

**Manufacturing Strategy**  
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**Module No. #03**  
**Lecture No. #11**  
**Developing Manufacturing Strategy**

Welcome, friends. So, now we are entering into the third week of this, course on Manufacturing Strategy. The course of Manufacturing Strategy, is helping us, to understand the role of manufacturing, in the competitiveness of an organisation. But, at the same time, this is also continuously emphasising, the role of functional strategies, in the corporate strategy.

In our last session, we discussed that, organisations can compete, either on the basis of marketing, or on the basis of human resource, or on the basis of manufacturing, or on the basis of supply chain, or on the basis of innovation. All these are the, functional level activities. And, when one functional level activity, excels in your organisation, that gives you the competitive advantage. Most of the literature, we discussed, is pointing that, organisations are competing, on the basis of marketing abilities.

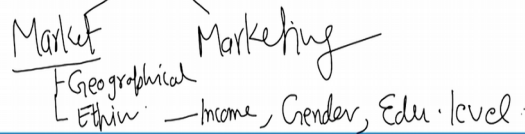
Their competencies in marketing, are the main force, of driving the competition. Here, in this course, we are focusing, that manufacturing can also provide, equal amount of competitiveness. And, we have earlier argued that, maximum share in the expenditure of your organisation, is related to manufacturing activities. So, obviously, the part of functional activities, which is taking care, most of your resources, should provide you, maximum competitiveness. So, this logic is very simple.

But, many of us, have not followed this logic, and therefore, we are now requiring, that how manufacturing can provide, that competitive advantage. Now, in this line, in this session of developing the Manufacturing Strategy, we will discuss that, how the Manufacturing Strategy, for an organisation will be developed. And, to understand that, we will see that, what type of strategy, what will be the deliverable of this strategy, how to achieve those deliverables. All these are the important component, of this Manufacturing Strategy development process.

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## Developing an operations strategy

Companies require a strategy not based solely on marketing, operations or any other function, but one that embraces the interface between markets and functions.



Now, we require, strategies at the operational level, which are not based, only on marketing, or only on operations, or only any particular functional area, like supply chain, human resource, finance, or IT, or innovation, rather, we will take into account, that most of these strategies, should be an interface between that functional area and the market. And, at this point, it is very important for us, to differentiate between two terms, that is market, and marketing.

Many of us, may not feel any difference between market and marketing. Marketing is a functional activity. While, market is not. Market is, understanding your customer. Marketing is, knowing who your customer, what is their need. So, that is market. So, all functional activities, need to target, need to create that kind of synergy, between the market, and that particular functional activity. Marketing is a functional activity, while market is not.

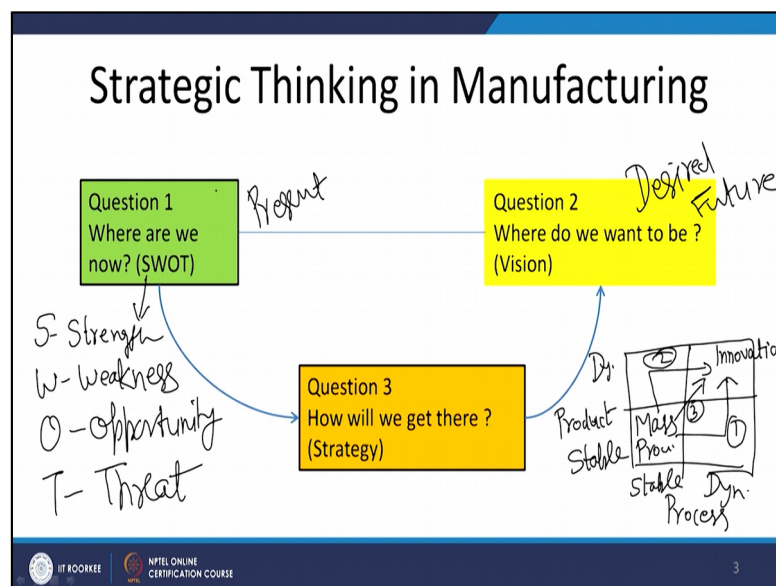
This distinction is very, very important. Market, many a times, we can classify, on the basis of, you can say, geographical area. Market, you can classify, on the basis of ethnicity. Market, you can classify, on the basis of income. Market, you can classify, on the basis of gender. Market, you can classify, on the basis of, you can say, educational level. So, all these are the different ways in which, you can decide your market.

