Production and Operation Management
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Lecture 38
Total Quality Management

Welcome friends. In our last few sessions, we started discussions about quality management. We discussed two important perspectives in defining the quality; the user's perspective and the producer's perspective. And then, we discussed the evolution of quality from the period of inspection into the form of Total Quality Management, that how quality was initially the inspection of finished product, that the concept of quality control came into picture where we started using the concepts of probability for managing the quality.

Then, to have more involvement of people in your quality activities the concepts of quality management came into practice. And finally, we see that the modern management, modern practitioners, call the quality management as total quality management; where the involvement of each and every one is required for producing a quality product. And in our one of the session, we discuss that how top management commitment and the integration of various functional activities are important determinants for the quality and that is the essence of total quality management.

In this particular session, we are going to discuss in detail about the philosophy of total quality management. When I am saying that total quality management is a philosophy, it is a way of doing the business. It is not about tools and techniques, it is more about the mindset that how you are pursuing your responsibilities in the organization, how you are feeling that your single action can affect the end products quality or how your single action can affect the customer satisfaction.

So, each one of us working in any organization need to realize that whatever we are doing inside the boundaries of the organization our actions are finally going to impact the customer satisfaction. And when we have this realization, that means the total quality management. So, it is a very important, and currently this is one of the way through which organizations have achieved tremendous success. And therefore, we are devoting a full session on the discussions on total quality management.

Now, we discussed in our previous session the contribution of various quality gurus. And we discuss the name of Deming, we discuss the name of Juran, we discuss the name of Ishikawa,

we discussed the name of Taguchi, we discussed their important contributions. But the total quality management is some total of the philosophies, or ideas, tools, techniques given by those individual quality gurus.

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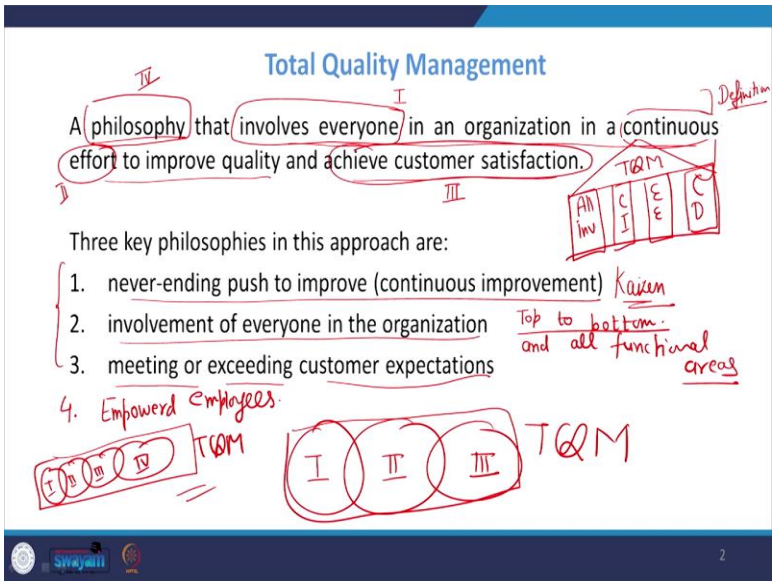

So, the starting point of total quality management as I just said, it is a philosophy. So, one important thing that I am not talking of any particular tool, technique, or formula when we are discussing total quality management. It is a philosophy; it is a concept that involves everyone in the organization in a continuous effort to improve quality and achieve customer satisfaction.

So, you can say that this is a definition, though there is no formal definition available. If you google, you will find thousands of definition of total quality management. People have, researchers have discovered total quality management from their own lenses, so there are multiple definitions available. But to simplify the concept, we are saying that it is a philosophy that involves everyone.

So, if you break this statement into some important pieces, so one important is involves everyone, this is one important outcome of this definition. Second is continuous effort; that is the second. Third is, customer satisfaction and fourth is, this is a philosophy. So, these are important points or you can say key terms available in this particular statement about total quality management that it involves everyone, it is a continuous process, and the objective is to achieve the customer satisfaction.

