Manufacturing Strategy
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Module No. #02
Lecture No. #10
Some Generic Manufacturing Strategies 1

Welcome, friends. So, now we are coming to the end of, week two of this course of, Manufacturing Strategy. In this ten lectures, we have understood, the meaning of Manufacturing Strategy. And, in our last session, we discuss that, how to start implementing Manufacturing Strategy, in the organisation. We discussed about, three alternative paradigms, through which, you can implement marketing strategy, in your organisation. Or, to put in a different word, you can compete, on the basis of manufacturing.

Now, the First paradigm, which we discussed, is related to, your capabilities. You are competing, on the basis of manufacturing. And, that is related to, resource-based view of manufacturing. Now, when we are talking of, resource-based view of manufacturing, we need to understand that, what are the generic strategies. Because, generic manufacturing strategies, are the important inputs, for competing through manufacturing. And, in this very session, we are going to have, the First look, on these generic manufacturing strategies.

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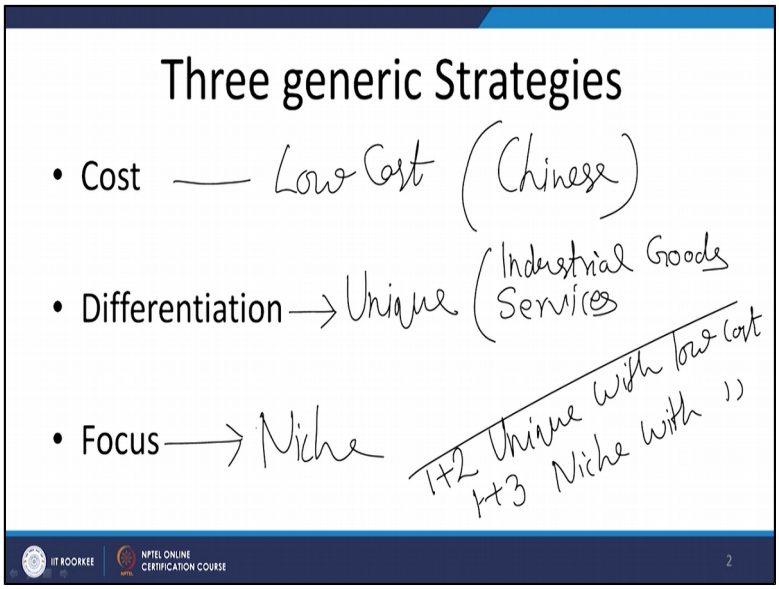

Now, the concept of, or this word, Generic Manufacturing Strategy, came from the discussion of Michael Porter, who is considered to be, one of the greatest contributor, in the field of strategic management. And, when we talk of Porter's contribution, in the field of strategic

management, three very important generic strategies, were given by the Porter. And, these strategies, just for a quick recap, you will know that, these are based on, cost, differentiation, and focus.

Organisations can compete, on the basis of, low cost. And, many organisations we know, are competing, on the basis of low cost. And, if I take this, to the field of manufacturing, the whole Chinese manufacturing, is competing on the basis of this, low-cost phenomena. So, we have a very particular example, very specific example, of China, that how, Chinese organisations, adopted this Generic Strategy of Strategic Management, or Marketing Management, into the field of manufacturing also.

Then, another type of Generic Strategy, proposed by Porter, is related to differentiation. How to create, unique products? How to create, customised products? So that, these products are only for, your requirements. So, that is the concept of differentiation. That is another kind of, Generic Strategy. And, there are large number of organisations, particularly all those organisations, which are in the field of industrial marketing, or which are supplying the industrial goods, these are following, the concept of differentiation.

Now, another example is, services. All the services, come under the category of, differentiation. Though, there may be few services, like mobile services, etcetera, which can be the part of cost related manufacturing also. But, many of the services, are following the concept of Differentiation Generic Strategy. Then, focus. How you can create, your focus on a niche area. So, you are fulfilling the requirement of a very small group of customer.

So, you follow, this niche marketing also, in some of the cases and, these are the three generic strategies, which were popularised, by Michael Porter. Now, having understood, the meaning of Generic Strategy, the meaning of Generic Strategy is that, you have some fundamental names. But, when you go to the market, when you go for the practical, you will make a possible combination, as per your requirement.

So, these are the three broad categories of generic strategies, proposed by Porter. But, depending upon your market requirement, you will try to fulfil the uniqueness, with low-cost. So, this is one strategy, which is a combination of Generic Strategy 1 and 2. Similarly, it is

also possible that, you are fulfilling, the need of a niche market, with low-cost. So, that is another possible combination.