That, I am going to serve a market, which is college going. So, that is my market. And, this market may not be, physically located at a particular place. I want to serve a market, which is in the Northern India. So, that is a geographically located market. I want to serve, those people, who are coming, from African background to India. So, I am serving, a particular

ethnic market. Then, I am only selling products, of male utilities. That is, market on the basis of gender. I am serving those markets, which are highly educated.

So, serving market, on the basis of education level. So, markets are defined, on the basis of, all these possible variables. You can take, one variable. Or, you can take, more than one variable. If you go to the class of marketing, we talk this thing as, segmentation. So, first is, we need to create, a kind of synergy, between our functional activity, and the target market, to which we are going to serve our product. And again, I am cautioning you, that market and marketing are, two different things.

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Now, developing the Manufacturing Strategy, or strategic thinking in manufacturing, a very simple flow diagram, I am presenting. And, in this simple flow diagram, to develop a Manufacturing Strategy, we are having, 3 questions. The question number 1 is, what are we now? Where are we now? What is our current status? That is the question number 1, we try to answer. And, to answer this question, we take the help of SWOT.

SWOT stands for, Strength, Weakness, O for Opportunity, and T for Threat. So, we do our SWOT Analysis, Strength, Weakness, Opportunity, Threat Analysis, to know, what is our current situation? Where are we now? Then, the second question, we like to answer, where do we want to now? What is our desired status? This is our present. And, this is our desired status. Or, you can say, future. So, you know, what is your current situation? Where you want to be?

And then, the third question is, how will you go there? So first, many a times, unfortunately, many of us are not aware, where are we now? People remains in a state of confusion. And, they are not able to judge, their either true potential, or they are not able to know, their strengths and weaknesses. And, that is, first problem arises, from the stage one, that where are we now. The second question, we do not know, where we want to go. And, third is, how will we go there.

That is the simplest question, one can answer. But, two most difficult question, from my understanding, are the question number 1, and question number 2. We are unable to identify, where are we, and where we want to go. Once, you are clear about these two things, where are we, where we want to go, then you can find, a path, that how to go from this stage, to that stage. In our one of the session, we discussed, that there are 4 types of generic manufacturing strategies, depending upon process and product change.

So, like, if you have this 2/2 matrix, where on one axis, you have process change, and on other axis, you have product change. Processes can be, from stable to dynamic. Similarly, products can also be, from stable to dynamic. If, you are in a stage of stable product, stable process, you are following, a mass production strategy. Now, it is quite possible, that you remain satisfied, with this mass production strategy.

But, if you are a dynamic organisation, if you are a learning organisation, so you will like to move, from this mass production strategy, to some other kind of strategy. Now, it is quite possible that, you follow this route, Route Number-1, you follow this route, Route Number-2, or you follow this route, Route Number-3. This is representing, the innovation strategy, where you are leading the market, with your ability to innovate.

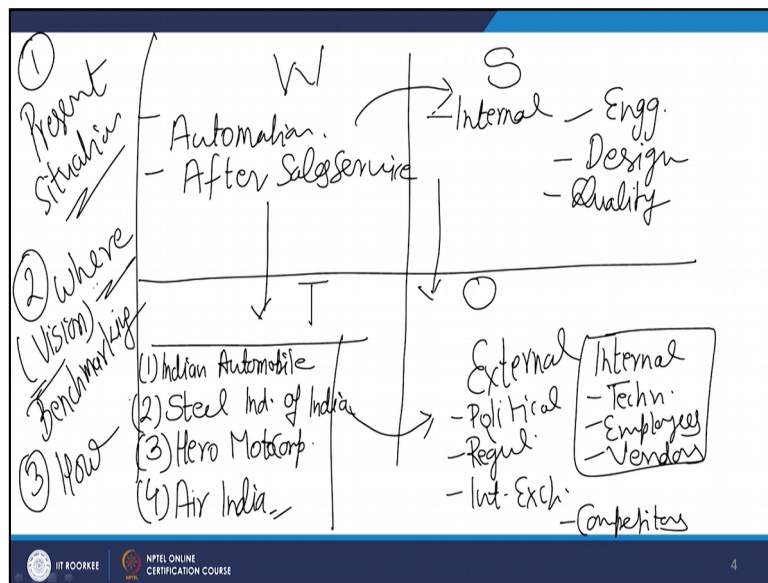
You need to continuously innovate, if you are in a market, which is characterised by dynamic products. The products are regularly changing. And, you are changing your capabilities, you are changing your processes, to meet the requirement, of those changing products. So, you are in a, innovation strategy type of activity. And, many companies, try to move from, mass production to innovation.

