

Six Sigma
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Lecture No. # 30
Benchmarking in Six Sigma

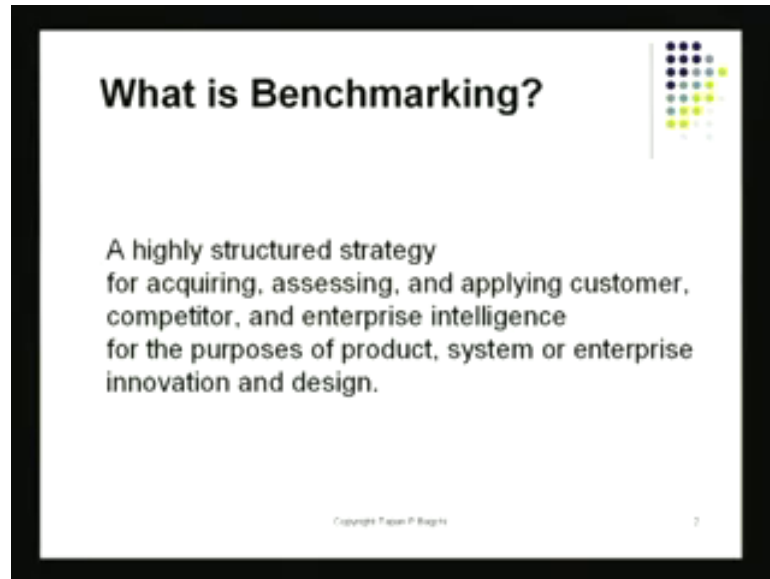
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Good afternoon. We begin today again. We resume the lecture series on six sigma and the topic today is going to be benchmarking. There will be two sessions. The first session will essentially, you know, it will describe to you what benchmarking is and the second half of the lecture which will be also one hour long. We will be discussing how to do benchmarking, those two things would be covered today. Now, to begin here, something that I want to remind you of is the DMAIC procedure in six sigma. DMAIC stands for Define, Measure, Analyze, Improve and Control. In all this the position of a analysis and benchmarking can actually be a key step.

In that analysis, you basically establish the gap between where you are and where you want to be. This is what we will be discussing today. We will be doing that over two lectures. The first one is going to basically tell you what benchmarking is and the second half we will discuss, how to do benchmarking.

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What exactly is benchmarking? Something we got to remember is, it is a highly structured procedure. It is for acquiring, assessing and applying customer, competitor and enterprise intelligence basically, what we are trying to do here is, we are trying to find out if a similar process is in action somewhere else. And we will try to learn the good things from that and we will identify the gap between that process and our existing process. Once the gap is known, then of course we can bring in any kind of improvement methods to try to make sure that we move up from where we are to this point of excellence. And this can be done for processes, it can be for products, it can be done for systems, it can be done almost any place, where there is an activity going on. Or perhaps there is an activity that involves some machines, some people and so on. And you are not happy with the performance of that particular system this is how we would like to be able to improve.

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Let's see, how we move into this first of all basically. What do you gain by doing benchmarking? Why should you worry about benchmarking processes and products?

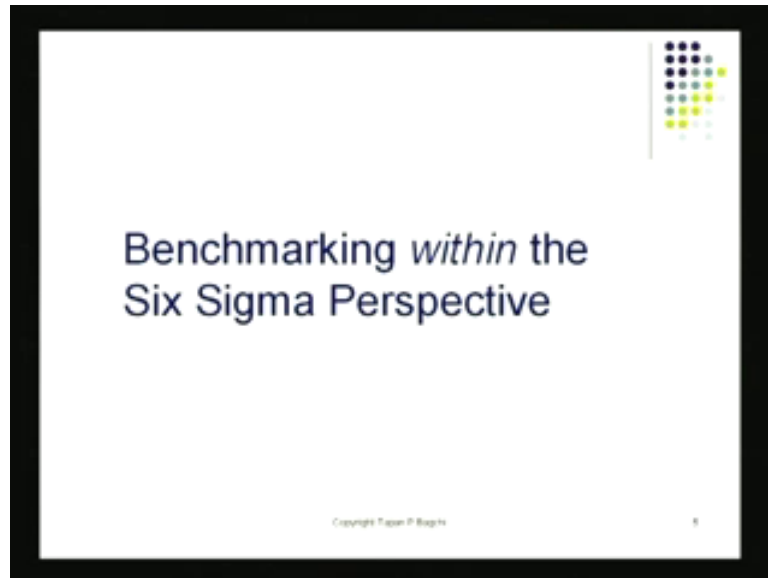
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What exactly is the gain? Is there a gain? There what the problem is, this no matter what market you are looking at. Customers are actually becoming more demanding and Santa that is you are the supplier, you are the manufacturer. You must provide new features, superior performance and all those things you must provide. Otherwise, the customer is going to go somewhere else, he is not going to like Santa that much. So, basically what

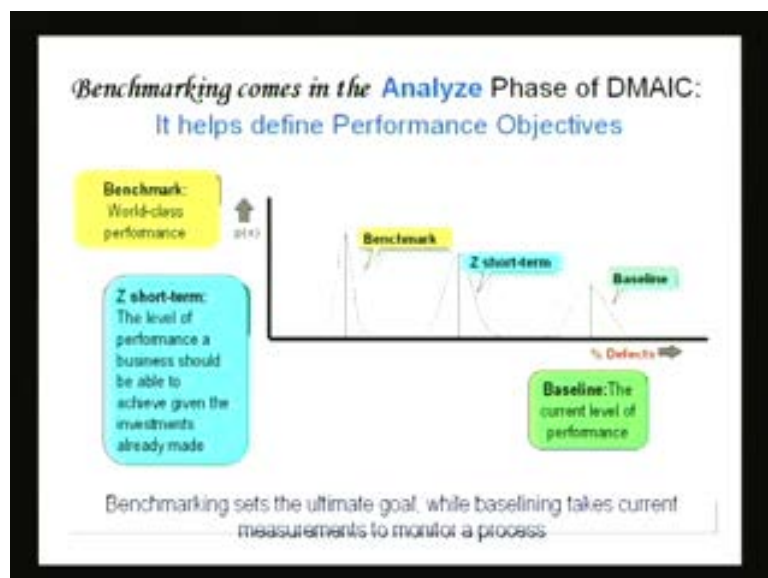
we are really trying to do is. Our mission here, is to improve our existing process and products to make them more competitive, that is the mission.

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That is the reason we do benchmarking. Now, where does it fit within the framework of six sigma? I mentioned to you six sigma follows this a DMAIC process.

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And in fact, if you look at the status of a particular system or a process or you know some manufacturing unit. It might be existing today at a baseline level that should might be existing. So, it could be for example, c p k equal to one by now, by this time you

should know what c p k is it. Actually basically, it tells you how good your manufacturing process is? What is this capability, meeting customers requirement. Now, let us say that today you are just able to meet the requirements that is imposed by the tolerance limits of the customer, that is your base line.

Now, in the short term you might like to move up from that measure of sigma, which is right now, three sigma for you to perhaps, four sigma or five sigma. Ultimately of course, what you would like to be able to do is, you would like to look at people who are at the six sigma level of quality and you would like to move up there. How do you get there? Where the first thing to do of course, is to identify this gap, try to understand where you are? If you are really pretty good, then there is no need to change, but suppose you really find there is a gap between, where you are and where competition is and perhaps, where you should be, where you want to be able to take on more business.

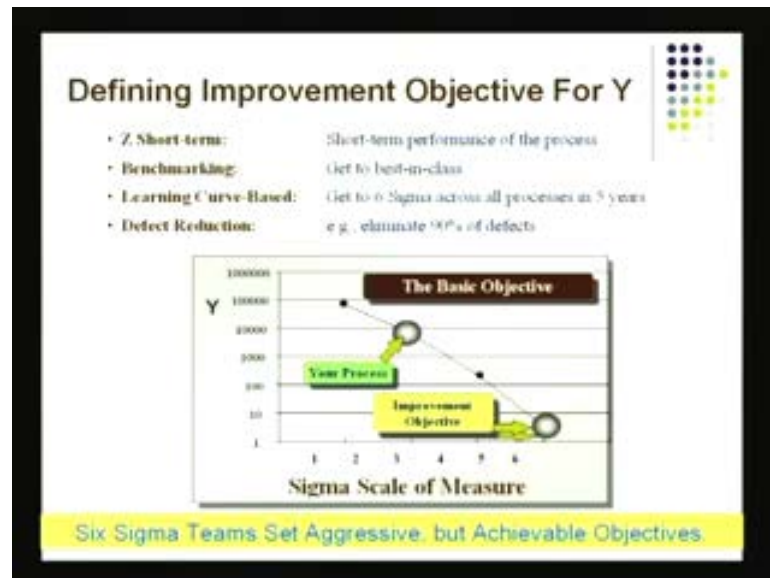
For example, for that what you have to do is, you have to identify this gap and this can be done when I compare a to b. I got to have two things to compare. The first thing is my baseline performance and the second point is provided by this benchmark. Which can be somebody else product somebody else process and so on.

So, forth that is the comparison I make when I try to indentify this gap. That is there between my performance and where that benchmark performance is. So, if you look at the slides here, it says benchmark comes in the analyze phase of DMAIC. It helps define performance objectives. So, basically what you are doing with benchmarking is, you identifying the gap and therefore, you are putting up some short term goals for yourself. You are down here at the baseline level, you want to put up some short term goal for yourself and perhaps some long term goal, where the benchmark really is and that is, where you would like to be. This is basically what we would like to be able to do. So, basically the ultimate goal of benchmarking is understand where your base process is and also appreciate.

Where that excellence? That level of excellence is or a process that it better than yours and therefore, it is more competitive or it costless or its more timely and so on. Benchmarking can be done on any of those (()) timeliness, meeting of requirements and the cost of production, any of those things can be benchmark. They are generally speaking you will find someone in the market place someone out there, who is got

performance that is better than yours? And the advantage that he draws, because of that is he gets more customers, he gets more business. This is what we would like to be.

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This is another picture of the same thing. I have of course, a short term proposition which is, when my processes is out and which is probably at the three sigma level, that is not such a good level. That is probably when my percents, when my defects are at the percent level and if I look at response, Y is shown here as the fraction defective or in other words here, parts per million that is what I have designated the scale here.