Then, you can have, niche market with differentiation. So, your luxury apparels, your very high value jewellery, so these are niche market with differentiation also. So, depending upon, what type of customer you are serving, what type of product you are into, you will make different types of combinations, of these basic strategies. So, these basic strategies are known as, generic strategies.

And, you will see, in practical cases, not many examples are available, where a company is following, only a pure Generic Strategy. You can understand that, these are the pure strategies, and these are the mixed strategies. So, most of the time, we follow mixed strategy, where we take suitable combination, of Generic Strategy. Now, when we come to the field of manufacturing, the generic Strategy is related to manufacturing.

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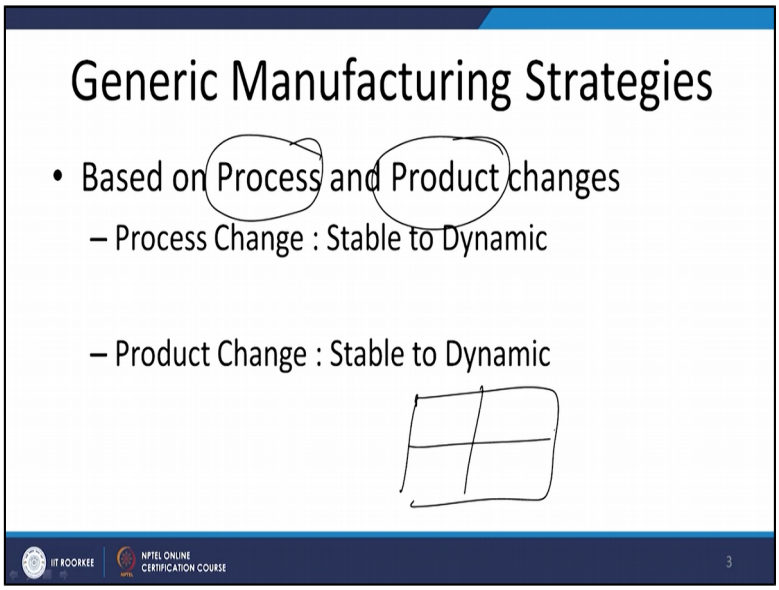

So, our discussion of manufacturing generic strategies, are based on, two things. One is, related to processes. And, another is related to, products. So, we have, two categories, broad categories. Your processes can change, from stable to dynamic. Degree of process, may be towards, stable side, or towards dynamic side.

Similarly, degree of change, in case of product, may be from the stable side, to dynamic side. And, when we combine, these process and product change, we have a 2/2 matrix. And, we

will see, that how this 2/2 matrix, will give us, four different types of generic manufacturing strategies. And, that is available here.

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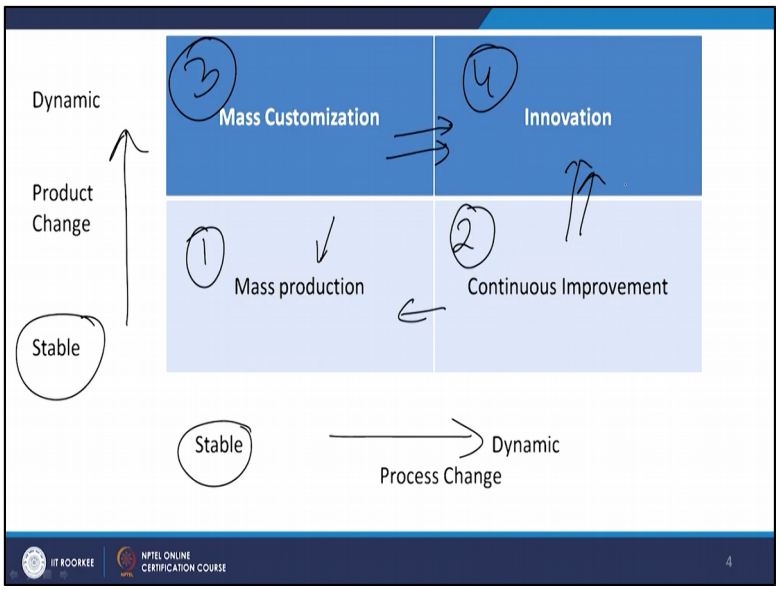

That, on one axis, we have the degree of process change, that is represented on the x-axis. On y axis, we have degree of change, with respect to products. Now, as we discussed, the process can change, from stable to dynamic. And, products can also change from, stable to dynamic. Now, when we have this 2/2 matrix, so you have four different types of strategies. One is, Mass Production. Second is, Continuous Improvement. Third is, Mass Customisation. And, fourth is, Innovation.

