Strategic Management – The Competitive Edge
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Lecture 37
IT & Strategy, R& D & Strategy

Welcome to this session. In the last session, we were looking at non-profit organization that is not for profit organizations, then we also looked at a corporate model, a model for corporate philanthropy. Then, we also looked at the role of SMEs in shaping the economy of the country, which has now become quite crucial; in both creating jobs and also contributing to GDP.

So, if you really look at it, most of these contributions to GDP especially, in the software field, is coming from the state of Karnataka, and maximum is coming from the city of Bangalore. So, now keeping that in the background, it may be relevant for us to look at IT and strategy, so what is the way with respect to IT and strategy, how should we go about strategy in the IT field.

This is discussed in my book, chapter number 12, on page number 198. I suggest that you have a good look at this chapter. So, if you look at the traditional and alternative use of IT, you can look at it in four dimensions.

One is nature, second is evaluation, third is use, and fourth is returns. When we say nature, what are we trying to say, that is the nature of the business activity itself, what is the type of service, the firm is trying to render, evaluation becomes quite obvious, and when evaluation is done, the use of this whole service also becomes quite obvious.

Returns are with respect to both the business, the shareholders, and the stakeholders. So, there is a growing feeling in organizations as per the alternate view that the returns on IT investments may not at the expected levels, making the investment decisions look sub optimal. This is due to the fact that IT is viewed as providing strategic inputs. So, even to this day investment in IT is considered a good strategic option both at the stock market level and also at the business level.

This traditional and alternative use of IT are discussed in the book on page number 199, nature is referring to the traditional view, strategic IT investment flows from firm strategy, necessary investments are made, alternate views is with respect to strategic ITs, all IT investment is strategic, labelling IT is strategic enables investment. Strategic IT is an organizational constraint, whereas in the traditional view strategic IT is an organizational benefit. Evaluation is with respect to strategic actions, many times complex not quantifiable, projects are evaluated by quantification.

In the IT, software project management, senior management many times prefers to have qualitative information, that is also important to note, so quantification dominates here, organizational politics dominates, so quantification dominates strategy; in the traditional view strategy must be flexible and is left weak; quantification is beneficial, does not lead to superior performance in the alternate view.

So, when you look at use, IT is just another investment, IT as technology, IT to support structured activities, use, follows plan according to the traditional view. Alternate view is IT as infrastructure, change agent, support unstructured activities, use conceived after implementation. The most important thing which we were discussing many times in the earlier sessions comes into force with respect to technology, traditional view is technology for a strategy, but the alternative view is technology drives strategy.

Organizational participants know strategy, but do not know the strategy in the alternative view. Strategic benefits come only from strategic systems, strategic benefits can come from transaction systems in the alternate view, so transactions take place, returns come in, all those types of things. System definition, strategic benefits, system definition use is in the hands of the developer, alternate view is in the hands of the user.

IT provides when it comes to return competitive advantage, IT per se gives only temporary benefit. Early adoption of IT is beneficial, whereas alternate view thinks that even it is follower's gain. Post audit should be carried out, whereas alternative view is post audit is a waste.

Then returns, traditional view is success is good, alternate view is success, may also have some negative consequences. So, this, all this is represented in this figure 12.1, the vicious cycle of IT investment. So, strategic IT need to justify investments, so when you label IT as strategic, it becomes strategic IT. Then, what happens, form objectives, strategic plans, IT investments, all that lead you to strategic IT, and the type of dimensions which we mentioned is what comes into play.

When you look at IT, the strategy components, 6 are required for sound strategic plans. One is the application systems component, second is the application development components, then third is the infrastructure component, fourth is the maintenance component, fifth is the operations component, and sixth is the security component, so all these are discussed to a certain extent, from pages 200 onwards in the book.

Viewing IT as a strategy- the yardstick is investments should be made in those IT based applications and services that are likely to yield the best returns, this is what the investor looks

for. So, any investment from any investor he always looks for good returns, if he is not getting good returns, then what is the great point in putting money. Information systems for competitive advantage or those that reflect the fundamental objectives of the firm and that may have a significant impact on its success.

So, sometimes these are reflected in the mission statements of the firm itself, so take for example, Infosys, powered by intelligence, driven by values, so lot of effort, intelligent effort goes in to development of applications. Also, the organization has got a very good value system which is highly ethical, that is the one which drives the organization or is driving the organization in the global market, this becomes important because this firm was started almost literally from scratch by 7 persons in the 80s.

And they went through lot of turmoil in the initial stages, so at one point of time, there was talk that they want to wind up the firm also. So, they overcame all these hurdles and still continued with the firm statement, adhered to that, and now if you look at it, Infosys is a very strong player in the IT market in the country today.

So, this is what a mission statement for an organization, should give that is the strategic directions, may not mean much to an outsider, this is like the superordinate goals but means a lot to the insider. So, this is what how you should view IT as a strategy.