So, we have noted down from this definition, these 3 important philosophies that it is a never-ending push to improve, this is continuous improvement process. And many of you may be knowing, that Japanese word kaizen. So, you have to continuously work towards excellence, ultimate objective of quality management principles or particularly total quality management is to achieve the excellence.

And to achieve excellence, you have to continuously work harder and harder, there is no stoppage because you do not know what is the excellence, so it is a never-ending process. Then involvement of everyone in the organization, everyone means top to bottom, and all functional areas. Whether you are directly or indirectly related, but all functional areas are important part of delivering the total quality management.

And then, the third is meeting or exceeding customer expectations. Here, it is important that what is the customer expectation, first you should have a fair idea about the customer expectations and once you have that fair idea of the customer expectation then to meet those expectations or provide products, which can exceed the expectation level. So, that is the third important thing in this philosophy.

So, you can say that these are the building blocks 1, 2, 3 and then this becomes my TQM. Some of the people, thought his definition is complete or it gives you enough idea that what is the meaning of the TQM but there are people who add one more dimension into it. And what is that, that is another addition into that, you are empowered employees. There are people who say that when we are talking of involvement of everyone in the organization, so this empowered employees are included in that.

But there are people who say no, you are taking the involvement for the benefit of the organization, but at the same time you need to empower them, so that they can express their views freely. So, in some of the literature, you can say that TQM is total of 4 issues, that becomes TQM. So, as I told you in the beginning that different authors, different researchers, different quality gurus have included or excluded more than 1 dimensions of total quality management.

But it is simple to understand that total quality management is a process of continuous improvement, your employee empowerment, then customer delightness, and then the all involvement. So, if we have this kind of foundation, on this foundation you can build your TQM. So, these are the 4 pillars of your total quality management.

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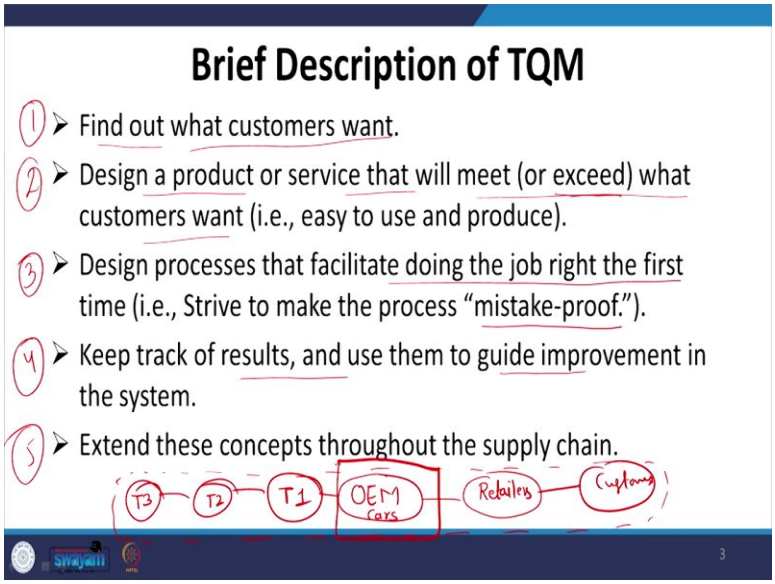