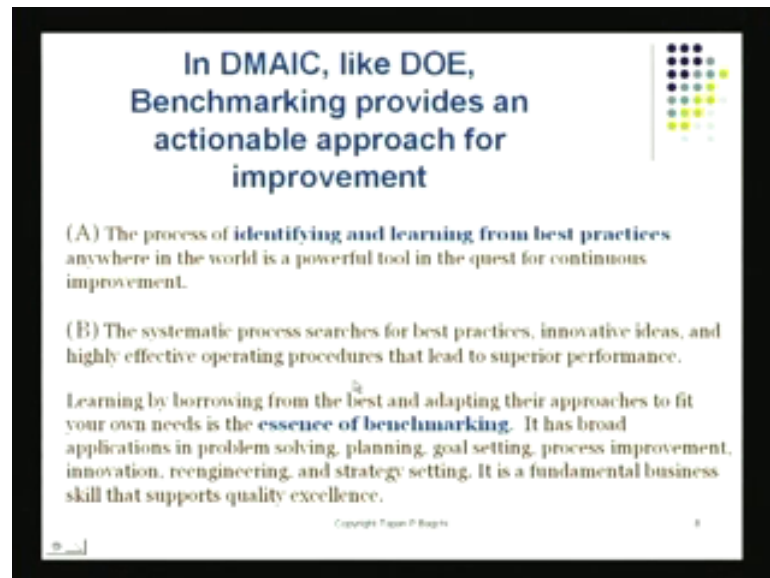
Currently I am at this stage and I know to be able to excel in the market place I have to get out there. So, I set my objective there and this objective is actually table for me through this benchmarking process.

The benchmarking process will tell me, what is the best in industry or what is thebest in worldwide in global pictures. Out of what is the best performance? What is it? Where someone can find one product or one process or one level of service, that is far better than where we are today. That is actually benchmarking, that process is called benchmarking.

There could be short term performance objective that I set up. In this, I will like to be best in class. I would like to probably; another objective could be that I would like to get to six sigma level in about 5 years time and perhaps what I would like to be able to do is

most of the defects that I have at the present level, any of these could be done provided I have a benchmark to compare to. Once I have the benchmark to compare to, I get the motivation, I get the motivation to get up there.

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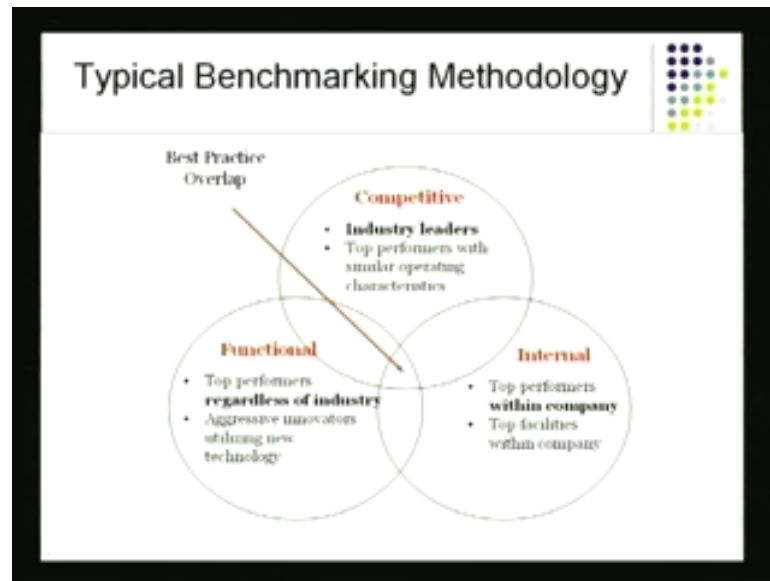


It is the process of identifying and learning from best practices. These are practices, which are basically practice by others who are better than I in DMAIC like if DOE benchmarking provides an actionable approach, it is an actionable approach in the sense. Once you identify the gap, the motivation becomes pretty clear. So, the first thing is of course, identification and the second thing is identify to try to find out what is it that you want to improve that. You first identify that then, your goal will be to learn from best practices, that you find around you or in your industry or in your neighborhood or it could be global any of those things could be there. Those could be your benchmarks. What I would like to be able to do is, I would like to do a systematic search for this best practices. Once I do that, I can identify that gap and this is the gap that I am after.

I am here today and the excellence or the benchmark is out there. I want to be able to identify this gap once I know this gap. There will be that motivation for me to change, if I do not change, competition is probably going to get up there and competition is going to rob me of all the business that I have today.

That is why we got to benchmark our processes our products.

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What sort of different types of benchmarking methods are there in the practicing world today? There is something that we call competitive benchmarking. Basically, there you look at other people who are also in the same kind of business and you try to identify industry leaders. These are the people who are far ahead in the game and they have the top performers with very similar operating characteristics. So, if you produce pens, there may be other guy who is also producing pens. If you produce water bottle, there may be other people doing exactly the same in somewhere. Perhaps, their quality is better than yours or their cost is probably lower than yours or their delivery is better than yours and so on. So, something you got to identify, why he is better than you and therefore, this gap exists and what you would like to be able to do is, once you understand that gap, you would like to move up from that lower starter to the starter where the benchmarking, that is what you would like to be able to do.

So, that is competitive benchmarking. Which is like finding out industry leaders and then trying to find out what they do? How they get that excellence level of that level of excellence. That excellence level of performance then there could be functional benchmarking and this could be done.

For example, you look at anyone, not necessary in your line of business, but you could be doing an operation that is similar to what you do. For example, people do a lot of shipping and there is a lot of people work involved in you. Getting an order ready,

getting the material ready, packing it up, you know doing the paperwork, there perhaps sending some order and so forth. Then you call up your transportation people and so on. It is a like major process to try to take the goods that you are produced or the product that you produce out there. Where the customer is, this is the long process. There are good ways for doing this and there are bad ways for doing this. Now, if you not compared your method, your existing method to anyone perhaps, your method requires some examination. Perhaps, you should benchmark your process. Try to find out, who are the people, who are also engaged in same sort of operation? Which is like in this case packaging and transporting, may not be in your business at all.

It could be you know packaging, printing books and packaging books to different bookstalls. You could be doing that. There is another person who probably produces some consumer product and he is also doing something similar. Your products are quite different, but the operation you know that you want to benchmark, your operation that you would like to benchmark, is that process of packaging and calling the transporter and of course, the price cost delivery all those things are there, that is going to be there for you to benchmark.

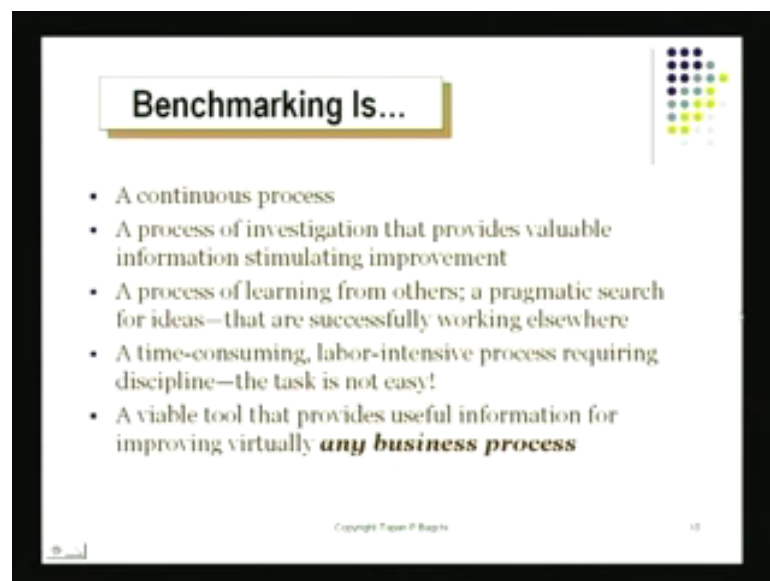
Then there are also possibilities that, within your company there are different departments and there are some better performer's. Superior performers within the company itself. So, they could be secretaries and they have their own style of working or they could be for example, in a college they could be different teachers, they use different teaching methods, different media to do the teaching, they use different kind of lecture plan and different kind of session plan, some session plans are very interactive, some are like chock and talk type of thing. It could be any of those things. Now, what you would like to do isin the classroom, our mission as teachers is to impart knowledge and also impart some skills.

So, that people can carry out the problem solving task. This is what we would like to be able to do. So, you want to impart knowledge and also, I would like to impart some problem solving skills. Those two things, we would like to be able to do. Wisdom of course, we cannot provide in the class that has to be picked up as you grow up. So, wisdom is something that I keep out of this. We are talking about knowledge and skills now, different teachers they may have got different **method** means or different approaches to accomplish this particular goal.

If I get concerned that my student, they are from the same populations. I am teaching section A and someone else is teaching section B and for some reason, section B seems to be doing better. There are fewer people, away from the class. Attendance is just perfect and also they seem to be doing better. When we conduct a test, the same test is giving to section A and section B, the other section seems to be better than us. One of things, I should be doing is, sit in that class for a while to try to understand what does that instructor do that I am not doing. What kind of assignments is he giving, what kind of interaction does he provide? What does he do in the class? You know does he lecture or does he really even pose problems? Perhaps or discuss cases or whatever it takes. He might be doing something that is different.

When I am doing benchmarking, **benchmarking** is a way to find out what other people are doing, who are better than us and then, slowly adopt those processes for ourselves. Then I elevate my positions or my level of performance from here to here, where the benchmark is.

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Benchmarking Is...

- A continuous process
- A process of investigation that provides valuable information stimulating improvement
- A process of learning from others; a pragmatic search for ideas—that are successfully working elsewhere
- A time-consuming, labor-intensive process requiring discipline—the task is not easy!
- A viable tool that provides useful information for improving virtually **any business process**

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Benchmark is a continuous process and as you will see in the slide. It is a continuous process. It is a process of investigation, that provides valuable input, stimulating improvement. The input is actually identifying that gap, understanding that gap, recognizing that gap and that provide, that is what provide the stimulus or the motivation for the process to be changed from state A to state B.

It is a process of learning from others it is a practical approach as a pragmatic approach, is not theoretical, You actually go and physically observe processes and operations and then, you try to find out what all things those people are doing, that I am not doing. I am always treated myself as someone who is inferior and there is a benchmark to look up to, that is a chance that I am taking and this is the chance you should take.

When you are open minded and you really want to improve, you should take this chance that there are people who are better than us and let me find out what they are doing. It is a time consuming process, it is also labor intensive, this is not something easy, because I will have to go through a major process of change management. I will have to change my own thinking, my own operations and so on. I will also have to change people, the practices that are preparing today in my section, my department, my club those things also will have to change.

