

Manufacturing Strategy
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Module No. #02
Lecture No. #09
Alternative Paradigm of Manufacturing Strategy

Dear students, we are now entering into the, ninth session of this course on, Manufacturing Strategy. So far, in the previous sessions, we understood, the meaning of Manufacturing Strategy. Why, there is an importance of functional role, or need of functional dominance, in the development of corporate strategy. We also discussed, in our last session, that what are the alternative ways in which, we can understand, the meaning of Manufacturing Strategy.

We discussed, different P's of manufacturing strategies. Rather, you can say, these are the different perspectives, of Manufacturing Strategy. And, we also discussed, the concept of World-Class Manufacturing, which is the ultimate objective of Manufacturing Strategy. Finally, we discussed, the contribution of two very important thinkers, in the field of operations strategy, one is Skinner, and others are, Hayes and Wheelwright.

So, after understanding, all those concepts, now further, how to practically implement, Manufacturing Strategy. So, for that purpose, we are going to discuss in this session, that what are the alternative paradigms, which are available, through which, you can implement Manufacturing Strategy. So now, starting this discussion, on alternative paradigms, let us first understand, that how organisations, how a company, can go for winning the competition.

Now, there are organisations, which are trying to win competition, on the basis of marketing. So, their primary focus, is on their marketing strategy. Because, they feel, that their competency lies, in marketing of the products. How they can convince the customer's, to purchase their products. So, some of the organisations, go for marketing related paradigms. That is one particular, rather in present circumstances, this is one of the most important, dominating paradigms for the competition.

That, most of the organisations, are outsourcing, various activities. They are outsourcing, the manufacturing. They are outsourcing, the design. And, they are only responsible, for marketing of the products. In our present circumstances, if you see, many FMCG companies,

Fast Moving Consumer Goods companies, are involved only in the marketing activities. They have outsourced, their manufacturing, to some smaller manufacturers, contract manufacturing. In pharmaceuticals also, companies are more into marketing, and less into manufacturing.

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Different Paradigms for Competition

- Marketing — FMCG, Pharma
- Human resource → Service
- **Manufacturing** → Toyota, Hero, Maruti
- Supply Chain → Walmart, 7-Eleven, Amul
- Innovation → Apple, Samsung, Qualcomm.

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So, large number of companies, which are in FMCG, and pharma, are particularly following the concept of, marketing based competition. Their focus is on their, marketing activities. There are companies, which are focusing, on their human resource. Their competitive edge, is the technical skills available with their employees, with their personnel's. And largely, the service sector, which is one of the, most important contributor, to the wealth creation of a nation.

In that, many IT companies, many knowledge companies, are coming up. And, their competitive edge, is the human resource. So, service sector, whether you go to lawyer, whether you go to doctor, whether you go to an architect, whether you go to a consultant, all these things, are basically the part of service sector. And, you go to a particular service organisation, because of the kind of human resource, because of the technical skills, available with those resources, that is the important paradigm, for their advantage.

Then, many companies, compete on their ability of superior manufacturing. In fact, this is one paradigm, which is of interest for us, in this particular course. That, how organisations compete, on the basis of their manufacturing abilities. Now, various Japanese organisations, to start with Toyota, now in India, if I talk of Hero, then Maruti, these are the organisations,

which are competing, on the basis of their, superior manufacturing capabilities.

So, they have, no doubt, other important functional activities also, but the primary driver of their competitive advantage, or the competitive edge, is the manufacturing focus. And, there are many examples, in other part of worlds also, where organisations are competing, on the basis of manufacturing dominance. There are organisations, which are competing, on the basis of their, superior supply chain management.

We have a very popular name, that is Walmart. The crux of their success, is their ability to develop, a very high performing supply chain. Another popular name, 7-Eleven. The reason of their success, is their supply chain capabilities. And, similarly, many more like in India, if I talk of success of organisations like Amul, is because of their superior supply chain capabilities. So, there are organisations, which are competing, on the basis of their, supply chain management also.

They will have, all other support functions, marketing, human resource, manufacturing, innovation, and many other also. But, the primary driver of their success, is their supply chain abilities. Then, organisations are also competing, on the basis of their ability to innovate, ability to innovate new products, and ability to innovate new products, at a faster rate. So, both these things are important, when I am talking of, competing on the basis of innovation.