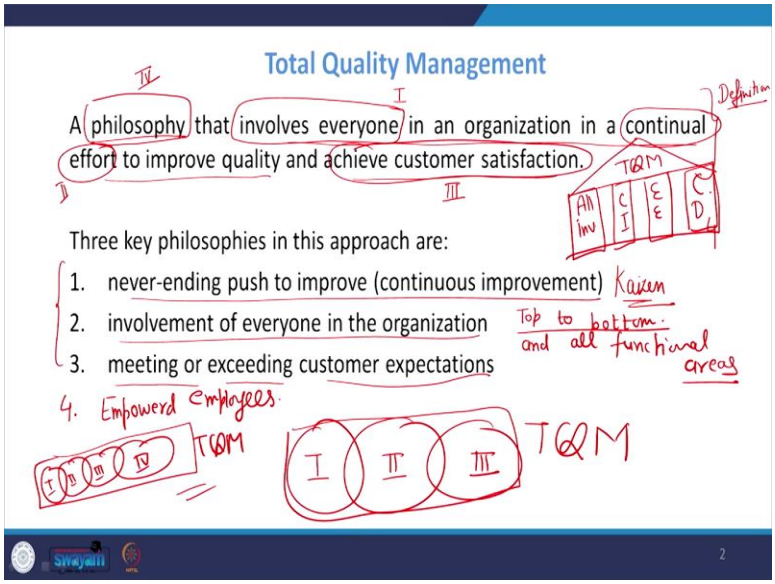

Now, going further to penetrate more into the TQM discussion. So, as I said one of the point, we discussed that we need to meet or exceed the customer expectations. So, find out what customers want, that is a very, very tough question. Though it looks very simple, but what customer wants, because many a times customer do not know what he or she is looking for.

When a student is completing class 12th and you ask that student what do you want in your life? So, you will not be able to get a precise answer of what that student wants in the life. Similarly, you talk somebody who is in the ages of around 50 to 55, you ask again the same question what do you want in the life, again you will not be able to get a proper response about that because many of us are not aware that what do we want from our life.

Similarly, what do we want with respect to various products we are not very clear. So, you need to educate the customer that what customer can expect from a particular product. And in whatever way, whatever qualitative variables, whatever descriptive variables customer is able to explain his or her desire then you have to convert that into some kind of product specification.

So, though this looks very simple that what our customers want but there is a product like automobile two-wheeler, product is four-wheeler, product is mobile phone, product is watch, product is shoes. Now, you say that customers want a pair of shoes. But in that pair of shoes, we all know that large number of varieties are available, so which type of shoes customer is looking for.

And when you go to shopping in a shop, you give some kind of detail to the shopkeeper that I want this type of shoes, and then by trial and error method shopkeeper gives you different types of shoes based on your specifications, based on your wants. And then, slowly and slowly by comparing the alternatives available in front of you, you will select one. So, that all is happening because we are not very clear that what do we want.

Sometime, when you go for the purchase of medicine you take a prescription in your hand and in that prescription, it is clearly written that you want this particular medicine of this capacity. And therefore, without any doubt the pharmacist will give you that medicine because here, customer is clearly aware that what is the requirement. So, in some cases which are very rare the demands or expectations are clearly marked out.

But in most of the cases, around 90 percent of the cases demands are not clearly spelled out. So, this is one very important aspect for the success of TQM that you should be able to determine what are the expectations of the customer, that is point number 1. The second is, design a product or service that will meet or exceed what customers want. Now, whatever is customer expecting you should be able to provide that feature, that is absolutely okay. If you remember in our one of the discussion, we discussed various dimensions of quality.

So actually, what customer is wanting that is the part of performance of the product that, that we need to design into the basic characteristic of the product. Then there are special features, extra features which you can provide, and those extra features will help you in exceeding the customer expectation, then your products will exceed the customer expectation and you will give a feeling of delightness.

Because nowadays, simply customer satisfaction is not sufficient, customer satisfaction is not sufficient if you see this diagram, this hose which I made here, the fourth pillar I did not write customer satisfaction, I wrote customer delightness because we want higher degree of satisfaction, which is the delightness. If I say that, okay I am satisfied with your performance, it means, I do not want to say negative thing about your performance, therefore I am saying that I am satisfied.

But if I say that I am delighted with your performance, that means I am really happy with your performance. So nowadays, we want that our customers should be delighted with the use of our products. So, you need to provide those features which can delight the customer. So, only satisfaction is not sufficient, we need to go for higher degrees and that is exceeding the customer expectations.

Then third is, design a process that facilitates doing the job right the first time, this is again, very important. And if you remember, we discussed this as a contribution of Philip Crosby, that if we are understanding the meaning of quality in the right perspective. So, meaning of quality in the right perspective is that, if you eliminate waste in your system, then the cost of your product should go down. Elimination of waste will help you in improving the quality of your product.

