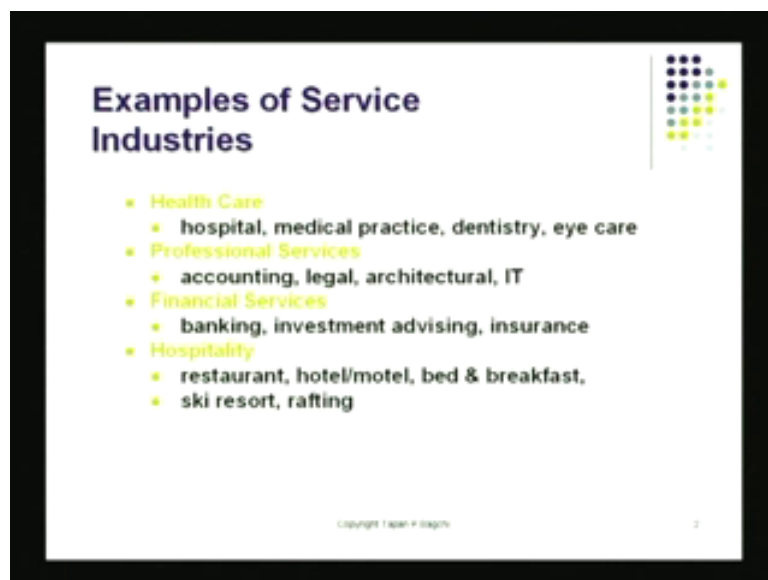


Six Sigma
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Module No. # 01
Lecture No. # 13
Competing Through Service Quality

Good afternoon, we continue with the series of our lectures on six sigma. We have a special topic today this has to do with quality in services. Almost two-third of our economy today is driven by various forms of services.

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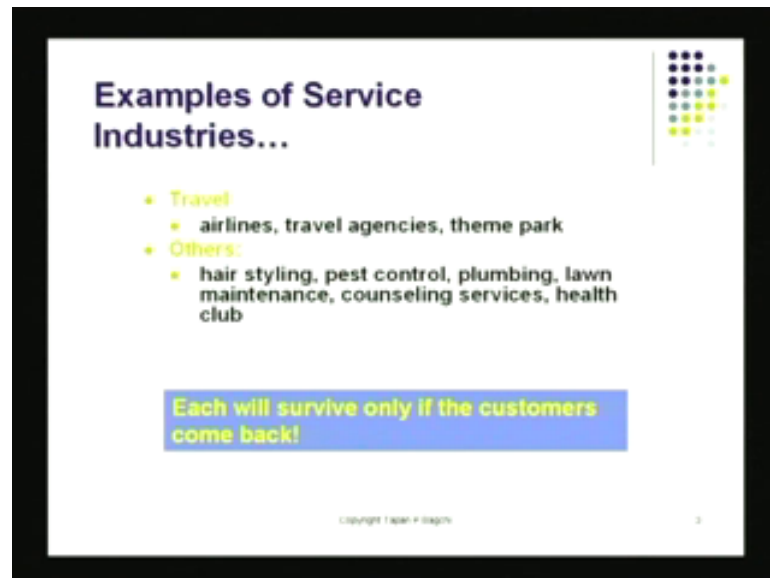


And there are many examples if you see the kind of people who are involved in providing services. We have people in health care, they certainly are there and they have to make sure that the hospitals work correctly, the medical practitioners they get their help dentistry eye care. All of these are they fall in the category of service provision in the area of health care. Then we have professional service that is also a very large area in our economy. Accounters accounting, legal, architectural work even IT. All these again fall under the umbrella of professional services. Then we got financial services which are like banking, investment, advising, insurance and so on.

These are also categorized now under services. Hospitality this has become a new sort of area. This is the very large area that has certainly grown and because of movement of

people and lot of transactions taking place overseas and so on. People are required to travel and also lifestyles are changing a lot of people they eat out. Therefore, we have got restaurant businesses; we have got hotels and motels. Lot of arrangements are there for and breakfast type of thing. Then ski resort, rafting and number of other tourists services these all come under hospitality.

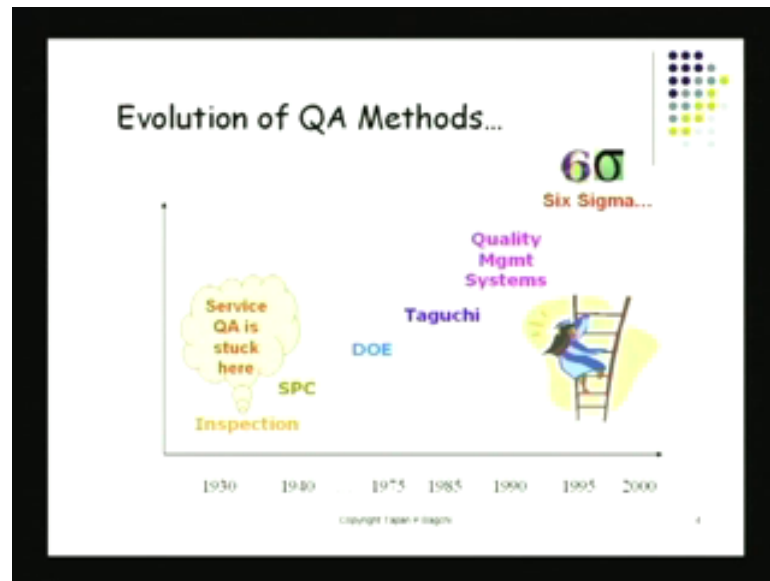
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That is like another area where you got services involved travel and that would be like airlines. For example, that is like a large area where again we have people who are engaged in providing services. Travel agencies they do a marvelous job many times and of course, sometimes they fall up. Theme parks they also come under services and many other services which you probably do not even notice for example, hair styling, pest control, plumbing, lawn maintenance, counseling services and health club. These are also categorized under services.

And in fact, each of these business entities would survive only if customers come back to them. Otherwise they would not be there. So, this is something that is very important for us to realize. Services exist because there are customers and service is something where there is instant delivery.

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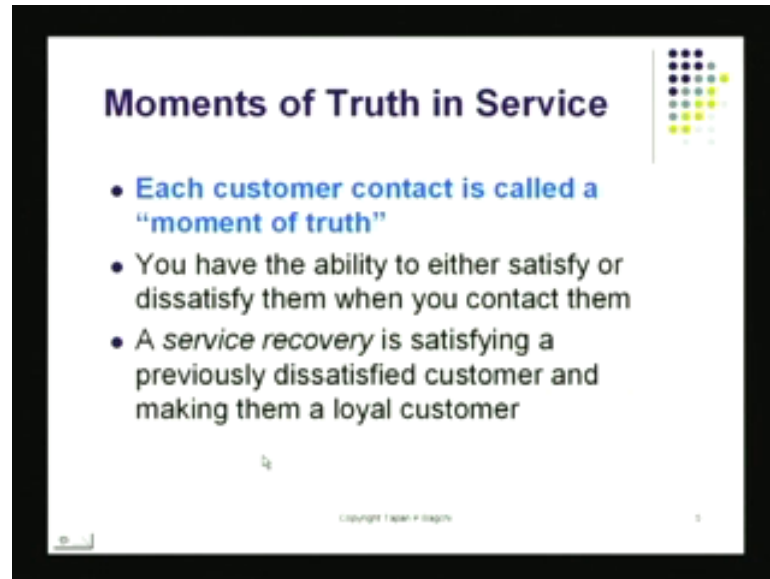


If you see the march of quality this is the theme that I have been using from the beginning of this lecture. If you see for example, if you see the interaction of various tools and techniques and the needs that, the users of our economy they have come up with. In back, in the old days we had inspection as the only method for checking quality or assuring quality.

Then of course, we got into a species statistical process control that grew into design of experiments that then grew into Taguchi methods. Then we had quality management systems we already obtained a glimpse of that TQM ISO 9000 and Q S 9000. Those come under quality management system and the latest one of the frontier is six sigma. That is like another major initiative that is now it is bearing it is fruits. So, that is there.

Now, in all this if you look at the state of services. Where do services belong in all this? They are stuck right at the inspection stage.