If you look at the influence of IT and pricing strategies, how it is helping this pricing with respect to products or services? Increased availability of information, so there is a tremendous flow of information, this you might have watched on some of the debates which are taking place on the national channels.

So, whether it is the Times Now, or the CNN-IBN, you will see the participants in the debate referring to so much of information coming to them through the mobile, forget about their prepared information,   many of the persons who participate in the debate, have come prepared with their own checklist, but in addition they view mobile as an important source of data enabler, giving them lot of information.

So, increased information, gathering, handling, and analysis capabilities, enhanced price customization, bundling, and unbundling, revenue management, and automated pricing strategies, so the more the storage space, it is better for you to store the information, that is your mobile can store this information.

Now enhanced reach, enhanced reach catalyses various pricing strategies, in particular the internet provides companies access to an extended universe of customers, more demand, and

new markets.

Suppose you want to look at a new automobile, let us say new car or a comparison between one model of one company, and similar models in other companies. This type of information is now available to you, not only on your desktop or the laptop, but also in your mobile, so unthinkable actually when you look at the type of IT advance that has happened in the country today.

So, the last 8 years have been absolutely dramatic with reference to this digital up search. One of my colleagues was mentioning that his daughter was to catch a train from the central railway station in Bangalore to go to Mysore, he was not sure whether he should book the ticket for his daughter, the train was at 6:15 in the evening. He checked with his daughter at 5:45, she was coming from an educational institution, she is studying in Bangalore.

So, she said, "I am near the corporation in the auto", so then he said, "okay, I am sending you the ticket for the 6:15 train to Mysore" all sent by mobile only, and his daughter could catch the train at 6:15 and was present in Mysore, three hours later, so he was just trying to mention saying, Sir look at the type of digital information that we are able to access in this digital age.

Then expanding interactivity, IT may increase efficiency through electronic transactions, so this is precisely what I was mentioning. So, this person, that is father of this girl, paid the money through this IRCTC, that is these Indian railways counter, digital counter, and sent this ticket on the WhatsApp to his daughter, this is the ticket for the 6:15, money has been paid, and the girl catches the train in the central railway station at Bangalore reaches Mysore, three hours later. So, these are type of digital transactions taking place in the country.

When the whole digital transactions were being introduced, many mocked saying this is going to be a big failure, but still the present government went ahead with it. Now 8 years later, what do you see? In fact, India has overtaken China also with respect to the digital transactions that are taking place in the world. So, it is at number one slot, even you find a small vegetable vendor asking you to scan his QR code and put the money through your phone pay or google pay, which was simply unthinkable a decade back.

IT may increase efficiency through electronic transactions and online customer interactions which can affect pricing by creating exchanges, such as maintenance, repairs, and operations, through which buyers and sellers' group together. So, this is happening on a wide scale, your automobile can be sold through the digital platform only, so you book your automobile for sale, some people will come to your house only, check the car, and upload it, and the car checking now, it is absolutely thorough kindly note that, it is not earlier scenario, when you should find a person known to you- now no need, so these agencies will get you all information about the car.

So, organizations with more experience in automation realize that, IT can not only improve the efficiency and effectiveness, but also play a decisive role in the company's success, thus acquiring a strategic quality. So, look at the way things have changed in the market with the advent of IT as an enabler.

So, it may so happen in a few years from now, that there may not be any field which is left untouched by IT. So, when that is the type of emphasis on IT, which is coming in, obviously it becomes a strategic input for information, and decision making. So, this is given to you on page numbers 202 to 205.

And there is also some reference to some curves, the one curve which is important is with reference to strategic contributions of IT is the Nolan growth curve. So, the Nolan growth curve, if you look at it time, on the x-axis, resources on the y-axis, you have the blocks coming in efficiency, effectiveness, strategy.

So, earlier you had the data processing era, that was what I was mentioning. A few decades back, you had the CPU based systems, and organizations were, companies were, paying money for the time used with respect to CPU. So, one hour of CPU on the ICL computer with reference to Madura Coats, here in Bangalore, back in the 80s used to cost up to about 30,000 rupees at that point of time which was very high. So, many times people never used to go near the computer, so affordability used to come into play.

Now, down the line, nearly in less than three decades, perhaps later, you find that everything has gone through a what you call a crunch, cost has been crunched, the cost of the computer has also come down drastically, earlier you are looking at many times very high figures, now it has come down so drastically, that your laptops are affordable, and they can also give you lot of what you call strategic advantage.

So, the data processing era gave room to the IT era, this IT era, it started looking at technology, business support, business strategy, and management emphasis in a very serious manner. So, in the 80s, when this IT industry started stepping into the country, many thought that it is a bubble which will go burst soon, no it has not, so very likely that it will not either.

So, this management emphasis on IT has come to stay, so they are saying, use IT as an enabler in the functional areas of management, whether it is organizational, effectiveness or efficiency, so whether it is the all the four functional areas operations, marketing, finance, personnel, use it as an enabler, so that the efficiency and the effectiveness of the strategy or the strategic decisions can improve markedly in the setup.