TQM is one such philosophy, where we are improving the quality on one hand, and we expect that cause should go down, so this is that type of philosophy. Now how it will happen, that you are improving the quality, but the cost of providing that quality is decreasing. We also have discussed cost of qualities in one of our earlier sessions, where we discuss that there are appraisal costs, there are prevention cost, internal failure cost, external failure cost.

But here in the TQM system, we are developing a concept where we are reducing the cost and improving the quality simultaneously, two opposite things we want to achieve simultaneously. And how it is going to happen, with the concepts like doing the job, doing the things right the first time. The concept of poka yoke or mistake proofing, that poka yoke or mistake proofing, that you cannot have mistake right from the first use of be product.

Because if you have, like in most of our systems we believe, that when system comes in the steady state then we expect there should not be any defect creation, there should not be any defect production. But as long as system in, in transient state, you can see that some defects are acceptable. But under TQM, we do not have any scope of that transient states because we want to produce products right from the very first action and many such examples are there.

One simple example of a mistake proofing is use of your pen drives. So, when you are putting pen drive in a computer system, you can put pen drive only in one particular direction in the other direction computer will not catch hold of that pen drive, that type of development of the system that mistake can not happen, mistake cannot happen you have this mistake proofing concept that you have designed the system in such a way.

In some of the electric connections, sometime if there is a earth connection available and there is only the difference of colours, which is there that, if this colour is there then you have to put that wire in a particular hole. Now, if you change the size of holes for different type of wires, then probably you can have the concept of mistake proofing in that electric wiring system. Otherwise, there are chances that you may put a wrong wire in a wrong hole and that may be a disastrous thing, that may put down your entire appliances.

So, these kind of things we need to see, that how we can develop more and more auto correction systems, where you do not require any manual intervention, the systems processes are designed in such a way that right from the first time there is no scope of any kind of mistake. Then, we need to have a track of results and use them to guide improvement in this system.

So, we will see the application of statistical quality control, that how we are tracking the output and by tracking the output we know that there is a requirement of some corrective step or not, whether the output is in acceptable limits or not. And based on that, we keep working in this system. So, we have developed the systems, we have used the concepts of probability and statistics for monitoring the performance of output at the regular intervals.

So, these monitoring of performance help us to guide the system to improve the process and keep the process within the limits of acceptance. Then, another important issue is extend this concept throughout the supply chain. We have discussed the whole concept of TQM, only within the organization. So, I am a company, I am OEM, I am making cars. Now, there are suppliers T3, T2, T1, tier 1, tier 2, tier 3 suppliers, supplying different types of components for making the cars and then there are retailers, and customers.

A true TQM concept can only be possible, a true TQM concept can only be possible when you involve all of them in this philosophy. If you limit the application of TQM only in this particular case, then you will be missing lot of elements of TQM. So, it is very important that you extend the concept through out the supply chain, right from your all the vendors that is on your left side, to all the distributors which are on your, on your right side. So, you have to

have the implementation or the prevalence of this philosophy at all the partners who are working in your business.

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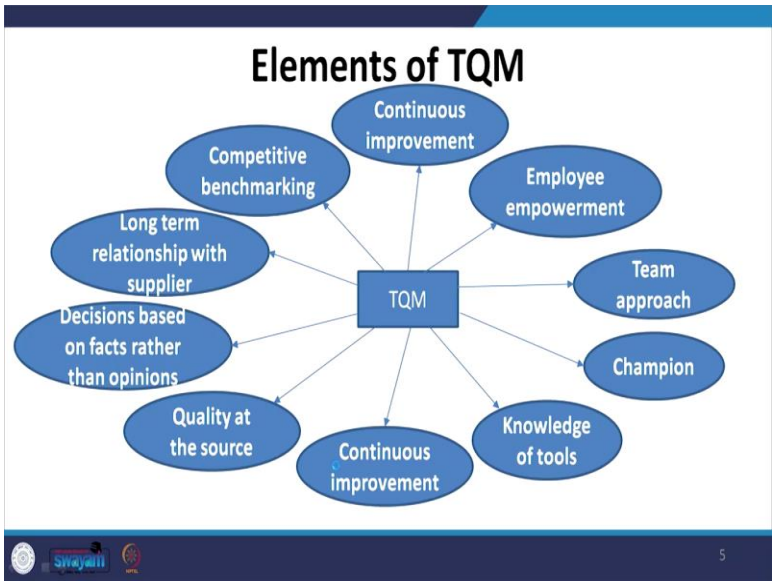