And, one of the most popular name, Apple, is competing, on their ability to innovate new products, regularly. Another popular name, Samsung, ability to compete, on the basis of innovation. Qualcomm, another very popular name. But, all these names, are following the same type of, competitive advantage, that is their ability to innovate.

So, we see that, organisations are competing, either on the basis of their, superior marketing management, or the specific type of talent they have, or their ability to produce or manufacture better products, or on the basis of their supply chain, on the basis of their ability to new product innovation, etcetera. Now, in this particular session, we are more interested, on the basis of manufacturing competition.

That, how organisations are competing, or in how many different ways, organisations can compete, on the basis of their superior manufacturing capabilities. So, that is the important

point of our discussion. Now, if I take, that organisations are competing, on the basis of their manufacturing abilities, so there are three alternative paradigms, which are available to us.

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The slide is titled "Different Manufacturing Paradigms" and lists three bullet points. The first bullet point, "Competing through capabilities", is circled in blue with a handwritten note "(R-based View)" next to it. The second bullet point is "Strategic Choices (Contingency based approach)" and the third is "Best Practices". The slide footer includes the IIT Kharagpur logo, the text "NPTEL ONLINE CERTIFICATION COURSE", and the number "3".

The one is, on the basis of capabilities. Then, on the basis of strategic choices, you make. And, on the basis of, best practices, you follow. The first, that is the competing through capabilities, this is very much related to, resource based view of the organisation. You are competing, on the basis of resources available to you. Many a times, the meaning of resource, is related to kind of capital you have, kind of technology you have. But, here, in this particular discussion of manufacturing paradigms, I am relating the resource, with respect to capabilities.

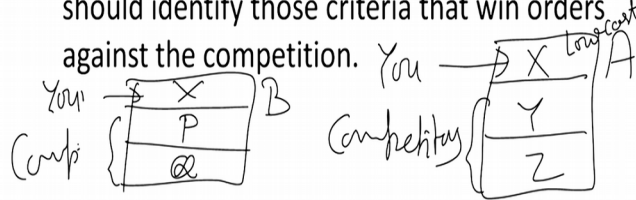
That, my resources, are my capabilities. That, what type of superior capabilities I have, that is a very important asset, that is a very important resource. And now, I will be competing, using these capabilities, or using these resources. So, that is the first type of paradigm, I am having. Now, when I am competing, on the basis of capabilities, or competing on the basis of superior resource availability, or ability to leverage those resources.

Now, the first important point in that is, what are my key success factors, and order winners. Now, it is a very interesting topic, in the discussion of marketing strategy. And, we will have, many sessions, only on this topic of order winners. But, at this point, it is sufficient to understand, that in each market, in which a company operates, it should identify, some of those criteria, that will win order, against the competitors. You have, a particular Market-A.

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Competing through Manufacturing

- Key Success Factors and order winners
 - In each market in which the company operates it should identify those criteria that win orders against the competition.



Now, in this particular market, there are three competitors, which are providing products to this Market-A, same product. Now, you are X. And, Y and Z are competitors. Now, you have to identify, that in Market-A, if I produce low-cost products, I will be able to win orders, against competitor Y and Z. In another market, B is there. Again, X, you are there. And, now in this market, two competitors are there. These are, P and Q. They are the competitors.

Now, in this particular market, may be the superior quality of the product, will help you in winning the order. So, for different markets, there will be different type of criteria, which will help you to win the orders. So, now, as a marketer, as a company, as an organisation, you have to understand, that in which particular market, if I am serving Market-A, there will be competitors like Y and Z. And, I need to provide, low-cost products, as compared to Y and Z.

Like, you take an example of Reliance Jio, in our case. Now, in Reliance Jio case, already competitors like, Airtel, Bsnl, Vodafone, Idea, etcetera, are available in the Market. But, Indian Market, being a cost sensitive market, they offered a very low cost product, almost zero cost product, to enter into the Indian market, or to win orders in the Indian Market. And, we all are witnessing, that how Jio got, tremendous success, in a highly competitive Indian mobile market, because of their ability, to relate key success factor, with the order winner.

So, in the order winner in Indian mobile market, is the cost. So therefore, they focused on, how to provide, low cost to the customer. And, that became, a very win-win type of situation, for Reliance Jio. Now, if Reliance Jio goes to American market, or Reliance Jio goes to Japanese market, now in Japanese market, there will be some other competitors. Airtel will

not be there. Bsnl will not be there. Some Japanese companies, P and Q will be there.