So, there is going to be a large task involved here. It is not going to be easy, but at least I get a very clear picture, what I want to be. That is the difference, it is not that I am talking philosophical about improvement, I am now saying here is a benchmark and I want to reach there. I want to produce a product that is like, this is something that is very concrete and therefore, it provides a ready reference. If you want to understand what the gap is, it is all there for you to see and measure and so on and so forth. That is like one of the things.

In fact, it can be utilized in almost any business whether, it is a production business, it is a hospital, it is a school or it is a service facility. No matter what kind of business you are in, there is somebody else who is also involved in the same sort of thing. Now instead of doing the motherhood kind of thing or the abstract kind of thing its good to improve. You will be profitable if you just improve your project. Instead of saying that show him an example and this I have done personally. I have taken a bunch of people who worked in a particular factory and this is the factory where they made electronic parts and they had a lot of defects in the production.

Their processes were semiautomatic and they have to wave soldering machine that produce these electronic parts and electronic assembly on these pen drive circuit board. And they produce the lot of defects and management was very frustrated, because management thought they have acquired this new technology and they are done some

training and on and still they are not really getting good quality production, good quality parts and they had gone on like that for about a year and they were still not improving, they have done everything motivating you know, giving people time of go of flexi time, whatever they had done all those things still there was no improvement. In fact, it turned out that the people did not know that.

This process could be run better, they just did not know that they never seen one like that it is like. If you have been always tasting one particular kind of sweet and you have never tried sweet made by a particular store or particular sweet make shop perhaps, you had never even imagine that the quality of that sweet could be better and this happens. So, much when we are trying around and so, it could be an experience with a hairdresser, a school, a classroom, you know, you name it! There are many occasions when you find that performance is better in a different location for us. Then the goal is to try to understand that level of performance which is going to be a benchmark. Recognize this gap there and then do whatever it takes to go from state A to state B. So, that I also become competitive, I also become best in class and perhaps, I become best globally. That is what we would like to be able to do.

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Benchmarking line of attack
The How-to-do in Benchmarking

1. Identify Process to Benchmark

- Select process and define defect and opportunities
- Measure current process capability and establish goal
- Understand detailed process that needs improvement

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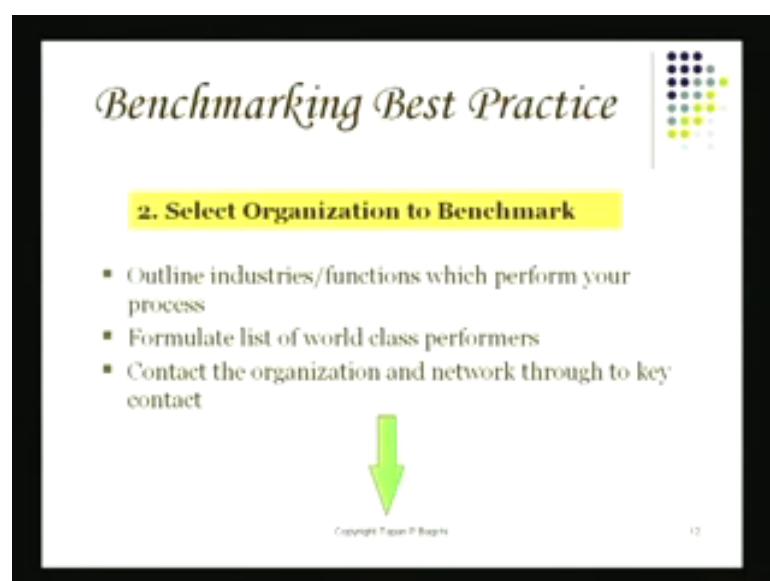
What are the steps, let us just walk through these steps and I am going to give you some time for you to read this slide here. Basically, I am now entering the zone of how to do benchmarking, but the very first thing is try to identify the process that is in the need of

improvement, this is very important. So, you select the process and define that defecting opportunities would be like, if your defect level was lower then perhaps, your opportunities would be bigger and that sort of thing. So, the very thing you would like to be able to do is, select your process that produces defective product. This is perhaps in the need of, in the need of some sort of benchmarking.

Measure the current process capability and this is when I bring in c p k. If you remember, c p k is that measurement of capability of a process in meeting customer requirements. C p k is that index, c p k is that measure, it is a quantitative measure. Once you measured your present level of c p k, identify a goal, establish a goal that I want. If my c p k today is 1.33, I want to move up to 0.66. This is what I would like to be able to go to.

So, you have set your target there and that is going to be a benchmark. Now, what you have to do is, you have to understand the detail process in process. So that, you identify the needs for improvement, you are able to identify the needs for improvement. If it is a machine for example, are there vibrations in the machine are the tools getting blunt too quickly it is something mismatch perhaps, cutting speed or something that is not quite where it should be and so on. So, forth how do you find out? For that you have to look at a better process.

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Benchmarking Best Practice

2. Select Organization to Benchmark

- Outline industries/functions which perform your process
- Formulate list of world class performers
- Contact the organization and network through to key contact

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So, what we have to do is, we have to select our organization. We have to select our organization that is much better than mine. So, you select the organization and this could come from various places. The candidate organization may come from various places, (()) friendly with some people and they have a similar business. It may not be in your line of business also, but they have an operation, that is the same operation that you are trying to improve, that is all. Outline the industries are function that perform your process, see you got to have comparable process. At least something that is similar to what you are doing. Perhaps, you could even formulate a list of world class performance like today for example, I will give an example.

The Japanese production auto production methods are thought to be right now, these days to be nearly the best in the world. So, what are the rest of the countries doing their? Auto manufacturers visiting Japan, they observing the processes in Japan very carefully. In fact, they have been doing last 10-15 years. They have been doing that and many have changed in particular.

For example, a USA automakers they have changed many of their practices, because the benchmark their processes to what the Japanese were doing. We know that the Korean auto quality improve. How they do it? They again, such some benchmark they again observed Japanese cars, their performance, their production methods and so on and so forth.

Then they said, my god if they could, that perhaps we could also do that. So, that it is some benchmark and they got there. I then contact the organization through appropriate network, to try to make sure that I get access to their process. I get a chance to go and see what they are doing. Perhaps, I also get a chance to be able to talk to some people there. So, I select the organization and I do these steps there.

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The slide is titled "Benchmarking Best Practice" in a serif font. Below the title is a yellow bar with the text "3. Prepare for the Visit". To the right of the title is a decorative graphic of colored dots. Below the yellow bar is a bulleted list of three items: "Research the organization and ground yourself in their processes", "Develop a detailed questionnaire to obtain desired information", and "Set up logistics and send preliminary documents to organization". A large green arrow points downwards from the list. At the bottom of the slide, there is a small copyright notice and the number 13.

Benchmarking Best Practice

3. Prepare for the Visit

- Research the organization and ground yourself in their processes
- Develop a detailed questionnaire to obtain desired information
- Set up logistics and send preliminary documents to organization

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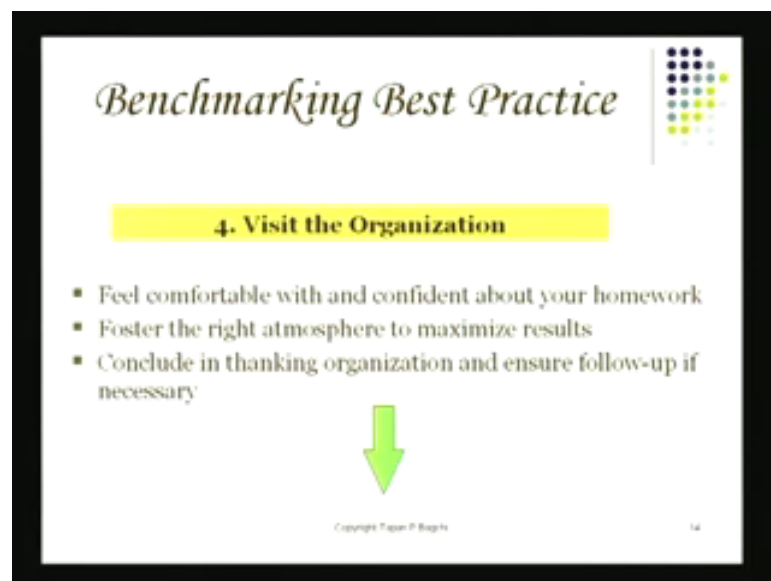
Then I prepare for the visit. There is a bit of homework involved in benchmarking. You have to research the organization and draw yourself in that process. In fact, what you have to make sure is, you understand their process pretty well. To be able to have your eyes open. When your eyes should be open, have your ears open, when your ear should be open. So, perhaps you will be taking some notes and so on. So, go to the website or do whatever. Do some secondary research try to find out what kind of business they are in, what are their processes, who are their suppliers, what is the quality of their supplies and so on and so forth. Try and find all. As much as you can before go their, then you develop a detail questionnaire, this is very important, you got to ask the right question and certainly.

If you have been operating your process, you probably have half a dozen questions. As it is you probably have those questions there. So, go ahead and make a list of more questions, you will get in to nuts and bolts, you get into some (()). How exactly do you team that choose this controller? How to do you work with your vendor? When there is problem, what you do and so on. What is return policy, all those things.

Write down your questions, because this of this going to be your instrument to collect information. Then you set up the logistics and send some documents to the organization, These are basically to get the permission. First of all and you show them the kind of questions you are going to be asking them.

Why you are seeking that information and what you will be doing with it and so on and so forth. Then the kind of questions that you would be asking, get them feed for it, prepares them better at that point. They will say sorry, we cannot really share what we are doing. So, in that case you have to go some other company that is a little more cooperative. Now, that is actually something that you got to do be able to have access. I will talk some ethical practices in the later half of the lecture which is like, it will be the second half the second hour.

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Then you visit the organization, this is like one of the key steps that is, one of the key steps in benchmark. You visit the organization and this first of all you got to make sure you are comfortable and you are confident with the homework that you have done. You got the questionnaire ready, you got the permission with him and so on and so forth. And then, you try to make sure that you build a rapport with the person that would be dealing with you.

Got to make sure those people, they feel comfortable talking to you sharing information, they will be sharing a lot of information, lot of a pretty crucial information and these are going to be really jobs for you. They are going to be really, they will probably show a lot of shortcut that you are not familiar with. This is something that you got to be discovered. So in fact, this is really when there is going to be a right kind of atmosphere for you to be able to get this information. There after collecting the information after you

had interview, they filled out the questionnaire they answer the question you got to. Obviously, thank them, because they have given something that would have taken you perhaps, says a year or two.