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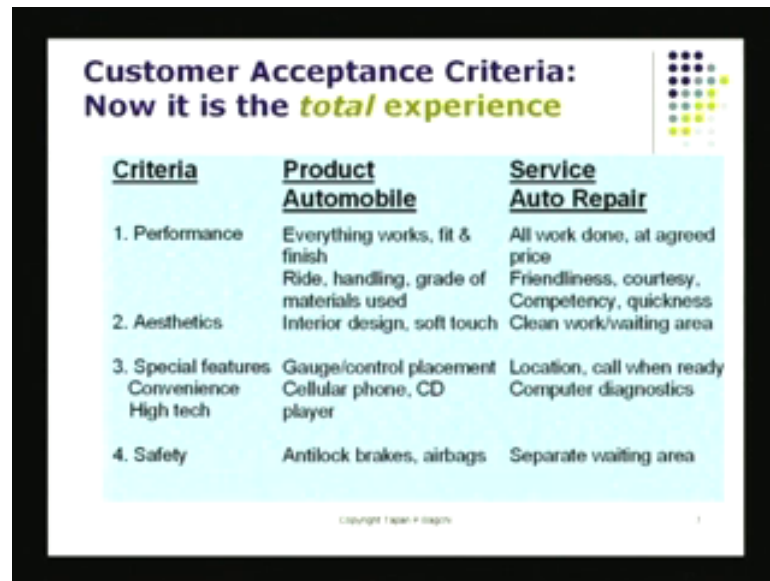


So, most of services their quality assurance is being done by inspection only. The moment of truth this is something we got to realize that the moment of truth occurs when there is a contact with the customer. When you actually deliver the service that is the moment of truth. The moment of truth is when the customer is there in front of you and you are providing the service that is the moment of truth.

You know business can be broken right there or the business can actually pick up some leads to go on to a bigger bigger sort of domain. You can grow and you can thrive and you can expand your market share and everything can happen. If that if you have acted right at the moment of truth. This is very important.

What happens at the moment of truth? You end up with the ability to either satisfy or to dissatisfy the customer. This is actually very very important. This is the event that takes place at the moment of truth when you got contact with the customers. And suppose you failed somehow. Then many people many services they engage in what we call service recovery which is like it is basically trying to satisfy someone who is who has previously dissatisfied. As the result of the service that I provided and the idea here is even if someone is not satisfied. Try to see if you can make him a loyal customer. So, that is actually service recovery.

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<u>Criteria</u>	<u>Product</u> <u>Automobile</u>	<u>Service</u> <u>Auto Repair</u>
1. Performance	Everything works, fit & finish Ride, handling, grade of materials used	All work done, at agreed price Friendliness, courtesy, Competency, quickness
2. Aesthetics	Interior design, soft touch	Clean work/waiting area
3. Special features Convenience High tech	Gauge/control placement Cellular phone, CD player	Location, call when ready Computer diagnostics
4. Safety	Antilock brakes, airbags	Separate waiting area

Let us take a look at some of the some of the other areas in this. Something that you got to remember that is true for services it is not so true for other areas. For example, it is not true for manufacturing and that is the perishability of service. It is difficult to actually to synchronize service. The supply of service for it is delivery. It is very difficult to do that because you cannot store service.

You cannot actually store hair cutting or something like that. It happens at the instant when there a contact with the customers and services also cannot be returned. You cannot put your hair back which I try sometimes of course, when I go completely bald. When I have at a place where they give me a haircut and if they come too close to this. There is no way I can put some hair back unless I use a [FT] of course.

Now, services therefore, cannot be returned or resold. Once you provided some on the service he is already consumed it. So, there is no question of reselling that service. And something else we have got to remember. Today if the customer is looking for the total experience. What is this total experience? Let us take a look at the automotive sector for example. What we have here is, we have the product aspect of the automotive business and if you look at the total acceptance criteria.

This is like the criteria that customers would use to continue to do business with you. If you are in the auto sector for example, there is the product aspect and I can actually see as far as the product is concerned. We really view the auto itself to be the automobile

itself as the product. Performance is there certain aspects of it have to be there in the right order.

For example, with a car everything should work, fit and the finish should be top notch. Ride should be good, handling of the vehicle should be good and the grade of the material used for example, seat belts and so on. They also have to be top notch. This is like something that we expect to and expect the product to have. This is the product aspect of performance.

There is of course, something that goes beyond just owning the car. We also have to from time to time we have to take it back for repair or some of their care. For example, and then I go to an auto repair shop and what all things are expected there? As far as this service component is concerned we will be expecting that all work will be done as agreed at a price that has also has been agreed upon. So, there is some reference there to the contract. The contract is actually when I sort of say that I require these services.

And I am quoted a price and if I like the deal then of course, I ask him to go ahead with it. How will that that part is taking care of and then in addition I would also like to see friendliness of the people who are there. Their courtesy for example, and their competency in doing the job and quickness for which they do the job. These are now attributes of service. Attributes of service as far as performance is concerned these are the performance attributes of the service that goes along with the product which is there.

If you look aesthetics; obviously, there are lot of this would like to make sure the vehicle that I have purchased has for example, interior design, soft touch and so on and so forth. These are aesthetics they go beyond just a functional requirements. As far as aesthetics in the work area is concerned or the auto shop I would like the work place to be clean, I would like the waiting area also to be clean.

This is like something that I would like. I do not want to go to a place where the walls are greasy and so on and so forth. If I touch something I get a stain of oil on my hand. That is not really a place I would like to go back. To say there like some aesthetics there when you look at the service component there are certain aesthetics. That are also involved here. Special features, these special features actually convenience for example, what kind of things do I want to see in a vehicle as convenience. These are special features.

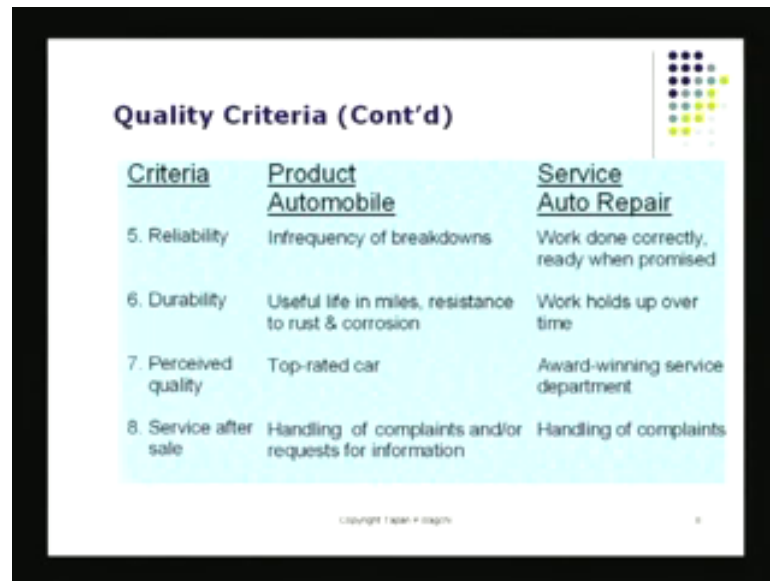
Certain gauges and their control their placement. This is something very very important. You also might like to have a cell phone in the car, you might like to have a C D player in the car. These are special features and these come in addition to the basic features that come with the vehicle. What about special features regard to a in regard to the service of the of the vehicle location, where is it located?

That is also very important. Call when ready I should be able to call in and walk in and kind of drive in with my vehicle. That is something that I would like to be able to do and also something that is a special feature say a major convenience is computer diagnostics or the availability of computer diagnostic. You can clearly see this is not a feature of the product. This is the feature of the guy who is providing the service that goes along with the vehicle and I am looking at the total experience.

Safety, what about safety in the vehicle itself? Antilock brakes, airbags these are clearly safety features of the product itself. And what about the service area? Well there is a separate service area. I am not really around the vehicle when my vehicle is being worked upon and it has been you know jacked up on a some sort of a platform. And there is a beam that raises the car and they are working underneath the car.

It should not be such that I am exposed to any kind of danger there. Either something falling on my head or kind of damaging some property or on my limbs and so on. That is not something I would like to have. I would like to have a safe area that is probably enclosed neither noise is there, not smoke is there and probably I can even rest there properly. So, that is like an area where I feel safe if I have gone in there for the service.

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<u>Criteria</u>	<u>Product Automobile</u>	<u>Service Auto Repair</u>
5. Reliability	Infrequency of breakdowns	Work done correctly, ready when promised
6. Durability	Useful life in miles, resistance to rust & corrosion	Work holds up over time
7. Perceived quality	Top-rated car	Award-winning service department
8. Service after sale	Handling of complaints and/or requests for information	Handling of complaints

Let us also take a look at one or two other areas. For example, reliability and we all know where there are certain things we require when we buy a vehicle. We would like to have as few breakdowns as possible and they should not be too frequent. That is a product feature. What about reliability in terms of the work done on my vehicle? Work done correctly. So, that I do not have to come back and get the thing done again, get the repair done again and also reliability in regard to time.

So, there is the quality of that service and also ready when promised. This gives me the time to mention and both of these things if they are done right I regard that auto repair shop to be a reliable one. Then we will look at reliability and then of course, we can it is getting very easy for us to see. That we for the way too we must useful life in miles or kilometers and also it should resist rust formation and corrosion.

That is something I would like to have, the vehicle itself to have. That is a product feature. On the service side the work holds up over time. It is not that I take it home and again I have the same problem or I drive it for a week and then again I have got the same dragging problem. That is actually is telling me that the repair that was done was not durable. So, that is his service component.