But, in this particular case, they will require, very high degree of connectivity, very high degree of service, with respect to your mobile services. So, here, X again, as Reliance Jio again, you should not focus on low cost. You need to focus, on superior quality, if you are serving in a Japanese market. So, that is the important thing, that when I am competing through my manufacturing capabilities, I need to first identify, that what are the key success factors, and order winners.

So, as you move from market to market, your order winners will change. So, that is the first important thing. Now, when I have understood, that in different markets, there will be different types of order winners. So now, if I want to compete on the basis of manufacturing, I have to align the capabilities of manufacturing, with these key success factors, so that, these capabilities, maximise my competitiveness.

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The slide is titled "Competing through Manufacturing". It contains a bulleted list under the heading "Capabilities".

- ① -aligning the capabilities of manufacturing with the key success factors will maximize the competitiveness of a firm
- ② - proactiveness in developing newer capabilities

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The competitiveness of the firm, should be enhanced, using these alignment of capabilities, and the key success factor. Key success factor means, the order winners for a particular market, and the capability, I need to align them. And, if I can align them, I will be able to enhance, the competitiveness of my organisation. And, at the same time, this is one particular thing, that I have to do the alignment of, success factor and the capabilities.

And, at the same time, the second important thing is, that continuously, I have to be proactive, in developing new capabilities. If you are doing, something for today, you also

need to see, that what is going to be future. And, what is going to be in future, I need to develop those capabilities, in my organisation. Now, in India, again going back to the mobiles example, now we have 4G connectivity, all across the country. And, there are companies like Jio, and some other companies, which have taken the advantage, of their superior capabilities.

Now, if a company which is struggling in the present time of 4G, they should develop their capability, for the next generation of change, for 5G. So, that is the proactiveness in developing new capabilities, that what will be the future. And, if I go to the manufacturing activities, now many companies in India, are adopting new technologies. And particularly, new technologies related to IT. Most of the organisations are adopting, IT related manufacturing activities.

Lot of automation, is taking place. But, the future is related to IOT. We are talking of, Industry 4.0 nowadays. So now, once I know that, future wave is related to IOT, I need to develop my capabilities, I must be proactive, in adopting those newer capabilities, if I will remain reactive. If I remain reactive, then I will not be able to take the advantage, for developing the competitiveness of my organisation.

In our previous session, we discuss the framework of Hayes and Wheelwright, where they have discussed, from reactive to proactiveness. So, you can follow, you can go through, that concept of reactivity to proactiveness. Many a times, in the manufacturing arena, in the operations field, we are reactive. Once, something has developed, others have followed, others have adopted, then I used to adopt this new type of concept. But, if I want to compete on the basis of capabilities, I have to be proactive, in adopting these new technologies.

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Competing through Manufacturing

- Shared vision
 - Clear articulation of corporate missions and strategies.
 - a company's vision will be shared by its managers and other employees.



Then, another important thing, when I am competing on the basis of my capabilities, my resources, the concept of shared vision. Unfortunately, many a times, the vision related activities, are considered to be top management activity. And, these visions, are not shared, with the lower level employees. And, as per the current convention, operations, employees, supervisors, labours, are considered to be the, lower level employees in the organisation. So, they do not understand, what is the vision of their organisation.

So, for that purpose, what is required, that we need to have, a very clear articulation of corporate missions and strategies, so that, it is easy to transfer, it is easy to tell, the lower level employees, in the organisation, that what is the vision of our organisation. And, you will see, that in various business excellence awards, like Balcolme Breeze, and Deming, and all those awards, there is a special focus, that how you are transferring your, corporate level vision, to the lower level employees.

What is that mechanism, you have adopted, what type of workshops you are holding, and what type of other systems, you are following, practising, that your vision is known to, each and every one in your organisation? It is not something, that is only to be shared, among the board of directors. It is to be known, by everybody in your organisation. So, that is one very important thing.

And, for that purpose, you need to have, very simple language, clear articulation, no ambiguity, so that, everyone can simply understand, that what is the right vision of your organisation. And, it has to be shared, by all the managers, and employees. Many a times,

particularly in India, if I say, that the vision -related activities, are made in English. While, your employees, may not be so good, in understanding the typical English words.

