

Manufacturing Strategy
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Module - 7
Lecture - 33
Total Employee Involvement

Welcome friends. In our last 2 sessions, we started discussing about some of the critical success factors for achieving your world class manufacturing status. We discussed about some of the important factors like, how to use total quality management, how to become an organization which is eliminating waste or you can say lean organization. How to have the preventive maintenance, so that maintenance can also give you competitive advantage.

And we discussed the concept like total productive maintenance. We discuss the concepts like Six Sigma. So, these are the various tools through which we can achieve the status of world class manufacturing. But, it is very important that who is going to use these tools. And it is the employees of your organization who are going to use these tools. So, without the involvement of employees these tools cannot be used for the effective purpose or for the effective outcome which we are intended from these tools.

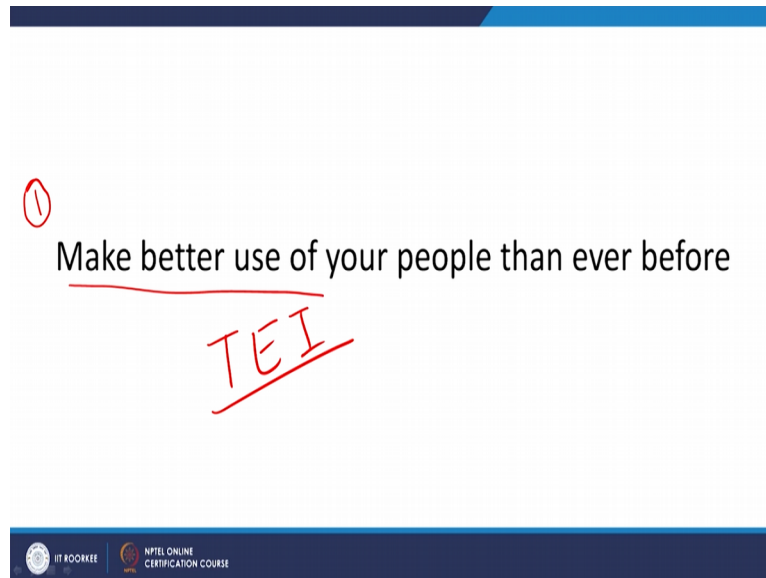
So therefore, in this particular session, we will be discussing that how to involve the employees of your organization for using these tools effectively, without proper or without total employee involvement, however good tools you have. Therefore, some of the organizations which are very successful and some of the organizations which are not so successful, they all know about these tools.

All organizations are aware what is TQM; all organizations are aware what is Six Sigma; all organizations are aware about TPM. But, some of the organizations are able to implement these tools very effectively, while others are not able to do so. So, have you ever thought that why some organizations are able to do it and why others are not. And here comes the important role of personals of your organization.

If the employees of the organizations are properly involved in all these activities, in all these tool implementation, then you can achieve the objectives from these tools. Otherwise, these

tools are merely for the namesake. But the effective use is ensured only by the employee involvement. So, in this session, we will see that how human resource management, how the employees can be motivated, how employees can be used for effective implementation of world class manufacturing tools.

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So, when we are talking of using our employees effectively for achieving the objectives of world class manufacturing. And employees are those persons who are going to implement all those tools we have discussed in our earlier sessions. So, as far as our traditional view was there, we used employees only for implementing something. But now, when I am talking in the enlightened way, when I am talking in the strategic manner, we need to see that, how we can make our employees for the better use.

So, the important thing is, to make a better use of our employees which we were not doing earlier. So, they were expected to perform some lower level operational activities. But now, it becomes more strategic in nature that how are we able to use our resources. And human resource is a very important resource. Rather, you can say this is the most precious resource in an organization.

And particularly, in the present circumstances where most of the activities are knowledge driven. And where I am talking the knowledge driven activities, we need to ensure that we are using our employees, we are using our human resource very very carefully, very very strategically. And in that strategic use of human resource, I am talking of total employee involvement.

And this total employee involvement depending upon their skills. A person can do which particular task in most efficient manner. If I am able to identify as a manager, then probably I can achieve the objectives for Six Sigma, I can achieve the objectives of Total Quality Management, I can achieve the objectives of TPM, I can achieve the objectives of lean manufacturing.

But, if I am not able to assign right person on right job, all these things are not possible. So, the first important point when I am talking of total employee involvement, that we need to ensure that how we are making better use of our resources, particularly human resources.