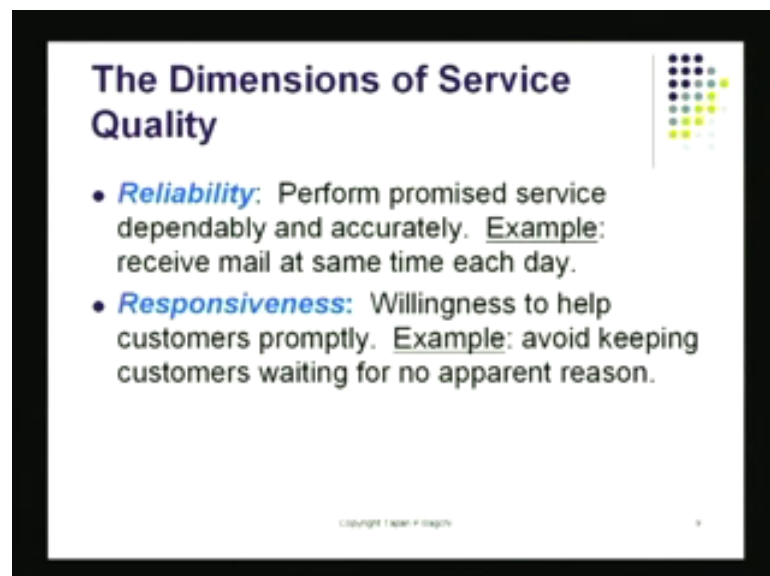
Then of course, perceived quality how is that, how is my car perceived? And as far as the product is concerned I obviously, clearly will be much happier if he drove the top rated car like the Toyota's or the Honda's or the Mercedes or the B M W. That is what we

would like to be able to drive. That is like that is a product image of the car itself that is perceived quality. On the service front I would like to go to a place who have been recognized for award winning service.

That actually gives me some assurance that these people they are good people to do business with and that is now how I get service components. So, I have got a product component and then I also have a service component in regard to my vehicles perceived quality. And then service after sale as far the product is concerned I would like to know. If I have a problem with my vehicle if I call in. How will are they handling the complaints, what kind of things do they have in terms of information management? If I have compliant to their right things down and. So, on do they a follow upon and so on.

That is a feature of the product on the service side again handling of complaints. If I am not happy with the service that is provided, there I see a follow up, notice here I have got both the product component and I have got the service component. And I am looking at the total satisfaction; I am looking at the total experience to derive my satisfaction. Therefore, not only the product, but, also service has become part and partial of doing good business.

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I may got to ensure quality in both. Looking specifically into services and if you look at look into for example, reliability. If you look at reliability something that we got to remember is when it comes to reliability performing the product promised service. That

is something that is regarded to be reliability. The service facility provided I need some service and they provided exactly what they promised. Then of course, I would regard regard them to be reliable and they do it dependably and also they do it accurately.

For example, let us take an example I receive my mail at the same time everyday and that is a reliable service. It is not that I am waiting for it or there is a surprise for me it should not be like that. If it is like that I cannot do my planning. So, if there is an if there is a for example, you talk of FedEx. They have a specified pickup time and there is no confusion about it. Then of course, responsiveness this is also a very important dimension of service quality. That is the willingness to help customers promptly. They respond exactly when we need them.

This is very important because this avoids keeping customers waiting for no apparent reason. This is also, something that is very important in terms of managing a service and if you want to really, if you want to be known as one who provides excellent service do make sure you are reliable and also you are responsive.

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The slide is titled "Dimensions of Service Quality contd." and features a decorative graphic of colored dots in the top right corner. It contains a bulleted list of three dimensions of service quality, each with a definition and an example. The fourth bullet point refers to the Kano model. At the bottom of the slide, there is a small copyright notice and the number 10.

- **Assurance:** Ability to convey trust and confidence. Example: being polite and showing respect for customer.
- **Empathy:** Ability to be approachable. Example: being a good listener.
- **Tangibles:** Physical facilities and facilitating goods. Example: cleanliness
- See Kano model to prioritize customer needs

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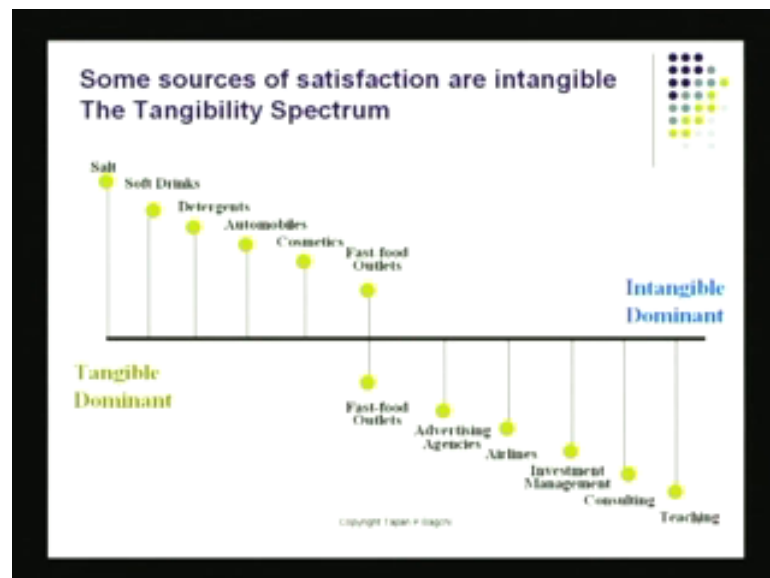
There are some other aspects also for example, Assurance. I should be able to assure. I should be able to convey trust and confidence. When the customer comes and deals with me I should be able to convey trust and confidence to him. This is very very important and also an example is I have been polite and showing respect for the customer. This actually is a is a kind of an assuring thing. That you know trust me I will take care of you

and you know I respect your business, I respect you as a person and I will take care of you. This actually shows that I am trying to build trust and this gives the customer also, some reason to do business with me instead of going out to a competition for example.

Empathy, which is like I am approachable. If I am providing service I am approachable. If something has gone wrong I can listen I am willing to listen. This is also, something very very important in the provision of services. Then there are occasions when I provide not just a service I also provide some tangible things. In addition and I got to make sure whatever tangibles I provide. The physical facilities I provide for example, or other goods that I provide. They are clean for example, and there are there are reasons to believe when it is a combination of a product and a service.

People will view both of them, people would like to evaluate both of them before they really just to tell me that yes this is the business I would like to do business with. This is a business entity that I would like to continue to do business with. So, tangibles are also important.

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Now, if you look at the mix of tangible products and if you look at the mix of some parts of intangible products. It turns out most services; most services comprise some tangible components and some intangible components. Of course, there is a full spectrum. There are some businesses which are purely tangible and there are some businesses that are purely intangible. Let us take a look at that you go to the slide there soft drinks, salt

detergents and so on. They tend to be they are also providing me some sort of satisfaction. They are provisions that I use and they are tangible dominant. The tangible product itself is the dominating thing. As you slowly move towards the right you will find cosmetics care and so on, fast food outlets.

The moment you come to fast food outlets. It is a combination of the tangible product and also the service that is provided the quickness with which service is provided. The accuracy with which they check your change and so on and so forth. And the care that they show when you show up at the counter. For example, or you could be driving and you just wind down your window and then you sort of you know place your order. And you count at the money you gave it to them and you drive up then and you go to the counter that is the pickup counter and you can again you wind down your window and you grab the thing and you move on.

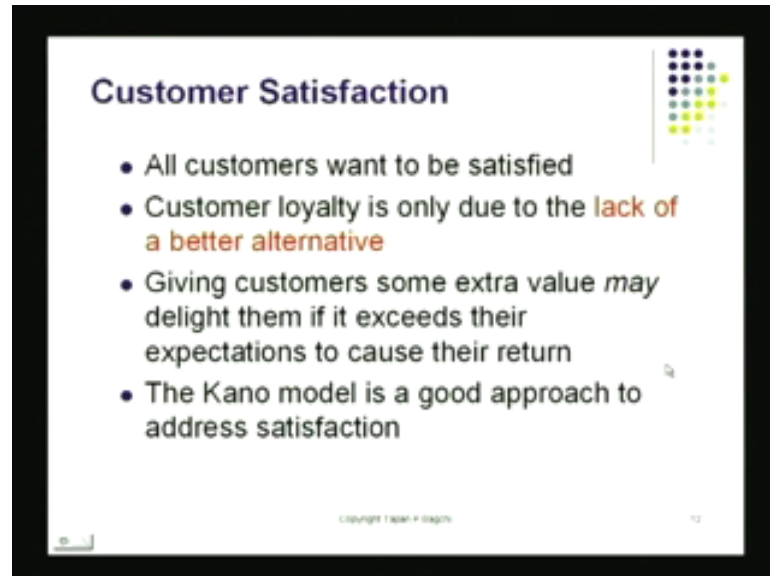
This is very important for us to realize. There is a product component; obviously, the food that you obtain and also the service that is going with it. So, as far as fast food is concerned there is a tangible component and also there is an intangible component. It is the combination that we are looking at and in many cases it is about 50-50 in such businesses. Then you go to advertising agencies which in most cases it is not much tangible most of it is actually it turns out to be intangible. It is the feeling that we have how the message was conveyed? How convincing it was? And so on and so forth.

