Strategic Management for Competitive Advantage
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Lecture 48
Innovation for Survival and Growth - II

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Welcome to the course Strategic Management for Competitive Advantage. We will continue from the last lecture; this is the second part of the last lecture. So, innovation for survival and growth part 2.

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In this, we will cover all these we have covered in the last class. So, today we will cover this risk associated with incremental and breakthrough innovations. Then we will also discuss why

some companies succeed or fail at innovation. Then we will also discuss innovator's Dilemma, what it is, and the rest of the things we will cover in the next lecture.

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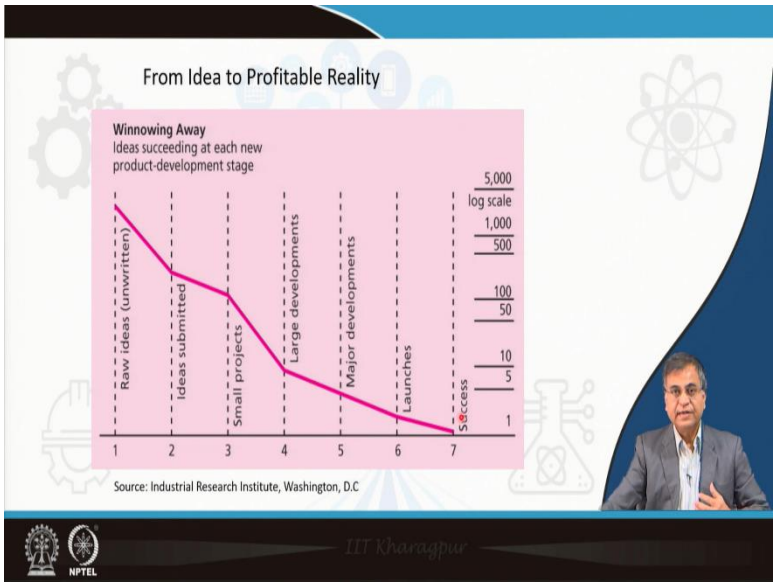

So, to start with, we have seen the differences between incremental innovations and breakthrough innovations in the last lecture. We have discussed it. Now, if you see these, this is called winnowing away like the idea from the bright ideas; say, if you have 3000 bright ideas, then it comes down passes through different stages, like ideas submitted, small projects you initiate, then the large developments, major developments, then from 3000 ideas. Generally, you get or launch only 4 products and services or your things and out of that one may be a major success or major stream. So, this is in the logarithm scale.

So, you can see that with the great number of ideas and all, how you would one successful, you know, breakthrough innovations come through it. So, it is a very rigorous process and it chances are very, uncertainty is very high for this from an idea to come to a real product that will succeed and become a major stream for the organisation.

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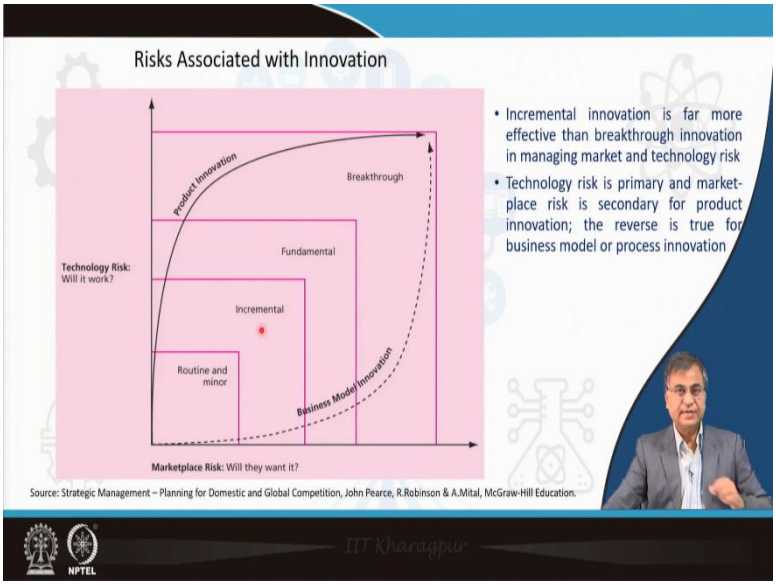

