

Decision Support System for Managers
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Module - 10
Decision Support System for Customer Centric Value Driven Decisions – Designing the Service System
Lecture – 46
Concept of Variability and Six Sigma

Hello and welcome to “Decision Support Systems for Managers”! We are into module 10: ‘Decision Support System for Customer Centric Value Driven Decisions – Designing the Service System’; ok. I repeat ‘Decision Support System for Customer Centric Value Driven Decisions – Designing the Service System’. Now, this very title ‘decision support system for customer centric value driven decisions’, what does it mean?

That any business; see decision support system; leave it; customer centric value driven decisions, what does it mean? First customer centric, second value driven, third decision. So, 3 dimensions, 3 aspects, customer centric, value driven decisions. So, what is so, what is the learning outcome? Any business decision that you take has to focus on customers. Because, it is the customers who will ultimately buy your products or services and who will ultimately bring you the revenue, who will ultimately bring you the money?

So, customer centric, unless your product or service is customer centric, you will not be able to sell them in the market, market will not buy it so, customer centric. Second is value driven ok, every product has to showcase a particular value. A product may have many many attributes many values, but what value is it giving to the customers that the customers require. What value is it giving to the customers that the customers require?

Let us say, we are buying a toothpaste. Now, this toothpaste is a product what, what do we want in a toothpaste we want primarily 2, 3 things. One is it should remove the germs and cavities, second is it should give me fresh breath, third is it should my teeth should be white. So, primarily 3 things germs germ protection, fresh breath and my teeth should be white shining teeth; ok.

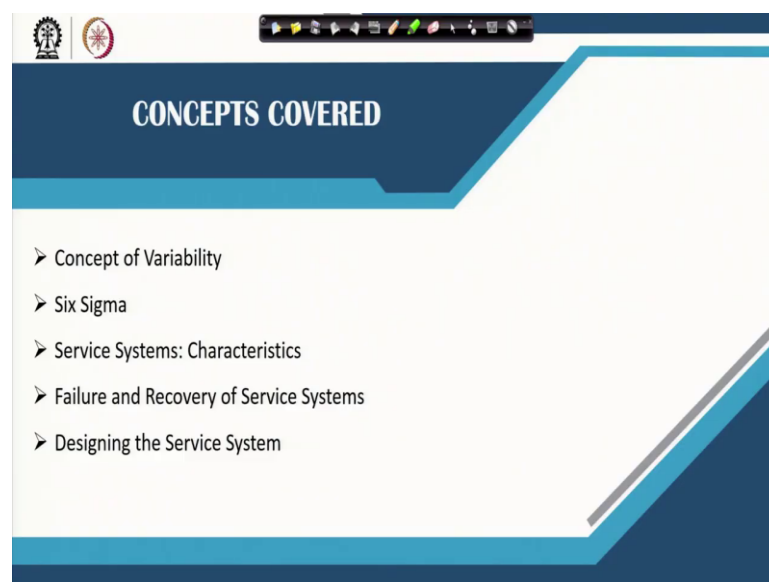
But, if you have one more attribute, that moment I start using the tooth paste, I keep on jumping, I keep on dancing, but that value I do not want. That is indeed a value, but then does

the customer require that value so, customer centric value driven. So, any product that you manufacture has to keep the customers. What the customers want that is the customers want process in mind, second is: it should provide the value that the customer is looking for; ok.

So, what the customers want? Value that, the customer is looking for so customer centric value table decision ok. So, any decision it should be customer centric value driven decision making; ok. So, this is what we need. Now, when you are doing such when you are doing such an activity? Customer centric value driven decision basically you are designing a service system; ok.

You are designing a service system, means what? That it is ultimately value delivery is some sort of a service delivery. Though we say product delivery, but ultimately if you see value delivery, you are doing some service to the customer, if a product is, but delivering a particular value you are delivering a service. So, value delivery is a service delivery. So, how to design such a service system; ok. This is what we will learn. Now, the first point as we mentioned customer centric. Customer centric means as I repeat whatever the customers want you should try to give that.

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So, this concept in this we will cover certain concepts like concept of variability, Six Sigma, service systems characteristics, failure and recovery of the service systems, and designing the service system; ok. Now, let us go back to previous one once again, customer centric value

driven. Now, see this customer centric value driven what do the customers want let us pick up some products and some examples; ok.