That is an intangible thing and it is very possible that if you look at airlines, investment management, consulting and so on. And certainly when it comes to teaching you hardly deliver anything that is physical. I do not provide pens and papers in every class I do not do that. So, there is hardly anything tangible that is passed on to passed on to my student when I am teaching. Most of it is intangible it is coming across. You cannot touch it, you cannot you can feel it, but, you cannot touch it you cannot store it; you cannot do anything with it. As far as teaching is concerned, that is knowledge. That is for example, information and knowledge that is passed on and it is an intangible.

So, if you look at the full spectrum we again start with variety of businesses are there. Some are totally tangible and many are totally intangible. And many business of course, there are in this full spectrum. They go from left to right as you increase the share of intangibles you move from left to right. That is where you are. So, most businesses they

will have then worried about some part of the intangibles also. It is very very important for us to realize.

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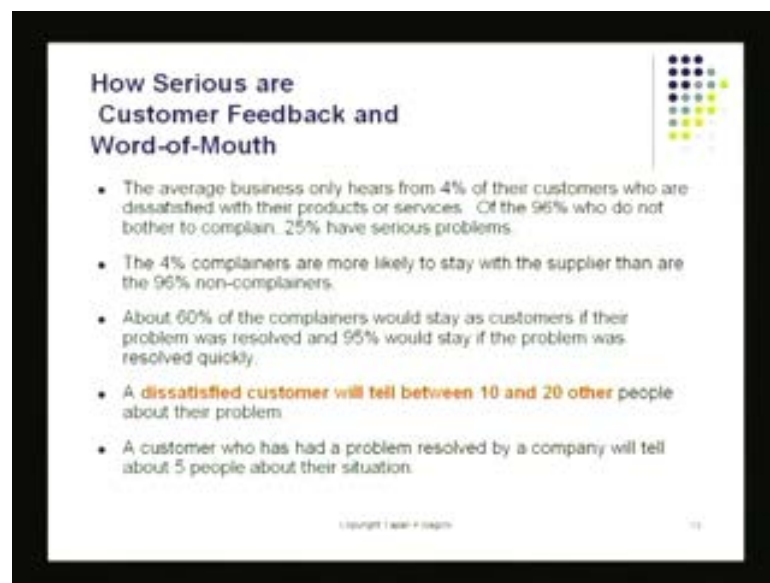
Now, what is a exactly determinist customer satisfaction? All customers really want to be satisfied. I do not know any customer. If you are spending some time, if you are paying someone for some product or service. I do not know anyone who do not like to be satisfied. I walk in with a certain need in mind and I would like to walk away having that need satisfied. This is what I would like to be able to do.

In fact, customers are loyal only because they cannot go somewhere else either for price or for the quality of service or for the quality of the goods. They would not go somewhere else because they get value which means which they cannot get somewhere else. If I would not be able to provide the value that somebody else offers; obviously, the customer is not going to come to. That is something we got to remember.

So, in fact, it is very very important first to find a way to provide customer some extra value. This may delight or even exceed their expectations. This may cause them to come back and this is exactly what we are after. We are after customers coming back to us not only they themselves come back, but, they also tell others, their friends and relatives and so on. That this is one good place if you go there I think they will take care of you. I think they will give you a good value. That is something that we have to do.

Now, how do we find out? How do we find out exactly what things are satisfying? What things are delighting and what things are just basic things? There is a there is a model that was formulated by general manager it is professor Kano a Japanese. He was actually a student of ishikawa. He came up with this Kano model. It is a great way to approach this issue of satisfaction and we will catch a glimpse of that as we go along in this talk here.

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How Serious are Customer Feedback and Word-of-Mouth

- The average business only hears from 4% of their customers who are dissatisfied with their products or services. Of the 96% who do not bother to complain, 25% have serious problems.
- The 4% complainers are more likely to stay with the supplier than are the 96% non-complainers.
- About 60% of the complainers would stay as customers if their problem was resolved and 95% would stay if the problem was resolved quickly.
- A dissatisfied customer will tell between 10 and 20 other people about their problem.
- A customer who has had a problem resolved by a company will tell about 5 people about their situation.

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How serious is one particular thing which is called the customer feedback and word of mouth. How serious is this? Couple of things I would like to be able to mention here. And the average business hold hears only about 4 percent, from 4 percent of their customer what dissatisfied. Very few people would actually bother complaining. Even if they are not satisfied they would not bother complaint. They would probably just leave with it. 96 percent do not really bother complaining and actually out of them the 96 percent who are not satisfied. 25 percent probably have pretty serious problems with what have given them either in terms of the product or a service. 4 percent compliant ourselves more like to stay with the supplier only 4 percent than the 96 percent who do not complaint.

So, in now you are looking at a different spectrum. You are looking at all those people who have not complained, but, they are not satisfied for some reason. If somebody has complained only f4 percent of these people they would stay with it. It is very very

unfortunate that without that we really would have a big big you know big problem to handle.

First of all, very few people complaint and those who compliant very of very very few of them actually continue to do business with them. 60 percent complainers would stay as customers if there problem are solved and 95 percent would stay if the problem was resolved quickly. That is also that is also, something that we got to remember those who have complained. If the problem was resolved quickly 60 percent of them would stay with us and if the problem was resolved quickly not only it was resolved, but, it was resolved quickly. Then 95 percent people who actually had a compliant they would not mind staying and doing business with them.

But, if you have a dissatisfied customer; that means, some of you did not get satisfied. He is going to tell between 10 and 20 other people that this is not a good place to go for your service or your or purchase your product. And remember even if you are doing retail purchasing. There is a lot of human contact, lot of intangible going on. In fact, that is the game of sales people.

Sale people offer these intangible the experience of purchasing and they make you feel like you made the best decision ever possible. That is the kind of thing that we are looking at. If you are able to combine that along with your product you are a winner and the customer who is actually got a problem will probably go around telling other people also.

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Rating	Degree of Severity	Likelihood of Occurrence	Ability to detect
1	Customer will not at all observe the adverse effect	Very remote possibility	Sure that the potential failure will be detected & prevented before reaching the next customer
2	Customer will experience slight discomfort	Low failure with supporting documents	Almost sure that the potential failure will be detected before reaching the next customer
3	Customer will experience annoyance because of slight degradation of performance	Low failure without supporting documents	Less chances that the potential failure will reach the next customer undetected
4	Customer dissatisfied due to reduced performance	Occasional failures	Some controls may detect the potential from reaching the next customer
5	Customer is uncomfortable	Moderate failure rate with supporting documents	Moderate chances that the potential failure will reach the

And that statistics also there and we cannot really deny this. If you look at the ratings these ratings go from 1 to 10 and the degree of severity with which a customer is going to complaint about something. We if severity is pretty low which is like 1 then the customer is not at all observed. There is a problem with it and they would like to get of that particular compliant happening is very remote that is also there. Then of course, the in rating 2, this is like a level of dissatisfaction that is rising.

The customer experience some slight discomfort, but, again it is something he can probably leave with. And then of course, we got customer will experience some annoyance because of some degradation is there in performance and so on and so forth. If to move on this chart for example, I will just leave it for you to read. There are occasions where the customer is going to be down ride dissatisfied like for example, getting 5 customers uncomfortable and this is a moderate rate of failure. And I may have some documentation for it and it may actually lead to what we call potential failure. This is like something that would not we would not able to sort of live with.

