

Understanding Benchmarking

Presented
by

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Nutek, Inc. (Since 1987)

Quality Engineering Seminar and Software

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Benchmarking Overview ***(1/2 day)***

Benchmarking is a structured continuous improvement process to seek out “best practices” with intention of implementing it within your own activities. The focus of the Benchmarking effort is to improve the processes, practices, methods and techniques that enable an organization achieve superior performance. The purpose of this ½ day session is to present an understanding of the Benchmarking process as practiced by its leading users.

TOPICS

- Introduction and Purpose of the course
- Benefits of Benchmarking to the Organization
- Benchmarking Vs. Other Information Gathering Activities
- Measurable for Improvements
- Steps in Benchmarking Process
 1. Select projects
 2. Study own practices
 3. Find out who are Best-in-Class (BIC)
 4. Study BIC practices
 5. Implement best practices
- Management Responsibilities
- Potential Pitfalls
- Success Stories
- Appendix



Web site: <http://www.rkroy.com>

BENCHMARKING

1/2 Day Overview Session 2-Day Application Training

INSTRUCTOR: RANJIT K. ROY

BREAKS: ONE 20 MINUTE, A.M. and P.M.

QUESTION & DISCUSSIONS: ANY TIME

CLASS ENDS: 11:30-12:00 A.M. - 4:00-4:30 P.M.

Course Objectives:

- Provide an understanding of the generic process Benchmarking methodologies
- Compare Benchmarking process with other data gathering practices and clarify common misunderstandings
- Describe common Benchmarking steps and identify conditions for success and pitfalls
- Help attendees identify application areas within their own activities

What is Benchmarking

Definitions

- **Benchmark:**

Best in Class (BIC) Achievement...the reference metric.

- **Benchmarking:**

Benchmarking is a structured continuous improvement process to seek out “best practices” with intention of implementing it within your own activities. The focus of the Benchmarking effort is to improve the processes, practices, methods and techniques that enable an organization achieve superior performance.

- Best-in-City
- Best-in-Company
- Best-in-Industry
- Best-in-Country
- Best-in-World

Basic Approach

A continuous improvement effort where you:

- Identify projects based on factors critical to your business
- Evaluate your own performance and compare with the best-in-class
- Based on the comparison data, initiate and implement change within your own organization

Types of Benchmarking

Process or Generic Benchmarking (Our discussion topic)

Other types of Benchmarking

Product
Performance
Strategic
Internal
Competitive
Camera
Best Practices
Functional

WHY DO BM?

- **Reduce Cost**
- **Improve Quality**
- **Reduce Cycle Time**
- **Achieve Quantum Improvement**
- **Introduce Continuous Improvement**
- **Stay Current – Follow Trends**
- **Establish Baseline**
- **Take a Fresh Look**
- **Improve Customer Acceptance**

**Benchmarking Process to
Close the Identified Gap**



Management Commitment



Organization Commitment



Employee Participation

SUPERIOR PERFORMANCE

Benefits

- Assist in achieving company's long range goals
- Establish baseline measurements.
- Help us meet and exceed competitors' strengths.
- Bring best practices into the company. . . *FAST*.
- Stimulate and motivate learning from outside the company.
- Help breakdown barriers to change.

Common ACTivities Misunderstood as Benchmarking

One Time Exercise, Fad, Single Project, Industrial Tourism, Begging, etc.

THE XEROX STORY

- **During mid 70's Xerox had 80% of copier market**
- **Xerox worked under a 4-year lead-time for establishing service network.**
- **In early 80's Cannon introduced copiers that needed minimum or no maintenance and cost less.**
- **Xerox market share went down to 30%**
- **As a measure of survival, Xerox form CEO, David Kearns required all of its 67 units to BM**
- **Xerox never regained small copier market share, but was able to old onto large copier business.**