So, this is what are the risks associated with innovations; it shows that the risks are generally here it is technology risk and marketplace risk. On that, you can see the different types of innovation falls into different zone of risk. if you see what is technology risk? Technology risk is the difficulty that uncertainty here is more and what you do actually from the past technological advancement, you extrapolate or try to get a consensus view that but technology risk is a very high degree of the risk out there whether technology may be successful. You do not know when it will be successful and all that sort.

And marketplace risk is like you got to associated is what will be your market size, what will be the growth rate of the market, and whether the demand market will accept your product or not. Because it depends on the majority of customers that you are doing your innovations and all but whether the markets will accept it or we will have a look approach, so, these are the two risks associated.

If you see here, this is product innovation. Product innovations generally follow that technical risk, say if you see incremental innovations and breakthrough innovations. Incremental innovation is far more effective than breakthrough innovation in managing market and technology risk. the market risk and technology risk for breakthrough innovations are more uncertain; it is there. So, it is difficult to manage incremental things. As you know, you are doing some minor changes; you are doing small adjustments and all, so, it is easier to manage these two risks also. Technology risk is primary and marketplace risk is secondary for product innovations.

Product innovations, but the reverse is true for business model innovations. In business model innovations, market risk is primary, and product risk is secondary. So, these are the associated risks as you go from here, your risk also increases both technology risk, and marketplace risk is high in a breakthrough; the fundamental then comes the incremental risk. This is the relationship.

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Then ways to lower innovation risk. How the companies can reduce their risk regarding incremental as well as breakthrough risk. One is that you form a product team it has been found. The product teams for the development of a new product, development of the services, and all this are more effective because what you do there draw the people experts from cross-functional groups; it is not only the R and D they are doing it. R and D are assisted by the marketing assisted by production, engineering, and logistics. All the group's experts come, and they form the product team.

The joint venture is another way to reduce the risk. That is for example, Toyota has joined hands with General Motors to share its hybrid vehicle technology. So, because this is very uncertain is more so there they share the risk. Similarly, another one is the cooperation with lead users; those who are the main users, have some cooperation; for example, Nike test their shoes with inner-city street gangs, those then General Electric worked with the railroad companies to develop new eco-friendly locomotives, then software companies, they do the beta

testing with the loyal users. These are the cooperations with the leading users. That way, you lower the risk.

Then do-it-yourself innovations like the example, BMW. BMW select, say, 1000 customers and gives them the tool kits with that to connect with that telematics and all. So, out to get their ideas, how the cars of the next generation will be and how to improve the cars' different features and all. those toolkits are given to the customers and these customers that they zero in on, which was being given to customers from all over the world.

So, then they collected and zeroed it when say, 15. 15 customers and they try to get or flesh out the ideas from there. Based on that, they have chosen 4 prototypes that are there. They are sure those 4 prototypes will be their new products and this, so this is a Do-It-Yourself innovation. Here you are engaging the customers with your design by knowing the new ideas or the product design features.

So, acquiring innovation is nowadays a potential means; you know many companies follow it because innovations are with is involved uncertainty and high cost, and big companies are not that quick and flexible. So, what do they do? They acquire those small-small companies or flexible companies who are good at it start-ups and all those who have good experience and they have resources for doing that they acquire—for example, Cisco. Cisco has grown. One of its policies is that they make many acquisitions for small-small companies, and they have with those acquisitions; they have grown to this stage as it is today.