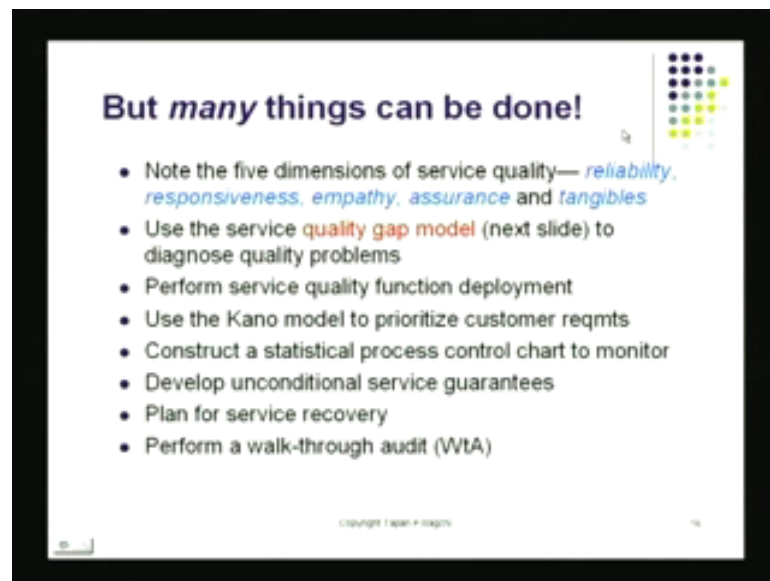
Then of course, I have got something called warranty repairs. Warranty repairs actually means that the products has product has failed or perhaps even the service has some problem with it. This is of course, fairly serious situation. It is what half way to going out of business. Then I have got even high degree of customer dissatisfaction when perhaps I

have done some damage to the costumers who are on operations. Perhaps I inflicted some damage on him or his property.

At severity rate 8 I have really crossed a very high degree of customer dissatisfaction. Then of course, I have crossed some negative impact of the costumer and that is going to be at rating 9 and at rating 10 of severity of poor service. That would be in a negative impact of the customer people and society. And this is going to guarantee failure for you and actually this is like situation when perhaps the controls that they have not placed they are not able to detect that there is going to be a potential failure because intentionally I would not cause a situation like this.

So, most likely we are not able to detect. So, this third fourth column here is the ability for you to be able to detect if I am providing that service.

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Let us take a look at some of the other things that can be done first of all we got to recognize that there five dimensions in which quality is being looked at and particularly if it is service people are looking at reliability people are looking at responsiveness people are looking at empathy people are looking at assurance and people are also looking at tangibles compounded with combined with package with or bundled with the service that you are offering. Something, we also have to recognize when we are trying to design or facility to provide good services. We got to recognize the quality gap. This I will bring with the next slide the next slide talks about this.

That is very important for us be able to diagnose the problem. What do I fix? Where is the gap and what do I fix? That is something that is going to be clear once we get into that gap analysis. And something else we can do, we can also do Q F D you remember we did Q F D for product design and also we did it for process design. Here we are trying to bring in Q F D for service design. For example, there are lots of services that I have been provided now with your cell phone.

Cell phones are now providing a lot of services and now what kind of services will you provide? You can design that using Q F D. That is also like a great way to make sure you maximize service satisfaction with it is service. You can also use the Kano model which I am going to mention as we go into it a little later and that will help you prioritize the different services. That will be providing the costumers which are in that taking care of certain types of requirements.

I could also collect some data and I could construct what we call a process control chart which is like a chart that will monitor how performance is going on. That is something I could do. I could also in case something does go wrong. I could do something that is called service recovery which is like I take a dissatisfied customer I do some special things. So, that he turns into a loyal customer. I do something may be I do a refund without question, unconditional return and unconditional guaranteed of a thing. I extend something that is beyond that because I do not really worry so, much about the business that I have lost just at this moment.

I want to make sure that he comes back to me. And another thing I could do when I am trying to improve quality of services is I do a walk through the full chain of service from the time I have input of materials and goods and so on and so forth. Provisions and then I got the customer entering the system. I trace it all the way from the beginning to the end till the customer leaves my premises. I do this walk through that also is going to it is like an audit. That can bring out a lot of things which probably would stay hidden otherwise.

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Let us take a look at this quality gap model. Notice here the beginning is of course, is customer expectation. That is that is the beginning of everything. So, I have got that yellow box there customer expectation. That is the start of everything. Where do I find this? Out of this is done of course, through marketing research, marketing researchable find this out. So, customer market research and you try to what is your effort you try to understand the customer. Then we come up with your own perception about customer expectations.

There are real expectations you have your own perception. If there is a gap between these two you would not be able to satisfy that customer there. So, this is gap number 1 very important. Then of course, management has some, some perception and on the basis of that the managers they go about designing the service. So, now you design that service. So, the first of all you understand the customer, try to understand what is his expectations are? Then you design the service that will take care of those requirements those expectations.

And there of course, I generate as a result of this, I generate some standards. These are service standards. Again if there is a gap between what my perceptions was? My perception as a manager someone who is going to provide that service and the service standards that I set. If there is a gap between these two which is our gap number 2. If that gap is too wide then the again I have the perception, but, I have not designed a service

that will take care of, taking care of those perceptions. It is going to be gap there. So, my service designed has been defected there. That's how I get to my service standard.

Then of course, I have my service standard that is like something that is expected. Then I have got this major job of delivering that service. That is also, something very very important for us. So, there I go from service standards to service delivery.

Now, I have to make sure that service standards are met by this service that I deliver. So, this is a ratio of conformance. If there is a difference between what I deliver and what the service standards are? These all I guess specifications. If there is a gap there of course, there is a gap of conformance. This is gap number 3 and again if this gap is wide I am not going to get customer satisfaction.

I am not certainly going to get customer delight then from service delivery to customer perception. I offered a service, I offered a particular product or I offered that bundle of service and product. I offered that, but the customer when you received here it here certain perception. He was expecting something and now he is perceiving the quality of what I have offered to him. If there is a gap between what I deliver and what it perceives it to be. There is again a gap there. That is gap number 4 and that is a matter of how I communicate it? How I communicate within property?

So, his perceptions are straight, perceptions are right. In fact, this is one I am trying to manage basically his perception. Because I have done everything possible to the extent I could; I have done I have tried to understand the customer. I have tried to tried to design the service correctly. I have set standards for it, I have tried to make sure I deliver to those aspects.

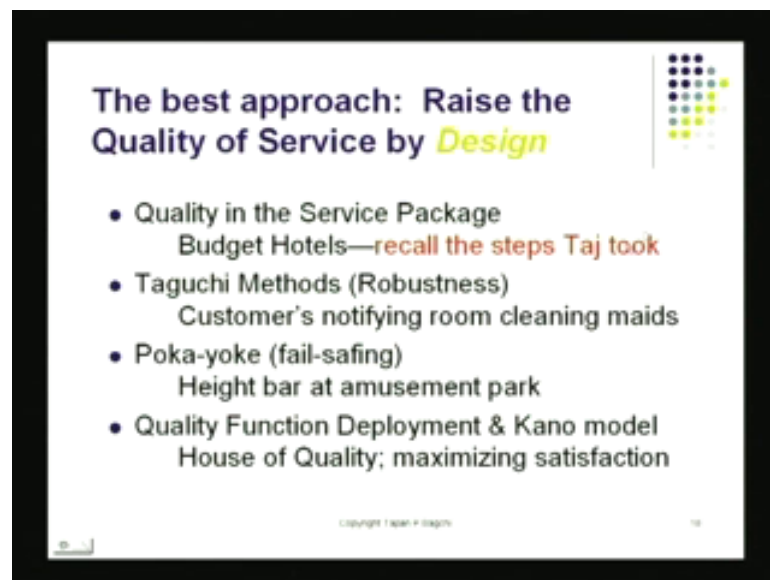
And then of course, I am also trying to communicate and I am trying to make sure that he his perception is exactly what I intended it to be. So, I deliver some service and I want to make sure that is what we perceives it to be. If that gap is there in the end again then of course, I have got again a gap to worry about and I will not really have a delight delight delighted customer.

Then of course, the last part is customer perception perceives what the customer expecting? The customers were expecting certain thing when we started doing business with me he conveyed or through in through market research perhaps I found of what is

there that he is after? When he has received the service or the package. The package that is the bundle of the service and the product that I offer to him.

He ended up with a perception. If there is a gap now between what he perceives this delivery to be and what his expectations are or were? That gap again is something very serious is the gap between what he perceived the delivery to be and what you are expecting? This gap again if it is too wide I will not have a satisfied customer. There again I have to manage this. So, again they receive this. So, then I have 5 gaps here and each of these gaps to be have to be understood. We got to make sure we identify where that gap is and we try to do the; we take the steps to correct that. That is something we got to do.

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The slide features a title in blue and yellow text, a decorative graphic of colored dots in the top right, and a bulleted list of quality management techniques with specific examples. The text is centered on a white background with a black border.

The best approach: Raise the Quality of Service by *Design*

- Quality in the Service Package
Budget Hotels—recall the steps Taj took
- Taguchi Methods (Robustness)
Customer's notifying room cleaning maids
- Poka-yoke (fail-safing)
Height bar at amusement park
- Quality Function Deployment & Kano model
House of Quality; maximizing satisfaction

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How do we do that? How we actually how do we go about designing the kind of service that we want? To began with I have got to make sure that I designed this service package that fits the requirement. For example, there is a hotel in India. This is the Taj group of hotels and the most of the hotels that they manage are 5 star hotels. 5 star or 6 star 7 star they are really top notch world class hotels.