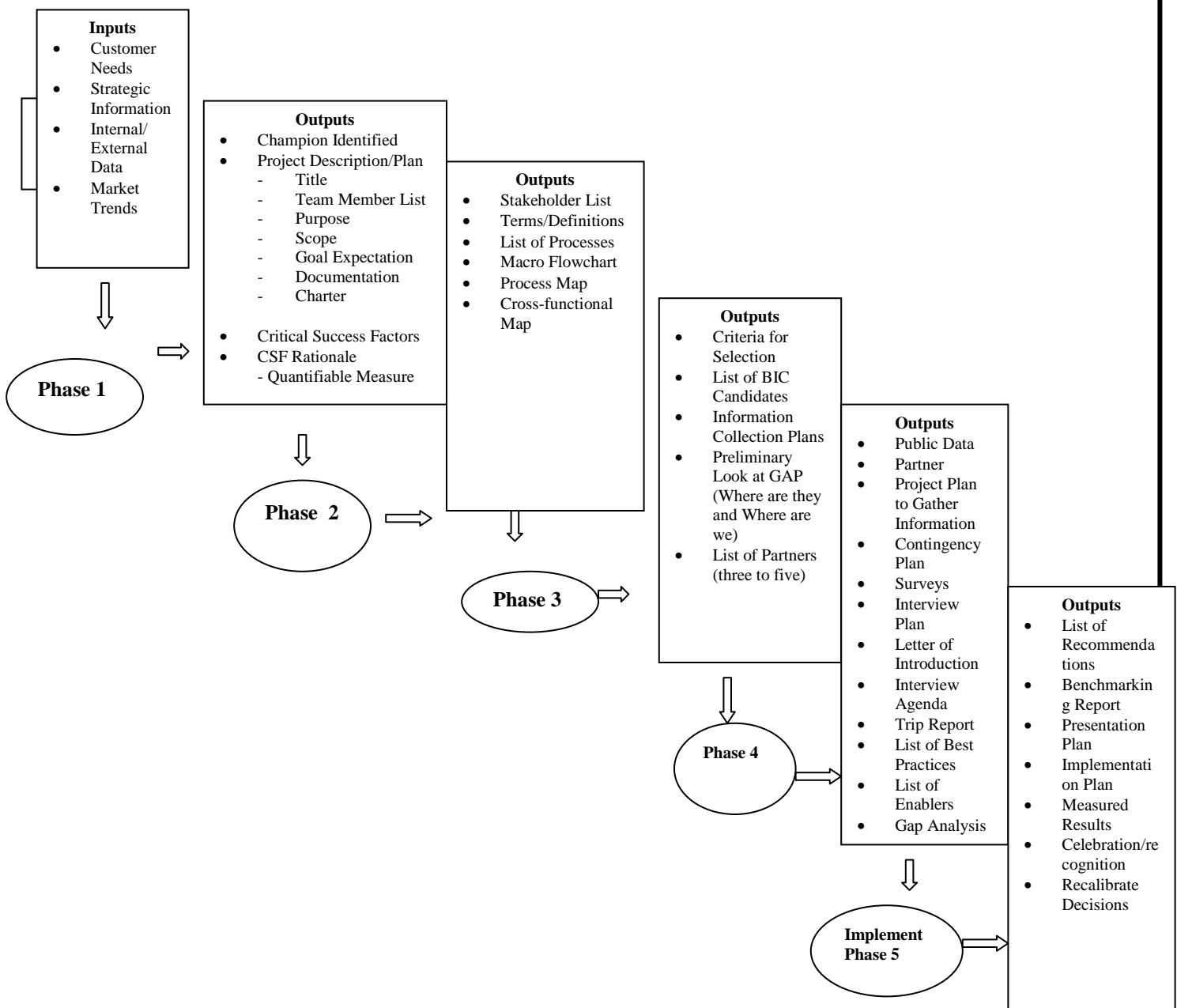
- **Benchmarking is conducted in a surgical, structured manner.**

THE MOTOROLA STORY

- **Back in 1984, Motorola was a \$5 B Company**
- **It made Pagers at Byonton, Fl. Plant**
 - Poor quality – long delivery time**
 - High cost - 5 year product development time**
- **NEC introduced Pagers that were better in all respects**
- **2,000 people in Byonton adopted BM at all levels.**
 - **Allen Bradley: Automation**
 - **Silicon Gel: Printing & Display**
 - **Wal-Mart: Retailing, procurement**
- **Results:**
 - **Quality: from 2,700 defects/m (3σ) to 3/million (6σ)**
 - **Cost: Competitive**