We will discuss, about for these different types of generic strategies, one by one. But, let us see, that in which particular situation, which type of strategy is suitable. Now, when we have stable processes, our processes have matured, you are not seeing much change, in these processes. And, your product category is also stable. New innovations, new changes, new product development, is not taking place, at the faster rate. So, you go for the, mass production.

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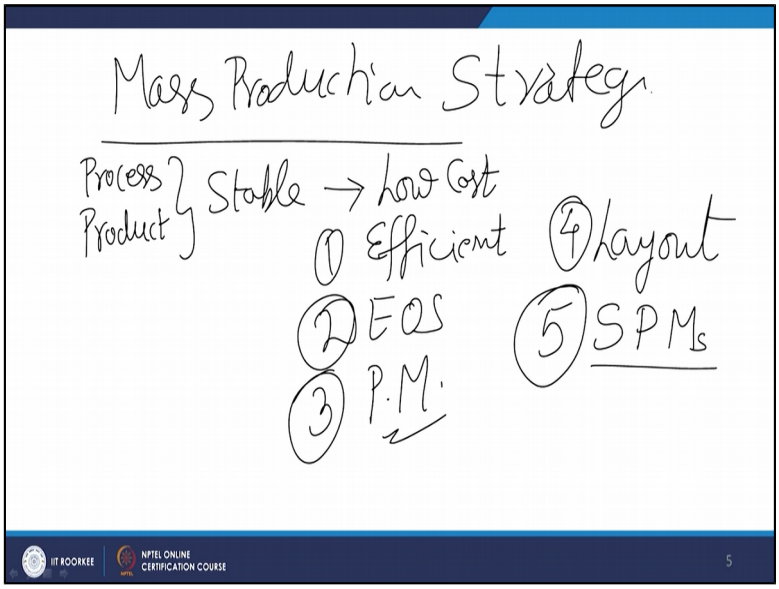

So, when we go for the mass production, in the mass production case, you will see, that our focus, because process is a stable, and product is also stable. Both these things are stable. So now, our focus is on low-cost. And, we look for, efficient working of the plant. We look for, economies of scale. That, how to achieve, best economy of scale, in case of stable processes, and stable products. And, if you have, good economies of scale, you will have, efficiency in your working.

And, these are two things. Then, another important focus, will be on, productive maintenance. You will like to have, best maintenance system, of your organisation, so that, you can produce, as high as possible. If your plant is under breakdown, if you have so many frequent breakdowns, or maintenance activities, it will bring down the efficiency of your plant. So, we have lot of focus, on maintenance related strategies, so that you can take, maximum output from your plant.

Then, another important thing is, related to layout. Because, everything is very much standard. So, you can have, a very specific layout, for producing those products. Because, processes are also fixed, product design is also fixed. So, you can have, a very standard type of layout. Then, in this type of manufacturing facilities, we develop Special Purpose Machines, SPM's, where we have machines designed, to produce only one type or two types of products.

If you have SPM's in your plant, your efficiency will increase, your production volume will increase. So, that is another purpose of having, SPM's in your plant. But, SPM's are only

suitable, when you have very stable kind of product. Because, one SPM is able to produce, only one type of product, or maximum 2, 3 types of products, depending upon, what type of SPM, you have. So, SPM's are suitable, only when, product stability is very high.

So, when you have mass production idea, in your organisation, in that particular case, we like to have, lower cost. And, lower cost is possible, when you utilise your resources, most optimally. And, in that most optimal use of resources, we are looking for economies of scale, we are looking for transportation, or the layout of the organisation, so that, you have minimum cost of travel, within the organisation. You have special purpose machines, so that, your tool setting times, etcetera, can be minimised.

You follow the concept of productive maintenance, so that, your machines are not under breakdown. So, all these things, are there, to achieve the mass production strategy. So, mass production strategy, is one type of Generic Manufacturing Strategy. So, this is how, you need to do various actions, to achieve this mass production strategy. Now, the Second type of strategy, is the continuous improvement type of strategy.