But, they may follow, Route Number-1, Route Number-2, Route Number-3. And, this is the answer of question number 3, that how will you get there. Either, following Route Number-1,

or by following Route Number-2, or by following Route Number-3. But, it is important that, where are we now. If, I am at stage number-2, or if I am at stage number-1, then I will not have these alternative routes.

So, depending upon, where are we now, we will decide, that what are the alternatives available to us. And, I will select, one of those alternatives, depending upon pros and cons, attached to those different alternatives. Now, the first important question, that is the SWOT Analysis. And, we would like to discuss, slightly in more detail, about the SWOT Analysis.

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Now, in the SWOT Analysis, many of you may be familiar also, that this is a very important tool, for environmental scanning. You do environmental scanning, for both the environments, your internal environment, and your external environment. Any organisation, has two types of environment. One environment is, within your control. The variables of that environment, are within your control. So, that is internal environment.

But, there are large number of activities, large number of variables, which are outside your organisation, which are beyond the boundary of your organisation. For an example, regulatory environment. That is, outside the purview of, your individual organisation. So, that becomes an component, of external environment. The political environment. No single organisation can control, the political environment.

So, political environment is also a part of external environment. While, I can very well control, my employees. I can control, the type of technology to be used, in my organisation.

So, these are the part of my internal environment. So, internal environment is something, where I have full control. So, this is internal environment. And, this is external environment. So, things like political, like regulatory, like international exchange rates, these are some of the elements of the external environment.

Your competitors. What your competitors are doing, you have no control over them. So, your competitors are also part of your external environment. While, you can control, the technology available to you, your employees. You can control your vendors. So, all these are the part of your internal environment. So, in the SWOT Analysis, we do, a thorough scanning, of these internal as well as external environment.

So, you have, strength, weakness, opportunities, and threats. And, with the help of these strength, weakness, opportunity, threat, you will do, this kind of analysis, which is going to help you, in getting the current situation, of your organisation. In case of strength, most of the strengths are coming, from the internal situations. You may be having strength, for superior engineering. Your design capabilities, are your strength.

Your ability to produce, very high quality products. Quality conformance. You already have, ability to produce, Six Sigma level of quality. So, these are some of the strengths. The examples of strengths, coming from your internal environment. Similarly, weaknesses may also come, from the internal environment. You do not have, much automation, in your factory. You lack, degree of automation. Your competitors are having, higher degree of automation. But, you do not have, that high degree of automation.

So, that may be one weakness, for your organisation. You do not have, capability to provide, good after sales services. That is also a weakness, you have. So, these are strength and weaknesses. Now, based on these strengths and weaknesses, you can also align them, with the conditions of the external environment. And, when we go with the alignment of these internal situations, with the external environment, you get opportunities and threats.

So, strengths give rise to opportunities, and weaknesses give rise to threats. When you have something, which is favourable, which is in line, with the strength of your organisation, that there is a huge market available, which is highly quality conscious. So, that becomes an opportunity for you. That, you have a strength, to produce high quality products, and at the

same time, there is a market available, for high quality products. So, you have an opportunity, to grow to that untapped market.

You have, weakness of after sales service. You do not have, a good network of after sales services. So, the threat is, that customers are looking, for those suppliers, which can provide good after sales services. But, since, you do not have that, after sales services, so that becomes a threat for you. That, those competitors, which are having a robust after sales service mechanism, these customers will go to those competitors.