Now, a lot of travelers even if they are business travelers. They do not have unlimited budget. So, they would like to get very good comfort. No doubt, but certainly they are not looking to get of 5 star experience. If they go to Delhi then they go to jaipur then they go to Bombay then they go to Ahmedabad then they come back to Delhi. They have

done these 3, 4 city trips. They are not really looking to get a 5 star experience in all those places. This is something that the Taj group recognized here and they came up with a series of hotels that are not the top of the line 5 star tier.

But, they also provided very good service excellent service and most of the stuff that they would do in the 5 star hotels. They provided same quality of service at a lower price because they could really see there was a large market here. And this could not be really taking care of by offering the travelers the 5 star comfort and a 5 star provisions.

So, that is something where it was recognized that the design had to be fitting the requirement. So, there is large like right now. We are really what we are really trying to do is? We are trying to make sure that the design fix are requirement. Then there is something called robust design and robust design is something where if something falls up the system takes care of it.

Now, robustness is something that we always take care of when we are looking at for example, tangible products we worry about robust design, but this robust design the robust design is also possible in services. For example, you have got everything there everything you have provided. And for some reason you know there are certain hours at which time the mates go and they tie up the bed sheets and everything else they you know change the flowers and so on. They clean the ash trays and so on. They do this at certain prescribed hours, these are preset hours.

Now, suppose there is a costumer and he is expecting a small meeting to be held in his sweet and he wants the room to be tied it up. Now, if your systems are so, fix that only at certain hours like 7:30 in the morning then again probably around 11:30 then again around 5:30 then again around maybe probably 8:30. The maid would come in and she would tidy up the place. If these times were fixed and suppose the visitors coming at 10:30 and there is some ash ling in the ash tray.

The fellow who is the guest is not going to feel when where very good about this. So, what he would like to be able to do is if he knows that the meeting is going to start at 10:30 probably around 10:00 or maybe around 10:15. He would to like to buzz the dust on stairs. You probably say oh could you please send the mail. I would like it to be just a little tied up I have got a small meeting to be held in this sweet again. Now, here there is

robust and the system is robust. What happen that you know that extra ash that was there? It is a noise.

But, the system is able to take care of that noise there. So, I have got a robust design what is the robustness that are provided here. I have got some extra capacity I have got some extra people, extra maids who are on call and they do not do. They do their routine job, but, in between there are some people who are assigned to attend the telephones. Just in case there is a house call, there is someone who is calling for some extra service in his room. I have got that provided for it.

So, there is a robustness built into the system. Then there is a provision called poke-yoke. Poke-yoke actually talks about fail safing and I will give you couple of examples of this. For example, poke-yoke is a thing that prevents the states. It is really designed, it is again a Japanese procedure as I can really see from the title of it poke-yoke. This is a Japanese phrase.

It really says that you know it the implication is that I will make sure that a mistake is not made when the service is provided. For example, it is done right. Then of course, the quality of you know use of Q F D quality of function deployment and Kano model. These are also tools with which I can maximize my customer satisfaction.

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<u>Server Errors</u>	<u>Customer Errors</u>
<i>Task:</i> Doing work incorrectly	<i>Preparation:</i> Failure to bring necessary materials—at ATMs
<i>Treatment:</i> Failure to listen to customer	<i>Encounter:</i> Failure to follow system flow
<i>Tangible:</i> Failure to wear clean uniform	<i>Resolution:</i> Failure to signal service failure

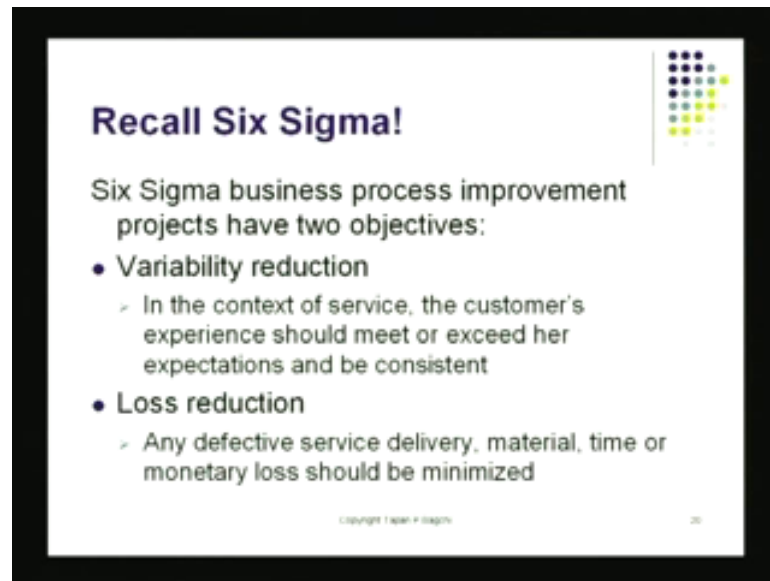
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Let us take a look at poke-yoke opportunities and I am going to give you some very specific opportunities here. For example, if you got a server; he is going to be taking care of some customers and he does the instance of an error is that the server does that work incorrectly. For some reason he fails to do the job right and it is also possible that he fails to listen to the customer that is also possible. This again a mistake that is you know that the server, the person is providing the service he is committing.

It is also very possible that the server or the if this is the service facility he feels to wear clean uniform. That is also, something that is a poke-yoke type of situation. Customer errors, failure to bring necessary materials at an ATM. For example, you walk into the ATM and you forgot your card or probably you forgot that little piece of slip on which you have written your secret code. You misplaced it somewhere or it is not there. You walked in there, but, you do not have the necessary materials or perhaps you would like to probably pay a bill or something and many A T Ms they take deposits.

But, perhaps you have not brought your pen or something like that. So, again you forgotten or bring something essential that is with you. And counter it is also very possible that you are not able to follow the system flow which is there and that is also a problem sometimes. And sometimes of course, we are not able to resolve the problem. So, there is a, if there is a problem there you are not able to signal and therefore, you cannot really have the thing resolved. These are opportunities where mistake proofing can be done.

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Recall Six Sigma!

Six Sigma business process improvement projects have two objectives:

- **Variability reduction**
 - > In the context of service, the customer's experience should meet or exceed her expectations and be consistent
- **Loss reduction**
 - > Any defective service delivery, material, time or monetary loss should be minimized

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And I am going to give you some examples what is that sigma tries to do? Six sigma is trying to do two things. Two things six sigma is trying to do. The first thing six sigma is trying to do is it is trying to reduce losses. Anytime you have losses and loss of material loss of money loss of time and perhaps even loss of satisfaction. Six sigma will try to remove it; six sigma will try to reduce it. That is one thing.

The second thing that six sigma tries to do is basically you can think of it. It tries to reduce defects and it is tries to reduce the defects certainly for hard work. It tries to cut them down to the level of parts per million defects which is like you know a few defects per million parts inspected. That is the level at which six sigma tries to get to.

So, there is this variability reduction that is like one of the goals. And in the context of service of course, what we have to do is? We have to meet or exceed the customers expectations and also we have to be consistent. If you are doing that we are reducing variability. We are meeting consistently we are meeting the expectation that is like something where I am bringing in consistency, some reducing variability and also losses.

Losses are generally caused when there is delivery when there is like a failure to deliver service or failure to deliver a material or we have deviations in time or we have actually we cause some monetary loss. That is like a loss. Again I would like to minimize that as much as possible. So, as for as services go I can have variability reduction by providing consistent service that is like one place. I am going to give you some examples.

I am going to give you a very large example that is come from a bank. That actually was still at the level of inspection only, but they did certain things that approach the philosophy six sigma. The second thing that I would also like to do an a services I would like to any kind of loss that the service may cause I would like to minimize that.

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**Case: Quality Monitoring
(Control Metrics) implemented at...**

**COMMUNITY
CREDIT UNION.**

CCU began Six Sigma with extensive customer survey

- What all things did a customer want the Credit Union to provide her
- Which of these the CU would consider to be of strategic value to its own vision/mission

This survey determined the required Dimensions of Teller Performance (QFD used):

- Technical Knowledge/Skills – 35 %
- Service Quality/Professionalism – 40 %
- Teamwork – 25 %

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Let us take a look at how this was done in one particular company. One particular place where they there job really was to a managing credit union. This particular credit union it happens to be located in Texas and the office that I interacted with where I got some of the data from they are in Dallas. They are in the town of Richardson which is just outside Dallas. The credit union is called community credit union they also called themselves C C U.

