ISB CTO

Week 4: CTO as Innovation Catalyst: Managing Innovation Portfolio

Video 1: Module Overview

In the previous module, we focused upon the role of the Chief Technology Officer as an innovation catalyst, and we identified three different ways of digital innovation sweet spots within the existing business model. We talked about enriching the customer interface, synchronising core operations and creating digital products and services.

In this module, we will continue to add some more ideas and knowledge about the role of the CTO as an innovation catalyst. We will talk about two additional ideas. First, rather than enhancing the existing business model, are there opportunities for creating a new business model, creating a digital business model or innovating a digital business model? So, we will focus upon that. And then, as an innovation catalyst, there are likely to be a stream or a portfolio of innovation projects. Are there ways in which the CTO can keep a portfolio perspective in order to make sure that there is a balance among the stream of ideas in the organisation?

So, in this module, we will first talk about how do you engage in digital business model innovation? Are there different types of digital business models? And then second, how do you manage a digital innovation portfolio?

Video 2: Approaches to Digital Business Model Innovation: Overview

In thinking about digital business model innovation, it is first useful to think about, are there some underlying principles which create a motivation? Or in other words, why do digital business model innovation? And we can identify three reasons for that.

First, is to enhance the customer delight and experience. Second, is to synchronise and harmonise the core operations. Now, you will recognise that these were two specific ideas we had already discussed. But here the difference is, what if you want to do both? It is not just sufficient to enrich the customer experience, but you also have to marry that with synchronising and streamlining the core operations. In other words, create a new way of performing core operations and a new way of delighting the customer. And the third, do that by orchestrating new ecosystems. So, you can see, this is a much more complex way of thinking, that's why we need to think about a new business model.

So, are there specific business models that we can identify as approaches to digital business model innovation? We will focus on four such models. First one, is omnichannel. We will talk about a subscription-based model. We will talk about business as a service, and then we will talk about a platform business model.

Video 3: Omnichannel Digital Business Model

So, what is an omnichannel digital business model?

The word omni suggests all, and the word omnichannel suggests multiple channels, all connected to deliver a seamless experience. Traditionally, firms relied on the brick-and-

mortar, either their store or their branch office. In an omnichannel, the focus is on providing customers access to products, services and other offerings seamlessly, across multiple digital, physical and other channels.

Think about the world available to a customer today. And that world includes apps on their phone, it includes web, it includes the brick-and-mortar stores, it includes a call centre, it includes fax and even includes a salesperson. How do you blend all of these channels seamlessly to put the customer at the centre of that experience and let the customer choose how he or she wants to conduct business? It is also about providing customer with support for different stages of their journey, and the ability to execute their wishes across those channels, and for the firm to support that in a seamless manner. What are some examples?

Starbucks is legendary for their omnichannel digital business model. Customers of Starbucks can go into their store and smell the coffee proverbially, literally and buy their coffee. Customers can use their app to place the order while in the store or when they are approaching the store. Or they can use the app to identify the nearest location, place the order and be ready to have it picked up. The app also uses total rewards. So, the customers can choose their points to either redeem or to build. So, in other words, a seamless blending of the app, the web and the store is an example of omnichannel in action at Starbucks. Why would you choose this business model? The primary goal is delighting the customer by owning the customer relationship end-to-end. What is an important metric of success? Net promoter score, in other words, how many people recommend you. That is a very simple, but very powerful metric.

From a CTO perspective, what are the strategic levers to execute or build this business model? First, business process integration, integrating the various business processes seamlessly across channels. A lot of emphasis on automation, technology such as rapid process automation, building on top of ERP systems. Second important strategic lever is data warehousing and analytics because it’s got to be smart. You have to be able to recognise your customer instantly and marry that with mobility technology. The third strategic lever is social media, mobility and cloud.

So, you can see, how a CTO can translate the vision of an omnichannel business model by identifying specific technology priorities. In this case, once again, business process integration and automation, data warehousing and analytics, smart mobility and cloud platforms.

