.

Video 7: Competing in the Digital Economy

What does this new digital reality do to competition? Are we rewriting the rules of competition? If so, what are those new rules?

So, let's think about three dimensions of what we say are rules for competing in the digital economy. And they are: today firms must position themselves to compete along scale, along scope, and along speed. So, let's look at each of these concepts with examples and then we'll come back to say, what's the new rule of being competitive.

So, what do we mean by scale? Scale can be loosely understood as market share or customer penetration. How much of the market do you own? Large scale means that you are the dominant player. Small scale means you are one among several players.

Let's look at some examples of what is happening in a digital economy. Google, a digital player, in 1999, remember, Google is the dominant player in online searches. In 1999, Google was supporting one billion searches. Within 10 years, Google supports 1.2 trillion searches. Think about the number of zeros. What that implies is that Google has achieved dominant scale in the market for search engine, for searching, which translates into dominant market share for online advertising.

Now, what's important to recognise is that most traditional industries, think about automobile industry. What do you think is the maximum market share a single automotive company could have? If you said 30%, you would say, yeah, about that. 35%? Yes, but not much more than that. How much market share does Google have in online advertising? 80%, that's what we mean by scale.

Think about Uber. Uber had a few drivers in 2011. Today, Uber has 3.9 million drivers. Think about the scale. No taxi company has more than 100 to 1,000 drivers. Uber has 3.9 million drivers. Another way of thinking about Uber's business, what do taxi companies do? They provide rides. How do you measure their performance? Number of rides. Uber achieved within four to five years, by 2015, one billion rides in 2015. Six months later they hit the two billionth ride. And today, they deliver 7.6 billion rides each year, 20% growth year-on-year. It is simply unmatched by any other company.

Airbnb. Airbnb is the lodging company. What's unique about Airbnb is that they don't own properties. But today, Airbnb every night, the number of room night bookings that they generate is more than four times the number of room bookings made by the rest of the hotel industry. Just think about what that means. Airbnb had 50,000 listings in 2011. By 2016 they were providing two million listings, and today six million plus listings. That's what we mean by scale. Why is this important?

Scale gives you customer insight. Today, if you don't know your customers, if you don't know what they want, if you don't know their behaviours, you can't market to them. And each one of these companies that I have listed, it's not just the revenue that they are generating, it's the enormous scale of customer insight that they are gathering, which means that they become the dominant intermediaries. Others have to come to them and that's a unique position.

So, the first rule of digital competition is aim for scale because it is feasible and if you don't do it, somebody else will. The second dimension is scope. What do we mean by scope? How many industries does the firm compete in? Think about automobile companies. How many industries do they compete in? Typically, the answer is one, they sell cars. Think about healthcare, typically one or two industries.

Now, let's ask the question, how many industries does Apple compete in? Apple originally was a hardware manufacturer. So, one industry hardware. They are a software company. But today, Apple is a digital payments company. It is a music and entertainment company, it is an education company, it is a healthcare company, and it is a cloud services company. So, you can see that Apple we counted at least seven industries that they compete in.

What about Google? Google started with online advertising. They are into payments, they are into autonomous vehicles, they are into cloud, they are into education, they are into healthcare, they are into a whole range of industries, that’s why Google became Alphabet, to cater to the broad range of industries. Same thing is true of Amazon. I encourage you to take a sheet of paper and write down, which industries does Amazon compete in? And I will bet you that number will be at least 8-10, maybe 11.

What does this tell us? That while traditional companies compete in one or two industries, therefore small scale, in the digital economy, the giants, they compete across many industries. That is because they know how to lower the barriers to entry.

Traditionally, we said only a bank can be a bank, but today, Microsoft, Google, Apple, they are all banks. So, digital reality has lowered the barriers to entry. And therefore, it is a challenge for every established company to know their competition is not coming from their fellow firms in their industry, it is coming from outside. And there are a group of companies which move from industry to industry seeking opportunities for innovation, disruption, and growth. And we call them cross-boundary disruptors. So, one of the aspects of scale is, watch out for new forms of competition because it's not going to come increasingly from your traditional rivals. Some implications of scale.