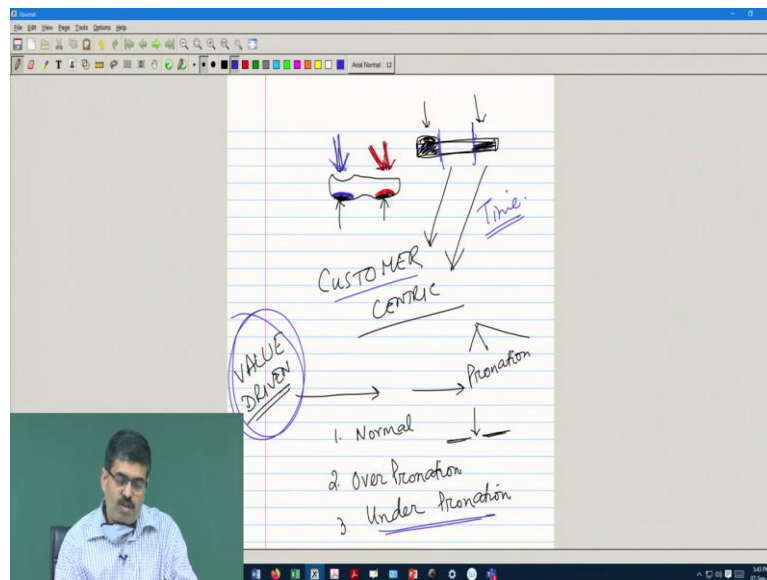
So, say you are planning to buy a shoe; you are planning to buy a shoe; what do you want in that shoe? You want certain value, you want certain particular attributes one is that the sole should be very soft.

So, that you do not feel hurt second is the sole should be able to carry enough weight enough body weight the sole should be able to sustain that body weight for 10 to 12 hours every day because, we are leaving for office 8 in the morning and we are coming back about 8 or 9 in the late evening. So, the sole should be able to withstand the body weight for such a long duration; ok.

So, these are the things that customers want; ok. Now, I buy a particular brand of shoe I am very happy; ok; I am very happy. So, next time I go I buy similar brand acceptable, but suppose I go to the shop I go to an outlet and buy a shoe; buy a shoe what is happening at a company has got the revenue the brand they have got the money I have purchased the shoe the brand has got the money, am I satisfied is the product customer centric.

Let us see; is the product customer-centric? We do not know; we do not know; let us see you know the concept of variability and we were giving the example of a shoe; right; ok. Now, see this shoe I have purchased one shoe I am very happy, but then I and I go for a repeat purchase. Now, suppose I go in for a new brand of a shoe and this shoe is like this is the diagram of a shoe.

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Now, if you press your feet like this if you press your feet your pressure points are this and this right. So, if it is a customer centric product what will you see that the shoe whatever you are buying has some extra padding here and has some extra padding here. So, that you do not feel the pressure you do not feel the pressure that is what we mean by; that is what you mean by customer centric ok. This is what is customer-centric; right.

But, if I get a shoe whose sole width is uniform, all through if I get a shoe whose sole width is uniform all through what will happen, this part of the sole will get I mean used out or wearied out first then this part of the sole will get worn out second. So, so you have to understand these dimensions and this is what we call as customer centric ok. So, this is what is customer-centric.

Now, let us go back to the concept of variability ok. Let us, say let us again go back to this one. So, this is customer centric. Now, what is value driven; now, what is value driven? Say your feet is moving this direction right your feet is moving in this direction. Now so, and every human being understand very carefully this is customer centric that there should be more padding at these 2 ends more padding at these 2 ends ok, of which the heel the back portion we put more pressure. So, more padding at this end.

But, this padding at this end is customer centric padding at this end is customer centric what is value driven; ok. Next we understand is value driven value driven what is value driven?

Value driven is suppose we are moving every human being has three types or rather human beings can be segregated according to 3 types of pronation; ok.

Human being can have three types of pronation first one is normal means you are exactly means your body weight is equally distributed ok. Your body weight is equally distributed. So, you walk straight. So, the pressure point is same at both these places in front and at the heels pressure point is same normal. Second is over pronation.