Video 4: Personalisation and Subscription Services

Personalisation and subscription services is another emerging digital business model. What does this mean?

Think about Netflix and what did Netflix do. Rather than offering their customers the ability to rent specific movies, Netflix introduced a subscription model, which is the flat monthly fee, and in return for that make available a whole range of entertainment offerings. So, customers can choose any movie, any video, and they can consume them all that you want.

So, underlying the subscription model is a flat fee and consume all that you want. Once again, it puts the customer in the driver seat because they don't need to price individual products. Remember, we said reimagine your business around your customer. So, the subscription model is an example of that.

In the automobile industry, companies such as Audi and BMW are beginning to experiment with this digital business model. Think about the traditional model for Audi, which is their customers buy a car or lease a car, btu the minimum lease duration is three years, which means that, whatever they buy, they've got to use it for three years. What if the customers were charged or were willing to pay a monthly subscription fee and they could literally choose a car each day? They are going on a family vacation; they might want to van. If they are just going as a couple, they might want to rent a sports car. The idea is to provide access to the whole product portfolio without lock in effects.

And the advantage of a subscription model is that it tends to attract customers with a higher willingness to pay, and as a result, it tends to be more profitable. So, this is a model where the goal is to delight the customer by offering them access to a broad product variety and enabling them to personalise the choice of the product almost on a real time, almost on a daily basis.

What's the metric for measuring the success of this model? The metric is share of the customer's wallet, meaning that customers need cars, but a subscription model changes the equation for them because they don't have to choose. They don't have to spend a lot of time committing to one car, because now they can be flexible in their choice and they can access any car depending upon the day, their mood and their situation.

What are the strategic levers to make this happen? First, broad product variety. So, from a business model perspective, the firm has to commit itself to frequent refresh of its products, expanding the product variety. Think about Netflix. Netflix keeps adding more and more content, otherwise the choices could go stale. Audi would have to keep adding more features, more different types of cars, otherwise the choices could go stale. So, product innovation, refresh and product variety is a fundamental requirement for the success of this model. Second, from a technology perspective, deep personalisation through data and analytics. helping the customers make choices, build recommendation engines, using collaborative filtering as an analytics technique to help customers discover what others like them have chosen, and expanding the range of choices available to them. And third, business process integration and automation. Once again, a technology such as rapid process automation.

Video 5: Business as a Service

A third opportunity for business model innovation, digital business model innovation, is referred to as Business as a Service. What's unique here?

This is an emerging digital business model that shifts the customer supplier relationship from a traditional model of ownership to a model that evolves around providing services on a non-ownership basis. Good example is Uber. Uber is an example of a Business

as a Service because what do you care about? You care about mobility, but you can now get there without owning a car, Business as a Service.

Airbnb Business as a Service, you don't need to go to a hotel property. Increasingly, we are seeing the emergence of many different sharing models, all under the classification of Business as a Service. Rent clothes, clothes as a service. So, this is a service centred model where the customers are the focal point.

Once again, reimagine the business around the customer. Think about their complementary consumption needs. Organisations not only supply the product, but they support and offer value in use.

A dramatic example of that is the pivot made by GE engines. If you think about GE engines, they manufacture and sell engines to aircraft. Their relationship with Airlines traditionally was one about, we design engines, we sell them to you, you own those engines, we help train you in your maintenance, but after that. you are responsible for the uptime and availability.

GE launched a Business as a Service called GE Predix. And the whole idea was, you don't buy engines. You rent engines from us. We still own the engines. When they are outfitted on your aircraft, we take the responsibility for predictive maintenance, and we guarantee you up availability of miles in the air. In other words, you as an airline no longer have to devote your precious capital to buying engines and maintaining them. You just procure availability as a service, and we take care of the business. That builds a deep intimate relationship. It has a higher willingness to pay, and that's a model once again of a manufacturing company pivoting to Business as a Service.