So, this way, your weaknesses will give rise to your threats, strength will give to opportunities. Over a period of time, what we try to do, that slowly and slowly, we will try to convert our, weaknesses into strengths. We will do some kind of exercise, we will do some kind of development programs, we will organise some kind of workshops, so that, we can convert our weaknesses into our strengths.

Our after sales service system, is not robust. So, we will try to expand, our after sales service network. If degree of automation is less, we will see that, where we can increase, the level of automation, so that, once your weaknesses become strength, then obviously, these threats will also become our opportunities. So, that is how, over a period of time, this type of transition takes place, that weaknesses become strength, and threats become opportunities.

But, in this context, where we are discussing this SWOT Analysis, the purpose is, to know the present situation. We are doing this whole exercise, to know our present situation, to get the answer of question number-1, we just discussed that, where are we now. So, to get the answer of this question, using the SWOT Analysis, we are going, for this type of complete detailed exercise. And, I request you, that you can also do, SWOT Analysis of different types.

For an example, you can do SWOT Analysis, of Indian Automobile Industry. Make a SWOT Analysis of Indian Automobile Industry. And, you can share, these detailed SWOT Analysis, over the discussion forums also. Then, you can do another SWOT Analysis, of Steel Industry of India. Then, we can also do, some company specific SWOT Analysis, like we can do, SWOT Analysis of, Hero MotoCorp. We can do SWOT Analysis of, another very popular company, that is Air India.

So, at this time, we are doing a detailed SWOT Analysis. But, in coming sessions, we will discuss, that how we need to do only, manufacturing related SWOT Analysis. Because, the same SWOT Analysis, can be done at the top level of the organisation, where we are trying to develop, the corporate strategy, or the business level strategy, for our organisation. But here, I am just giving you, the overview that, how SWOT Analysis is done.

And, what are the important components, of the SWOT Analysis, with respect to S, W, O AND T. So, we got the answer of, our present situation. Now, once you get the answer of present situation, then the second question is, where you want to go? And, as we discussed, that the vision of the organisation, is the most important driving factor, in deciding your future, where you want to go? So, you will like to go, as per the vision of the organisation.

So, you need to understand, you need to develop, a proper mechanism, through which, the vision at the corporate level, is conveyed, is transferred, properly to the supervisor, or the labour level of the organisation. In most of the organisations, this becomes a very typical problem, that these vision mission kind of activities, are limited, to the top management of the organisation. And, the middle level, and the lower level, and the labour level employees, are totally unaware of, what is the mission of the organisation? What is the vision of the organisation?

And therefore, you will find, lot of difference, between the vision, and the things which are happening in the organisation. You will find, these things, totally unrelated. So, it is very important, that you should know your vision, and you should also develop, a proper mechanism, to transfer that vision, from the top level, to the lower level employees, of the organisation. So, second important question, is vision.

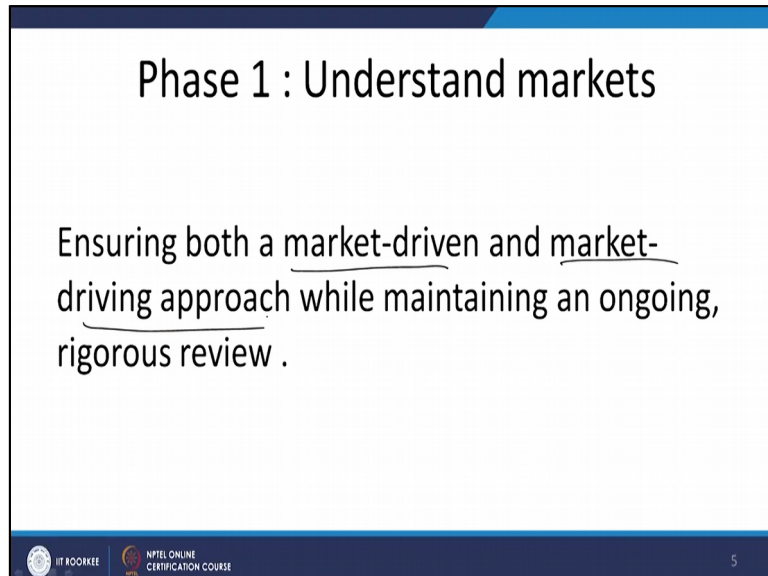
In developing the vision, the very popular tool which we follow nowadays, is benchmarking. Benchmarking is a very popular tool, which is followed, for developing the vision of the organisation. And, now when we say the benchmarking is a very popular tool, it will help us, that what are the best practices, in your organisation. So, you will understand, that if my competitor can achieve, this level of performance, why cannot I.