What is over pronation? Over pronation is you tend to bend forward when you walk, you tend to bend forward when you walk. Now, when you are bending forward, what is happening; there is more pressure at the front portion; right; more pressure at the front portion; ok. There is more pressure at the front portion; right. So, over pronation what should companies do now? They should have an extra padding of extra layer here. So, that the front of your feed the front portion of your feed gets that extra cushioning. There is another type of pronation called under pronation; ok.

What is under pronation? You tend when you walk you tend to walk slightly backward slightly the body is tilted towards the back; ok. So, earlier one first one was you are walking straight, second one you are bending in front a bit, third one you are bending backwards a bit, now, the back part is under pronation. So, what will happen backward your heel will have more pressure?

So, what is logical? Logical is we will use a blue color logical is the heel should now have more cushioning. So, because the body more pressure is obtained in this place ok. So, this is under pronation. So, what are you doing? You are you have understood that human beings have three types of pronation normal, over pronation under pronation.

So, if you can provide 3 different types of shoe soles one with extra normal cushioning, second is extra cushioning in front for over pronators, third is under cushioning sorry extra cushioning at the back for under pronation. If, you have given three types of soles for shoes different types of shoes you are providing then what are you doing? Your business is value driven this is value driven. So, one is customer centric yes, you are you understand that customers need cushioning.

Customer centric you understand that customers need product on time. So, customer centric, but what is value driven these types is called value driven. So, customer centric, value driven, decision making ok. Now let us go back. Now, this is now up to this is fine.

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Then what we are looking at is. So, what we can say is we are providing very good quality to our people very good quality product to our people. So, the next question comes is what is quality? Think about it what is quality? We say there is a brand quality ice cream; ok; but that is quality ice cream; very-very old brand quality, but we are asking what is quality from a production point of view, from a business point of view; ok; production point of your business point of view, what is quality? Ok.

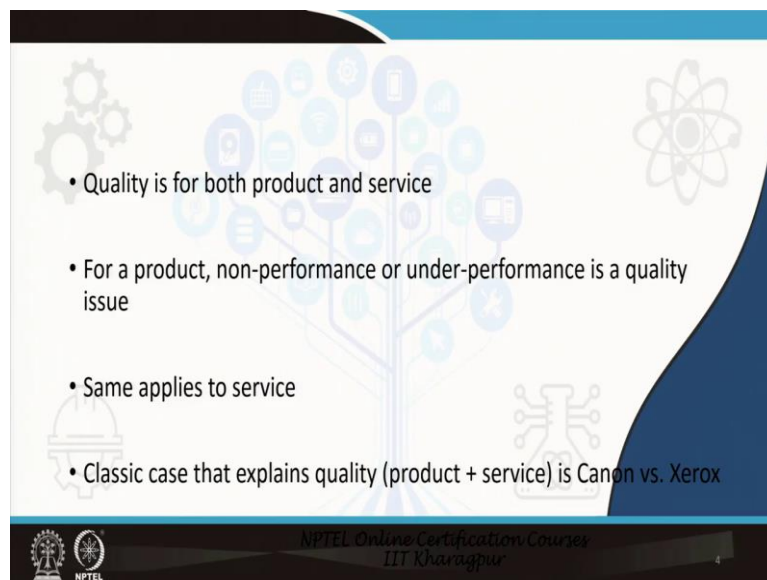
So, let us try to answer what is quality? Now, there are many definitions of quality ok. First definition is that quality means that it is good product and this how good is good how bad is bad is a matter of debate; ok. To me decent roadside restaurant is also good, but maybe to a very rich person he or she will never enter that restaurant. So, for him or her quality has a different dimension for me quality has a particular dimension particular definition for another person quality has a very different dimension; ok.

You will see the fans nowadays, the fans that rotates, the table fans, the pedestal fans they now have plastic blades but you ask anybody particularly the electricians who do work and us also, bit elderly people; you ask, they will say that the fans that had those steel blades they

were very good; the wind speed used would be much-much more ok; so, 2 dimensions of quality; ok.

So, quality is different if we look at it from different angles or from different perspectives quality. So, that is what quality is; ok. So, now, you so, it varies from person to person situation to situation perspective to perspective, you are travelling by a Volvo bus overnight bus service overnight bus service ticket is same price for the first seat as well as the last seat. But, will you prefer the last seat? No, you will always prefer the first seat or the second row. Is there any difference in quality? Same perception. So, quality, it is very-very difficult element to define; clear.

