TRADITIONAL QUALITY CONTROL

Under traditional quality control, inspection of goods and services (checking to make sure that what's being produced is meeting all expectations) takes place at the end of the operations process. The problem with this sort of inspection is that it doesn't work. It won't ensure quality, however you define it. Think about a simple test, like the F-Test, that shows how difficult it is to realise a specific sign or characteristic in a limited time range. Imagine how much more difficult inspection is at the end of a process for a product with several hundred or thousand parts, such as a car -- or a forklift.

There are three main problems with inspection under traditional quality control:

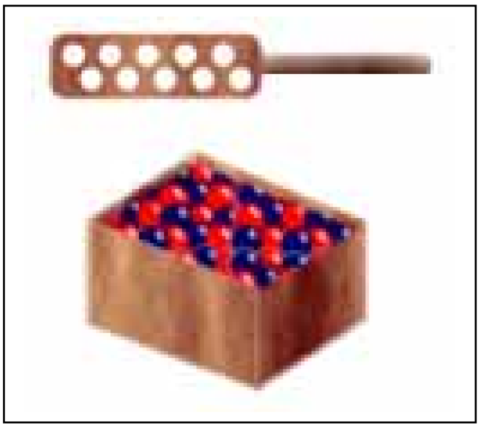
- it's **costly**, in terms of both tangibles and intangibles (e.g. materials, labour, time, employee morale, customer goodwill, lost sales)
- it's **done too late in the process**, often resulting in defective or non-acceptable goods actually being received by the customer
- it's **done by the wrong people**--by separate "quality inspectors" rather than by the workers themselves

Another problem with inspections is often the lack of operational definitions between upper management and "quality inspectors", inspectors and workers, and even between inspectors, as to what constitutes a "quality product". For example, to meet quotas, inspectors may approve goods that don't meet 100% conformance, giving the message to workers that it doesn't matter if their work is a bit slipshod here and there. Or one inspector may be following different procedures from another, or using different measurements.

According to one of the quality "gurus", W. Edwards Deming,

> **"Inspection with the aim of finding the bad ones and throwing them out is too late, ineffective, costly. Quality comes not from inspection but from improvement of the process."**

To prove his point, Dr. Deming would demonstrate the "red bead test" in his lectures:



Audience members would be selected to perform one of several roles in a business (worker, inspector, or foreman). The "workers" would be supplied with raw materials (red and white beads, mixed together in a large container) and equipment, in the form of a paddle with 50 holes in it. The beads would be poured into a smaller vessel, then back into the larger vessel to simulate a production process; and then each worker would dip the paddle into the vessel, filling each hole with a bead. This would represent one day's production for each worker. Inspectors counted each red bead in the paddle as a defect, and records were kept for each "worker". Low number of total defects, over several days, might result in promotions or pay raises, while a high number might result in dismissal.

It doesn't take the workers long to realize that it is random luck, not their innate skill or ability to learn, that determines the number of "defective" red beads that end up in the paddle. Under the conditions given, every worker will experience good (fewer red beads) and bad (more red beads) days, without any means to tip the scales to their advantage. Nor would any amount of inspection have an affect. The only thing that could lead to improvement would be to improve the process -- i.e., reduce the number of red beads in the incoming material -- and that would be management's job, not the workers. In Deming's view, **management is responsible for 94% of quality problems.**

Other quality experts, like J.M. Juran, think that there is a place for inspection in a quality process -- just not the traditional method. Inspection occurs at varying places "upstream" in the process, right from the point of incoming materials, in order to detect and correct errors long before the final product emerges. This is usually much less costly than having to scrap or rework final products that don't conform or are judged unfit for use. Juran also supported the concept of workers being allowed to self-inspect their work, given the appropriate information and tools to do so.

TOTAL QUALITY CONTROL

Total quality control focuses on examining the processes in an operation, to learn where mistakes are being made, why they are happening and if it is possible, practical and economically desirable to prevent them from recurring. Inspection has its place in TQC, but it is inspection of the process, not the product -- a principle in line with Dr. Deming's teachings.

So how do you improve a process?

1. **First, you need to recognize the problem**
   The recognition of a problem may come from internal (worker) or external (supplier/customer) sources. Both sources are invaluable, but unfortunately not all organisations provide feedback opportunities.