Third element is speed. By speed we mean, how fast are you moving? We measure speed in terms of time to market. Traditionally, it used to take five to six years to produce a new car. I mean to design and develop a new car. The pharmaceutical industry, the average cycle time for a new drug discovery and commercialisation used to be seven years. Today, that's no longer acceptable. Mark Zuckerberg of Facebook and now Meta fame, famously said, "Move fast and break things. Unless you are breaking things, you are not moving fast enough." Today, speed trumps perfection. Think about it. Why do I say that? Because we have traditionally said, get the product perfectly right and then go to the market. Today, there's no such thing as perfection because customers' needs will keep changing. Even if you spend two years getting a perfect product, the customers' needs might have changed. So, what's the new paradigm? Speed and versions that every six months to one year customers taste will change. So, and inevitably, you will have to continually innovate and refresh your product. So, why waste time getting it perfect? Because while you are seeking perfection, somebody else will move fast.

This is a lesson learned from the software industry, where speed is important and then you keep changing it through versions. How do you do this? Increasingly, the focus must be on open innovation, co-opting your customers to become designers. And more importantly, the emergence of what we call strategic A/B experimentation. Meaning that, experiment with different versions, see which one is better, launch that, again run an experiment. One of the things we will say is that, in a digital economy, one of the important metrics is, how many experiments have you done with customers? Amazon and Google, they launch as many as 100 customer experiments, because not every experiment is a success, but whether it's a failure or success, it teaches you something new. So, speed means move fast, capitalise our opportunities and come back, learn. So, it's a continuous cycle of launch, learn, redesign, relaunch. That's what we mean by speed.

So, to summarise, the rule of competition today is aim for scale, aim for scope, aim for speed, and aim for all three of these things. This is a huge mindset change for many established companies, because they have never really thought like that, or they have felt that doing even one of these things is an achievement. But their competition is going to come from firms which master all three things simultaneously.

Video 8: Defining Business Strategy

So, given what we have learnt about the digital reality and the new rules of competition, how should we define business strategy? Should we redefine business strategy? I encourage you to take a sheet of paper and write down, what do you understand business strategy to be. I am sure you will write down things, such as, business strategy is about the customer. Business strategy is about differentiation, business strategy is about mission, vision and values. Business strategy is about resources. You would be right if you said any one of those things. But today, let's redefine business strategy in terms of two concrete ideas, as you are learning how to be a strategy catalyst in your role or in an aspiring role to be a Chief Technology Officer.

First definition is business strategy is a focus on achieving scale, scope and speed. Secondly, business strategy is about imagining or reimagining around customer needs, not around your products or services. So, I am going to illustrate that with an example. There is a company called John Deere. John Deere has been in the business for nearly 100 years. They manufacture agricultural equipment. And, they have agricultural equipment in virtually every farmer's land, not just in the US but across many countries.

For 100 years, they were synonymous with farming. Yet, global competition, they began to run into a challenge, which is, their competitors were no longer in the US or in Europe, but they were from Asia. Coming in with much lower cost structure, making it virtually difficult for John Deere to sustain its competition, because there's only so much it can do in a price-based competition. So, what should they do? As they started thinking about themselves, they realised that they had thought about themselves as selling agricultural equipment. Meaning that, they defined their strategy as, "We are in the business of making and selling agricultural equipment." Their insight was, "Wait a minute, we are the trusted friend of so many farmers because we know a lot about the farmers to whom we have sold agricultural equipment. We know what land do they own. We know what kind of weather and soil conditions lie in their lands.

So, we should really redefine our business away from just selling tractors to becoming the trusted advisor to a farmer. Our business should be about farm management." How is this helpful? That realisation makes them think about, "So what does the farmer need to be effectively managing their farms?" Beyond equipment, they need weather data, because farm productivity and yield is subject to the vagaries of nature; weather. If it becomes too hot, you'll lose a crop. If it rains too much, you'll lose a crop. In the US, if the frost comes early, in Florida, orange growers lose their whole crop. So, farm management is very sensitive and vulnerable to weather. So, can John Deere start helping farmers with intelligence about weather, weather maps, weather forecasts, rain, humidity, temperature sensors? Something that they would not have done before, but an amazing insight.

But it doesn't stop there. What is the another element of farm management? Seeds: while seeds may be good, the effectiveness depends upon the soil conditions in which they are planted, the acidity, the dryness and all those factors. So, what the farmer really needs is help in seed optimisation. So, can we help them with information built through seed databases, farm performance databases? How do you customise the

seeds to your farm? Do you select a particular seed, or do you treat that seed in a certain way in order to be optimised for your tract of land? Again, who does this? These are really the agricultural scientists. And they are traditionally not the people that John Deere hires, just like John Deere does not hire climatologists or people who study weather patterns. Another insight, irrigation. Farmland has to be irrigated. And there are dangers of over irrigation, under irrigation. What is really needed is, on one hand conserve water but not wasting it. But the same time, irrigate at the right time in the right volume. So, building in field sensors, irrigation nodes, irrigation applications to optimise irrigation.