 - **Delivery: from 50 days to <2 hours**
 - **Sales: up from \$5B in 1984 to \$30B in 1996**
 - **Employment: from 100K →120 K**
 - **New plants: Ireland, Puerto Rico, Tensing (China), Brazil, Mexico, Texas, Singapore**
 - **Product Development Cycle time reduced to 18 mos.**

Deliverables



Deliverables * Outputs of each phase can be used by management to track team progress.

Critical Success Factors	
Auto Repair CSFs	Measures
<ul style="list-style-type: none">• Price• Reliability• Convenience	<ul style="list-style-type: none">* Repair amount \$* # of returns* # of hours open* # of days open• Location
<ul style="list-style-type: none">• Treatment (Interested and courteous)	

Critical Success Factors

* The top four (4) CSFs for automobile dealership with major service/parts business.

- For customers to come back and recommend the dealership to friends/relatives, the dealership must be highly rated in these CSFs by their customers.

Case Study Example: Phase 1 . . . What to Benchmark?

Allen Bradley Company – Circuit Board Technology and Operations Group

- Project justification:

CSF's:

Fast Delivery

Handle “specials” routinely

Strategic Initiatives

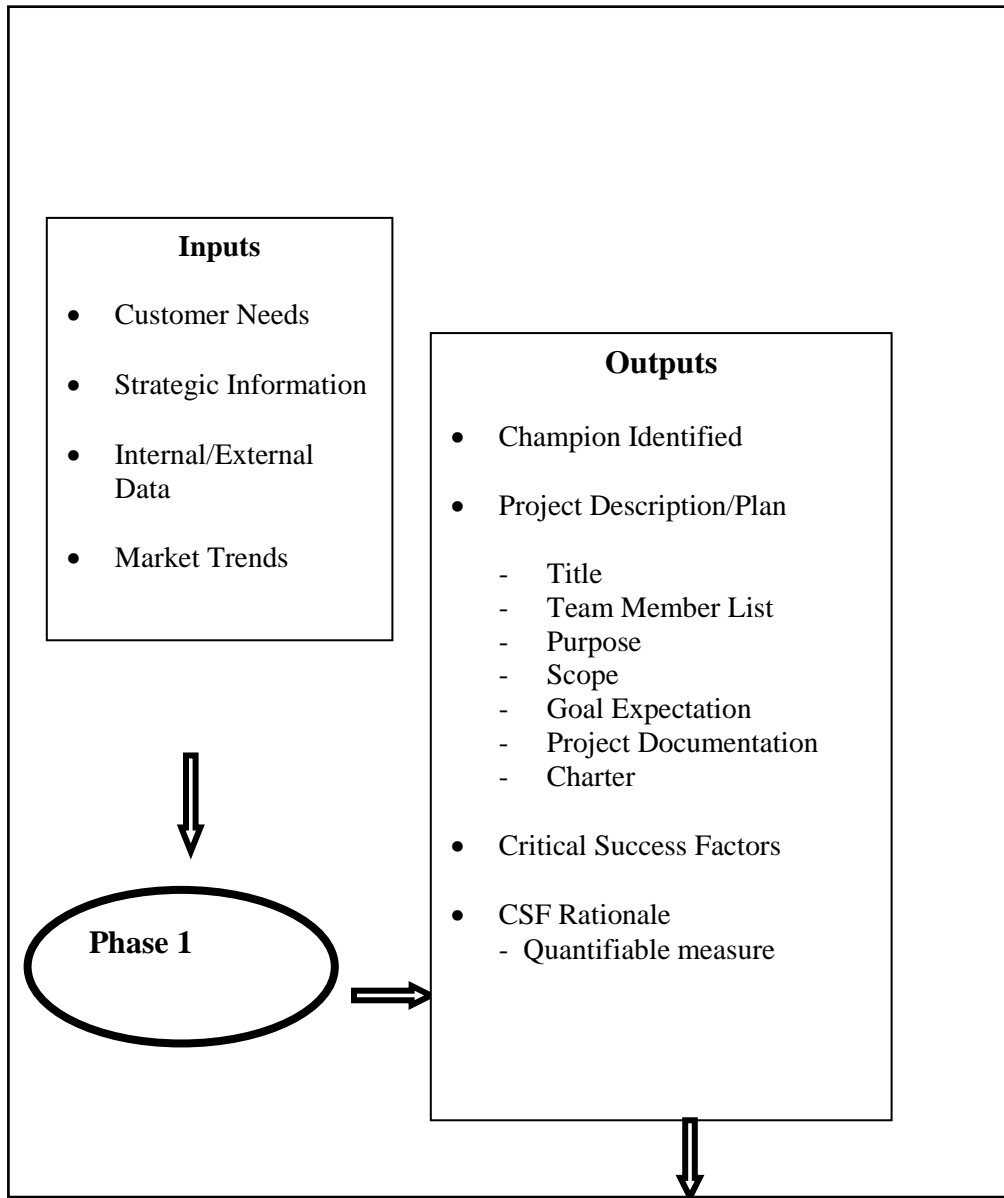
Increase market share and solidify position as leaders in programmable controller business.