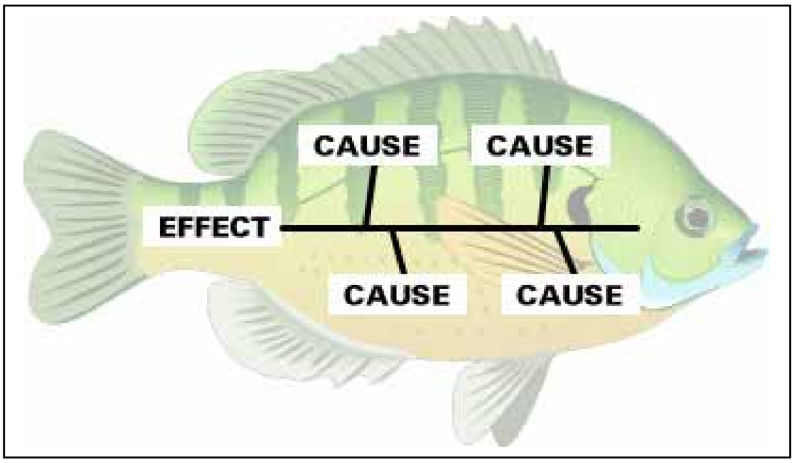
2. **Define and identify the problem**
   Then the process giving rise to the problem has, likewise, to be identified and documented. *Flow charts* often prove to be the most useful form of documentation, as they are geared to breaking any operational process down to its nuts and bolts.

3. **Measure and analyse the performance**
   Once a process has been documented, its performance can be measured and analysed. There are a number of methods available to do this, but the method used will be determined by both the type of measurements being taken and what is being analysed. For example, *control charts* using can provide a highly effective visual indication of the points where a process is not in control, as well as when corrective action should or should not be taken. Deming and other quality "gurus" teach that some variation in a process is inevitable and is not cause for concern, but it should be held to a minimum in most cases. *Pareto analyses* arrange data in order of priority or importance, and often reflect a high percentage of problems arising from a few causes (the "vital few"). *Fishbone diagrams* concentrate on one problem effect (result), and attempt to show all the causes contributing to it which may be negatively affecting it.

THE SEVEN QUALITY CONTROL TOOLS

1. Cause and Effect Diagram

The cause and effect diagram is also called the fishbone chart because of its appearance and the Ishakowa chart after the man who popularized its use in Japan. Its most frequent use is to list the cause of particular problems. The lines coming off the core horizontal line are the main causes and the lines coming off those are sub causes.

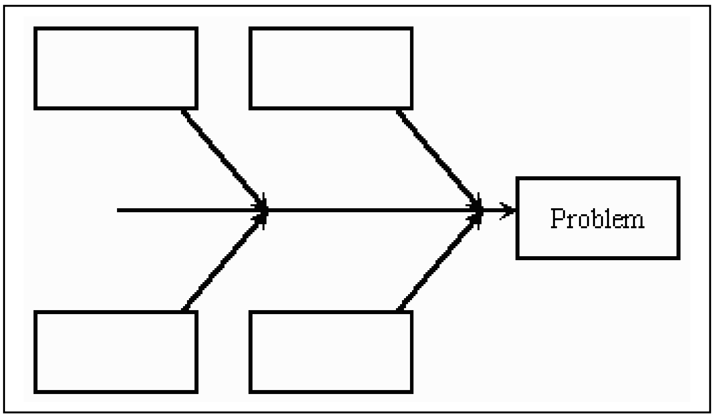


A CAUSE AND EFFECT DIAGRAM IS USED FOR:

1. Identifying potential causes of a problem or issue in an orderly way (example: Why has membership in the band decreased?; why isn't the phone being answered on time?; why is the production process suddenly producing so many defects?)
2. Summarizing major causes under four categories (e.g., People, Machines, Methods, and Materials or Policies, Procedures, People, and Plant)

STEPS IN CONSTRUCTING A CAUSE AND EFFECT DIAGRAM:

1. Prepare a flip chart or an overhead transparency of the following template:



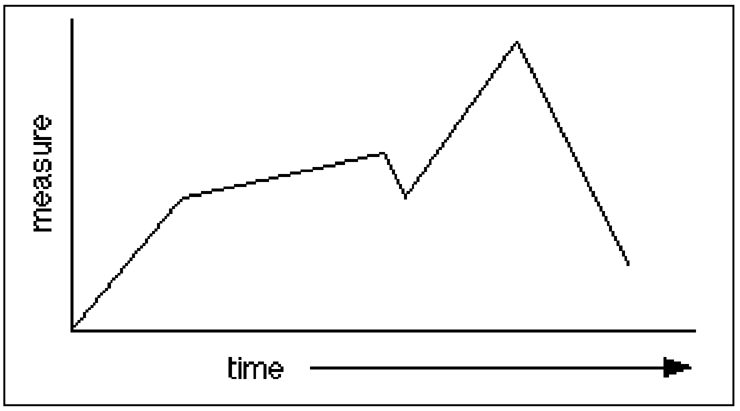
2. Write the issue (problem or process condition) on the right side of the Cause and Effect Diagram.
3. Identify the major cause categories and write them in the four boxes on the Cause and Effect Diagram. You may summarize causes under categories such as:

- Methods, Machines, Materials, People
- Places, Procedures, People, Policies,
- Surroundings, Suppliers, System, Skills

4. Brainstorm potential causes of the problem. As possible causes are provided, decide as a group where to place them on the Cause and Effect Diagram. It is acceptable to list a possible cause under more than one major cause category.
5. Review each major cause category. Circle the most likely causes on the diagram.
6. Review the causes that are circled and ask "Why is this a cause?" Asking "why" will help get to the root cause of the problem.
7. Reach an agreement on the most probable cause(s).

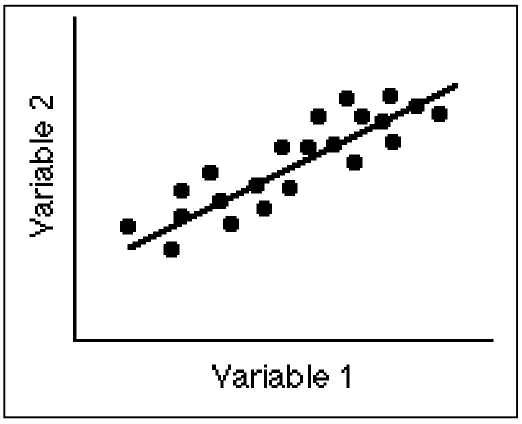
2. Run Chart

The run chart shows the history and pattern of variation. It is helpful to indicate on the chart whether up is good or down is good. This tool is used at the beginning of the change process to see what the problems are. It is used at the end (check) part of the change process to see whether the change has resulted in a permanent improvement.

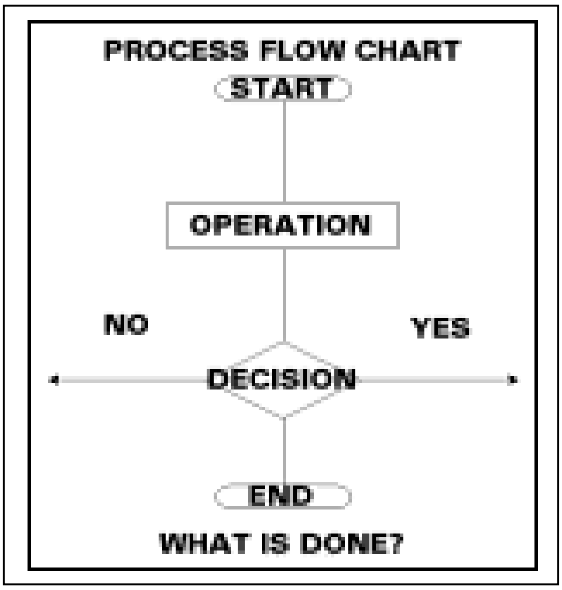


3. Scatter Diagram

The scatter diagram show the pattern of relationship between to variables that are thought to be related. For example is their a relationship between out side temperature and cases of the common cold? As temperatures drop, do colds increase. The closer the points hug a diagonal line the more closely there is a one to one relationship.



4. Flowchart



The flowchart lists the order of activities. The circle symbol indicates the beginning or end of the process. The box indicates action items and the diamond indicates decision points. A beneficial technique is to map the ideal process and the actual process and identify the differences as targets for improvements.

A flow chart is a pictorial representation showing all of the steps of a process.