So, you need to translate, you need to develop some mechanism, that you need to have, the local language versions of your visions. It may be Hindi, or it may be any other regional language like, Telugu, Tamil, Marathi, Gujarati, etcetera. But, unless until, your vision is converted, into the local languages, which are more familiar with the employees of the organisation, you cannot have the concept of shared vision.

And, what is your vision, if that is not shared with the employees, it is quite possible, that the managers and employees of the organisation, may go on a different path, and your corporate vision is of, some other direction. So, it is important, that you need to have, a shared vision mechanism, in your organisation. The second important paradigm of manufacturing, which is again very, very important, that is, how to make the choices, within manufacturing.

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2 Strategic Choice in Manufacturing

- Need for internal and external consistency between choices in manufacturing strategy
 - Choice of process : Volume versus Variety
 - Based on both market strategy and order winning criteria
 - Infrastructure Choices
 - Focus: for a given context the dimensions and choices on which a factory should be focused.

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And, I am saying, that these are the strategic choices, in manufacturing. Now, first important underlying phenomena, in making the choices is that, you need to have, internal and external consistency. Whenever you are making choices, you need to have, this kind of consistency that, what is your external environment desiring, and what type of internal capabilities you have. If you have that type of consistency, then it is going to give you, the strategic advantage.

If you do not have, that type of consistency, then strategic advantage is not possible. So, that

is the fundamental, you can say, principle, of getting the strategic benefit of your choices. Now, what type of choices, we make. We make choices, of processes. And, choices of processes are governed, by the concept of volume versus variety. If you want to produce high-volume, you have to sacrifice on the variety.

And, if you are producing high number of variety, more number of products, then volume of each type of variety, will have some kind of trade-off. So, one type of choices is related to, volume versus variety. The second type of choices, are related to, market strategy and order winning criteria. What type of market strategy? Whether you want to have, cost related, differentiation related, focus related, market strategy, and this will be dependent, on the order winning criteria.

Then, infrastructure choices. Whether you want to own a facility, or you want to outsource a facility. That type of choices, you make, with respect to infrastructure. And then, focus. In a very important article, written by Skinner, the title of that article was, The Focus Factory. And, in that Focus Factory itself, the Skinner mentioned, that what is the context, and what type of focus, of your factory should be.

So, you need to make choice, with respect to focus, of your manufacturing organisation particularly, whether the focus is on, satisfaction of the customer, whether the focus is on, developing high-volume, whether the focus is on, developing more variety, whether the focus is on, regular innovation. So, you need to decide that, to the given context and dimension, what should be the focus of your organisation. So, these are the, various types of strategic choices, you will be making, in your strategic management.

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③ Best Practice = WCM

- Sources of Best Practice
 - Mostly from Japan
 - MRP from USA
 - FMS from UK
 - Group Technology from Russia

Benchmarking

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And then, the third important Manufacturing Strategy paradigm, is related to best practices. In our last to last session, we discuss the concept of World Class Manufacturing. And, best practices concept is basically derived, from the concept of World Class Manufacturing. Or, you can say, the best practices will take you, to World Class Manufacturing.

Now, most of the time, the sources of these best practices, are Japanese organisations. Toyota, etcetera, are the primary names, whenever we talk of best practices. Toyota Production System, is one example of best practices. How they develop the concept of Lean, Values, Kaizen, Kanban, all these are the examples of best practices. But, from other part of the world also, we have some of the best practices. And, we will be discussing those practices, in our coming sessions, one by one.

The concept of like, MRP, Material Requirements Planning, it came from USA. The concept of Flexible Manufacturing Systems, came from United Kingdom. The concept of Group Technology, how to minimise the distance, within the plant, to have more efficient plants, layout point of view, came from Russia. So, these are the some of the other important type of best practices, which came from different parts of the world.

So, there are other sources, other than Japan, for the best practices. And, we need to see that, how do we adopt those best practices. Because, these best practices, also help us in benchmarking. That, the best practice of Toyota, is giving, this rate of rejection. So, can I also achieve, that level of acceptance. So, these type of things, help us in determining the benchmarking.