If you try to do it on your own and a lot of experiments also and here you are getting a jumpstart when your car is cold then you got get in and going somehow. So, bring a another car, which is a good strong car has a strong battery and start that car up. Then you connect the cables then you turn your key and that is like a jumpstart you have to jumpstart whenever, you got a cold engine you got to have jumpstart. You are doing jumpstart the movement you are doing benchmarking, you are doing a jumpstart, that is really the goal.

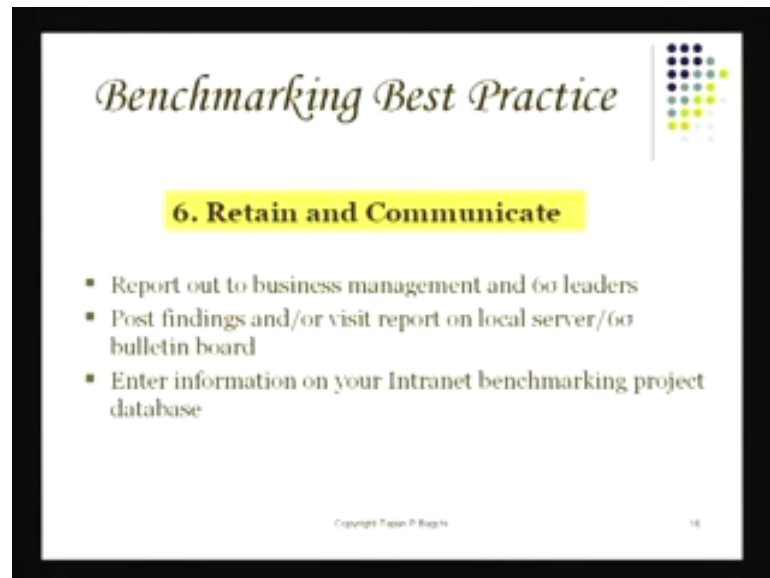
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The slide is titled "Benchmarking Best Practice" in a serif font. Below the title is a yellow highlighted box containing the text "5. Debrief and Develop an Action Plan". Underneath this box is a bulleted list of three items: "Review team observations and compile report of visit", "Compile list of best practices and match to improvement needs", and "Structure action items, identify owners and move into Improve phase". A large green arrow points downwards from the bottom of the list. In the bottom right corner of the slide, there is a small number "18".

Then of course, in the evening or perhaps, the next day after you come back, you got to do a debriefing this is like the people that went with you hopefully your own company people that went with you. They observed all these things, they also heard the answers and so on. You should sit down and should review all the observation that you took, compile the report of the visit and this is the time when you try to call because your memory is still fresh. Those things are still in your mind put them down in a piece of paper, make sure you write down the answers to those particular. Those crucial questions, but you did not quite know what to do. That is something that you picked by doing this benchmarking.

This very important, you compile a list of the best practices now and that will be by comparing your existing practice to what you saw there and then of course, you structure. The whole thing you got to make sure you structure it appropriately. So, that you know there are different aspects of the problem that you are trying to tackle and they are also pretty clear there.

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Once you done that you retain the new practice and you communicate that your own people this is very important. So, I have what to do through six steps that start with basically identifying the process that you like to do and then of course, you identify the organization and you have a establish some sort of a rapport with them then you prepare a questionnaire. Go out there, collect information and come back, do a debriefing and then you record all these things and you try to make this new process. You start practice, that is you, that is what you would like to be able to do.

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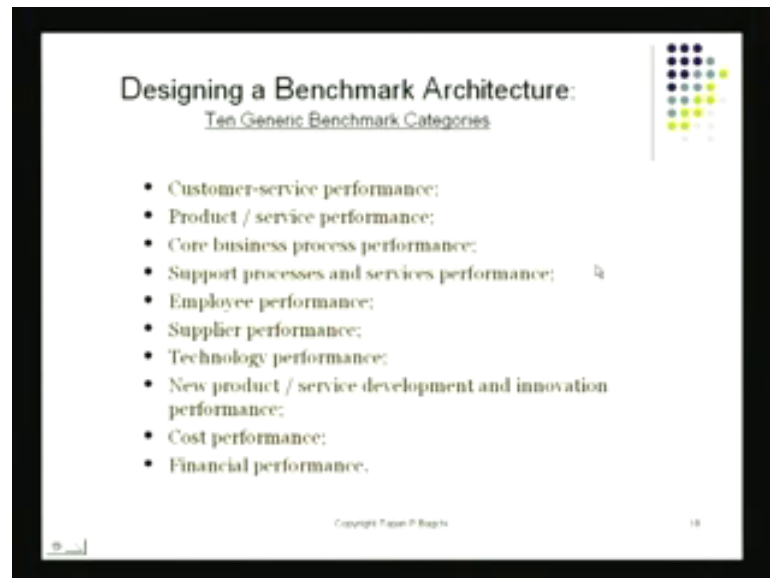
Source of information, where you would find benchmarking information? Of course, the best thing is to as the say go to the horse's mouth and get the information (()) that is going to be definitely the best, but that is not the only source. Like in research many times, we directly implement a questionnaire that is direct research. This is what we call primary research, but there is another way to acquire information that is called secondary research. Which is like when you would be going through data basis, going through literature perhaps, internal publications perhaps, you would find out some create publications industry data firms and so on.

So, forth I listed them here, industry sources they also have a lot of stuff there. Newspaper may report certain things customer feedback. That is another way to try to find benchmarking information. Telephone service could be there, various types of networking could be there. Reviews might be there, seminars experts talks and so on. So, lot of ways are there today of course, the internet also is become a great source for information, this is something that was not there a few year ago 10 years ago.

If you wanted to get lot of information there was no Wikipedia, there were none of these things and you have to basically hunt, like we did in the old days. We essentially went to the library pulled out some manual, try to make sure the manual was not too old and that did not survive. Then of course, we try to you know, talk to the people who really not in that kind of operation that is going to be live. So, today you can find a lot of stuff right

on the internet. In fact, when you are designing a questionnaire, it is a great way to try to complete some of this secondary research. Get these questions down so that you have to the right questions to ask that is something that would be very good.

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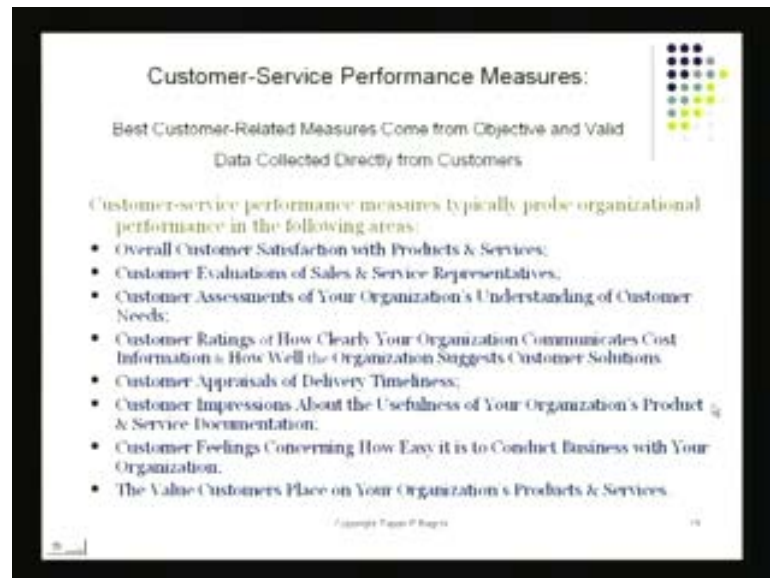
Designing a benchmark architecture like almost for anything. To built a house you need architect and you can comes up with an architecture, he will decide what will be the shape of walls, the roof, the ceiling, the number of floors and the layout and so on and so forth. He got to do something like that, you go benchmark, you got to come up with the plan. Basically, when you talks about designing benchmark architecture, you talk about the plan, what all things would be there? What is that I will looking at.

I will be looking at certain types of performance that is like pretty well. The central theme of benchmarking, you got to look at some kind of performance. You are looking this could be for example, the service that a customer receives from you that level of performance or it could be the way particular product performance or a services performed.

They could be benchmarked their core business process. How they are performing that is also very important support processes and service performance that also is something there at my performance supplier performance any of these things that would give me some indication of how, what that gap is like is that performance. All right the way it is today is it acceptable, is it competitive is it also it is got lower cost and it is timely and

has got short lead time and all those things if those are there then of course, you are doing fine, but to be able to find that to be able to develop your plan a benchmarking you got to have these information. So, that is something that I got to have.

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What are some of these customer service measures? Let us now, get into nuts and bolts a little bit. What we would like to be able to do? This would like to go after those measures that are really what we call the best measures. When it comes to customer related measures and these actually come directly from the customer and let us take a look at some of the things it could be for example, the overall customer satisfaction with products and services that you offer that is like. One thing that could be measured and this could be measured by interviews or by rating or by questionnaire or something like that, or it could be also done by service that is like something that you like to be able to do customer evaluations of sales and service reps.

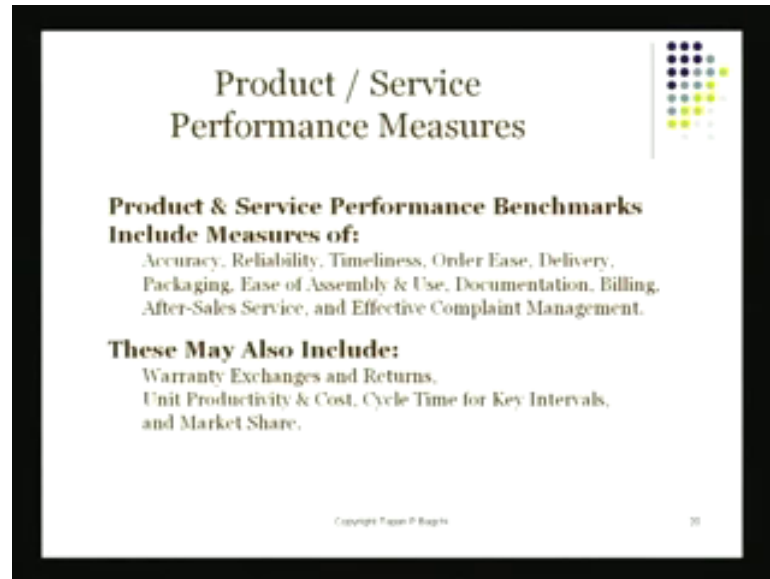
These are people who are interfacing with the customer remember that movement of truth movement of truth in the sense of service provision is the time is. The movement when the customer in front of the person, who is delivering the service that is the movement of truth what is the customer experience. How does the customer feel when all this interaction this interfacing is taking place. So, get some feedback there that that is like a great source to find out indeed. If you needs some improvement there customer assessment of your organization understand.