What's the metric? Here, the metric again is share of the customer's wallet. If an airline can buy engines from different companies, would they prefer the flexibility and the convenience of GE Predix? And that's the reason why it's an attractive model.

So, what are the advantages of Business as a Service? It is ecologically and environmentally a more sustainable solution, because not everybody has to invest in maintenance facilities. There could be a single maintenance facility. So, at the time when there is consciousness about the planet and the environment, this is a sustainable solution. This model does not require the customers to make upfront investments. It allows them to pay only what they consume, so that the premium products are available to a larger number of customers. It shifts fixed costs to variable costs, and enables firms to pay as they go, and that's a huge attraction.

For suppliers, it enables predictable renewable revenue streams. Another advantage is that organisations can have access to a wider pool of potential customers, especially the small and medium enterprises, which might not be so comfortable with large upfront investments. So, it leads suppliers to generate more revenue.

Another advantage is that since the customers are serviced at every step in the use of the product, constant contact is required between the firm and its suppliers. So, this provides the supplier with valuable data about the customer and about the product and becomes a valuable source of product innovation and R&D. And final advantage is that

this is an opportunity to increase customer loyalty since it creates a huge dependency between the customer and the supplier. So, what are the strategic levers for implementing this model? CTOs must recognise a big shift here toward services-oriented architecture, where the focus is not about technology alone, it's not about applications alone, but it's around defining services. And services are a combination of data, application, technology, bundling them into units. Rapid process automation, another important strategic lever. And the third one is, data warehousing and analytics

Video 6: Platform Model

The platform model is a fourth alternative approach to digital business model innovation. And this is fundamentally a revolutionary model. The other three are what we call evolutionary models. The platform model is a very new and a novel way of building business models. Let's try to understand this. Let's consider an example that most of you are familiar with, and that example is Uber. Ask yourself, what business does Uber do?

And the answer is, Uber provides mobility services. Ask yourself, who are Uber's customers? And you might say, it's the people who need a ride, in other words, passengers. So, Uber provides convenient, flexible, predictable, anywhere, anytime access to mobility for passengers. In other words, the value proposition is, traditionally if you needed a mobility solution, you depended upon taxis. So, you had to go find a taxi stand, you had to negotiate with the taxi driver. Sometimes, depending upon hour of the day, you're lucky if they would go where you wanted to go. So, a lot of friction points in that model. And Uber's value proposition was, "We have an app, and you just pick the ride, and the car comes to you." That's the value proposition.

So, if you said passengers, those needing mobility, are Uber's customers, you would be right. But are they the only customers that Uber has? Ask yourself, who provides that ride? Are they Uber employees? And the answer would be no. These are people who own cars and are willing to provide their car as a service for the ride. So, the point of this is, it turns out that even the drivers are Uber's customers. Because Uber needs to entice them to their platform to be willing to drive for six to eight hours a day and to be willing to respond anytime there is a customer or a passenger who needs a ride.

So, this is an interesting situation, where we usually don't have two types of customers. Usually, there is one customer and multiple segments, but this is somewhat different. We have riders and we have drivers. Two different types of customers, but more importantly, they depend upon each other. You will see in the graphic that we call this dependency. Drivers need passengers. Passengers need drivers. So, Uber essentially is in the business of connecting drivers and passengers. Every time there is a passenger who needs a ride, the Uber technology infrastructure creates awareness of the location of passenger and where they want to go and what's the fare. And the driver has that information, responds to that ride, and shows up.

So, this is a platform model. In here, fundamentally, there are two customers. Uber is the platform, and the platform connects these two sets of customers. And every time it connects a driver and a passenger, there is a ride, and the ride is a transaction. And

when the passenger pays for the ride, Uber collects a commission and passes on the rest of the payment to the driver. So, we call this a platform model. And there are many such examples of platform models growing today. Airbnb, again, a platform model connecting property owners with those who want to rent a property for a stay. And the transaction is a stay. And again, same features as Uber. So, we're beginning to see the rise of a new business model in a platform model. And notice in here, Uber does not own cars. So, we say that the platform model is asset-light. Unlike a taxi or a hotel which owns the property or the car, this is asset-light.