Now, whatever we have discussed, this is you can say a visual representation of our all concepts.

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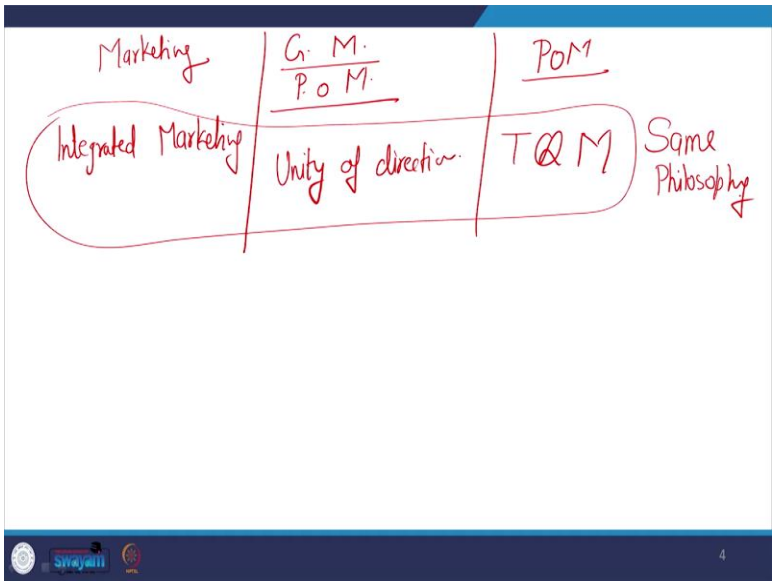

So, there are multiple concepts of like, we can go to a class of marketing. So, in marketing there is a concept known as integrated marketing. If you go to the class of general management or principles of management here, we talk of a concept known as unity of direction. You are coming to the class of now production operations management, and we are talking of this concept known as total quality management. So, you may go to different

classes, different functional areas, and they will have the same philosophy but with different names.

Everywhere integrated marketing also says, TQM also says, unity of direction also says, that we have to work towards the fulfilment of the objectives of the organization. And what are the objectives of the organization? That we have to meet or exceed the customer expectations, we need to involve all the functional areas in achieving that, we need to empower our employees, continuous development, continuous improvement is a never-ending process.

So, whether you are in integrated marketing class, or you are in operations management class, or you are in principles of management class, all these concepts may come with different names, but the essence of those concepts are same. So, that is what I wanted to tell you that you may be in different classes, but the basic meaning of these concepts are almost same.

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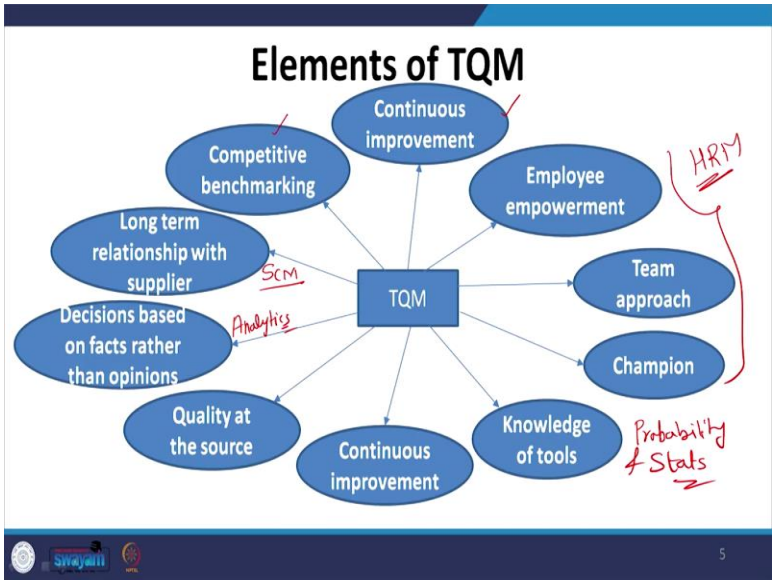