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The slide contains the following content:

- World Class Manufacturing ✓
- Process and Measurement

Handwritten notes on the slide include:

- A bracket under "Process and Measurement" pointing to "KPI" (Key Performance Indicator).
- A circle containing "Functional" at the top and "Business" at the bottom, with an upward arrow and a downward arrow between them, indicating synergy.

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Now finally, these things help us, to achieve the status of World Class Manufacturing. And, when we are in the stage of World Class Manufacturing, we are able to use our processes, that is our content part, and the measurement, we are able to set, our key performance indicator, that what all our key performance indicators, which can create, synergy between, functional and business level objectives.

So, you need to have a synergy, between functional and business level, objectives, targets. So, you need to decide, your key performance indicators, which can support your idea of capabilities, choices, and best practices. Now, if you summarise this whole thing, that if three alternative paradigms, we discussed.

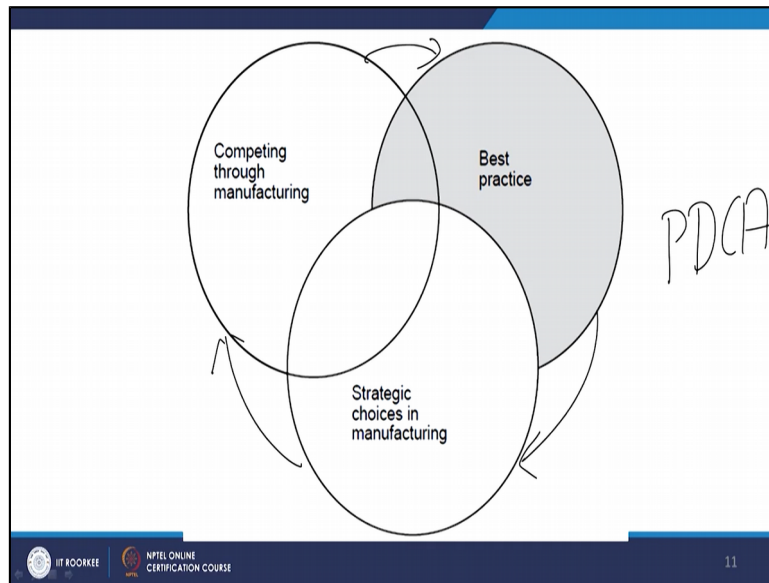
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	Competing through manufacturing ①	Strategic choices in manufacturing ②	Best practice ③
Key concepts	Order winners	Contingency approaches	World-class manufacturing
	Key success factors	Internal and external consistency	Benchmarking
	Capability	Choice of process	Process re-engineering
	Generic manufacturing strategies	Process and infrastructure	TQM
	Shared vision	Focus	Learning from the Japanese
			Continuous improvement
	Process		
	Measurement		

One, two, three. One is competing through manufacturing. Then, strategic choices. And, the best practices. And, what are the various key concepts? These are the order winners, capabilities, generic manufacturing strategies, shared vision. Then, in case of choices, you have contingency approach, internal and external consistency, we discussed. How to decide a particular type of process? And, what is the focus of your organisation?

The best practices are related to, World Class Manufacturing, Benchmarking, Process Re-engineering, Total Quality Management, learning from large number of Japanese Organisations, and Continuous Improvement. And, the pillar of all these things are, how are you designing your processes? And, what are your indicators, key performance indicators? That is the measurement criteria.

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If I just see, these three alternative paradigms, so you can see that, that is one overlapping way, to understand, these three concepts, that competing through manufacturing, shared choices, and best practices. And, it is also possible, that you can add, these type of arrows also, which will show you, which will give you, some kind of parity, with very popular concept, known as, PDCA. That, it is a kind of cyclic phenomena, that you are competing through manufacturing.

And, for that purpose, you make some kind of strategy choices, in your manufacturing. And, strategic choices are governed, by the best practices, you are following. So, this way, it becomes a cyclic phenomenon. And, it also gives you an idea, that all three alternative paradigms, are not separate. They are quite, overlapping in nature. So, though, in the front, it looks, we have three alternative paradigms.

So, somebody may think that, there is no relation, between these paradigms. But, now we can say that, there is lot of overlapping, among these three paradigms. And, these three paradigms, are forcing one another. So, this is a kind of a circular loop, which finally emerges, in case of implementation of various paradigms, for achieving the manufacturing advantage. So, with this, we come to end of the session. Thank you, very much.