The customer need this is something. So, important I cannot tell you know this is where you know the lot of things that hide behind this phase there (()) of these there, because of this (()) would not be need at. If you do your perfect job here the kind of what list there, because there was some problems in people sorting out between exciting requirements function requirements and basic requirements there was some difference, some confusion there many people did not understand the difference there between these three classes of (()) any of those things are almost critical when you have to pick a target then say that this is what I am going to benchmark yes, and this is what I am going to improve. I am going to target this particular type of performance to improve this is something I would like to be able to do customer ratings. How clearly does your organization communicate cost information and perhaps, if there are problems with certain things that the customer experience with your service or your product. How does your company communicate with them, at that point in time and delivery terminate this is also something for which we would like to collect data. So, these are all various dimension of performance what I have listed.

Here in this slide these are various dimension of performance any of these can be benchmarked, any of these can be compared to the best in industry, best in town best within your company and some other division or best globally, any of these performance aspects can be compared that way customer feelings concerning. How easy it is to conduct business with company, this is also something we would like to perhaps do some sort of benchmarking and also of course, the value the customer places in your company. This is also something very important. Any of these things can be measured you know, can be gone after and you might be able to get feedback on this and almost for each of these.

There is a like level of excellence, there is a , that is there, that will be the benchmark and the whole process of benchmark is to understand the performance can be better. Where I am today and understand this gap and therefore, if you want to get up there, if you want to have the kind of business that this fellow has, who is much better than you? You got to make sure you cover this gap for that. First of all you got to do is benchmarking. Product and service performance measure some of these are slightly different from what we have been talking, these again get into nuts and bolts and these are a bit more specific.

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Let us take a look at these benchmarks in product and service performance. These could be with accuracy liability timeliness ease of ordering, delivery, packing, ease of assembling and use documentation that might would with the instruction that would go with your product. During process after sales service and complete management, these are the different aspects where you could establish benchmark. There are so many instances when the sale is made then after that nobody wants to talk to you nobody in the company want to talk to you. This is pretty deadly, because you probably have a question or may be e the product as you need when, you open that of the packet may be there was some problem with it or he did not quite know. How to twist it or how to turn it and so on.

So, forth how to use the product? You have some questions is there a way for you to follow up and perhaps, if you are actually having a problem, it could be laptop or anything like is there is a system company in the suppliers company that handle these complaints to they have system like that if they do not have one they better find one they better to benchmark of this process. If they do not do benchmarking of this process it will never improve from wherever, it is and it is very likely your next machine and your friends machine will not be purchased from that particular store that is pretty will given,

Your product and service performance may also include the other some other dimension or measurement for example, warranties, warranty exchanges, returns for example, some

places no questions ask even, if you have use the product for six months you can bring it back if you are not happy, you will return it around you will probably given and exchange and this could be done free charge. Now, there are some car makers for example, who provide with a blanket guarantee. When drive your car for 50,00 kilometers, if you have any trouble at all no questions ask you know your car would be fixed or if within 5 years, if you have any difficulty any trouble at all with your vehicle they will take care of it some of them of course, they go they operates slightly different they also you pay for perhaps labor and we will pay for the parts are free and pay for the labor of fixing it.

This could happen after one year then of course, the cost is something that you like to again benchmark and you would like to make sure the cycle time which is like how long does it take for an order to be complete the process and so on. So, forth and it is also possible companies now, they also benchmark their market share that something that is slowly coming into being, because shareholder they are very interest in the valuation of their whatever, share the might be holding in a particular company they would like to make sure that those guys they have big fat market share.

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Business Process Performance Measures

A simple process analysis model can help identify your organization's most important workflows. This model reveals that all work can be viewed in four sequential stages:

1. **Inputs** (including those from both employees & suppliers).
2. **Processes** (including internal operations & support services).
3. **Outputs** (your organization's products, services, and documentation), and
4. **Customer Satisfaction**.

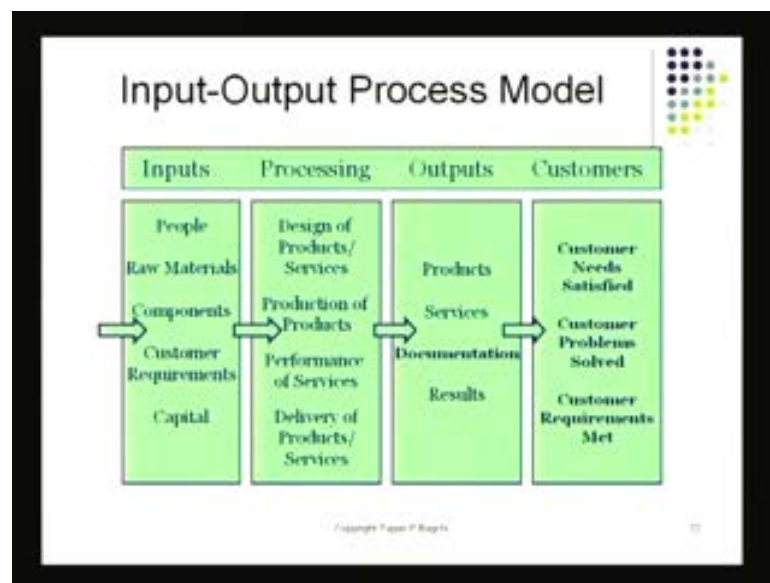
In the following graphic (*the input-output process model*) inputs are *intangible* (such as supplies, raw materials, and component products) or *intangible* (such as information), delivered to the work process, which transforms them into some final output—a product or service. The goal of the output is to create satisfied and loyal customers. Processing steps and output quality can be benchmarked.

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So, there is no danger of going out of business then of course, there are business processes where, performance can be measured and the business process of course, they have inputs they have the process itself. Then they have some outputs the result is

hopefully customer satisfaction. So, again if there is business process involved it could be (()) providing some service, it could be transportation service, it could be the way students are registered or it could be the way product is return to a store any of these things. These are business processes there is an input, there is process then, there is an output and hopefully the final effect is going to be a satisfied customer that is what we would like to be able to get to.

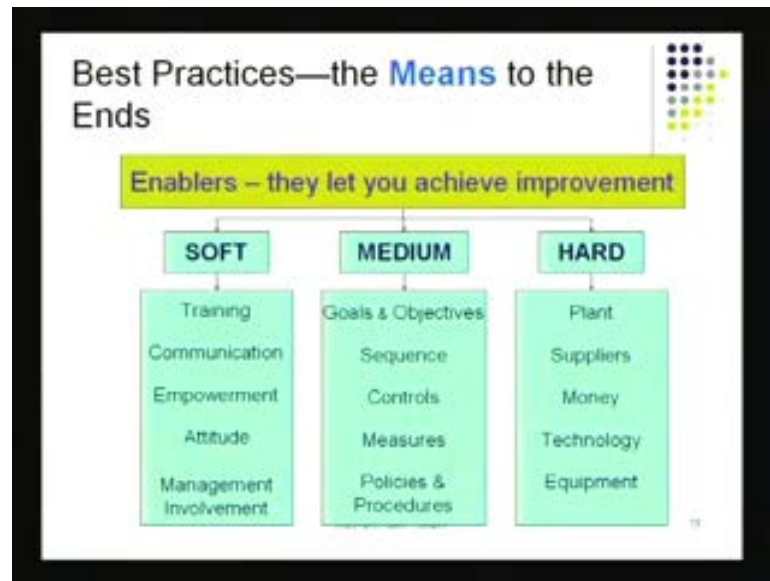
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So, that is like something that again. We could benchmark on a little picture of what is going on here. I have input and those could be in the form of people raw material components customer requirements and capital the next step in the business process is the actually transportation process. The transportation actually would be it could involve some sort of design, some production, some services perform then of course, the delivery of thing, these are the processing steps.

The outputs are these various things, the products services documentation and the results and the effect on the customer of course, say this is like ultimate goal for doing it all. Which is like customer needs satisfied customer problems are solved and customer requirements are met these would be the ultimate goal. Now, any of these steps can be benchmarked any of these steps can be benchmarked. If you are not happy write at the end go back into the process a little bit and try to make sure that they are actually once that you wrote down in ISO 9000 manual as an example.

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What are means, how do we end up. What are the tools required for me excel for me try to improve the particular process. I am just going to give you a glimpse of that right now with that is like separate step you identify the gap. Now, these are the means by which you could narrow the gap training communication empowerment and let me given an example, this was a supermarket and their deal was that if you not satisfied you could bring the product back and would take of it would given something and replacement. Now, naturally for something like a food product you do not want the bottle to be open, though it can to be open if that is done of course, the customer can only find out he can or she can only open the thing to find out if the stuff is inside.

So, customer came back and she complaint about the product that she got the material and she wanted to return it and this was unfortunately it was open and it like you know it had been used also a little bit, but desk the service desk was empowered to provide and exchange without any questions. Now this did not require approval from a supervisor or the store manager. It did not require that the empowerment was such what was the important for the company was to retain this customer that was important rather than worry.

What the cost of that thing that is sold, because one satisfied customer is probably going to tell her neighbor also that you know, I had this problem with this with this product that I got from there, but they had absolutely no problem with it they took it back and so on.

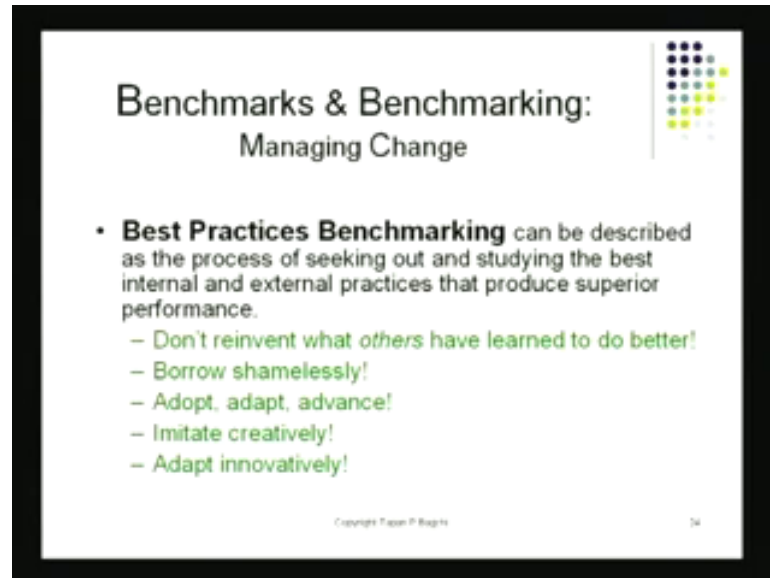
So, forth this is the kind of relationship that you would like to be build. So, their empowerment of the appropriate people would go long way to try make sure that is there the kind of attitude changes in attitude that also something there. Obviously, something that is very important in terms of soft approaches to try to acquire improvement is management involvement, if management is involve generally speaking it shows everyone that management is concerned about it that goes with any of those business objectives. It choose to be profits, but now, it has expanded from there to the full balance scorecard and management is concerned about every aspect of that and that is like what we are truly doing this is this is of course, these sort of things are they come under what we call soft option to achieve improvement.