So now, in this particular diagram, we have taken the concepts from various areas. Some of them, let us say continuous improvement we have already discussed, competitive benchmarking we will discuss that how to decide that which is the best organization, which is the world class organization in your area. Now, with that organization you have to meet your performance parameters. Long-term relationship with suppliers, so that is an issue of supply chain management that how you are going to have long-term strategic partnerships with your suppliers.

Decision based on facts, rather than opinions. Now, this is a particular area, which is related to analytics that collect more and more information from various sources and then use the best tools of analytics so that you can take decisions or appropriate facts, rather on your intuitions. Then quality at the source that is how you are producing, so that is particularly related with the manufacturing activities. Then knowledge of tools that what different types of statistical tools are available that you should know that we will be discussing, it is all about knowledge of probability and stats.

So, these tools are useful in implementing the TQM concept. Then developing the champions, the role models and by seeing the role models others will be motivated. It is a team effort, whenever we are talking of TQM it is the word total, total means all the employees are involved. And it also gives you the concept of employee empowerment that your employees should be able to speak their mind, they should be given such kind of environment where you can use their potential for the best interest of the organization.

So, all these 3 terms employee empowerment, team approach, champions, are related to human resource management. So, now you see that various elements of total quality management are taken from different, different fields may be from mathematics, or stats, probability, from the information science analytics, from human resource management, from marketing management, and then manufacturing also plays important role. So, all functional areas are deeply involved in making the concept TQM success story.

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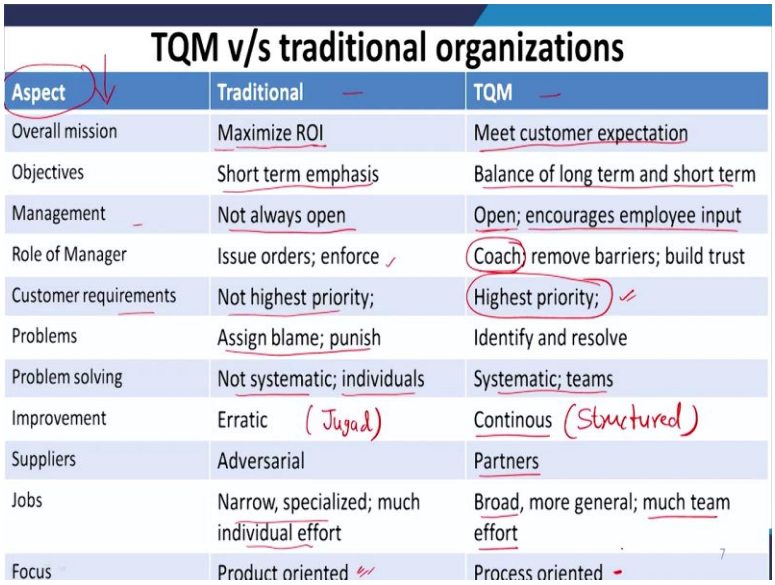

Now, just to have a quick understanding that we are talking so much about total quality management, so how this total quality management is different from our traditional view of

quality management. And for that purpose, we have some basic criteria. So, these are the criteria on the basis of which we will compare our traditional and total quality views. Now the overall mission in the traditional approach is to maximize the return on investment, that how much you have invested and how much you are getting on it.