So, benchmarking helps us, in knowing, that what are the possibilities? Where is the sky? And, third is, how? So, we have three important questions. Where are we? Where we want to



go? And, how to go there? So, these three things will make us, or will give us, our Manufacturing Strategy. So, in developing this Manufacturing Strategy, the first thing is, to understand your market.

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Phase 1 : Understand markets

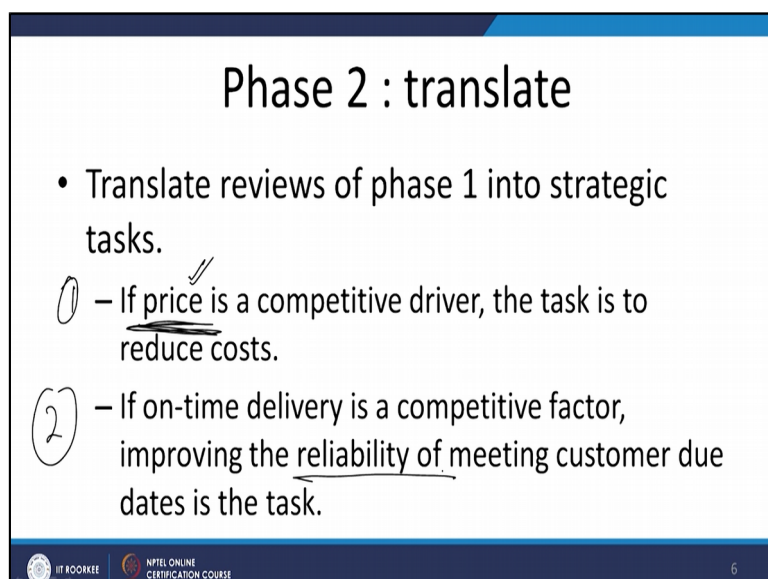
Ensuring both a market-driven and market-driving approach while maintaining an ongoing, rigorous review .

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As I already told you, that market and marketing, are two different things. So, we need to see, that our organisations, are market-driven, and not by the marketing driven. I am again and again, emphasising that, our organisations should be, market-driven.

And, market driving approach, should be there, so that, we can have, a very proper utilisation of our functional resources, to fulfil the requirements of the market. So, the market-driven organisations, are required. And, for that purpose, the first thing is, to understand the market.

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Phase 2 : translate

- Translate reviews of phase 1 into strategic tasks.
  - ① – If price is a competitive driver, the task is to reduce costs.
  - ② – If on-time delivery is a competitive factor, improving the reliability of meeting customer due dates is the task.

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The second important thing is, to translate the review of phase 1, into strategic tasks. Some of the examples, to understand this point, like if in a particular market, price is a competitive figure. That, customers are favouring, those products, which are of low price. So, the specific strategic task for the manufacturing is, to reduce the cost. So, you have, what customers like? What is your market like? And then, accordingly, translate that need, translate that review, into a very strategic task.

So, that is one example. The second example is, if your customer is, or if your market is, looking for on-time delivery, that is a competitive factor, in a particular market. So, you need to work, that how to improve the reliability of, meeting the customer due dates. So, you need to develop, the systems of tracking, IOT kind of thing. And therefore, nowadays, even if you know that, even post offices, passport offices, many courier companies, they give you a tracking number.

So that, you can continuously track, where is the location of your docket. And, that is one way, of improving the on-time delivery, so that, customer can have better satisfaction. So, you need to translate, some of the requirements, some of the needs of your market, into the strategic task, for the operation activity. Then, the third important phase, in developing the Manufacturing Strategy, is the phase of checking.