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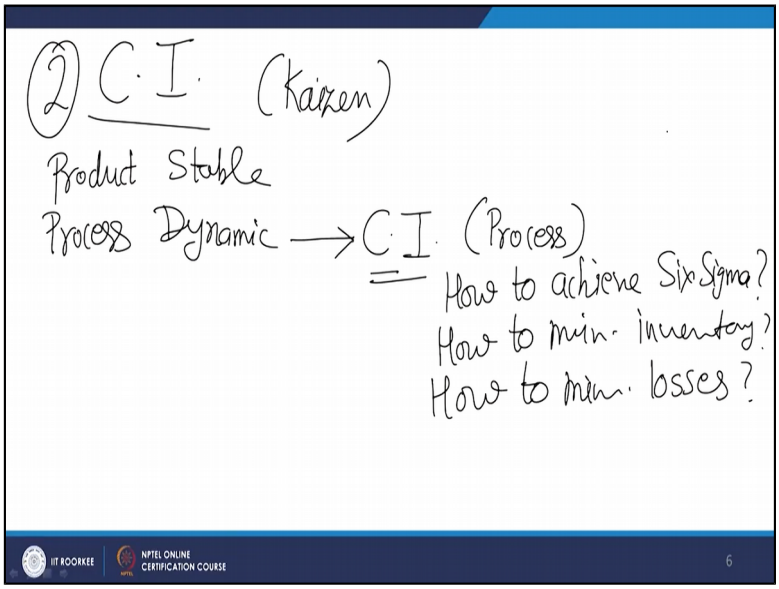

Now, when we talk of continuous improvement type of strategy, which is CI, Continuous Improvement. The popular Japanese word, Kaizen, we use to represent the idea of continuous improvement. Now, in organisations, we have a situation, where our product is stable, but process is dynamic. For example, you are making, same type of car, again and again, there is no much improvement, in the design of car.

So, you can say, the product is stable. But, it is possible that, we are continuously developing, efficient methods, for making the same product, car. So, in this case, process is dynamic, product is stable. And, when process is dynamic, we need to develop, we need to have, the concept of continuous improvement, which is mostly related to, processes. That, how to achieve, Six Sigma? If I am working on achieving Six Sigma, I am doing the continuous improvement, in my organisation.

How to minimise inventory? One idea, for continuous improvement. How to minimise losses? Another important thing, to implement the concept of, value stream mapping, in my organisation. So, all these things, are basically aiming towards, having the same product, but improving your processes, improving your processes following the best practices, so that, your objective can be achieved.

So, continuous improvement itself, this Kaizen itself, can be known as, another type of Generic Manufacturing Strategy. Here, in this Generic Manufacturing Strategy, we are not focusing, on improving the design, or we are not focusing, on bringing new products. Our focus is on, how to improve the process. How to improve the process, with respect to minimisation of defects, with respect to improving the quality output from the product, with respect to minimising the inventory from the product.

So, there are different issues, related to process choices. And, we handle, those process choice related issues, or process related improvements, in the Second Generic Manufacturing Strategy, which is applicable, when the products are stable, and we want to improve the processes. Now, the Third type of Generic Manufacturing Strategy, is related to mass customisation.

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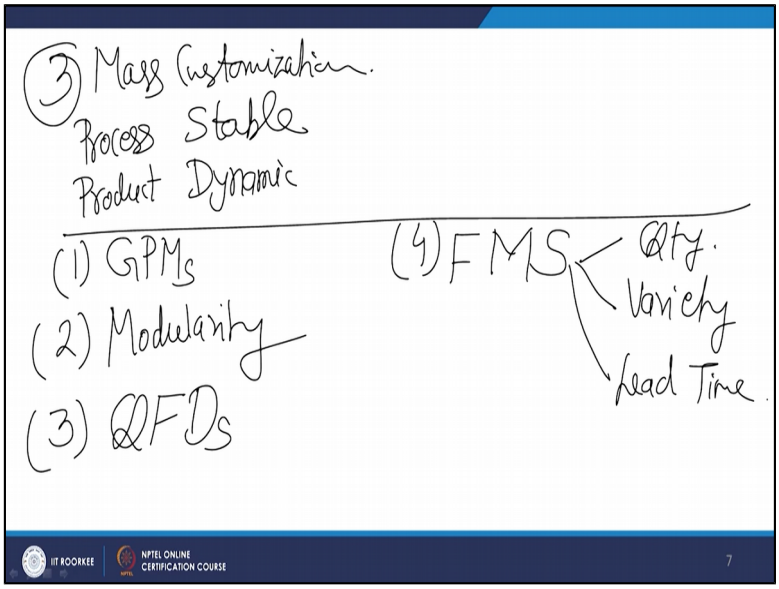

Now, the mass customisation, is possible, in that field, your process is stable, while your products are dynamic. Now, when products are dynamic, it means, the product are changing, from customer to customer. One customer requires, a different type of attributes in the product. And, B customer requires, a different type of attributes in the product. And, the way of producing the products, are stable. You have a set sequence, of making the product.