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The slide is titled '2 Teamwork'. The number '2' is circled in red. The word 'Teamwork' is underlined in red. Below the title, there is a bulleted list. The first bullet point is 'When there's a crisis, the impossible often seems to happen', with 'crisis' and 'impossible' underlined in red. Below this, there are two sub-bullets: '– In 1974, there was a long running strike by coal miners' and '– During Falklands war in UK', both with the year '1974' and 'Falklands war' underlined in red. At the bottom of the slide, there is a footer with logos for 'IT KOOKEE' and 'NPTEL ONLINE CERTIFICATION COURSE', and the number '3' in the bottom right corner.

- When there's a crisis, the impossible often seems to happen
 - In 1974, there was a long running strike by coal miners
 - During Falklands war in UK

Now, when I am saying the total employee involvement, it directly points towards the teamwork in the organization. That is the second important thing in the proper use of our resources in the organization, that it is no longer an individual activity. It is a team effort which is going to give me the proper result. And as a manager, it is my duty to promote that teamwork in my organization.

If I keep focusing on individual, if I keep focusing on individual champions, I may not be able to achieve that strategic objectives. But, I need to take the advantage of all the employees. And therefore, this teamwork is a very very important enabler for achieving the world class manufacturing status. Now, in the team work, there is a very interesting thing. And many a times, you must have also observed that whenever we face a situation of crisis, the productivity level of team increases to a dramatic level.

And whenever situation comes to normal after that crisis is over, then productivity of the team also comes down. So, this is very interesting thing that, because of some type of crisis and if you have a good leadership in the organization, the impossible often seems to happen. And there are 2 examples which I am quoting here, that, both these examples are available from UK.

Now, in first example, this is around 1974 when there was a long strike by the coal miners. And as a result of that, there was an energy crisis in UK. And because of energy crisis in UK, it was decided that factories will operate only for 3 days a week. So, instead of 5 days working week, they started working only for 3 days. So, they had less number of working hours in a particular week.

But the result of the output did not decrease in the proportionate term of reducing the number of work hours. The output decreased only by around 4 to 5%. Though work hours reduced by 33%, but the output reduced only by 4 to 5%. So, that is 1 example that, even if the situation was of crisis, the less number of working hours were available, less amount of energy was available, but teams did remarkably well.

And they were able to produce almost the same level of output which they were producing in 5 working days. So, that is 1 example. The another example also comes from the UK. It is around that Falkland war; when this war broke down; so, at that time, there were immediate requirement of converting some passenger ship into a warship. And you will not believe, you can Google it, that within a week's time, the team of Shipyard converted a passenger ship into a warship.

Where you can land choppers, you can have missiles, you can have guns loaded on that. And normally, for such type of task in a routine process, it takes months and months. And that task was completed by that team within 1 week. So, productivity increased to a very high level because of some crisis situation. Many a times, we also have experienced that, whenever there is examination tomorrow, the productivity 1 night before, 1 day before of examination of learning or grasping something increases to a very high level.

And on the other routine days, our ability to learn and understand reduces to a low level. So, it is 1 very important aspect that during the alert situation our productivity is high. And

therefore, we need to see from the psychological point of view that how to create an environment in the organization. I am not saying that we should always try to create a crisis environment. So, that is not good for organization's health.

It is going to create lot of psychological pressure on the employees. But it is important to understand that these 2 examples are not for the crisis. But these 2 examples are supporting that if there are well motivated teams, these teams can achieve anything which otherwise looks impossible. So, the importance of teams are very well placed with the help of these examples. That if you have properly motivated team, if you have cohesive teams in the organization, you can achieve some of the important milestones which otherwise are not possible.

So, please be careful that the focus is not on emphasizing the importance of crisis for higher productivity, but focus here is on emphasizing the importance of team for higher productivity levels. So, that is the second important thing, that teams are very important for achieving the higher productivity in the organization. Then, another important thing which we need to understand.

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③ Japanese concept of Total Employee Involvement

- (i) • The setting up of teams to tackle both 'strategic projects' and 'local projects', in order to achieve specific performance improvement targets set by top management.
- (ii) • Establishing quality circles within departments to tackle quality or productivity problems identified by the circle members. ✓
- (iii) • Encouraging individuals to set their own personal improvement goals. ✓

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Because we see that there are large number of Japanese organizations which have achieved remarkable success in manufacturing landscape. And large number of West organizations, Western Scholars, they went to these Japanese organizations to study that what is the secret of their success. And 1 of the important thing which most of the Scholars did not identify is the ability of Japanese organizations to involve their most of the employees.

Most of the researchers have identified, like they are very good in quality management, they are very good in implementing Kaizen and they are very good in implementing Kanban, they are very good in implementing Poka-Yoke, etcetera. But not many have identified about the employee involvement in the Japanese organization. So, the third important thing is to understand Japanese concept of total employee involvement.