Then there are medium strength methods that also produce improvements and those require of course, setting clear goals and objectives sequencing their actions putting an appropriate controls there doing some measurements there having the right police and procedures these are kind of medium option. The medium strength options that also result in improvement the toughs one of course, are when got to change the plant or some machines or perhaps, you have to change the supplier, because worry hard today your process is here today and the benchmark is there and when you when you examine the gap you find their suppliers are far better than your suppliers. They take better care in packaging they take better care in delivery they do not really batch their product before they ship it to you they supply to you things that are just in time the quality is perfect and so on.

So, forth in that case you may have to change the supplier, but this is a hard option money might be involved and none of these things really come free. In fact, even the previous once they involved some resources, but in the hard option perhaps you have to change your facilities or do something there perhaps you to have people with better skills and so on. So, forth technology is also something that you would like to bring in perhaps, if you want to achieve improvement. So, now, you are thinking of how to match how to make up this gap? How to basically rise from the level of performance, where I am to this level where the benchmark is I have to really climb up there that would require these different options. So, I have go the soft options, I have got the medium strength options and I have got the hard options they may really require new technology lot of money and

equipment, but you have to survive you have to compete in the business place I have no choice, but to do these things that is something that would be required there.

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Benchmarks & Benchmarking:
Managing Change

- **Best Practices Benchmarking** can be described as the process of seeking out and studying the best internal and external practices that produce superior performance.
 - Don't reinvent what *others* have learned to do better!
 - Borrow shamelessly!
 - Adopt, adapt, advance!
 - Imitate creatively!
 - Adapt innovatively!

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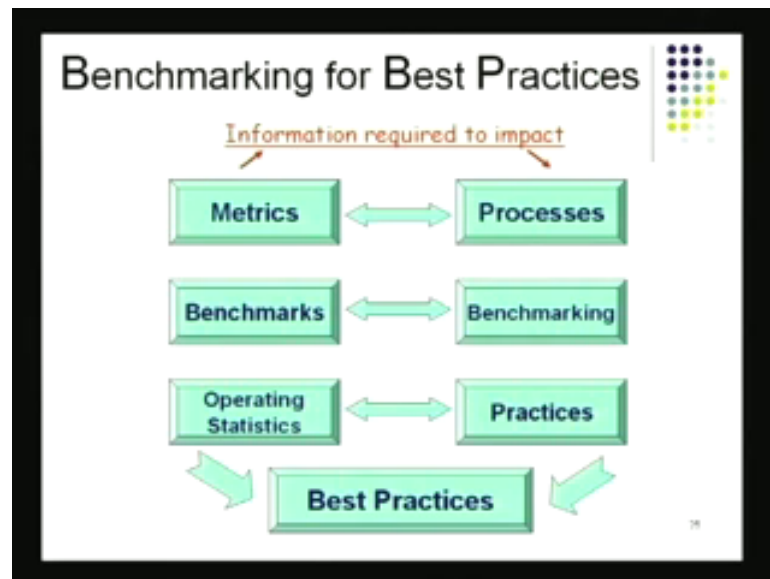
Managing change this is also very important and you got to have a certain attitude. When you are approaching benchmarking you got to have certain attitude do not try to reinvent of wheel that is not necessary this is something that, like something you should not be. So, proud that I want to know how to make coffee myself by doing all the hit and trial and everything else and I know burn some coffee and I produce bad coffee and so on. So, forth I do all those different experiments not the d e o type of course, you are doing these experiments by hit and trial that would be like one way. In fact, many people they keeping reinventing the wheel they keep doing that, because they just to proud to say there is something. I do not really know they think they know the best and there is reason to talk to anyone and that is really that does not really save you much borrow shamelessly.

Wherever you see a good practice adopt it, what is wrong there is somebody drives better go out with him and kind of ask some questions. You know what do you have in mind when you are driving it seem to be doing such a perfect job in a crowd I would like to really understand get some get some exact. So, borrows very heavily and shamelessly adopt which is like make sure you are in sync with the environment there and advance make sure that you are moving up as making these changes you are moving up imitate

creatively. We do not really imitate blindly, but you got to make sure you imitate like for example, many time teachers you power points and they may be able to look at power point in the media or from a colleague that is pretty well eighty percent there.

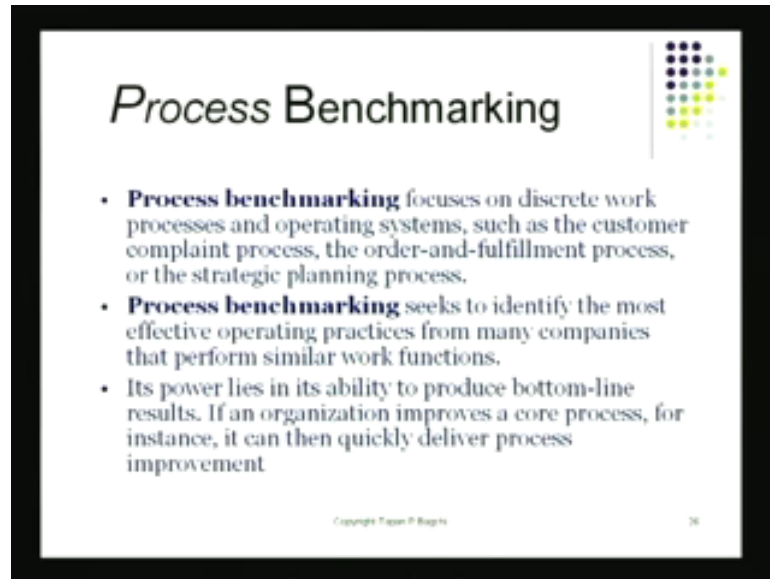
So, they could borrow that thing and they could acknowledge, but when they bring creativity they could add some extra features in it and that has been done even the design of these slides that we have here for you things. We have change, we have not kept it exactly the same the way we found it first time or we created the first time we kept moving on it and we adapt, that means, when we try to get in sync with the environment we try to do that innovatively we bring in some bit of innovation.

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So, that we are better off there is a certain amount of information required in trying to do benchmarking and that would really require you to set up some matrices. Obviously, we will have some benchmarks and we will have some operating statistics these will produce some data and where do I use this information? I use information in modifying processes and again in the benchmarking process itself, I might be doing that and in modifying my practices again I utilize this portion. So, this is like a great way to visualize all the different things that would be acquiring as information how those would be utilized in a shop once you done benchmarking.

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Process Benchmarking

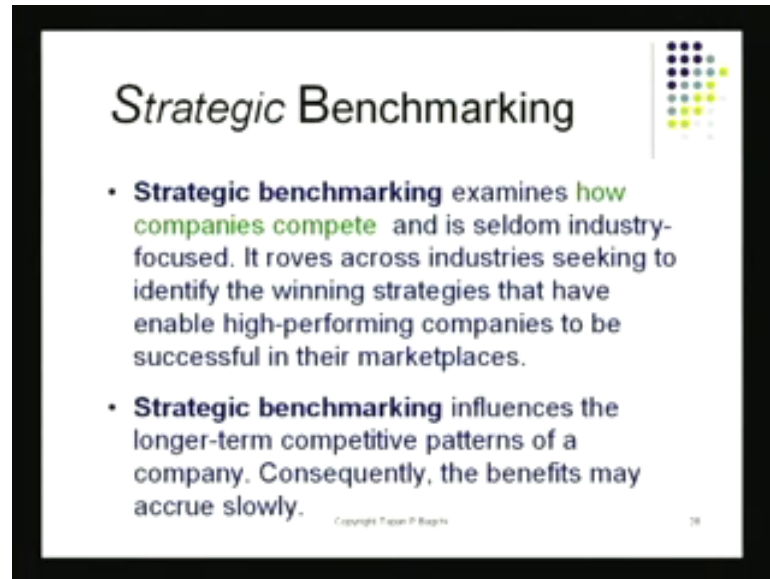
- **Process benchmarking** focuses on discrete work processes and operating systems, such as the customer complaint process, the order-and-fulfillment process, or the strategic planning process.
- **Process benchmarking** seeks to identify the most effective operating practices from many companies that perform similar work functions.
- Its power lies in its ability to produce bottom-line results. If an organization improves a core process, for instance, it can then quickly deliver process improvement

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Process benchmarking this is like when you look in the process itself and you suspect something is not quite right with the process. At that time you will be doing process benchmarking again. The steps are the same you identify you locate someone, who is better than you observe their process ask some questions try to understand what they are doing differently also, try to understand what is the impact of those differences and if you think your process could be taken there and deliver a better performance. Then of course, go ahead adopt whatever it takes to try to make sure your own level of performance risen from the base level to this benchmark level, that is what you would like to be able to do this.

Then you would have performance benchmarking this is always there let us say, you know performance that is at a certain level. Once in a while what you should do is benchmark your performance, you might be feeling pretty good with your level of performance like for example, you have stop for (()) and it is in the hands of a particular investment advisor. This investment advisor who has been doing that benchmark once, a while compare his performance to other people to other advisors how are they doing? What sort of risk are they exposing people? What sort of returns are they producing? What sort of consistency do they have in their performance and so on And so forth there, I can very easily benchmark performance and that also can be done quite easily.

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Strategic Benchmarking

- **Strategic benchmarking** examines **how companies compete** and is seldom industry-focused. It roves across industries seeking to identify the winning strategies that have enable high-performing companies to be successful in their marketplaces.
- **Strategic benchmarking** influences the longer-term competitive patterns of a company. Consequently, the benefits may accrue slowly.

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Then there is something that is of (()) long term perspective that is called strategic benchmarking. There are certain things that I need to do to be able to compete effectively. The movement I talk of competition, I am talking about overtaking someone and I am talking about strategy, I am talking about special ways, special creative ways to get there competitive benchmark. He is like a great way to try develop some strategies that will actually get you there. This is something that would like to be able to do, because in the long run we want to out compete other people. So, strategic benchmark is also going to be there.