So, John Deere realised that agricultural equipment is only one part. It gave them a foothold into farmers. But here is an opportunity for them to reimagine their business, as we are into farm management. We help a farmer with holistic advice about weather, seed and irrigation in addition to providing them with the equipment. And guess what, remember we talked about scale? Historically, John Deere had the largest scale. They had sold to the largest number of farmers. Which means that they had the most amount of intelligence and insight about farmers. They knew much more about farmers than any of their competitors, and if they redefined their business strategy, then they no longer have to worry about price-based competitions. That's the new rule, and hopefully, this is an example that makes sense.

I encourage you to think about your own company and ask yourself the following question. What products do we sell? What services do we provide? Is that how we define competition? Who do we serve? Who is that customer? What does that customer need? We call this complementary consumption. What other products and services does the customer consume along with our products and service? What are the pain points? What problems do we solve for the customer? Can we now become that customer's trusted advisor? And that's what it means to reimagine your business, not around your product, but around your customer.

Video 9: The Rise of Ecosystems

So, we talked about the new digital reality, the new rules of competition, and the new way of imagining competitive strategy. How can you apply this? Is there a framework? Are there a set of questions you can ask as a strategy catalyst to help your company be ready for the new world order created by the digital reality?

So, I'm going to build upon the advice from the last segment where we said reimagine your business around your customer. Having done so, focus your attention on three questions. First question is, what is your customer value proposition? In the case of John Deere, their value proposition was "we provide excellent equipment to help manage farms." That was their traditional value proposition. In there, the word excellent means that their product design and quality is world class. The choice of the word farmers means that they cater to farmers, that's their customer segment.

So, value proposition is who do you serve? How do you serve? And what makes you unique that builds loyalty with that customer? Now, on the basis of that, let's think about two ideas about the customer. One is we are going to call it delivered needs and the

second one we will call it latent needs. Delivered needs are what the incumbents in an industry operate around. So, think about banks. Banks have a generally good idea about what do customers need from a bank. They need a banking account, they need a checking account, and traditionally, they need access to an ATM, they need access to a branch office.

So, that's the way in which customers' needs are served. And by the way, bank customers must have a credit history because that's what the banks want to serve, they are safe credit risks. Very often, that means that they serve people who have a steady income, who can have a paycheck, right? That's what we call delivered needs, meaning that all the incumbents in the banking sector operate the same way. They all serve the same customer through the same business model, which is built around ATM networks, built around branch offices, friendly, smiling customer agents.

In every industry, the incumbents have a well-established business model, and they work according to that business model. There are no secrets, they all know the same recipe. But the late Professor Clayton Christensen of Harvard Business School did some work on why do firms develop blind spots or why do firms get disrupted even though they are smart? And his argument was that in every industry, the incumbents are serving customers whose needs are well known. But there are customers whose needs are either not well known or they are not economical enough to serve, but the point is therefore is that, in every industry, there are customers who are either underserved or ignored. That means there are latent needs that are not being served. Incumbents do not find it profitable.

What are a couple of examples? Go back to banking. If you don't have a steady income, if you are in the gig economy today and you don't have a steady income, or you're an entrepreneur, you don't have a steady income, or you don't have a paycheck, the banking economy is not available to you. Yet, there are so many people who have financial transaction needs, they buy, they sell, they send money, but they cannot do it through the banking system. If somebody finds a way of identifying those customers and serving their needs, that's a disruption.

So, let's take an example to understand this. There is a company today that you all know very well, it's called Netflix, which is a giant in video streaming business. 20 years ago, Netflix did not exist, but there was a giant in video rental industry, it was called Blockbuster. Blockbuster had 2000 stores and their value proposition was, you want to watch a movie, you come, you'll get a movie. We have a store within a couple of miles of where you live. So, we make it very easy and convenient.