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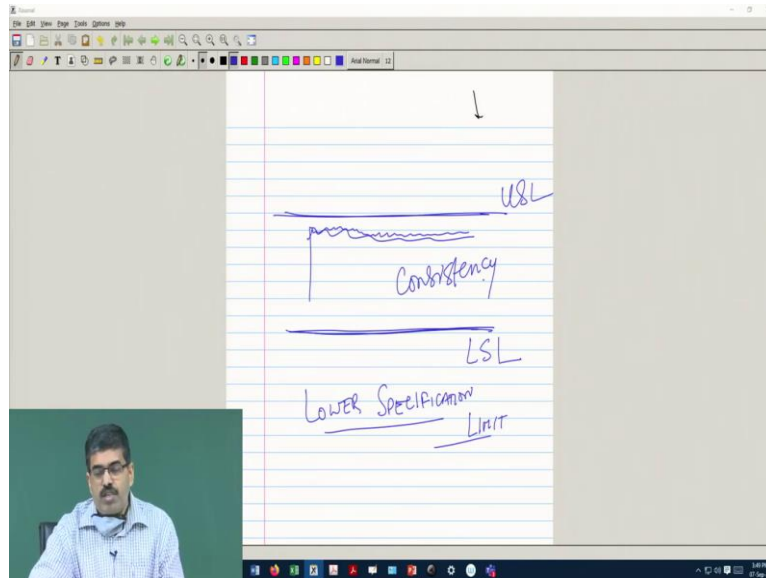


So, what is; so, quality is for both product and service. For a product, non-performance or under performance is a quality issue; same applies to service; same applies to service. Classic case that explains qualities that is product plus services canon versus Xerox we will come to it a bit later. So, quality is for both product and service; for a product, non-performance or under performance is an example of quality; clear. So, that means, when we buy food, our parents will say no quality has become.

So, bad; that means, what? They have certain expectations and the product is falling below that expectation clear. So, that brings us to another important point which it is better that we right now, we understand otherwise we will go to this thing right just give me a second fine ok. Now, so, quality, say sorry this our; so, for you see when we say that our parents will say

that it is not working, it is not as good as before earlier; we used to have this, we used to have that now, the same product quality has become.

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So, bad what are they saying essentially is that this is the threshold this is the their expectation. If it is anything more than that most welcome, but this is the minimum expectation.

So, this we can call as the lower specification limit ok; lower specification limit minimum expectation. If, it is more fine if it is more fine upper specification limit. What are these? Some days the quality is this some days the quality is that slight variation is there, but what we are seeing is consistency is it is being maintained; ok.

So, this is these are certain dimensions of quality; ok. So, where were we? We were quality is for both products and. So, quality is for both products and services for a product non performance or under performance is a quality issue same applies to service. Now, the classic case that explains quality that is product plus service is Canon versus Xerox ok. You see Xerox came up first in the photocopying market Canon came in second what was Xerox having? Xerox was having those huge machines huge machine it consumed space it consumed lot of money.

So, organization was buying one machine and individuals small organizations very difficult because, the price was so high ok. Now, first over advantage Blue Ocean they earned enough

money. Canon was trying to enter this market they did market survey they developed the product, but cannot learnt. And what did they do? They manufactured smaller size machines smaller dimensions. So, price also came down the smaller dimension machines price comes down and then so, the sales increased many offices instead of having 1 machine was having 3 machines.

Shop small shops started particularly in India small shops only Canon machines and making big business and people started photocopying, but the name Xerox remained, but people started photocopying ok. So, at one go when you reduce the size reduce the price Xerox was out of the market, some pockets it was there, but canon just took over the market US and every country, but US was the first introduction. So, Canon took over the market Xerox reacted Xerox said we do not we have so many service centers all over US.

You know how Canon reacted? Canon said we do not have a service center such is the force of quality such is the force of quality, the emphasis that we do not; we do not deserve a set of means, but we do not need service center; ok. So, this is basically the classic case that explains quality product plus service; ok. Now, the origin of quality studies 1920 is the Hawthorne studies; ok.

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The slide features a light blue background with a central graphic of a tree-like structure composed of various icons representing quality management concepts. The text is organized into a bulleted list. At the bottom, there are logos for NPTEL and IIT Kharagpur, along with the text 'NPTEL Online Certification Courses IIT Kharagpur'.