And there are 3 important aspects of this Japanese way of total employee involvement. So, let us go by the terms. That there are requirement to setting up teams to tackle both the issues. And both these issues are strategic projects and local projects. We need teams who can handle strategic projects, how to take competitive league in the market and how to handle our routine operational activities.

So, you require both these things from your employees. You require teams for the strategic projects and teams for the routine activities which are known as local projects, so that you can achieve specific performance improvement target set by your top management. So, this we are talking at the operational level, that you require teams which can help you in the strategic projects and teams which can help you in the local projects.

The second thing is establishment of quality circles. This is again and again in all Japanese related manufacturing activities, a very important phenomena that you need to establish the quality circle. And just not establish the quality circle, create enabling environment so that quality circles can actually go for some kind of policy implementation; can suggest you something which is worth implementing in the organization.

So, quality circle within departments to tackle quality or productivity problems identified by the circle members. So, you need to create that enabling situations in which quality circle can perform best. And third is encouraging individuals to set their own personal improvement goals. Now, you see, in this Japanese concept of total employee involvement; we are starting from the top, where we are at the first level looking from the objectives set by the top management, then by the department and then at the individual level.

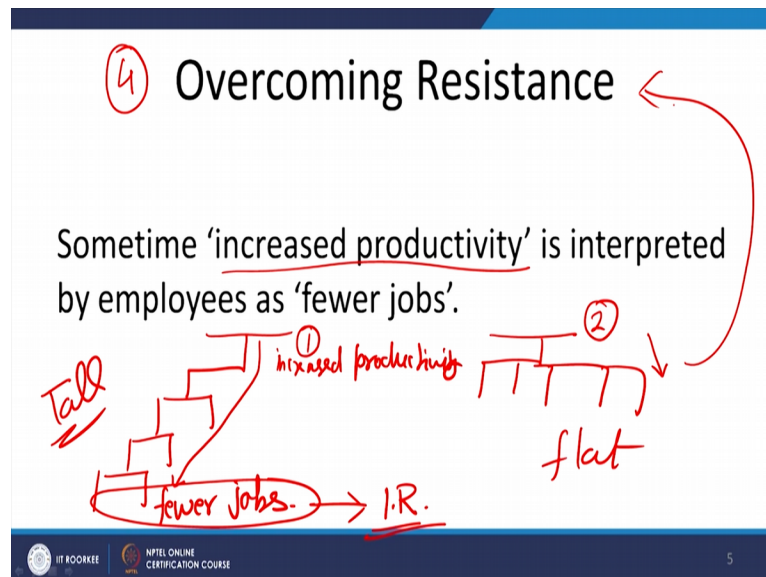
So, this way, we are able to involve the human resource, the personal of our organization for all 3 level of activities, Where employees can contribute for the strategic projects, employees can contribute for the departmental productivity, for the departmental affairs by the

involvement in the quality circle. And then, employees are also required to set their performance improvement goals.

So, at all 3 levels, we are trying to get the involvement of our employees. So, that is a very comprehensive way where you can think of your own progress, you can think of your departmental progress and then you can think of your organizational progress. So, this is the Japanese way of employee involvement. If you only think of the organizational progress without thinking of individual, then also individual feels lagging behind.

And at that time, some type of distress may come in your mind. And many a times, this may lead to depression, this may lead to higher attrition of employees from your organization. Because you are not satisfied in those situation where you feel that, my progress is not taking place. So, only the organization's progress is not sufficient. With organization's progress, you also need to consider your individual employee's progress also. So, how to have both these things, that we can learn from the Japanese system of management, Japanese concept of total employee involvement.

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Then, another important thing in this particular aspect is overcoming resistance. Now, whenever we are talking of these higher level of productivity, whenever we talk of employee involvement, quality circles; so, all the employees are not of same mindset. And they already are tuned to do work in a particular style, in a particular fashion. And therefore, there will always be some kind of resistance whenever you go for some kind of improvement, some kind of change activities.

So, you need to do lot of psychological training, lot of counselling for overcoming this resistance. Many of the organizations, because of poor management of change, because of their not so good systems, they are not able to change the mindset of their employees. And many a times, this may create different types of IR issues also. And particularly, the role of communication, corporate communication is very important in overcoming the resistance.

If your corporate communication is not up to the mark, which may happen in long organizations. If you have a Tora organization, in that case, it is quite possible that some of the communication is distorted. And when the communication is distorted, in that case, this resistance further increases. For an example, if you have tall organization like this, where you have multiple hierarchies.