So, Blockbuster was the giant and they had the dominant market share. They were operating on a well-proved model, which is that we have an inventory of popular movies. In any store, we can keep let's say 10 copies of a movie, but customers will value the convenience that they can walk in and find the movie. Even if they don't find the movie they want, we have enough of a selection that they will find something. But in order to keep the inventory moving, we have to make sure that they return the movies on time, so we let them rent a movie for 24, 48, 72 hours. If they don't send it back in that time, we impose a penalty. Not to make money, but in order to make sure that they return

them on time. So, that's the delivered needs model, worked very well. What was wrong with this model? First, even though Blockbuster had many selections, they could only store so many types of movies, so they choose to store the popular movies, the more recent movies. So, a segment of customers whose needs are, we call them niche are not being served, they just cannot find the movie they want.

Similarly, even for a popular movie, Blockbuster store can only store 10 copies, if you are the 11th customer, you are out of luck. So, then you have to search, and the only way to search is to walk the aisles, either you find what you are looking for, or you get tired, and you pick whatever meets your eye. So, you have already had a suboptimal watching experience that day because you are not being served. And then the late fees. Many people felt upset about the late fees because their attitude was "I should be able to watch it at my own time, and I shouldn't have to pay late fees." So, along comes Netflix, a startup, and what do they do? They say, you know what? "First thing, you don't need to go to the store, we'll deliver the videos to you in the mail," so convenience.

Secondly, you can create a list of all the movies you want to watch, and we'll send you your top three choices. So, even though if you don't get your top choice, you already have thought about what you would like to watch, so we are satisfying you by giving the movies you want to watch. Third, there is no late fees because when we send you the movies, as soon as you finish watching them and return them in the mail, we'll send you the next set. If you keep them for a week, you won't get the next set. If you return them in 48 hours, you'll get the next set. The fourth thing they did, they introduced the subscription model, meaning that rather than pay for every movie rental, you pay a fixed subscription fee, which at one time was $15 per month. Just imagine the economics. If you watch movies regularly and you get the movies in the mail, it takes two days, you watch the movie for two days, 3 movies for two days, you return them, that's six days. That means in a month, you get those movies five times, that means you watch 5 * 3, 15 movies for $15. If you rent 15 movies from Blockbuster, you would have typically paid 15 * 3, 45 dollars. There is the value proposition.

So, as customers started discovering Netflix, more and more of them migrated because Netflix had identified the latent need, which was not being served. They were relying on Blockbuster because that was the only option. So, in the passage of time, Netflix started going this way and Blockbuster stayed flat. So, there was this time where those two lines crossed. So, this is Netflix and Blockbuster stays flat, the rest of the story is Blockbuster could not recover. Today, nobody knows about Blockbuster.

So, what's the implication there? While the incumbents are serving well-known needs, the delivered needs, there are danger signals of ignoring the latent needs. Same thing happened in the book-selling industry. Amazon, why do you need to go to a bookstore when we can deliver books to you, via mail? You can go to the internet, order books, and we'll deliver it home and we'll do it cheaper. Uber, why do you need to go to a taxi stand when we can bring the taxi to you? Again, that's what people wanted, latent need. Airbnb, why should you go to a hotel and obey their rules, such as no pets or they are not close to where you want to go? Now you can find a listing which is much more suited to your family, you can cook, you can take your pets. latent need. So, these are all

examples of how the new rules of the game are creating disruption, because in every industry there are disruptions, threats and opportunities. Why are they there? Because consumers are finding their traditional experience to be stressful, intimidating, complicated and low trust. People who buy cars complain that going to the dealership is painful, they don't trust the dealer, they find it stressful, but there is no other way to buy a car. Their dissatisfaction, their latent needs are being ignored. So, if you can sell on the internet, that means there's a new business opportunity. Consumer preferences are changing, another source of disruption. Today, there are as many people who are interested in owning as an equal number of people are preferring to share. Think about music. Some people like I like to buy the music I like, my daughters they don't buy anything, they rely on Spotify. So, we are beginning to see the rise of two different consumer patterns: sharing and owning, and incumbents are essentially focussed on ownership.