So, that type of traditional approach is there, that whether it is profitable or not. But in TQM, we see that ROI is a by-product it will automatically come if you are continuously meeting customer expectation. So, if you are fulfilling the customer expectations, your ROI you need not to worry for that, your returns will automatically come or it will come in multiples if you go with customer expectation concepts. The objective in traditional approaching, because you can understand when we are talking of maximization of ROI, so therefore the objectives were also short term.

That I have invested this much on this machine, 2 crore rupees on a particular machine, so in how many days, in how many weeks I am going to recover my investment. So, that type of short-term approaches were there in the traditional system. Now, here we are balancing between long-term and short-term, we also want the short-term gains, we also want low-hanging fruits. But at the same time, we are also worried about the sustainability of the business.

So, we are creating a balance between low-hanging fruits and long-term sustainability of the organization. The management is, here you have a very restrictive managerial approach. They are not very open, maybe they are only authoritative in nature where orders are given, instructions are given from top to bottom. And here, it is very open system where suggestions, feedback, these things are going from bottom to up also. So, you create a more open rather, multi directional communication system in this TQM approach.

The role of managers, as I just told you, they are involved in giving instructions, in giving orders. But here, the role of manager is like a mentor and here the manager facilitates the learning process, here the manager is like a coach. And you develop a trust feeling in the TQM approach, the customer requirement is not the bigger priority because it is based on whatever we are going to produce customer will purchase, so that was the traditional approach. But now, either because of a competitive environment customers' requirements are given the highest priority.

The whole idea of TQM is about meeting or exceeding the customer expectations, so it is given a very high priority in the modern approach. The problems are like you have done it,

because of you these problems are coming. So, we are always trying to assign problems to somebody, in the form of blame game and then we try to punish that guy that, because of you these failures are occurring.

Here, the approach is entirely different, we need to collectively identify the problems and then we need to collectively solve, resolve those problems, so the approach is entirely different in a TQM. And therefore, we continuously say that TQM is a philosophy, TQM deals more with the mindset. And it is a very difficult thing to change the mindset, so many companies on papers may say that we have implemented TQM because they have sent their employees to some awareness workshop, some of their employees may be doing this course. But it is very very difficult to implement these things in real life.

Problem solving is not systematic, it is more based on the individuals and here, teams are involved and a more systematic approach is followed for solving the problems. The improvement processes are erratic, erratic and there is a very popular word in Hindi that is jugaad, so we follow that jugaad concept that ad hoc mechanism, jugaad means some ad hoc mechanism for solving the problem. So, it is very erratic kind of improvement process, where you have continuous and structured process of improvement.

So, you know that what is my end goal, and for that end goal you go in a very structured, systematic manner to achieve that target. Suppliers are adversarial, we do not have that kind of camaraderie between our suppliers. Here, suppliers are considered to be partners. Therefore, in our determinants of TQM we discussed that we need to extend the concept of TQM to entire supply chain. Without involvement of our suppliers and distributors TQM is not properly implemented.

Then the jobs, the narrow specializations and it is more individual efforts, which is the hallmark of the traditional approach. Here, jobs are broader, more generic in nature, and then everywhere you will find team efforts in this success of completion of those jobs. And finally, the focus in case of traditional approach is on your product, so product becomes the primary activity or the primary point of focus.

While here the focus is on process, if you improve your process, whether this process is related to employee involvement, weather this process is related to design of the product, whether this process is related to production of the products, so there are different types of processes which are there in any organization. So, how to strengthen your processes, how to

improve those processes, so that your capabilities get improved and those superior capability will help you in achieving the customer satisfaction or customer delightness.

So, that is the difference between traditional approach and modern approach of total quality management. And I think now we are able to appreciate that why we are continuously saying that it is a philosophy, it is more related to mind set. And therefore, whenever we talk of TQM implementation the change management, management of change those kind of training programs, those kinds of efforts need to supplement the efforts of TQM implementation.

Because we are having a traditional mindset, now we need to have, need to adapt to a new system and that requires lot of tuning of our brain and for that purpose change management is a very important, you can supplement for success of TQM. With this, we come to the end of this session. Thank you very much.