So, I will give more examples on acquiring innovations later that Google and also since they also follow that, then further is the outsourcing innovations you know, some companies nowadays outsource innovation like Samsung, Nokia, Motorola, they get their designs that prototypes are done by unknown companies like HTC, Flextronics, Cellon but these unknown companies are 100 billion plus turnover. You know, these are billion plus turnover, and they are good at those designs, prototypes, and all those inventions, and they do the innovations, and they sell it to these giant companies. So, these are outsourcing innovations. These are the trends nowadays, and many of these big companies follow this way path to lower innovation risk.

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Now, we will discuss why some companies succeed or fail at innovations. You know, some companies may be very successful, and some companies may not be that established companies. I am saying they have resources, full scientists and all, but even then, they do not succeed in innovations and all.

What is the reason? These reasons were found out by Henderson and Clark, and they have put in a model on that. In the model, they say they have identified the technical knowledge required to develop new products or services; what is technical knowledge required to develop new products and services? Others distinguish between incremental and radical innovations. Why and how do they classify? What are incremental innovations, what are radical innovations on what do they depend on? So, these two aspects they have studied.

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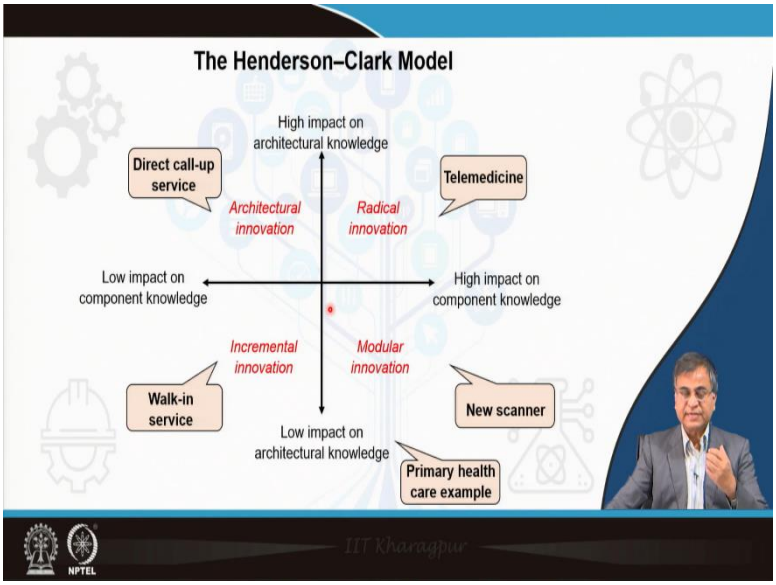

And this is called the Henderson Clark model if you see to it. So, what is there? there are two components. One is knowledge, the components in the x-axis, which may be the high-impact component of knowledge. Another is the low-impact component of knowledge and which is what are the things that stitch or link these components know that knowledge maybe many components may be there, but these components have to be linked with each other; these components have to be stitched that is called they call it architectural knowledge. So, high impact and low impact.

Now, the increment innovation, what is it? Here, it is your existing component; you are operating in the existing component of knowledge and existing architectural knowledge that is the incremental innovation that will give. So, not much difference, small minor differences, adjustments, and all.

If it is this called incremental, just the opposite of it is when your high impact on component knowledge means your component of knowledge has increased and high impact on architectural knowledge, your architectural knowledge has also improved or increased. So this is called radical innovation. For example, the primary healthcare thing incremental innovation is walk-in services; this is within the existing component of knowledge and existing low-impact architectural knowledge.

Telemedicine is a radical innovation because your knowledge component is also high, and architectural knowledge is also high. Now, this is what modular innovations are. Here, your component of knowledge maybe has increased, maybe one or two has increased but the module

that architectural knowledge remains the same unchanged. So, that is called a modular innovation in healthcare. If you introduce a new scanner machine, then that is within the same architecture, there is knowledge, but you have to learn those components of knowledge have a high impact that has changed. You have to be more components and all added modular.