So, a platform model is connect and transact, leverage interactions between two sides that depend upon each other around a unit of value. Two sides are drivers and passengers, unit of value is a ride. And ride creates a transaction that creates a monetary payment. Uber collects a commission, and the driver collects the money, and the passenger gets a meaningful, fulfilling ride. So, what's the metric in the success of this? The metric is winner-take-all, meaning that, market share, there are huge opportunities to gain market share. Is this model unique to Uber and Airbnb?

Now, think about eBay, which is the world's largest auction site. eBay attracts people who have something to sell and people who want to buy, and it generates auctions. So, the eBay is an auction platform where, more buyers benefit if there are more sellers, and more sellers benefit if there are more buyers. So, once again, eBay connects and transacts, and the unit of value is an auction. And eBay's value proposition is, you can buy anything on eBay because there are buyers and sellers. So, what are the advantages of a platform? Greater access to sellers, better value to consumers, ability to grow the market very rapidly. It is asset-light, so it's much more flexible. It can be scaled rapidly, and it creates greater opportunities for innovation.

How do you build a platform? What are the strategic levers of a platform? Data warehouse and analytics, because if the unit is a ride or a unit of value, and if you will execute thousands of such units every day, you need, uh, reliable data. So, data warehouse and analytics. Mobility and social media. Mobility is fundamental because that's how you create a ride or a stay or any unit of exchange. And app infrastructure is again very important in this context. Cloud is a key to the success of this model. And equally importantly, cybersecurity. There is a lot of sensitive and private data on the platform, so cybersecurity is a huge element of the success of this model.

So, as you think about platform models, they are growing in popularity. And ask yourself, is there a platform in your business? And if so, what kind of technology investments must you make order to facilitate that platform model?

Video 7: Managing the Digital Innovation Portfolio

Another important element of a Chief Technology Officer's role, skill and acumen as an innovation catalyst is how do you manage the digital innovation portfolio?

The underlying challenge is there are many sources of ideas for digital innovation, there are many reasons for building projects. What's the common thread? How can you maintain oversight that you are listening to the right ideas? You're paying attention to opportunities for gathering ideas and then more importantly, still there is only so much

money available in the organisation, are you investing them in the right way? So, let's talk about where do ideas come from? Essentially, digital innovation is open innovation. Ideas come from both inside the organisation and increasingly from outside the organisation. Ideas come from people who are responsible for technology, information technology, people who are responsible for managing social, mobile, analytics, cloud, technology infrastructures in your organisation. But they also come from business users, those who use these technologies in their interactions with customers, employees and suppliers. They also come from vendors, your strategic partners who help you build the technology infrastructure.

So, an important implication here is, are you mapping different sources of innovation ideas and periodically assessing how much are you listening to those different voices? Because fundamentally, the key idea here is, it's open innovation, not just a small group responsible for all the ideas But ideas come from anywhere, so managing the idea flow is an important challenge and responsibility of the Chief Technology Officer as an innovation catalyst.

Video 8: Pathways of Digital Value

Another key element of managing the digital innovation portfolio is, how do you assess the value of these individual innovation projects?

After all, every project takes time, it costs money, it demands attention from people in the organisation. So, money, time, people's energy, these are valuable skills, these are valuable resources, and you've got to make sure that you're spending them wisely, that you're not creating a chaotic situation where you're chasing every innovation idea.

So, one of the paradoxes is, on one hand, open innovation, keep yourself receptive and open to all innovation ideas, but at the same time, how do you manage the portfolio in such a way that you are allocating time, money and energy to the right projects? At any time, there are likely to be numerous demands for digital investments in a firm, so how can you categorise the investments? How can you identify the right way of justifying those investments?