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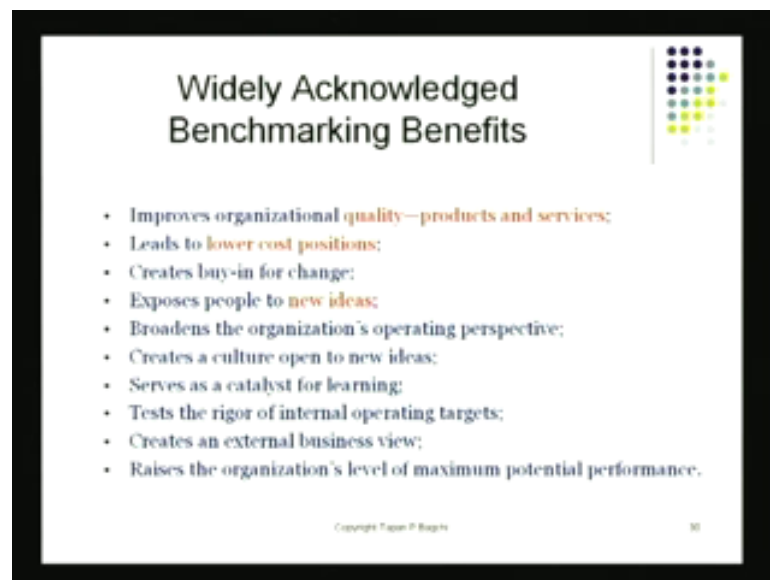
BM Applications and their Benefits

- Setting & Refining Strategy;
- Reengineering Work Processes & Business Systems;
- Continuous Improvement of Work Processes & Business Systems;
- Strategic Planning & Goal Setting;
- Problem Solving;
- Education and Idea Enrichment;
- Market Performance Comparisons & Evaluations;
- Catalyst for Change.

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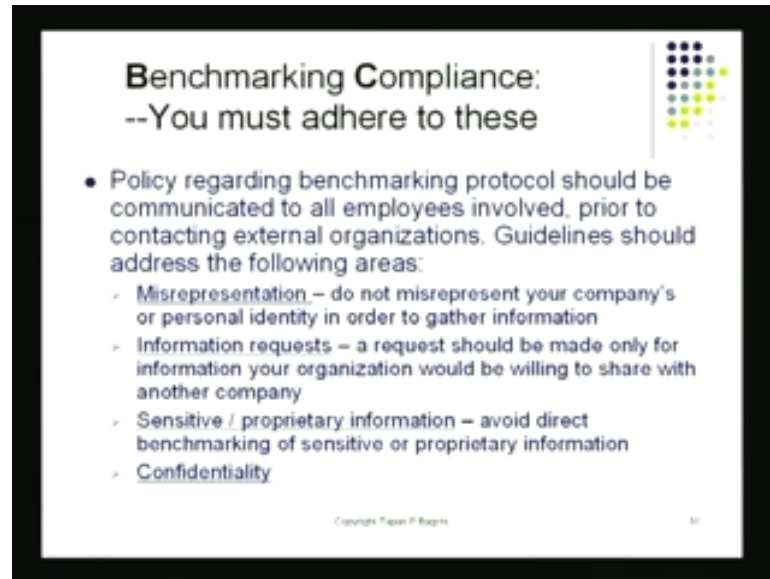
There are many other many other benefit of course, in benchmarking for example, setting and refining. The strategy reengineering work processes continues improvement and strategic planning and goals setting problem, solving education, idea enrichment any of these things. They become also basically the application different application of benchmark (()) if I use to benchmarking you will be probably using them in any of these aspects. So, if you really wonders sometimes do I really have any useful benchmarking we will look at these activities are you involved in any of those any of those then go back and look at your benchmark nodes and so on. So, forth and try to see is there is something I could do. I mean I am running my operation as it is without too much (()) if I am doing any of these things there is probably I hidden scope there for my utilizing benchmarking that what I would like to be able to do.

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Widely acknowledged benefits and these are benefits which are not really sited by one or two different people many people site these benefits and those are like improving quality, improving the product and services that we provide cost reduction generating new ideas. There are many others of course, you end up learning faster you set up a internal operating target that something that, you do also end up with an external view of your business and certainly the potential also rises. Once you see a high level of performance your own mind things, I can also be there. You will acquire strength and knowhow and so on. To raise basically to update your own potential to get that all these things happen, because it comparing yourself now, to someone who is better than you.

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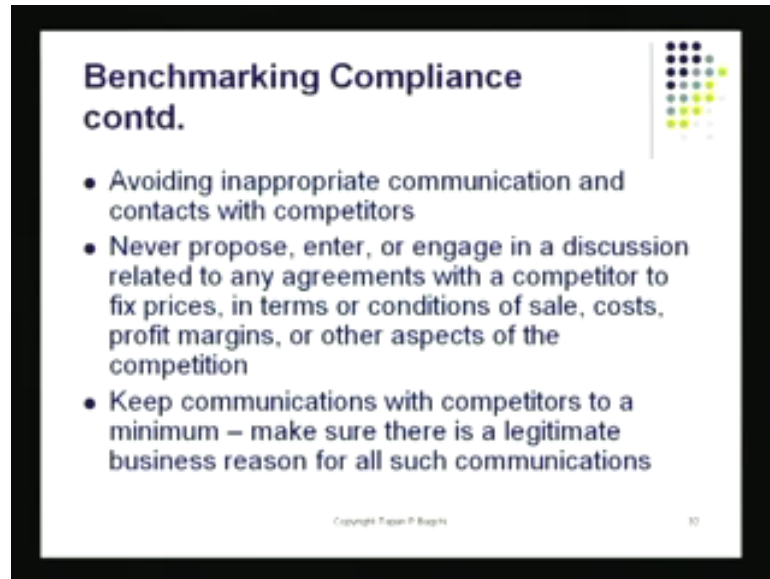
Benchmarking Compliance:
--You must adhere to these

- Policy regarding benchmarking protocol should be communicated to all employees involved, prior to contacting external organizations. Guidelines should address the following areas:
 - Misrepresentation – do not misrepresent your company's or personal identity in order to gather information
 - Information requests – a request should be made only for information your organization would be willing to share with another company
 - Sensitive / proprietary information – avoid direct benchmarking of sensitive or proprietary information
 - Confidentiality

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There are certain things of course, that you must compile with it is not something where you can get away with almost (()) that you want for example, when you are trying to benchmark with a company, with another company please do not misrepresent your companies identity or your mission do not do that tell them the truth. Tell them why you want to do, when you are looking for a information, please also be ready to share information with other companies. If you acquire something be ready to share with others with permission of course, and also if you got something special be ready to share that with the company that providing with benchmarking data that is something that you would like to be able to do. Avoid any kind of proprietary information avoid even asking for it stay away from that these are some of the things that you should be doing.

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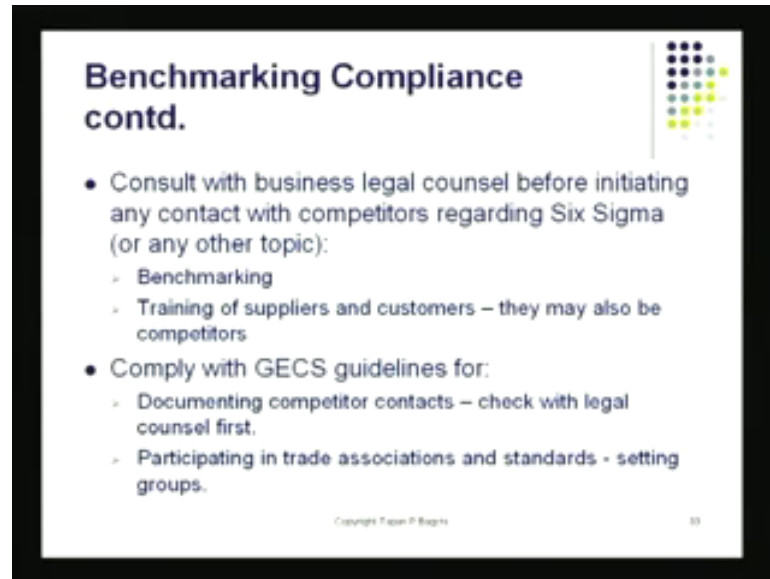
Benchmarking Compliance contd.

- Avoiding inappropriate communication and contacts with competitors
- Never propose, enter, or engage in a discussion related to any agreements with a competitor to fix prices, in terms or conditions of sale, costs, profit margins, or other aspects of the competition
- Keep communications with competitors to a minimum – make sure there is a legitimate business reason for all such communications

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Of course, maintain confidentiality that is something you have got to be able to do avoid any kind of inappropriate communication and contacts with competition. That is like something that you should not do that is never really encouraged. It is not ethical it is not good never propose or enter or engage in a discussion related to any agreement that you have with a competition with the objective of fixing prices and so on. So, forth if you try to do some of these things. When you are trying to do benchmarking you are really playing the wrong game, you should not be doing that and. In fact, if at all possible keep your communication with the competition at the minimum level at the very minimum level.

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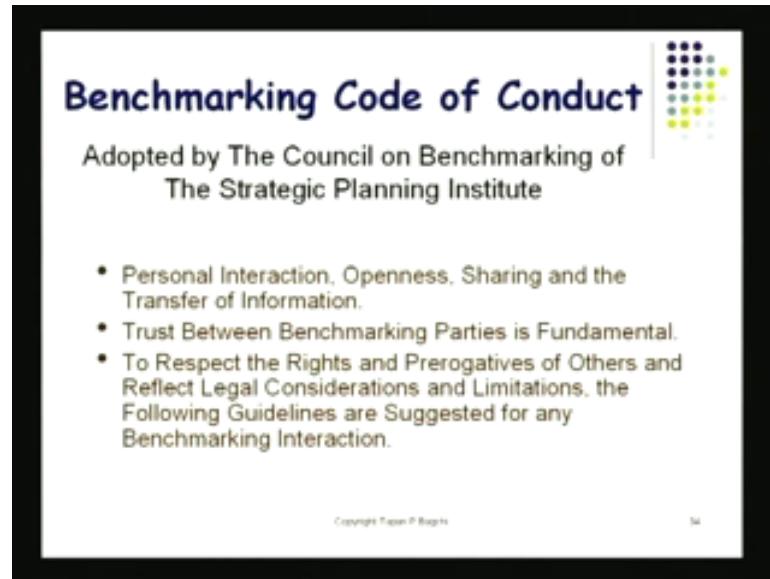
Benchmarking Compliance contd.