Build modern circuit board facility utilizing the latest in CIM technology

- Benchmarking Project:

Find and utilize the state-of- the-art manufacturing equipment, methods, and techniques in the new circuit board facility. The new facility had to be able to handle a wide variety of circuit boards (flexibility) with decreased cycle time.

- Team selection completed.



Phase 1 * Champion identified.

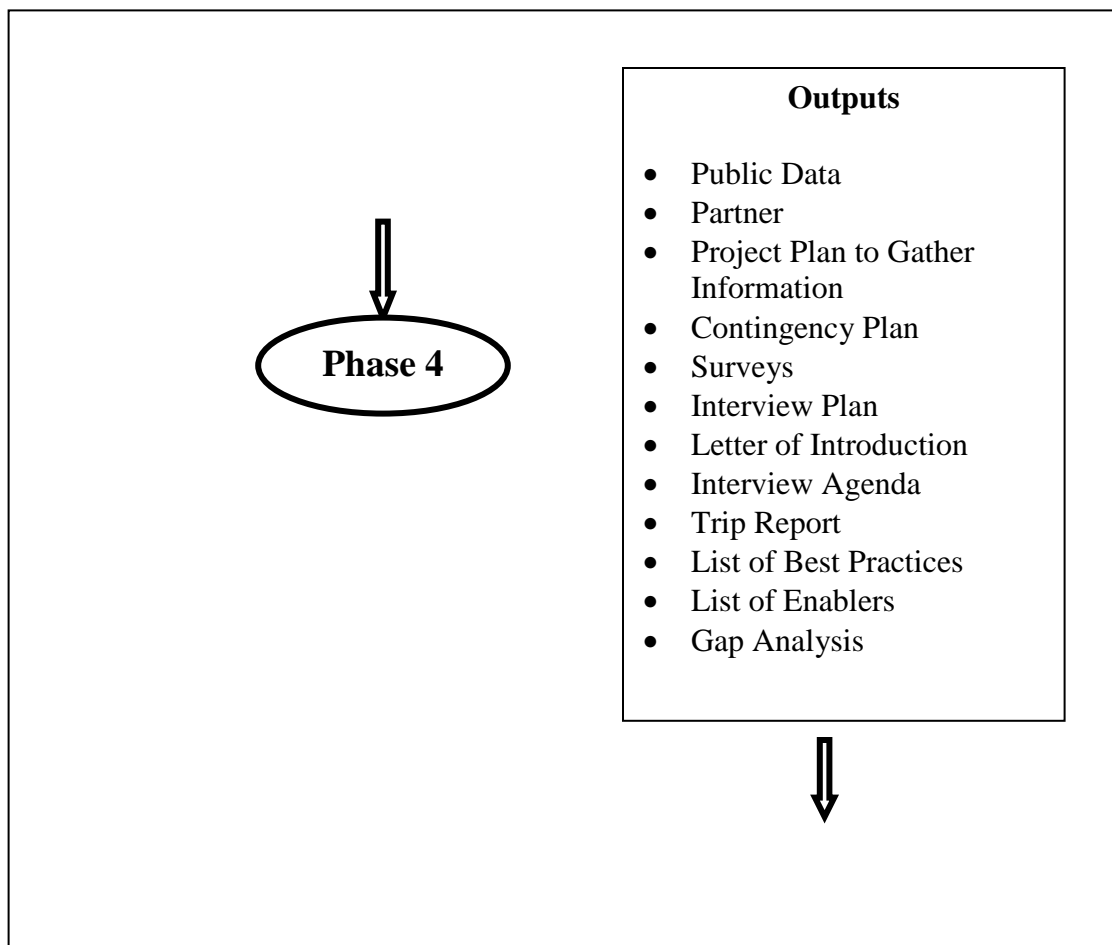
- Project Description-Scope-Charter clear.
- Project Documentation/Notebook and Record Keeper designated.
- Document how the project was selected and focused from the CSF list.
- List team selection criteria
- Show project linkage to Ford 2000 Strategies.