Similarly, direct call-up services are called architectural innovations like architectural knowledge, high impact increases, but component knowledge remains the same. There is one or two that component of knowledge remains the same; these are called architectural innovations. This is the, for example, direct call-up service. So this is called the Henderson-Clark model, which distinguishes between incremental and radical innovations, modular and architectural innovation, and all those. So, because of this, some companies if they cannot recognise this, they fail, and some companies succeed in innovations, it talks about that.

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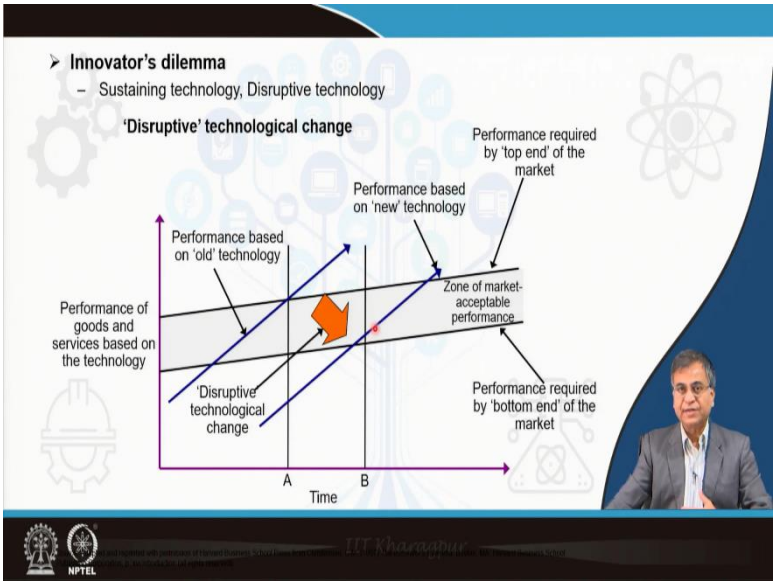

Next, we will be talking about Innovator's Dilemma. What is this innovator's dilemma? Brought this one Harvard Business School professor Clayton Christensen has said that he has distinguished between sustaining technology and disruptive technology. What is sustaining technology? Sustaining technology is the existing technology; those are incremental, the sustaining technology if you look at this diagram closely.

In this diagram, so, what do we find? We find here that y axis is the performance of goods and services based on the technology, the degree of technology you are using, and the x-axis is the time component. Now, if you see these two lines, these are the boundary lines, this is that this line is the performance required by the top end of the market, and this is the performance required by the bottom end of the market. So, this is the zone of acceptability.

These are the trajectories, performance is based on old technology, old technology follows sustaining technology that is incremental improvement, and this is the performance based on new technology, which is disruptive. So, what happens? Christensen says that the majority of customers will value the existing trajectories that they are following for the technologies. So, these will existing or current technologies are at a much higher pace than disruptive technology, which is just trying to come up in the market, and it takes time to come to this zone of acceptability to come to the bottom end of the market acceptable performance.

So, what happens? Most customers will follow that trajectory that is the existing technology. They will not, but disruptive technology may be cheaper, maybe simpler, and may be more convenient. Still, most customers do not value it much as the sustaining technology trajectory. Christensen says technology moves faster than the market need.

So, in the future, both sustaining technology and disruptive technology will move faster than the market. Still, disruptive technology has the potential when it hits the bottom of this acceptable performance. It will penetrate the market, and they are now the fringe customers; they may become the major customers and all, and it will capture in that course of time that disruptive technology will become the majority of the market shares and all. So, he has given examples of the IC engine and the electric vehicle.

Now, the electric vehicle has few takers, but because of many reasons, the customers value the old performance trajectories by sustaining technology, and they stick to it. So, it is valued more, IC engines are valued more, but in the future that when disruptive technologies, some non-committed customers and all become the majority customers, they will accept that disruptive technology, and this may become the majority of the customers, then this will penetrate the market hugely.