- Origin of quality studies/emphasis:
- 1920s – The Hawthorne Studies – the role of hygiene and motivator factors on productivity
- 1930s – Walter Shewhart – statistics for quality
- 1950s – Edward Deming and Joseph Juran - statistics for quality; Phillip Crosby – Zero Defects

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This first came up is how workers get motivated 1930s Walter Shewart statistics for quality, 1950s Edward Deming and Joseph Juran statistics for quality Philip Crosby Zero Defects,

Edward Deming Joseph Juran Phillips Crosby Zero Defects and we all know Deming and Juran annual quality awards and all have come up.

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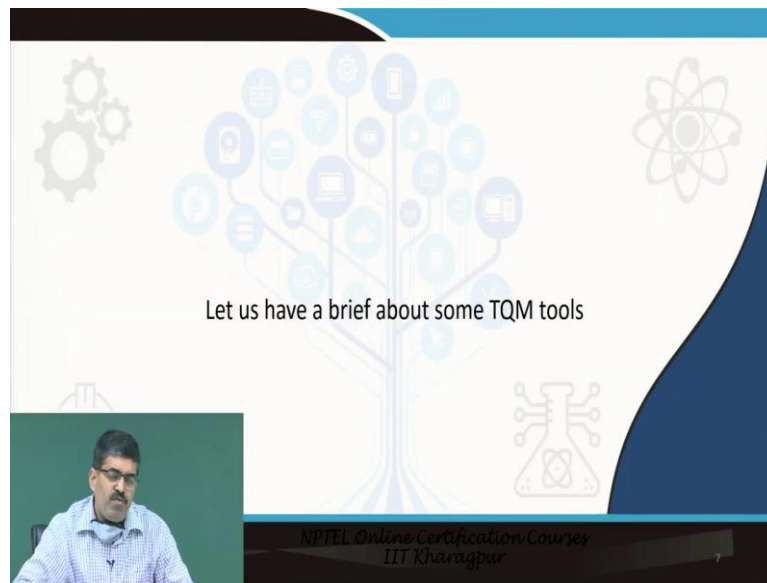


1968 comes up with companywide quality control Deming and Juran was looking at the bits and pieces of quality at different verticals etcetera. In 1968, Ishikawa, Kaoru Ishikawa said that no quality is not a single phenomena, quality is a system-wide phenomenon; ok.

It is like a football team, every person has a role; every person has to be the best that is what quality is. It is not an individual phenomena; it is a system-wide phenomena. So, companywide quality control 1968, 1990 first they are coming up with the standards written standards ISO 9000 series Deming Prize; Malcolm Baldrige National Quality Award; ok.

1986 that is the threshold year Six Sigma was introduced by Motorola, popularized by Jack Welch at GE; ok.

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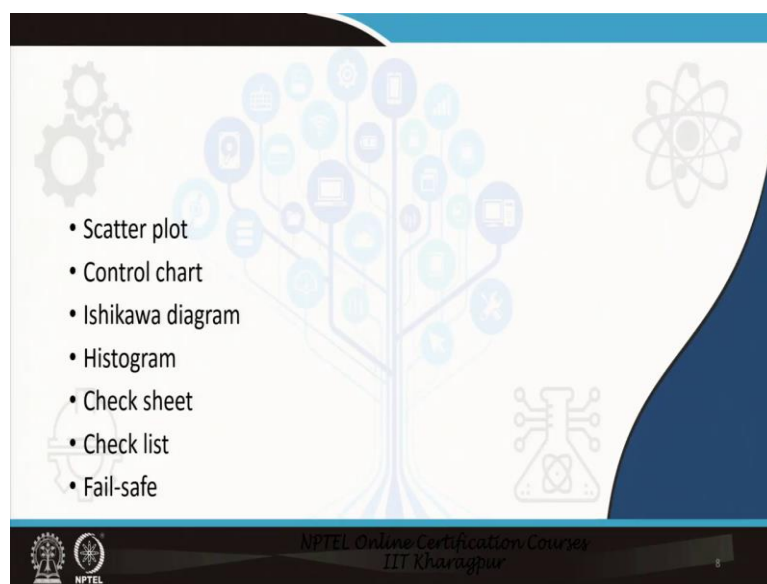


Let us have a brief about some TQM tools

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This slide features a central graphic of a tree where the branches are composed of various icons representing different TQM tools and concepts. The background is light blue with a dark blue curved shape on the right side. In the bottom left corner, there is a small video inset showing a man with glasses and a blue shirt speaking. The NPTEL logo and course information are at the bottom.