- Consult with business legal counsel before initiating any contact with competitors regarding Six Sigma (or any other topic):
 - Benchmarking
 - Training of suppliers and customers – they may also be competitors
- Comply with GECS guidelines for:
 - Documenting competitor contacts – check with legal counsel first.
 - Participating in trade associations and standards - setting groups.

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Consult with your business people and your legal people before initiate any contact with any competition this is like something where you will be safe and you just want to make sure that you know, you do not really get into some sort of (()) for example, benchmark activities or training or suppliers and customer and so on. If very possible some unethical things might pop and you would like to stay away from that you would like to make sure that the documentation is when you are documenting contacts and so on. Make sure that you got legal consult before you doing this whenever, you participate in a trade setting please, make sure that you again you are in touch with your legal people there and you are seeking their advise and utilizing their advise their..

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Benchmarking Code of Conduct

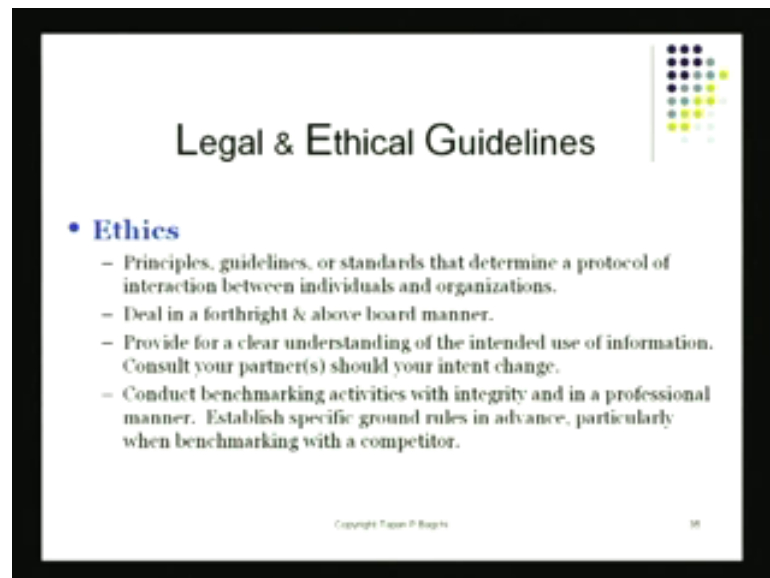
Adopted by The Council on Benchmarking of
The Strategic Planning Institute

- Personal Interaction, Openness, Sharing and the Transfer of Information.
- Trust Between Benchmarking Parties is Fundamental.
- To Respect the Rights and Prerogatives of Others and Reflect Legal Considerations and Limitations, the Following Guidelines are Suggested for any Benchmarking Interaction.

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Certain codes of conduct there that also is to be there, when you do personal interaction of course, be open and share the information that you got to be able to try built some sort of trust between yourself and the other party that you benchmarking with you must respect each other rights that is like something we should be able to do.

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Legal & Ethical Guidelines

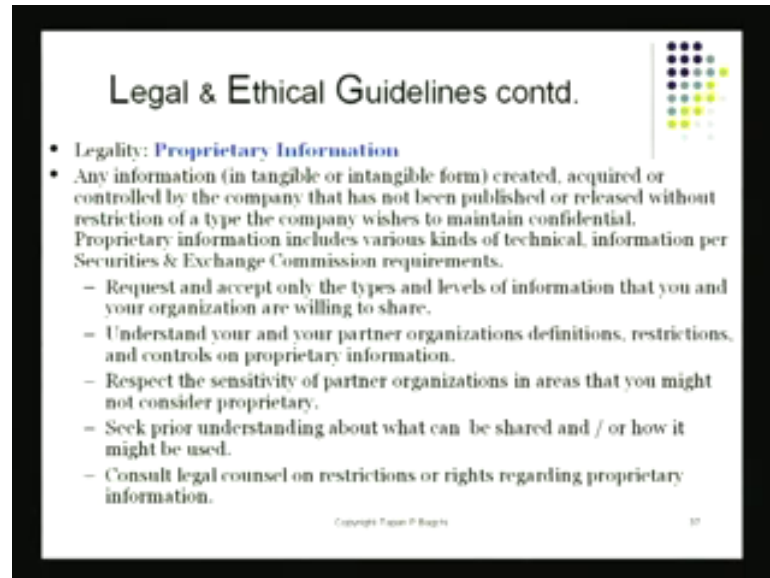
- **Ethics**
 - Principles, guidelines, or standards that determine a protocol of interaction between individuals and organizations.
 - Deal in a forthright & above board manner.
 - Provide for a clear understanding of the intended use of information. Consult your partner(s) should your intent change.
 - Conduct benchmarking activities with integrity and in a professional manner. Establish specific ground rules in advance, particularly when benchmarking with a competitor.

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There are bunch of legal and ethical gaudiness ethics are by far very important. You cannot really deny them you cannot really even deny their existent that is like something if we are denying this of course, we are going to be irresponsible and pretty soon

probably, will be out of business legality is something again. We got to respect, because we are all part of the same system there that is like something we cannot really ignore.

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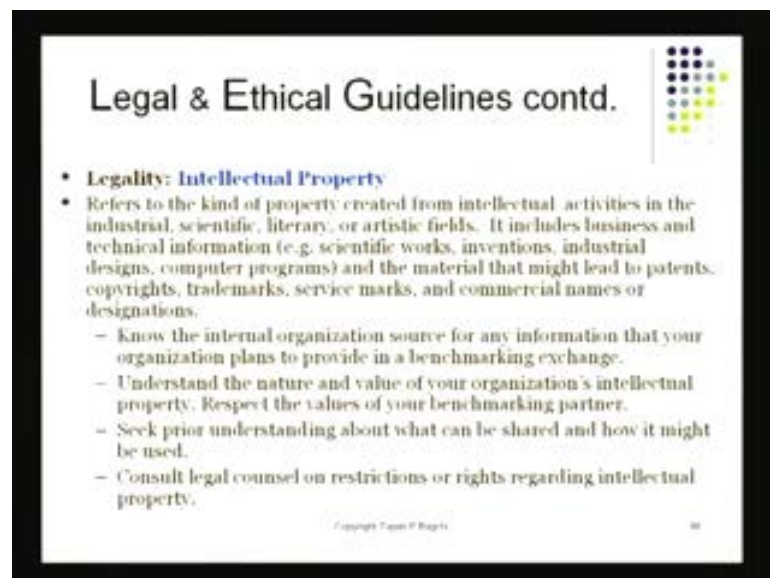
Legal & Ethical Guidelines contd.

- **Legality: Proprietary Information**
- Any information (in tangible or intangible form) created, acquired or controlled by the company that has not been published or released without restriction of a type the company wishes to maintain confidential. Proprietary information includes various kinds of technical, information per Securities & Exchange Commission requirements.
 - Request and accept only the types and levels of information that you and your organization are willing to share.
 - Understand your and your partner organizations definitions, restrictions, and controls on proprietary information.
 - Respect the sensitivity of partner organizations in areas that you might not consider proprietary.
 - Seek prior understanding about what can be shared and / or how it might be used.
 - Consult legal counsel on restrictions or rights regarding proprietary information.

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Proprietary information again make sure you consult your legal people to understand that you know there are some protocols to maintain some secretes to maintain and so on. That is something again you would like to be able to do that is very important.

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Legal & Ethical Guidelines contd.

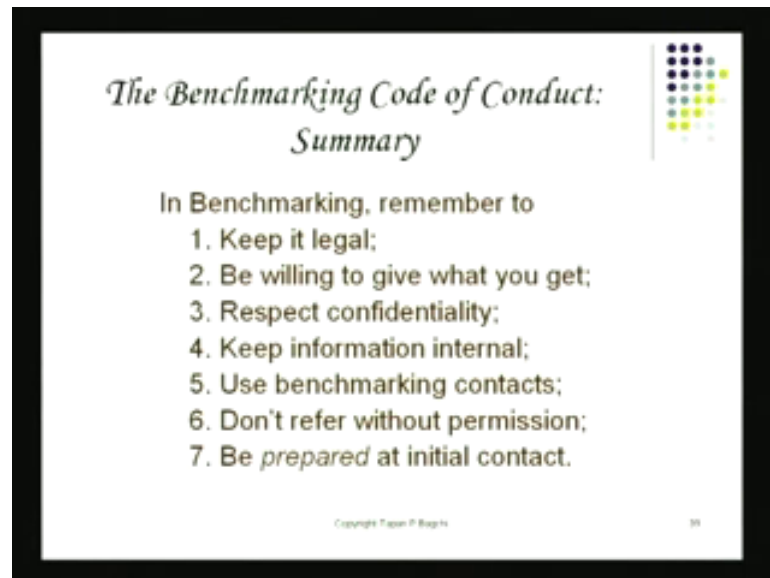
- **Legality: Intellectual Property**
- Refers to the kind of property created from intellectual activities in the industrial, scientific, literary, or artistic fields. It includes business and technical information (e.g. scientific works, inventions, industrial designs, computer programs) and the material that might lead to patents, copyrights, trademarks, service marks, and commercial names or designations.
 - Know the internal organization source for any information that your organization plans to provide in a benchmarking exchange.
 - Understand the nature and value of your organization's intellectual property. Respect the values of your benchmarking partner.
 - Seek prior understanding about what can be shared and how it might be used.
 - Consult legal counsel on restrictions or rights regarding intellectual property.

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Intellectual property this is like something, it is also become important read through the slides and I put them there for you to take your time and read them and make sure that

you fully appreciate. When I engaging and something that brings in contact with another company you got to make sure you respect these protocols they are going to be absolutely important.

(Refer Slide Time: 53:05)



What sort of summary can we then, draw out of the code of conduct business keep your benchmarking process legal be willing to give what you get. So, make sure that you have the sharing also in your mind the respect confidentiality that is like something that I would like to urge you to make that you protect keep information internal, I mean without permission you cannot really share anything with other people there and kind of contact that you built with benchmarking make good use of them. That is like something that you should do not refer to anything that you acquire in the process of benchmarking without the permission of the people, who provide you with that information and also kindly be prepared means you do your homework before you show up for benchmarking.

This is very important you should be ready, you should have objectives laid out, you should have process really clearly understood and perhaps, sketches out you should have the list of questions there you have should the right approach to collect data and so on. So, obviously, make sure that you are doing your debriefing and so on. When you come back you will have a good time in implementing the good practice that you have seen around. We will continue with this in the next session, we will continue with benchmarking **thank you very much, thank you.**