Now, the innovator's dilemma is how long they will continue where to invest more in this sustaining technology or disruptive technology. they are not sure when the disruptive technology will come to the market and not sure how it will come to the market. So, they invest in both but cannot ignore this disruptive technology, that electric vehicles and all. So, their dilemma is when to change. So this is called the innovator's dilemma. So, I think this is clear.

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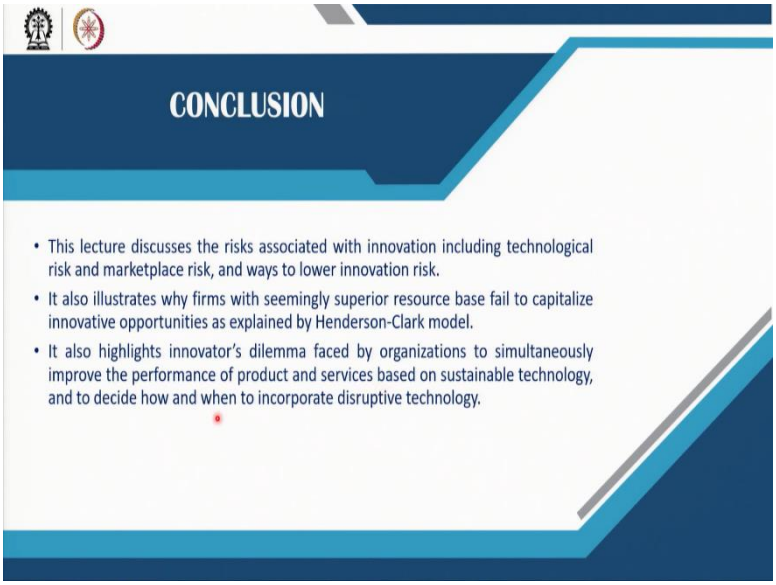

So, next, to summarise what we have discussed in this session, we have discussed the risk associated with innovation, including technological risk and marketplace risks, and we have discussed the ways to lower innovation risk. Then we also have illustrated why firms with seemingly superior resources base fail to capitalise on innovative opportunities as explained by Henderson and Clark's model.

We also highlighted the innovator's dilemma faced by an organisation to simultaneously improve the performance of products and services based on sustainable technology and to decide how and when to incorporate disruptive technology.

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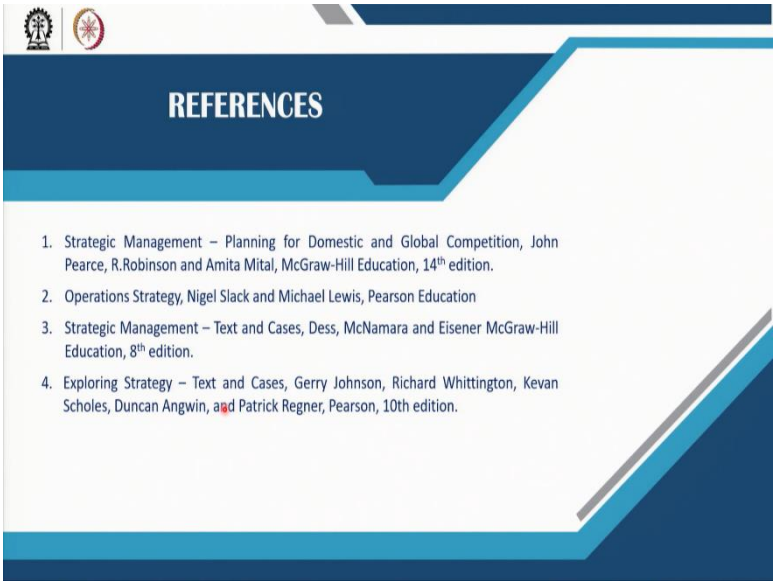

So, these are some of the references we have already discussed in the last classes, the same references in you can go through them and further you can enrich yourself on this. Thank you very much for attending today's lecture.