And another organization you have like this. Where you have very less number of hierarchies. Now, in this organization 1, if I am starting the idea of increased productivity, I want to float the idea of increased productivity, it is quite possible that as this idea is moving from the top level of the organization to the bottom level, it is going towards the employee side, people may interpret that it is increased productivity here.

And it becomes fewer jobs at the lower level. So, the whole message, the whole communication is totally distorted, totally chased. And when the people at the lower level feels that I am talking of fewer jobs, it will create unrest among the employees. And it will give to lot of industrial relation problems. It may lead to strike, it may lead to gherao, it may lead to lockouts, etcetera, etcetera.

So, it is very important that how do you handle your corporate communication, so that you can overcome resistance, you can overcome the problems related to change management. And in this particular case, when you have a relatively flat structure, not so many hierarchies are there, in this case, the possibility of this type of distortion in communication is relatively less. So, where to have this flat structure and where to have this tall structure is a very important thing.

In India's case particularly, if you see public sector enterprises; so, in most of the public sector enterprises, we have a tall structure of organization. While you go to private sector organizations, you see; or multinational corporations, you see relatively a flat structure. I

cannot say that if you have 5 hierarchy levels, if you have 6 hierarchy level, it is a tallest structure or it is a flat structure.

The concept of tall structure and flat structure is a relative concept. So, I can only talk in terms of some other organization. So, when I am comparing my public sector enterprises and multinational corporations; so, I can say that, public sector enterprises are having more hierarchies and the multinational corporations are having less number of hierarchies. And as a result of that, you see that our public sector organizations always face large number of IR issues.

Though MNCs may also face IR issues. MNCs may also face some kind of distorted communication. But they are still more profitable, they are able to achieve higher level of manufacturing excellence, while most of the public sector enterprises are struggling to survive the way MNCs are competing with these organizations. So, that itself indicates that tall structures are not very desirable in the organization.

And you need to have a balance that what is the good number of hierarchies in my organization. Because this directly helps in achieving this objective of overcoming resistance. So, the structure of your organization is an important phenomena in deciding that how are you going to overcome the resistance. Then, nowadays, we have started talking of 1 important term with respect to our total employee involvement.

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Strategic Human Resource Management

How human resource can be used to gain competitiveness through manufacturing?

And that is the strategic human resource management. Now, strategic human resource management is that, how effectively or how competitively we are able to use our human resource for achieving the objectives of manufacturing. So, how human resource can be used to gain competitiveness through manufacturing? So, if you see that most of the studies in human resource management happened after the Hawthorne experiment.

And if you remember about Hawthorne experiment, the researchers went to a manufacturing plant and they did lot of data collection from that manufacturing plant. And even after that Hawthorne experiment, most of the experts of human resource management collected data from manufacturing organizations. But, you will be surprised to know that in human resource management test books; because large amount of literature is available in the area of human resource management.

But in those books, those articles, those papers, you will not find much of the things related to manufacturing, that how human resource management can contribute effectively in the operations management. So, that is certainly a point of concern for people who try to take advantage of manufacturing for their organization. So now, it is important that when in our current era, we are talking of human resource management and particularly strategic human resource management, we need to understand that how human resource can help us in achieving the competitiveness.

Now, in that, it is important that we understand different manufacturing era. And then, during those eras, how the role of human resource have changed? So, the 3 important eras we can identify. The first is the craft manufacturing.

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Different manufacturing eras

- ① **Craft Manufacturing** : Workers were largely skilled and sometimes, owners of their own. Small enterprises created customer specific products, often with small volumes for each product.



Now, the craft manufacturing is the first type of, you can say manufacturing activity, where it was largely very small enterprises. And the craftsman normally used to be the owner of that enterprise. And workers were largely highly skilled. And they were not only skilled in a particular activity or particular job. They were multi-skilled. Because they were doing things right from the activity 1 to activity 10; all those activities which are required to make a particular job.

So, only 1 worker or 2 worker, they were used to do all the activities. So, they were multi-skilled. And as I mentioned, they were the owners of their own enterprises. And as per the orders of the customers, they were producing the specific products. So, what type of orders were coming to them? If I was a craftsman; so, I can produce products for customer A, B, C, D. And I know all types of skills which are required to make that particular types of jobs.

So, that is the variety of jobs were produced by 1 craftsman. And the varieties were high, but the volume was very low. Each customer may require only 1 product or 2 product. So, we were doing that. So, it was that particular era of manufacturing where skills of individuals. So, the emphasis with respect to human resource was how much skilled you are. So, that was the important dimension of human resources. That is about the skill of individuals.