So, the process of making the product, is relatively stable. But, to satisfy the needs of different group of customers, your products output are dynamic. So, that is known as, Third Generic Manufacturing Strategy, which is mass customisation. When we are following, the idea of mass customisation, the First important thing is, we need to have GPM's, General-Purpose Machines.

In case of mass production, if you remember, we discussed the idea of, a special purpose machines. That, you need to have, more specific machine, which can produce, only 1 or 2 types of products. But, here in case of mass customisation, we are going to have those machines, which are very much flexible. If you just change the setting of that machine, you can make different types of products. So, these are known as General-Purpose Machines.

If you go to your B-Tech days, and you see the First year workshops, so the most of the machines, the engine lathe, the shapers, the milling machines, are the general-purpose machines. Which are only used, as per the setting of the worker. As, workers give the new type of product, they will develop the new type of tooling's. And, that machine can be used, for producing that type of product.

So, GPM's are used, in case of mass customisation. In case of mass customisation, you cannot think of, economies of scale. But, in case of mass customisation, nowadays, because, we also want to deliver products, at a faster rate to the customer, we focus, more on modularity. That, how, you can keep components readily available, in the modular form to you. And then, as and when order comes, as and when you feel, that there is a requirement of the product, so you try to assemble, you try to process, those modular components, to make your finished products.

So, the modularity is key feature, in case of mass customisation. The Third important thing is, your focus on, concepts like QFD's, Quality Function Deployments. Because, you are doing mass customisation, to fulfil, the needs of individual customers. Now, you need to translate, the customer needs, into specifications of a product. And, since, we are doing at the mass level, so we need to have that expertise, that how to transfer, how to understand, the customer need. And, those customer needs are explained, in a very subjective manner.

So, you need to translate those subjective values, into some kind of product specifications. So, activities like quality function deployments, QFD, help us, in transferring those subjective activities, into product specifications. So, you need to have, expertise in QFD's also, in case of mass customisation. In case of mass customisation, another important thing, which we require, that is flexible manufacturing systems.

You need to have, system of manufacturing, which is flexible with respect to quantity, flexible with respect to variety, flexible with respect to lead time. So, you need to build, this type of flexible manufacturing system, where your manufacturing system can produce, different levels of output, where your manufacturing system can produce, wide variety of products, and when you can serve, an emergency customer also, and a routine customer also.

So, all these things are the elements of, flexible manufacturing system. So, if I am going for mass customisation, I need to build, this kind of flexible manufacturing activities, into my system. So, this is my third important, Generic Manufacturing Strategy, which is mass customisation. Then, the last important Generic Manufacturing Strategy is, innovation. Which is applicable, when I have, dynamic processes, and dynamic products.

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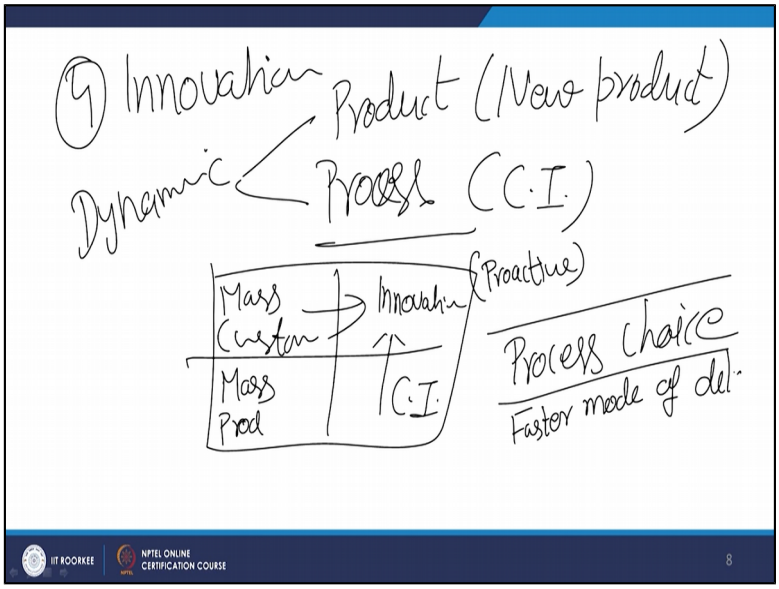

So, when we have dynamics, on both the dimensions, when I have dynamic products, and dynamic processes, in that case, we go for innovation. Innovation has, some element of continuous improvement, which is related to process dynamics. And then, developing new products, that is the aspect of product dynamics. So, you are developing, new products also. And, at the same time, you are improving, the way you are working. Your way of producing the products, your processes, are also improved.