Phase 2. . . How Do We Do It?

Analyze the Internal Process Data

Phase 2 of the model addressed the question, “How do we do it?” Phase 2 can be time consuming, often 40% of the total project time. Some of the principle activities associated with this step are:

- Documenting existing processes . . . collect data, map processes.
- Capture the actual “*as is*” information not the “*should be*”. This is what will be used for comparison with BIC operations.
- Defining performance measures.
- Developing/identifying operational definitions
- Start to develop questions for Benchmark partners.
- *Benchmarking’s Golden Rule. . .do not ask anything of your Benchmark partners (questions, flowcharts, data) if you cannot provide the same information on your company to them.*



- Phase 4** * Public domain information on the Best in Class candidates is analyzed.
- Candidates are contacted and partnerships organized.
 - Answers to questions, data, and process maps are analyzed.
 - Enablers are determined.

Module 7: Management Responsibilities

Management Responsibilities

- * Champion the Benchmarking process.
- Communicate that it is a proven, effective way to make Improvements, not extra work.
 - Know when and where to use it.
 - Assist in identifying and focusing projects
 - Assure the selection of team members is appropriate for the project and cross-functional, if possible.
 - Provide Benchmarking training for teams.
 - Provide legal and ethical guidelines.
 - Assist with contacting potential Benchmarking partners – higher level approvals, peer to peer is often helpful.
 - Support teams during tough periods.
 - Provide realistic time and resources for projects.
 - Listen to and understand the team findings and recommended changes.
 - Assist with coordination and implementation of organization changes. . .integrate these changes into your organization objectives.

Module: Benchmarking Team Selection

Defining the Needs of the Team

- * Team size
- * Cross-functional—various expertise
- Strategic plan knowledge
 - Availability to do Benchmarking
 - Positive attitude
 - Leaders and followers
 - Change leaders
 - Creative, flexible

Benchmarking Team Guidelines

- * The size of the team should be that of any good working group. Five to six members is the optimum size but teams can range from two to ten members.
- Members must possess the various types of expertise implicit in the Benchmarking project. For example, if the Benchmarking project is on product costs, the team should include members with engineering and manufacturing backgrounds but you may also need a financial person who understands the cost chain. Someone with a background in purchasing may also be needed if that area is part of the Benchmarking project.

- Make your choices based on the following criteria:
 - Team members should understand the objectives and outcomes of the strategic planning process.
 - Team members must be allowed sufficient time to devote to the Benchmarking process. The first complete Benchmarking effort tends to take at least six to nine months (succeeding efforts take a greatly reduced time frame) and is very time consuming for key people. Information gathered from other companies indicates that for a Benchmarking project to be successful, the time commitment per team member must be a least 30 percent and as close to 100 percent as practically possible.

As you select a team, consider that some of the team members will be required to devote nearly all of their time to the process. The least amount of time a team member can expect to spend is about 30 percent.