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Different manufacturing eras

②

Mass Manufacturing :

- Workers became largely deskilled and work itself became narrow in scope, repetitive and specialized.
- Emphasis upon manufacturing efficiencies gained by greater dependence upon machinery to transform inputs into outputs.
- Products became 'standardized', dependent on high-volume manufacturing.

Now, after that came the period of mass manufacturing. And this period of mass manufacturing is actually the dangerous period for human resource. Because, workers largely become deskilled, because most of the activities were done by automated machines. So, workers were became deskilled. Their scope became narrower. And most of the time, they were doing very specialized and repetitive type of job.

If I am in a assembly line, so, I am if involved in boring of a particular engine. So, continuously I am doing that boring operation. If you are doing welding, you are continuously doing the welding operation. So, your scope becomes narrow. And you became specialized either in welding or in machining or in painting or in some other type of activity, whichever part of assembly line is given to you.

Now, emphasis during this period of mass manufacturing was on efficiencies. And the efficiencies were gained because of dependence on machinery. And it was less dependent on our human resource skills. So, you need to have good machinery, you need to have a good maintenance system of that machinery. And we expected that these machines are going to give us higher efficiency, high productivity.

So, we did not bother much about our human resource, because emphasis was on about the good machines, automated machines, more productive machines. And when we are talking of mass manufacturing era, the third important thing happened that products became a standardized. During our earlier period, when we were talking of craftsmen era, at that time the varieties were very high.

Each type of customer was requiring a unique type of product. So, there was no standardization of the products. So, high customization was there. But mass manufacturing standardize the product and the volume of order also became very huge. When products became standardized, it was high-volume manufacturing, as compared to low volume manufacturing in the craftsman era.

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The slide is titled "Different manufacturing eras". It lists three points under the heading "Strategic manufacturing :". The points are numbered with handwritten red circles: 1, 2, and 3. Point 1 is "A greater customer-driven approach from the firm, rather than the former, product offered, or resource-driven mentality of the mass-production era." Point 2 is "An obsession with quality". Point 3 is "Much greater reliance upon human resources as a central means of achieving innovation and flexibility required in markets, which are now more unstable than ever before." The slide also features logos for IIT ROORKEE and NPTEL ONLINE CERTIFICATION COURSE at the bottom.

Different manufacturing eras

Strategic manufacturing :

- ① – A greater customer-driven approach from the firm, rather than the former, product offered, or resource-driven mentality of the mass-production era.
- ② – An obsession with quality
- ③ – Much greater reliance upon human resources as a central means of achieving innovation and flexibility required in markets, which are now more unstable than ever before.

Then, we come to present era of manufacturing, which is a strategic manufacturing. Now, in this era, there are different types of things are happening simultaneously. We need to achieve productivity, efficiency and at the same time we are now getting again into that craftsman era with respect to customization. So now, we are focusing on customer driven approach. So, earlier our approach was more product driven.

Now, our approach is moving to the customer driven. So, that is 1 important change is happening, that we are moving from product driven to customer driven. And machine cannot understand your customer. Only the human can understand the customer. 1 human can understand another human. And therefore, it is a very important thing that we are moving to this particular aspect that how to satisfy the unique customer requirements.

So, that is 1 very important change which is happening. And therefore, the importance of human being has again increased in the organization. So, that is a major shift in the mentality of the managers that now we need to be customer centric, now we need to be customer focused, market driven. And to achieve that customer centricity market driven approach, you need to put more emphasis on your human resource.

The other important thing which is happening at the present time that we are becoming too obsessed with quality. So, when we are becoming too obsessed with quality, we need to understand that, what is good quality level for my customer. Because quality from the customer driven point of view is fitness for use. So, when I am talking quality for fitness for use, again we require involvement of human being.

Because, now the focus is not on efficiency which was the point of concern for mass manufacturing. Now the focus is on quality. And quality is customer driven activity which is fitness for use. So, again you require human being, you require importance of human being in your organization. And now, the third important thing which is happening in our strategic manufacturing, that much greater reliance upon human resources as a central means to achieving innovation and flexibility which is required in the market.

So, another important thing which is happening, that we require more innovations, we require more flexible manufacturing systems in present circumstances. And again, machines cannot do innovation, only humans can do innovation. And for that purpose, the importance of human being is again underlined. That now, during this period of strategic manufacturing, it is all human resource, all your employees which can provide you competitive advantage.

Without involvement of your employees, you cannot achieve this type of strategic manufacturing which can give you the world class manufacturing status. So, with this, we understood the importance of human resource in the present environment. And we also discussed that what are the important ways through which you can involve your all employees in the manufacturing activities of the organization. So, with this, we come to end of this session. Thank you very much.