So, I'm going to offer you six different ways of thinking about the digital innovation portfolio. We call them the six rationales, meaning that, in your portfolio, as you look at the projects and as you seek a balance, make sure that there are sufficient projects for each of these six different goals. The cost of each project might not be the same, so it's not about equal number of projects as much as making sure that you are covering all these six angles. So, what are they?

Some projects might be necessary because they are mandatory, meaning that the government might have introduced a new law for privacy of a data regulation. So, do you have a project, a technology project to take care of mandatory needs imposed by government or by regulators? Sometimes these projects don't take a whole lot of money, they also don't take a whole lot of time. But with the word mandatory, we mean there's no discussion, you've got to do it right now. So, an important characteristic of these projects is urgency. They have to be done right now, okay? So, time is not on

your side, but the good news is, they're not expensive and they can be done very quickly.

There's a second type of innovation projects, and we call them technology renewal. Meaning that, you've invested in analytics software, but you need to upgrade it. Very often, you have some discretion, there's no sense of urgency, unlike mandatory. But if you postpone these investments, then there's a concept called technical debt. Meaning that, the more difficult it becomes to upgrade later. So, there's a cost of postponing, uh, these kind of upgrades. So, are you paying attention to where upgrades are needed and timing them? They're not expensive if done properly at the right time, but as the technical debt increases, these upgrades can become very expensive.

There is a third area of innovation, incremental business process improvement. If you're a retailer and you want to improve the efficiency or the customer service in your stores, and you decide that there's an opportunity to use iPads to build a better form of a technology-based service model in the store. That's an incremental business process improvement, because the project itself will not be expensive, it will not take time, and the gains will be incremental. But they may be needed, because the more you postpone them, your competitors might build a better store experience. So, that's what we mean by incremental business process improvement.

The fourth category is competitive necessity. This is where your competitor has launched a new app for mobile payments or digital payments, and you need to respond. So, just like mandatory investments, there's a sense of urgency. Expenses are not large, but the more you postpone this, the more there's a threat of being beaten by your competitor.

The fifth one is competitive advantage. This is where you look at your business model and you identify the digital innovation sweet spots, and you say this will give us a competitive advantage. The scale of finances needed for such projects is larger, they take more time, and the urgency is not high. So, you don't have to rush, but on the other hand, they may take more time and money than the earlier categories of uh, projects.

And the sixth one is we call it the digital infrastructure. Investing in data warehousing, investing in cloud, investing in mobility. These are large scale investments. They often take many months, sometimes a year or two, and the good news is you have time on your side. You don't need to do them immediately. The bad news is, these are complex, these are technically challenging and they're risky, but you cannot avoid them.

So, what's the implication of this portfolio approach for a CTO to be aware of the business priorities driving these, and how do you balance them? You can probably do maybe at most one digital infrastructure project. You can do several mandatory technology renewal and business process improvement projects. But the key thing is to make sure you're not doing so many of the small things that you don't have any time for the large important things.

Same way, you're so focused on the one year project that you have no space or time available for the smaller projects. So, paying attention to these six categories is how the CTO can be an effective innovation catalyst.

Video 9: Module Summary

As we summarise the role of a Chief Technology Officer as an innovation catalyst, what are some key reflections?

First, there are different digital innovation sweet spots available today. We talked about them as: enrich and enhance customer relationships, synchronise operations, launch digital products and services, innovate new digital business models. So, think about these, we talked about the examples, and ask yourself what does it take to execute any one of these digital innovation sweet spots? Second important reflection is ideas for digital innovation occur anywhere within your enterprise and even outside of the enterprise. So, how are you going to nurture open innovation? Third, the motivation, or ideas for digital innovation occur for different reasons. We talked about six different reasons, so be aware of them and balance attention. CTOs as innovation catalysts must ensure that their organisation is capitalising on these ideas, opportunities, and sources.