- Team members should have a positive attitude about the Process. The Benchmarking process has a greater chance of success if members are receptive to the process and/or feel a sense of urgency.
- The key people on the Benchmarking team need to be the Kind who provide “hands-on” leadership and do whatever Is necessary to get the job done.

“Hands-on” people are particularly critical during the internal data gathering process, researching whom to Benchmark, and conducting external research.

- People who are key to implementing any changes that may Result from the Benchmarking process should be included on the team. Do not overlook implementation considerations when selecting a Benchmarking team.
- Team members must be flexible, creative individuals who Will accept estimates and make decisions on less than perfect data. They also should be willing to accept the roles and responsibilities that benefit the total project and work within any tactics the team develops.

Module 9: Summary

Potential Project Pitfalls

- Projects not focused
- Internal (own) process not well documented
- Unrealistic expectations for project deliverables
- Unrealistic schedules
- Customer needs not well documented
- Commitment of resources not appropriate
- Secondary data not utilized

Successful Benchmarking

Depends on:

- Management commitment and support
- How well you know and understand your own work
- Dedicated, motivated teams using systematic approach
- Willingness to CHANGE

Glossary

Activity	A series of transactions which translate inputs into outputs using Resources in response to a business requirement; sequences of activities.
Base Line	Our current performance level, supported by metrics.
Benchmark	A measured Best-in-Class achievement; a standard by which something can be measured or judged.
Benchmarking	Systematic process that uses metrics in the search for best products, services, processes, policies and methods that will enable and direct real change, leading to Best-in-Class performance.
Benchmarking Gap	The difference in performance between the Best-in-Class companies and the company doing the Benchmarking project
Best-in-Class (BIC)	Products, services and processes that are the best of the best; best-of-breed. You can substitute Best-in-Company, Best-in-Country, Best-in-World for this term if more appropriate for your project.
Comparative Analysis	Process in which one gathers metrics to compare your own performance to that of industry leaders or competitors.
Competitive Analysis	Rigorous process analyzing competitive strategies and tactics to influence your own business decisions.
Cost Reduction	Often the result of successful Benchmarking; projects that focus on cycle time reduction are especially effective at reducing costs and improving cost structures.

Criteria	Conditions used to assist decision making, in selecting the BIC performers the Benchmarking team sets specific conditions (criteria) that must be present in order to qualify for BIC consideration.
Critical Success Factors (CSFs)	Measurable characteristics, conditions, or variables that, when properly sustained, maintained, or managed, directly impact your customer satisfaction. CSFs are what your customers, either internal or external are judging you on.
Customer	The receiver of your outputs; these can be internal or external to your organization. Customers dictate your CSF list.
Customer Analysis	The evaluation of customer's conditions and trends relative to a particular product or service of a business – tools include customer focus groups, field trial testing, customer satisfaction measurement, customer feedback systems, and the use of various types of questionnaires and survey instruments. CSFs are developed from these activities.
Cycle Time Reduction	A focus on creating the best cycle time possible by eliminating waste/time in the existing processes
Enablers	Practices, methods and techniques that allow Best-in-Class performance.
Entitlement	The performance that can be achieved using current resources to eliminate waste and improve cycle time; obvious improvements identified during the process of Benchmarking and which may be accomplished as short-term goals.
Fast	As used in this course, Benchmarking is usually done in a shorter time than it would take to make comparable improvements using only internal ideas.
Functional Plan	Plan designed for or adapted to a particular need or activity but in alignment with the Strategic Plan.
Internal Benchmarking	Benchmarking inside your own company. . . often done to find Best-in-Company performance before doing external Benchmarking.
Malcolm	National Quality Award created by the United States Congress in