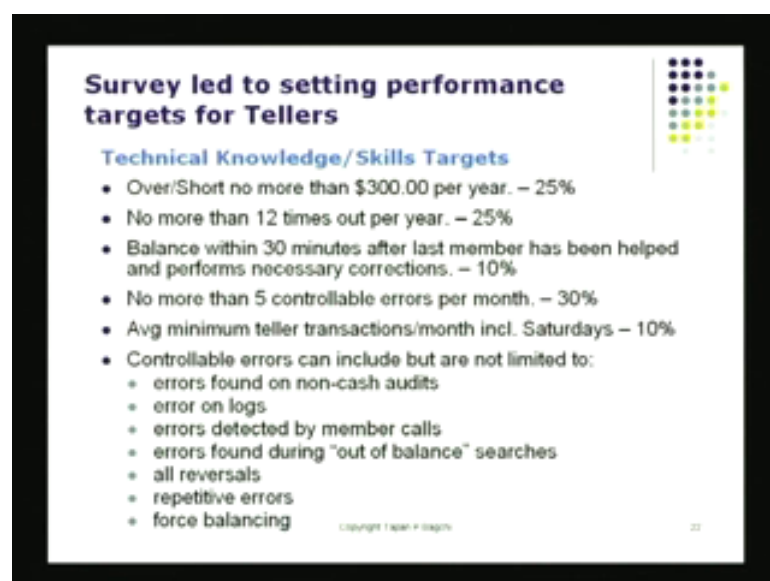
We began their six sigma in quotation. They were really not trying to get two parts per million defects. They were not trying to get there, but they were trying to adopt the philosophy of six sigma to try to raise customer satisfaction. What did they try to do? What did they actually want to do? The things they wanted to do was to try to make sure that certain things were done for the customer to assure a high level of satisfaction. This is something they would like to be able to do. What they did was they did in extensive customer survey and they did first they did brainstorming and from that they made up long list of things.

Perhaps all these things the costumers would be looking for. Then they did an actual survey and the result of the survey was they wanted to make sure they did they captured all those things that were valid by the costumers. So, this would also involve doing a bit of Q F D. And what the form was there were three things people were looking for. People who did you know transactions with this particular credit union. They were looking for three different things or three different angles of service delivery. Certainly there are certain technical things people who are looking at almost a third of the people who wanted to make sure.

But, the technical knowledge was there in the employees of this credit union which is like a bank. That the skills to be able to do the job and of course, their service quality was good and professional this was rated slightly higher than technical knowledge. And they were also they came up as a professionals and the third thing that customers also you know pointed out was that there should be team work ((C)).

So, if there is something where one particular employee struck, people should be able to provide that. And you got to remember that we are looking at all the stake holders of this business and some of those stake holders also include people who work in the back room. So, they certainly would appreciate if there is team work if there is spirit of team work is built that also appreciates that. So, these bought that thing that were pulled from the surveys.

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Survey led to setting performance targets for Tellers

Technical Knowledge/Skills Targets

- Over/Short no more than \$300.00 per year. – 25%
- No more than 12 times out per year. – 25%
- Balance within 30 minutes after last member has been helped and performs necessary corrections. – 10%
- No more than 5 controllable errors per month. – 30%
- Avg minimum teller transactions/month incl. Saturdays – 10%
- Controllable errors can include but are not limited to:
 - errors found on non-cash audits
 - error on logs
 - errors detected by member calls
 - errors found during "out of balance" searches
 - all reversals
 - repetitive errors
 - force balancing

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Now, what did they find in terms of details? In terms of technical knowledge and details they found several things and they did set targets for it. They wanted to make sure that they put some specs out there. And these specs were such that if they were met they would really have they will end up having a delighted customer. Over or short this is like a count that the teller makes at the end of a day and that should not be more than 300 dollars per year. And that would be given a weight of 25 percent in terms of technical skills or knowledge. No more than 12 times a year the ((C)) should be out.

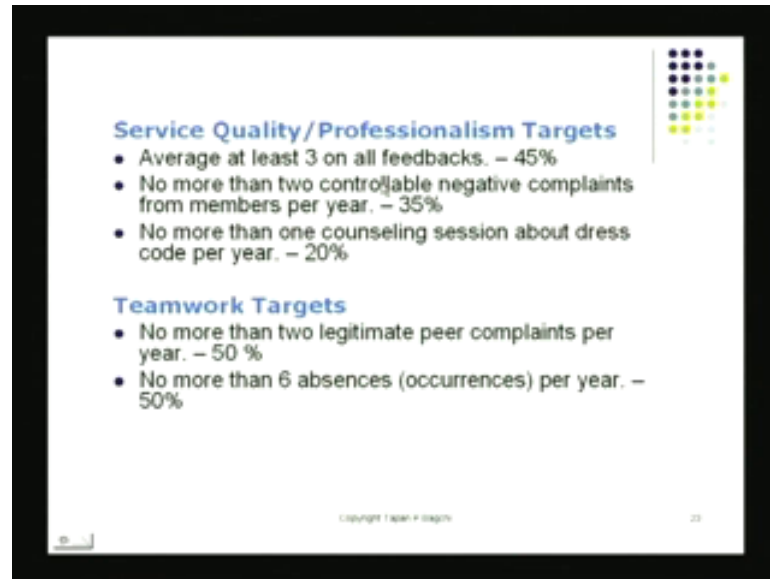
That is like something that also was important for the good conduct of the business there. Balance within 30 minutes after the last member has been helped and all the corrections have been done and that should be done within 30 minutes. So, after the last customer has been helped. Within 30 minutes I should be able to do my balance. This is also something that is the indication of good service by this bank. Average minimum teller transactions per month, there is a certain minimum level they set and they set this must be met.

And that also is a standard then of course; there were certain errors that would be controllable by the teller themselves. These are employees in the company in the credit union. The errors found on non-cash audit errors found on non-cash audit. That is something that would like to be able to do errors in logging, errors detected by member calls. If a member means the member of the trade union at the calling and they say that there is a certain mistake that I found.

That also should be there should be some monitoring of that and error found during out of balance searches. This is also something where any kind of reversal I have to do for a transaction. Many times you might have noticed that a bank does a reversal of a transaction because somebody made a mistake. Somebody in the bank he entered into your account when he should have probably entered the either the amount either a deposit or a withdrawal. It should not have gone to your account, but it is effected your account by mistake.

Then of course,, repetitive error the same error was repeated that is also, something that we like to be able to do. Then force balancing this is also, something that for which really did these errors they were an indication of the level of satisfaction.

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Service Quality/Professionalism Targets

- Average at least 3 on all feedbacks. – 45%
- No more than two controllable negative complaints from members per year. – 35%
- No more than one counseling session about dress code per year. – 20%

Teamwork Targets

- No more than two legitimate peer complaints per year. – 50 %
- No more than 6 absences (occurrences) per year. – 50%

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Something more of course, we got to make sure we also understand that service quality and professionalism these are also the things. And what we would like to be able to do certain things that are important for the customer. For example, there is a rating provided to people and that rating should be at least 3. It is from it goes from 1 to 5 and these are feedbacks provided by various people and many of these are they are members of the credit union.

They provide feedback on you know what their rating was what how satisfied they felt when they were dealing with a particular teller at a counter. And that is something that you can just check in a box. When you are living the bank you could probably say service was it was delightful it was not so good and so on and so forth.

So, these are the certain level. They wanted to make sure that the average was at least at 3. And no more than 2 controllable negative complaints. This is the complaint that resulting because the error could have been controlled by the credit union person, but, it was not done.

So, there is again a particular limit set there and no more than one counseling session about dress code per year. You understand what I mean by that. You know the dress of the person should be such that it is presentable because it dealing with the public. After all why is it that bankers dress? Because you know people walking in to try to do some financial transactions with them because they are going to trust their money to this

people. And they certainly do not to do this if the place looks shabby, if the people dressed look shabby and so on and so forth. There is they would not like to do that.

So, therefore, it is kind of a almost a must for bankers to always have a you know white short and nice dark tie and dark suit and everything a polished shoes. And really you know kind of a perfect professional kind of look that is what they would like to project. And I have noticed that in ladies as well. They are really immaculately dressed. It gives a sense of trust you know the; you trust the person. When he is so, well you know his getup is so good. You began to trust that person and that puts you at a kind of a comfortable level to do the transaction.

Then of course, team work that was also there also a target was set and there the complaints could not be more than two complaints coming from your peers about you. That she was rough or she was rude or whatever it was or she did not help me or she it could even be that; she did not wait for me when I was living for home. And there was no public transport available and she just left. She knew I was the last person in the room in the office or in the bank, but, she left. After few small things like that they may appear to be small, but they can be pretty nasty sort of.

And no more than 6 absences per year. This is also, something that is like a team work. It actually implies that you care.