Similarly, in the manufacturing sector, the business model, the OEM business model is long, it has got poor visibility and lot of costs and delays. So, as we think about new models, such as just-in-time inventory, or think about Apple working with FLEXcon for their production, there are new models of how do you organise your manufacturing, supply chain and operations. And finally, but equally importantly, we are seeing a generational shift. Millennials, the ones who were born after 1997, we call them digital natives. Why do we call them that? Because they were born. In the times of Amazon, Facebook, Google, Apple smartphones. For every firm, their future customers are digital natives who believe in the environment, who believe that the purpose of business must be to respect the planet as much as profit, who have new forms of consumption more aimed at sharing. They are also your younger employees who are coming with a very different vision of what they want to do and how they want to innovate. So, how do firms recognise that now there are both digital natives and digital immigrants, and therefore, are there blind spots? Are there latent needs that we are not paying attention to? Very important concepts. I hope you think about them because these are the foundations of being a strategy catalyst in a digital economy.

Video 10: New Ecosystems

Knowing what we know now, about disruption and latent needs versus delivered needs, what's another important lesson and rule of digital strategy that you must think about as a strategy catalyst?

I will introduce you to a new word called ecosystems. Strategy today is about the rise of new ecosystems. What do we mean by that? There is a very influential book written by Professor Venkatraman. It is called The Digital Matrix, and I am going to build some ideas around his work.

Today, in every industry there are three sets of players. Every industry still has the incumbents. Maruti in the automobile industry, Hilton and Hyatt in the hotel industry, and so on. They operate around the delivered needs. They are the traditional leaders. They well understand what the customers need, but they have blind spots, latent needs.

There are two new sets of players in every industry. First of them, we call them digital giants. Who are digital giants? These are the large tech companies such as Apple, Amazon, Facebook, Google or Alphabet, Netflix, Uber, Microsoft, a limited set of companies. What's special about them?

Remember, we said competition today is achieving scale, scope, and speed, they do that. They have amazing financial resources because of their market capitalisation. So, they can invest in experiments. They can invest in disruption, they can take risks, which most incumbents cannot because they have limited capital. They also have a lot of talent because most of the digital talent, the youngsters and the innovators want to go work for them. So, they have the opportunity to focus upon disruption around latent needs because they have the capital to experiment, they have the talent to innovate and build.

So, Google, through its company Waymo, was the one that experimented autonomous vehicles in the automobile industry. It's only then that the others caught on. Apple continually innovates around digital payments or digital music to disrupt different industries. So, digital giants are important today because they are disruptors. There's a third group, and we call them the digital entrepreneurs. These are the start-ups. Very often these are begun by people who are working either for these digital giants or they are working for the incumbents. They understand a customer latent need and they also have imagination about an innovative way of serving that latent need through digital innovation. So, those are the start-ups.

So, today in every industry we have the incumbents, the original leaders, the digital giants, the disruptors, and the tech entrepreneurs, the new influencers. So, what does this mean? It doesn't mean that the digital giants will displace the incumbents. Think about automobiles. Even though Google experimented with the autonomous vehicle and Tesla experimented with the electric vehicle, even though the early predictions was that Ford, GM, BMW, Audi, Maruti, they will die, that's not what happened. What happened is we saw the rise of new ecosystems. Today, when you get into a car, what do you find? You find Apple CarPlay, you find Google, you find Bluetooth, and you find Information Services, which means that every automobile company is finding new partnerships. They are partnering with Uber, they are partnering with Apple, they are partnering with Google, they are partnering with Tesla. Just today, recently, we heard that Tesla is partnering with Ford to allow access to its charging stations for people who buy Ford electric cars. This is what we call ecosystems.

So, the new rule of competition is the rise of ecosystems. So, another important concept in your thinking as a strategy catalyst is, what are the new ecosystems? Who are the new partners? Who are the digital giants and the tech entrepreneurs with whom you will form partnerships to launch experiments and innovations around latent needs? That's the new way of thinking about strategy.

Video 11: Module Summary

We have learned a lot about different ways of how a CTO can be a strategy catalyst. So, how do we summarise what we have learned?

Today, being a strategy catalyst means, being able to educate, being able to understand and being able to apply the rules of the new competitive moves for success. What are those rules? First, form new ecosystems by identifying who your new partners should be. Second, reimagine your business around your customer, amplify the voice of the customer and discover their latent needs. Third, leverage your ecosystem for strategic experiments to discover opportunities around latent needs that might become new business opportunities. And finally, leverage your ecosystem to acquire new capabilities. So, what does that mean? Ford, leveraging its ecosystem to learn how to build smart cars, or Ford leveraging a partnership with Uber in order to understand ride sharing behaviour because they only traditionally focus on car owners, but what about those who don't buy cars but still do ride sharing? So, those are important elements of understanding the competitive moves for success.