Baldrige Award	1987; it is the most widely sought after symbol of commitment to Excellence and achievement of the highest quality standards.
Metrics	Generic term meaning measured data.
Nimble	Alert, responsive, sensitive and quick.
Normalization	Putting data into a form so that it can be compared with other companies.
Partner	A relationship between two parties who are associates or colleagues involving close cooperation and implying joint rights and responsibilities.
Process	A series of interrelated activities which convert inputs into results (outputs); processes consume resources and require standards for repeatable performance; processes respond to control systems which direct the quality, rate, and cost of performance.
Recalibrating	Reviewing where your own organization is as compared to where the Benchmarking partner is with respect to the original goal and action plans.
Recycling	To start the Benchmarking process again....to go back to Phase 1, select another topic for Benchmarking, or repeat the process on the same topic.
Six Sigma Performance	A goal of virtually defect-free performance....3.4 defects per million opportunities for error.
Stakeholder	Anyone familiar with the Benchmarked topic who can provide the Benchmarking team with information.
Strategic Plan	Long range plan of action.
Survey	To query individuals in order to collect data for the purpose of analyzing some group or sample of a population.

A Quick Look at Benchmarking

By **Ranjit K. Roy**

A few years ago, when I first started to teach Benchmarking, I was having a discussion with my wife (a computer major) about it. I had asked her what she thought Benchmarking meant. She replied “copycatting”. I recall telling her that was “close enough”.

What are some other thoughts that come in our mind when we hear about Benchmarking? Is it industrial espionage? Is it begging for ideas?

All the activities mentioned so far, are common myths about Benchmarking. None is true.

Information-gathering tasks that generally go after part of what Benchmarking seeks to accomplish are Executive Visit, Comparative Analysis, and Competitive Analysis. These formal methods of data collection about products and processes are never as rigorous as a Benchmarking project. Besides, Benchmarking is done with the intention of implementing best practices within your company. It requires changing the way we do business in our own activities. The other methods generally do not have such objectives. So, what is Benchmarking?

WHAT

Benchmarking is systematic process by which “best practices” are searched, studied, and implemented within the company with a view to achieve Best-in-Class performance. While Benchmarking refers to the process, Benchmark represents the Best-in-Class performance expressed in terms of measurable number (metric). In trying to apply the method, you will first pick a project and find out how it is currently done in your facility. Once you know what it is you are trying to improve, naturally, you look for companies (Best-in-Class, BIC) who are better at doing the kinds of things that are involved in your project. The steps are to find out how the BIC companies do it and incorporate some of the better practices in your organization. It is an aboveboard and open information exchange process among companies willing to share their business practices.

WHY

Benchmarking allows you to establish baseline in measurable numbers (METRICS). If you want to know where you are, how far ahead of the competition are you, etc. you must establish your performance in terms of metrics. What is your performance measure? Who does exactly what you do? How would you measure all of who do things like you do? Benchmarking may lead you to the right path.

It is sometimes a matter of SURVIVAL. Benchmarking is credited with survival of Xerox from a competition in the Copier business in early eighties. It is also the technique Motorola depended on to help them confront the competition in Pagers and Cellular phone businesses from companies overseas.

You will adopt Benchmarking if your company's goal is to maintain LEADERSHIP position in the marketplace and stay ahead of the competition. How can you be certain about where you are and how much GAP you need to maintain? Benchmarking will show you the ways.

You want to make LARGE improvements FAST? Where can you go and buy fast-improvement tool? Are there some? Your time is precious. You need PROVEN method that gets the result.

If you have been in the business of bringing change in your workplace, then you know how difficult it is to change the way things are done. Many a time, it is much easier for you to find out who is doing it better, or even learn about what is it that makes them do better. But it is a whole different story trying to convince people in your organization to do it another way, the way BIC's do. To bring change in your own company, to convince people within your organization, you need hard evidence. You need proven ideas that worked. You need example practices. Benchmarking can take you through steps that will help you collect information and show you how to implement new ideas in your own activities.

WHAT'S INVOLVED IN APPLICATION

The major application steps follow a common sense approach. It is the detail that will bugle your mind. So, if you have a potential application, you definitely want to take a Benchmarking class that covers the details. The application involves five distinct phases. A brief description of each phase is provided here.