And, your idea of new products, are also coming, on a regular basis. So, you are going for a very holistic kind of thing, where, in this particular case, you are moving, from this continuous improvement to innovation, and from this mass customisation to this innovation. You are trying to remain, at the forefront. This, you can also understand, that this is the desirable state, as per the Hayes and Wheelwright framework, where, you become proactive.

Hayes and Wheelwright framework says, that organisations must be proactive, in developing their manufacturing capabilities, in understanding the success factor, and aligning those success factors, with your internal strength. So, same thing happening, in the case of innovation. That, in case of innovation, you are doing continuous improvement, with respect to your processes. And, at the same time, you are also developing, new type of products, by following the idea of mass customisation.

And, when we combine, both these things, that you are developing new products, as well as new processes, you are adopting better processes, or rather you are doing innovation, in those processes. So, finally, we come to this Fourth Generic Strategy, that is of innovation. So, we

discussed that, we have one Generic Strategy, that is mass production. Then, we have continuous improvement. Then, we have mass customisation. And finally, the innovation.

So, these are the four generic strategies, we discussed, separately. But actually, what happens in practice, as we discussed earlier also, about the Porters Generic Strategy, in this case also, what is going to happen, that you will not see, that organisations are following, only one type of Generic Strategy. In practicality, organisations go, for combination of different types of generic strategies. Organisations will do, mass production. And, at the same time, they will continuously improve their processes.

Organisations will go for, mass customisation. And, at the same time, in that customisation also, they will see that, how I can go for economies of scale, how can I go for lowest possible cost, even if I am going for the mass level of customisation. So, it is not that, organisations are only following, a single type of Generic Strategy. But, depending upon the situation, depending upon the environment, you see that, what type of combinations, are possible.

And therefore, when we do this combinations, so this is becoming an issue, related to process choice. The second paradigm, of manufacturing. In our ninth session, we discussed about, different paradigms of manufacturing. And now, when we discover these four generic strategies, so these are the first type of paradigm, that what are the generic strategies available to you. But, as I am saying, that in practical, you will not be using the generic strategy, rather you will be using, mixed strategies.

And, for applying those mixed strategies, you need to make, certain kind of process choices. So, when you make process choices, you see that, if you find, let us say, in your organisation, faster mode of delivery. You take some faster mode of delivery, products to the last mile. For last mile delivery, you are taking faster mode of delivery, so that, you can reduce the lead time. But, at the same time, this faster mode of delivery, which is aiming towards reducing the lead time, should also help you, in minimising the inventory levels.

Because, you are delivering products, at a faster rate. So, it should help you, in minimising the inventory level. So, on one side, your idea is to reduce the lead time. But, on the other side, you can also think of, reducing the inventory level, which is going to help you, in minimising the cost. So actually, it is not the one type of strategy, it is a combination of

various generic strategies, which is going to help us finally, in delivering or competing, on the basis of manufacturing.

So, in this very session, we discussed this idea, that how you can combine different types of generic strategies. This is one way. This whole classification, which is based on process and product changes, from stable to dynamic, this is one way, to define the generic strategies of manufacturing. In our coming classes, we will see, some other classification, some other interesting mode, of developing your, Generic Manufacturing Strategy.

But, this is in the Second week of this course, you already know, these four types of Generic Strategy, mass production, to continuous improvement, to mass customisation, to innovation. And finally, we said that, organisations in the present circumstances. Earlier, the idea initially was, to move towards this. The idea was to go for the mass production, that how can we settle, for the mass production.

But nowadays, the idea is not to settle towards, the mass production. The current era demands, that we should move towards, the innovation. So, this is the current period, which is represented by two arrows. The single arrow, represents the previous period. So, traditionally, we wanted to settle down, we wanted to stabilise our processes and products, so that, you can enjoy forever.

But nowadays, because of competitive environment, because of so many changes happening in our external environment, we continuously want to remain, innovative organisation. So, that is a major shift, with respect to Generic Manufacturing Strategy, that nowadays, our focus has moved from, 1 to 4. So, with this, we come to end of this session. And thank you, very much.