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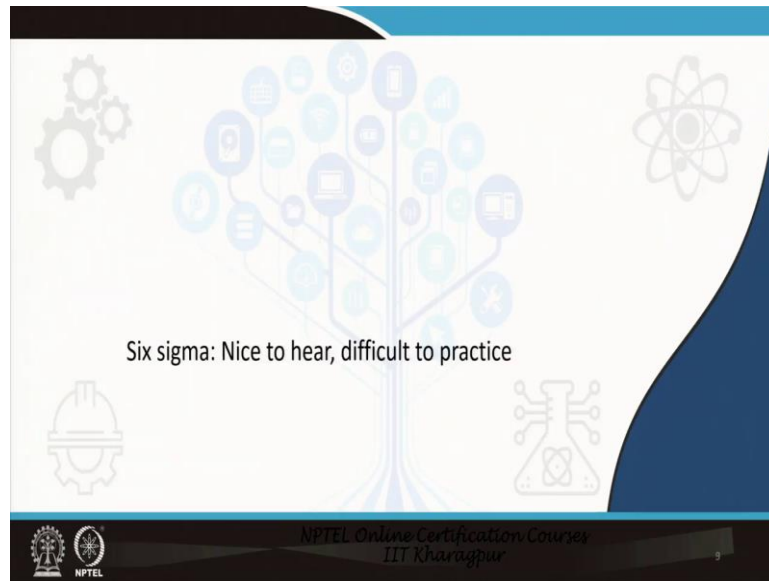
- Scatter plot
- Control chart
- Ishikawa diagram
- Histogram
- Check sheet
- Check list
- Fail-safe

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This slide is similar to the first one but instead of a video inset, it contains a bulleted list of TQM tools. The background and graphics are identical to the first slide. The NPTEL logo and course information are at the bottom.

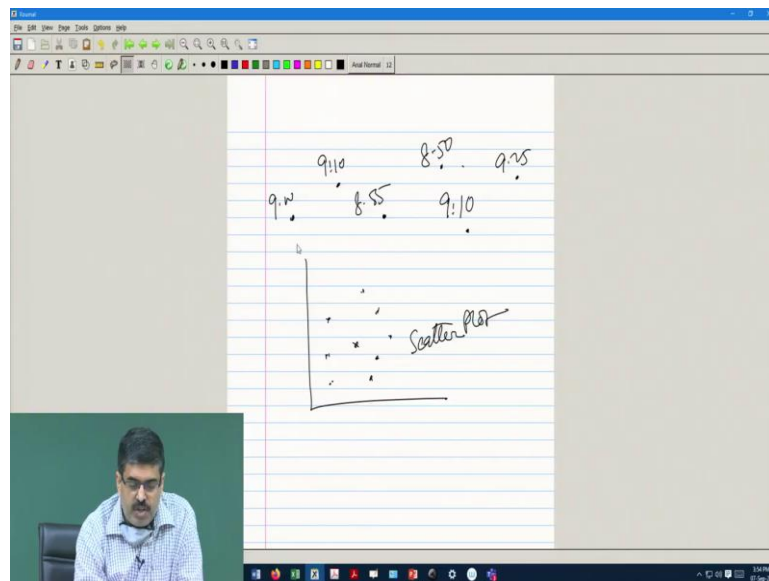
Let us have a brief about some TQM Tools – scatter plot, control chart, Ishikawa, histogram, check sheet, check list, fail safe; ok.

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What are these; what are these will come to it; scatter plot is what?