The nature of linkage between IT investment and corporate strategy for the IT company to garner investment needs to be put on formal grounds do not make it look hazy. So, for the investor, it should be an attractive opportunity. The nature of IT in organizations is undergoing continuous change; so many examples which is happening, right in front of us, like the train ticket booking, which was unthinkable.

One to one and a half decades back many used to be wary of going to a railway platform, oh, this is dirty, how can you really board the trains, trains are not clean, all those types of things. Now, if you look in the present day setup, these are things of the past, the railway stations are very clean, so also are the trains, neat and clean, tidy, and make the travel fairly comfortable. More importantly, IT has come in a very big way in making all these services become cleaner, more efficient, more effective, in the present-day setup.

So, the nature of IT in organizations is undergoing continuous change. There is need to quantify the benefits arising out of the shift towards IT in organization, so a manager can view how, this railway station is looking like, on his mobile apps only, whether it is clean, where it is to be made tidy all those types of things, which is just unbelievable, but is true.

Now, when you look at, now a few points about R & D and strategy, you look at an explicit R & D strategy element, that is the nature of products developed, the nature of markets sought, the nature of technology employed, orientation and nature of new process, so these are the elements of an explicit R & D strategy. So, what are the types of products being developed; the best example for this would be take the field of automobiles, so there is an upsurge in demand, for vehicles using CNG and electric vehicles.

So, the increase in demand has been fuelled because of the rising prices of petrol and diesel. The nature of market sought, the nature of technology employed, orientation and nature of new product development, so as I was mentioning this new product development should be given more emphasis in organizations. So, R & D, when you are looking at an industry your R & D has to become applied, you are not in the pure R & D setup, that is the difference between an academic R & D and an R & D in an industry.

So, you are accountable for what you are doing even in R & D kindly note that. Suppose, you say I am doing this, that is working on research with respect to this, the company is likely to ask you, has it benefited the company with any new products or new processes?

So, in other words even the R & D personnel become accountable. So, these six types of, main types of bonds between companies are given here, that is in the industrial network. One is

technical, second is knowledge based, third is temporal, fourth is social, fifth is economic, and sixth legal. So, I give you some examples from the German automotive industry only, some of them are having their R & D units, here in Bangalore, but they are in virtual interaction with their parent in Germany.

So, virtual work teams are operating from Bangalore interacting continuously, with their headquarters, so the type of technology and the knowledge that is getting transferred is something unimaginable one decade back.

So, the types of issues are also mentioned with respect to R & D and strategy, that is technical development within the industrial network is to a great extent a continuous process in which different technical parameters are successively changed and where several units play an active role in many and various modes of cooperation. So, R & D may require cooperation of different units, not just one unit. The issues facing the company can be seen as the establishment of certain balance between its own R & D resources, and those of external use units, such as customers, suppliers, and research units.

For international companies, special issues such as geographical operation, level of industrialization, divergent local traditions, etc, come in addition to the above. Mostly, it is seen as highly centralized in the home countries with respect to multinationals, but so many changes are also taking place as I mentioned. Many of these multinationals are having their R & D centres in Bangalore.

So, that leads you to, what is called the Co Operation strategy, national companies looking at introvert R & D strategy, that is all activities within the company, then extrovert R & D strategy all activities in cooperation with external units.

Suppose that is national companies with an international strategy, then it can be an extrovert strategy, the companies can cooperate with partners in several different countries, domestic partners, only foreign partners.

So, their table is given to you, giving you the alternatives for technology cooperation. Suppose, the market orientation is national, R & D organization, the cooperation is centralized, so the strategy is also given extrovert, suppose it is extrovert, only domestic partners, only foreign partners, domestic and foreign partners, you can pick up depending on the requirement.

A figure is presented to you here with reference to this cooperation strategy. 1, 2, 3, 4 are the points which we mentioned introvert R & D, domestic partners only extrovert R & D, foreign partners only extrovert R & D, then domestic and foreign extrovert R & D. What are the inputs

for this from the company- total resources, production structure, organization structure, technical competence, and business strategy.

Some aspects of the porter's model also come into play that is concentration, homogeneity, stability, and density. So, these are, in other words the job of the strategic planner as I have been telling you, becomes quite crucial in an organization, whether it is an IT organization or it is an R & D setup or it is a manufacturing setup; strategic planning process is gaining ground in the whole country.

So, What is the road ahead? if you look at it the framework on R & D needs to be further worked upon; marketability and profitability angles need to be built in. This is what I was mentioning, you do not look at R & D only as a cost centre, so even an organization like DRDO is looking at marketability and profitability.

There is a need to build in technology relationships in the technology roadmap framework. Organizations should orient themselves to strategic management of technology. So technology becomes an important component.

We will stop here, we will continue in the next session, thank you.