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The Rubric

Criteria	Unsatisfactory	Below Requirements	Meets Requirements	Exceeds Requirements	Significantly Exceeds Requirements
Over/Short	Over/Short \$500 per year	Over/Short \$300 per year	Over/Short \$100 - \$300 per year	Over/Short \$20 or less per year	Never Over or Short
Out of Balance	10 or more times per year	7 - 10 times per year	5 - 7 times per year	3 - 5 times per year	1 - 3 times per year
Balance within 30 minutes	No	Average over 30 minutes with negative errors	Average 20 - 30 minutes	Never longer than 20 minutes	Never longer than 10 minutes and usually offers in balancing
Controllable errors	3 or more per month	2 - 3 per month	1 per month	1 - 2 per month	No errors
Teller Transactions	10% below average per month	2% below average per month	Average number per month	2% above average per month	10% above average per month
Average Feedback Scores	Use Actual Score				
Member Complaints	More than 4 Complaints	3 Complaints	1-2 negative feedback a per year	No complaints	3 or more positive feedback and no complaints
Drive Code	More than 2 counseling per year	2	1	No counseling sessions	No counseling sessions and meets professional dress requirements
Peer Complaints	4 or more complaints per year	3 complaints per year	1-2	No complaints	No complaints and 2 or more positive feedback
Absences	More than 7 per year	7 per year (max)	6 or less	5 - 6 per year	No more than 1 per year

So, there were these three areas where quantitative targets were set. Many more quantitative targets were set and I am going to be showing that to you on this slide here. I would actually what I do is I would leave this here for a couple of minutes for you and just take a look at what these various things are? Where is the criteria and I call this the rubric. What is a rubric?

Well many times we teachers, we would give an exam and there is the chance of making a judgment. There is the chance of making a judgment on the answers. Are the answers just perfect? Are they just fine? They are probably not perfect, but, they are excellent or they are very good or they are good or they are satisfying or they are downright unsatisfactory and so on.

So, there is a rubric that actually defines these levels. I have the similar type of rubric defined here on the screen there. Notice here the criteria is given criteria over or short. What is unsatisfactory? This is like over or short 500 dollars per year and what is significantly exceeding the requirements? Never over or short and then of course, I have got exceeds requirements. That is like when it comes to you know making sure you are under 300 dollars that is the target here. Over or short 99 or less per year that is like exceeding requirements, meeting requirements would be being over or short like a 100.

Then of course, if I over or short between 301 dollars and 499 dollars. I have below requirements and so on. And of course, if I am over or short beyond 500 dollars my performance is unsatisfactory. And so, only I have got the provision for out of balance, balance within 30 minutes, controllable errors, teller transactions, average feedback scores, member complaints, dress code, peer complaints and so on and so forth.

All of these have already been listed in the previous slide there and what I have done here is? I have provided I have taken away that subjectivity I have taken away the subjectivity and here I have come up with a rubric. A rubric basically tells you how do you judge? It gives you objectivity. You make a measurement based on, you make an evaluation based on exactly what is; what you are able to see or measure?

And therefore, it becomes much more objective and there is no argument then because these standards are clear and I am not talking about manufacturing anymore. I am talking about doing QFD, doing the Kano model and everything else. Setting standards making sure I understand them and I have set quantitative standards here.

And this can be done the moment you start plotting something by the way. The moment you start plotting any of these on a scale, people would like to keep that chart low, people like to see it trending downward.

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So, the moment you start collecting data is been seen over and over that people start watching what they are doing. Some good practices in the management or service quality. The very first thing that has been pointed out is try to make sure cost of qualities kept as low as possible and that would be done if you reduce internal failures, rework and scrap and so on. If you reduce external failures which is returns from customers and probably the weather damage that has been done to the customer outside.

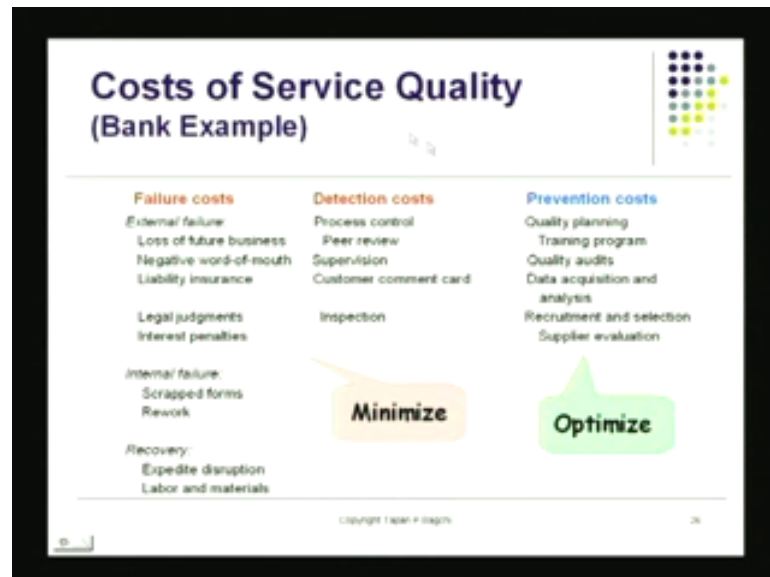
Of course, you all like to you would like also like to minimize inspection. So, these are the three things you would like to reduce which is like reduce internal errors, internal losses, you would like to reduce external losses, you would like to also reduce inspection.

How do you do that? When you spend money on prevention. If you spend money on prevention you are going to be able to do this. This is Juran's philosophy. Service process control this is like you start monitoring thing. This is also, something that would give you data and it could naturally become something that you could then slowly move toward what we call specie. And there are companies that actually do a specie charting.

They produce the number of defects for example, if you are looking at a room, a hotel room somebody comes along before the room is certified to be ok to be given to a guest. Somebody comes along and he checks. He is got a big checklist with him and he walks around with the checklist and he ticks certain things and the number of ticks that he makes that is like not satisfactory. That can be charted that can be put in a control chart and it can be run.

Then of course, there is the provision of unconditional service guarantee. This again is like another vehicle by which I could delight; I could delight a customer I could do that.

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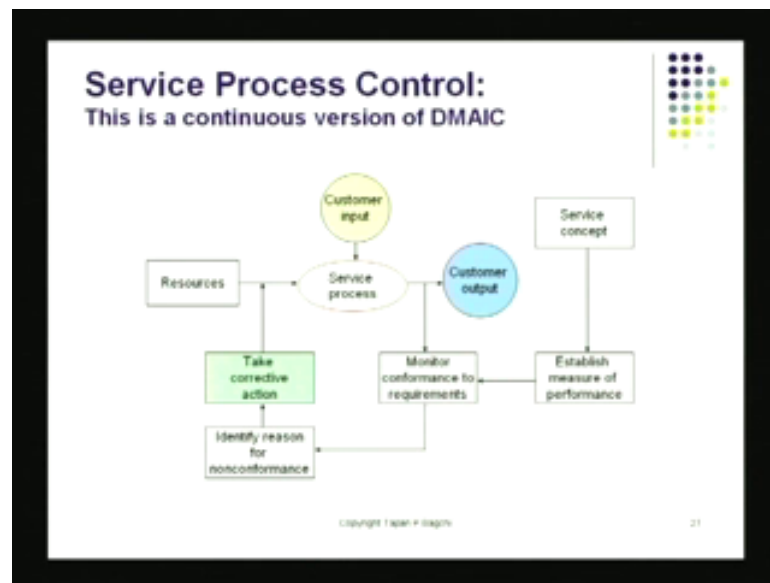
So, what is it that we would like to be able to do if you look at the cost of quality component? For example, I would like to be able to minimize failure cost. I would like to minimize external failure cost, I would also like to be able to minimize internal failure cost, I would also like to be able to minimize detection cost. These are general three inspection. These are the things that I would like to minimize. How do I do that?

By spending money on prevention which is like quality planning, good training programs, quality audits done. All these have to be done in the provision of service I am really not talking about production. Production here I am not talking of manufacturing. All this is to try to help manage a service facility better, data acquisition analysis. I collect data like we did in the case of that credit union. We had various categories in

which data could be collected and these could be tabulated and data base could be built and so on and so forth. That could help in the management of quality.

Then of course, recruitment and selection and supplier evaluation. Now, something you got to remember in the provision of service your supplier is generally the worker. He is your; he is basically your you know a supplier. So, how you what kind of people do you recruit?

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That is something that we could take a look at. Service process control that also can be done you start with customer input. Then of course, you make sure you design the service process appropriately. Then the experience is going to be the customers output. You take your resources and you take customers input which is in terms of requirements. And you produce the service and then you got the customer output there and this is to be monitored.

And then you got your own service concept with the basis of which you got some standards set and then you compare the two and you come up with reasons for any kind of non confirmation that is there when you take corrective action. If you are doing this you are doing service process control. This is a lot like what we did in our manufacturing situation when we are doing dmaic. We were doing dmaic for six sigma.

So, this is like another way to emulate the philosophy of six sigma. I define, I measured I then I analyzed, I improved and then I set some controlled mechanisms. I have done the same thing D M A I C and I am doing six sigma now in the provision of service. I will continue with our series. Thank you very much.