I. What to Benchmark – Suppose that the term Benchmarking has been tossed around in your company for quite some times. The bosses have stressed the need for it for past several months. You have heard enough from other departments who feels they have the right to tell you how to better your performance. You have been trained and are now ready to apply Benchmarking technique to make a quantum improvement. But where do you start? What do you want to improve? Take a close look at what you do. You will naturally find that you do many things. Which one should you pick? How would you select and prioritize the project you should undertake for Benchmarking?

Selecting a project, given there will always be many things to do, will be the first phase of application. You will need to decide whether to Benchmark one of your products, or many of your processes. How do you decide? What's important to your CUSTOMERS? Which area do you need to improve to keep your customers coming back to you? What does your company want? What are some of the STRATEGIC INITIATIVES proposed by your management? These and many such information will lead you to select projects that you can consider for Benchmarking, in order of their priorities.

II. How Do You Do It – The second phase in the application involves learning the details of your own process (assume you are Benchmarking a process). This can be quite time consuming. You will be talking to many people within your own organization. You will double check things that you feel you already know. You may be surprised to learn the intricate detail of your own processes that were never clear to all. Now that you will

be thinking about going to other companies to find out how they do it, you need to know your own process in-depth. After all, if you did not know your own process, how will you know what to ask. By the way this will be a good time for you to jot down question that you may want to ask the BIC companies when you will contact or visit them.

III. Who Are BIC – Now that you know your project and you also know how exactly it is done in your place, you would be asking about who does it better. Who are the Best-in-class (BIC) companies? Who are better at doing what you do? By the way what you are looking for may involve several activities (say material, storage, shipping, promotion, etc.). You may indeed seek out BIC in each of the areas of interest. But how will you know about the BIC? The sources for such information are all around you. Your Purchasing department will have a long list. Government or private publications, trade magazines are great sources. Do not forget to ask your bosses. They are happy to offer you names of companies they know to be better. Pretty soon you will have a long list of companies to work with. Who are you going to visit? Who would you invite to become your Benchmarking Partners? Certainly you cannot afford include all in the list. How do you select which ones to work with? What would be your criteria for selecting companies to Benchmark? How can you make such decisions collectively as a team? As you recognize, there are details to be worked out before you pack you bag to visit a company.

IV. How Do They Do It – By now you should have a shorter list of companies. These are you your BIC companies. You want to learn their ways of doing things. Assuming that they are willing to share, what information are you looking for? What will you ask if you were to obtain an interview or visits with them? Obviously, you need to prepare a list of questions. Most likely, yours will be a long list. But, many of the questions in the list will be answered by information available in the public domain. You now will have a much shorter list of questions to ask. Remember that your interview time with the BIC is very likely to short and must be used effectively. Your inquiry must be focussed and always project related.

Having completed the list of questions to ask, you ready to contact the BIC companies. These companies don't yet know they are on your list. How can you get them to work with you in your Benchmarking project? What is in it for them? What will you tell them? Who should you contact? What is contingency plan if a company was not willing to work with you? What sort of time commitment do you need from the partnering companies? You need to do some of this homework before you pick up the phone and start calling the BIC companies. Generally, an offer to share the Benchmarking information or to reciprocate the favor when they consider Benchmarking your company in future, makes a BIC company agree to work with you in your project.

V. Implement Best Practices – From your research into the practices of the BIC companies you will learn what enables these companies do better. Reviewing their practices, you will be able to identify a list of ENABLERS that are key to their being better. A few among all the key Enablers you find from all the BIC companies will be possible practices in your organization. In This fifth and the final phase, your role will be to implement the better practices in your project. So, you will need to be ready with

specific recommendations, communicate to all who need to know, and produce supporting evidence you found. Be aware that you will be asking for a change and people will be naturally reluctant to change.

About the Author:

Ranjit K. Roy, Ph.D.,P.E., is a consultant and trainer specializing in DOE/Taguchi, Benchmarking, SPC, and Reliability Testing topics. He is an adjunct professor at Oakland University, Rochester MI and a Fellow of American Society for Quality. Dr. Roy is the author of A PRIMER ON THE TAGUCHI METHOD and of Qualitek-4 software. Ph: 248-642-4560, e-mail: rkroy@wwnet.com Web: <http://www.rkroy.com>