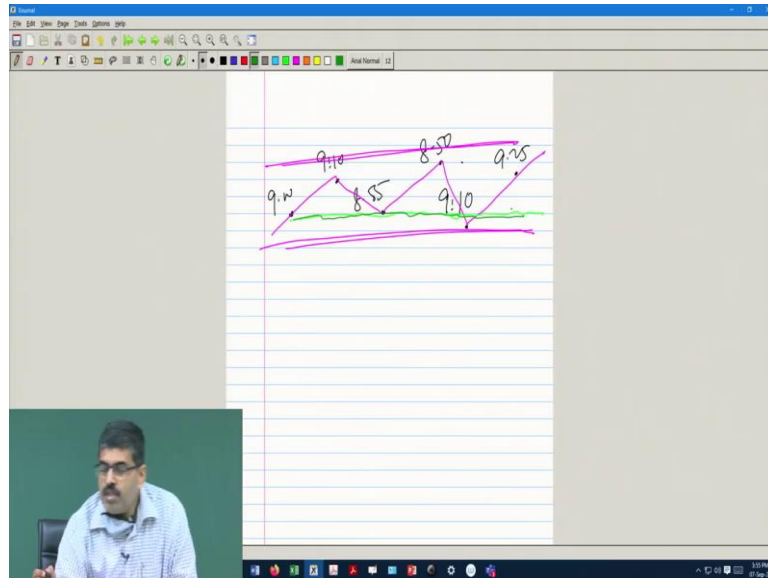
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Scatter plot is that let us say the vehicle has arrived today, at 9 o clock tomorrow the vehicle arrives at 9:10, next day 8:50, next day 8:55, next day 8:50, third day a next day again at 9:10, then 9:25. So, if you can plot these; if you can plot these time periods it gives you a something it looks like a scatter; it looks like a scatter: looks like a scatter. So, this is what is called as a scatter plot; ok. Now, what does this give you? This gives you a visual imagery of

what has happened; ok, if you look at it if you look at this one this dimension; ok, if you look at this dimension and draw a line; ok.

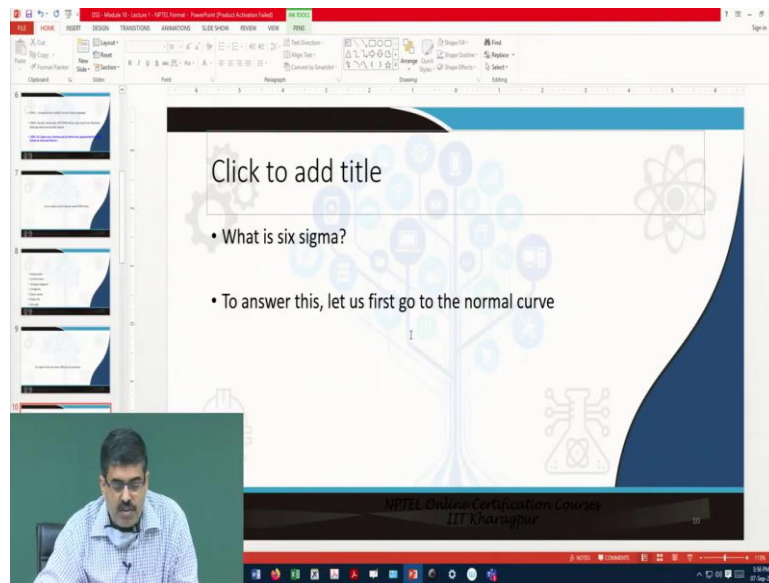
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Let, us use a different color this will tell you very very clearly what is happening to the arrival, arrival is somewhat erratic, but always within a particular band arrival is erratic, but always with in a particular band, but if it might have been that; it might have been that this would have been a very flat type of a curve; that means, your arrival is very-very predictable. Which one is better? Definitely the second one is better, the arrival is very-very predictable; ok.

So, this is; so, this is what is scatter plot control chart, Ishikawa diagram, histogram, check sheet, checklist fail, safe right all are different.

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A screenshot of a Microsoft PowerPoint presentation. The slide has a white background with a blue and white graphic of a tree-like structure with various icons (gears, atom, flask) and a blue curved shape on the right. The text on the slide reads: "Click to add title", "• What is six sigma?", and "• To answer this, let us first go to the normal curve". In the bottom left corner, there is a small video feed of a man with glasses and a mustache, wearing a light blue shirt, speaking. The PowerPoint interface is visible at the top and bottom of the slide.

Now, six sigma, these are tools we will come to them; six sigma nice to hear, difficult to practice. What is six sigma? To answer this, we will have to go to the normal curve which we will take up in the next week.

Thank you for this week! We will continue; ok.