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### Phase 3 : Check

- What is currently provided matches
- What is required in a market driven scenario
- What is required in the new level in a market driving scenario

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So, what is currently provided, matches. So, whether your requirement of price, is matching with the low cost of production or not. The customer is price sensitive. But, you are developing mechanism of, on-time delivery. So, it means, your match is not proper. So, you

need to see, the phase 1, and phase 2, the proper match is there or not. Then, what is required in a market-driven scenario. You have to be proactive, that how the market is going to behave, after 1 year, after 2 years, after 3 years.

So, what is required in a market-driven scenario, you need to identify, so that, you can develop those capabilities, by the time, market requires those things, so that, you can have correct matches. And, what is required, in the new level, in a market driving scenario. How, the expectations level of the customer, are going to increase. Earlier, the customers were either satisfied, with good quality, or low price. But now, the new level which customers require, that they want, high quality products, at the lowest possible cost.

So, that type of requirements, are changing. So, you need to see, that continuously, whether your capabilities, or customer requirements, are matching or not? What are the future customer requirements? And, how the expectation levels are increasing? So, you need to continuously check, on all these points. Then, on the basis of that, you develop a strategy, to fulfil the bridge, to develop that connectivity, where the level of provision falls, short of the requirement.

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**Phase 4 Develop a strategy**

- To close the gap where the level of provision falls short of the requirement
- To achieve the new level of performance in a market-driving scenario

The diagram illustrates the transition from a 'Present' state to a 'Desired' state. A horizontal line represents the 'Desired' level, and a lower horizontal line represents the 'Present' level. A vertical arrow points from the 'Present' line to the 'Desired' line, with the word 'gap' written next to it. A horizontal arrow points from the 'Present' line to the right, labeled '1.5 yrs', indicating the time taken to reach the 'Desired' state. Below this, another horizontal arrow points from the 'Present' line to the right, labeled '2 yrs', indicating a longer time frame for the same transition. The slide footer includes the IIT Kharagpur logo and the text 'NPTEL ONLINE CERTIFICATION COURSE'.

Because, you are presently here. This is your, desired state. So, you need to develop, some kind of bridge, to fulfil this gap. So, this gap is fulfilled, by the strategy, so that, you can move from this present status, to this desired status. And, in a market driving scenario, if you are proactive, so what is going to happen. That, this is your present status, this is your desired status. And, this desired status will come, let us say, after 2 years.

But, because you are proactive, you may be able to develop, within 1.5 years, this desired level, so that, you are ahead of your competitors. That is the meaning of proactiveness. You achieve the new level of performance, in a market-driven strategy, where, before market requires, you are there, providing that type of solution. So, if I summarise, this whole story, of developing the Manufacturing Strategy.

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1 Corporate Objectives	2 Marketing strategy	3 How do products qualify and win orders in the marketplace?	Operations Strategy	
			4 Process choice	5 Infrastructure
Growth Survival Profit Rol Other financial measures	Product markets and segments Range Mix Volumes Standardization Vs Customization Level of innovation Leader Vs follower alternatives	Price Quality Conformance Delivery- speed - reliability Demand increases Colour range Product range Design Brand name Technical support After sales support	Choice of alternative processes  Trade-offs  Role of inventory Make or buy Capacity- size , location	Function support Operations planning and control system Quality assurance and control Operations system engineering HR issues

So, this becomes, a five-point agenda, starting from the corporate objectives, to marketing strategy. Then, how do our products qualify, and win orders, in a particular marketplace. And, two important elements are there, of the operations strategy. One is related to, process choices. And, the second is, to develop the infrastructure, to meet those process choices. This is a very important slide.

And, we will discuss the slide, many a times, during this course, so that, we know that, for what type of corporate objectives, what type of process choices are required? What type of infrastructure investment is required? So, I am giving this slide, as a beginning point, of our development of Manufacturing Strategy. So, with this, we come to end of the session, which is starting point, for the development of Manufacturing Strategy. Thank you, very much.