A Flowchart is used for:

1. Defining and analyzing processes (example: What is the registration process for entering students?)
2. Building a step-by-step picture of the process for analysis, discussion, or communication purposes (example: Is it possible to shorten the length of time it takes for a student to complete the program?) Defining, standardizing, or finding areas for improvement in a process

STEPS FOR CREATING A FLOWCHART ARE:

1. Familiarize the participants with the flowchart symbols
2. Brainstorm major process tasks. Ask questions such as "What really happens next in the process?", "Does a decision need to be made before the next step?", or What approvals are required before moving on to the next task?"
3. Draw the process flowchart using the symbols on a flip chart or overhead transparency. Every process will have a start and an end (shown by elongated circles). All processes will have tasks and most will have decision points (shown by a diamond).
4. Analyze the flowchart for such items as:

- Time-per-event (reducing cycle time)
- Process repeats (preventing rework)
- Duplication of effort (identifying and eliminating duplicated tasks)
- Unnecessary tasks (eliminating tasks that are in the process for no apparent reason)
- Value-added versus non-value-added tasks

5. Pareto Chart

The Pareto shows the distribution of items and arranges them from the most frequent to the least frequent with the final bar being misc. The tool is named after Wilfredo Pareto, the Italian economist who determined that wealth is not evenly distributed. Some of the people have most of the money. This tool is a graphical picture of the most frequent causes of a particular problem. It shows where to put your initial effort to get the most gain.

A PARETO CHART IS USED FOR:

1. Focusing on critical issues by ranking them in terms of importance and frequency (example: Which course causes the most difficulty for students?; which problem with Product X is most significant to our customers?)
2. Prioritizing problems or causes to efficiently initiate problem solving (example: Which discipline problems should be tackled first? or, What is the most frequent complaint by parents regarding the school?; solution of what production problem will improve quality most?)
3. Analyzing problems or causes by different groupings of data (e.g., by program, by teacher, by school building; by machine, by team)
4. Analyzing the before and after impact of changes made in a process (example: What is the most common complaint of parents before and after the new principal was hired?; has the initiation of a quality improvement program reduced the number of defectives?)

STEPS IN CONSTRUCTING A PARETO CHART WITH STEP-BY-STEP EXAMPLE:

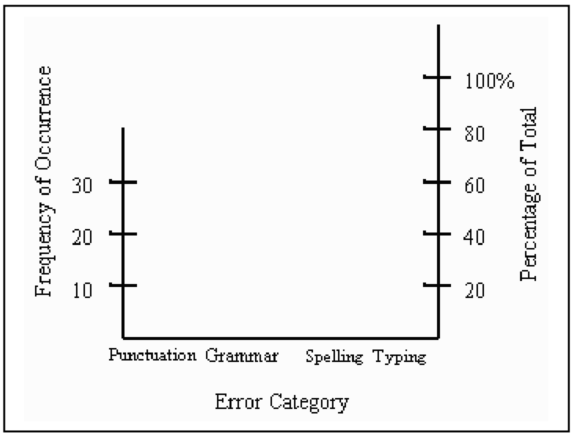
1. Determine the categories of problems or causes to be compared. Begin by organizing the problems or causes into a narrowed down list of categories (usually 8 or less).

2. Select a Standard Unit of Measurement and the Time Period to be studied. It could be a measure of how often something occurs (defects, errors, tardies, cost overruns, etc.); frequencies of reasons cited in surveys as the cause of a certain problem; or a specific measurement of volume or size. The time period to be studied should be a reasonable length of time to collect the data.

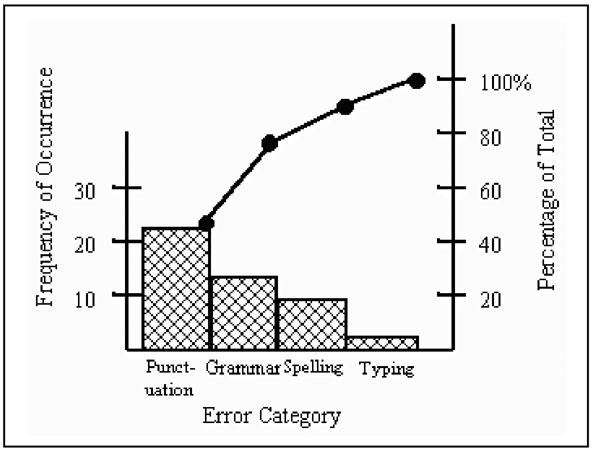
3. Collect and Summarize the Data. Create a three-column table with the headings of "error or problem category", "frequency", and "percent of total". In the "error or problem category" column list the categories of problems or causes previously identified. In the "frequency" column write in the totals for each of the categories over the designated period of time. In the "percent of total" column, divide each number in the "frequency" column by the total number of measurements. This will provide the percentage of the total.

Error Category	Frequency	Percent of Total
Punctuation	22	44 %
Grammar	15	30 %
Spelling	10	20 %
Typing	3	6 %
TOTAL	50	100 %

4. Create the framework for the horizontal and vertical axes of the Pareto Chart. The horizontal axis will be the categories of problems or causes in descending order with the most frequently occurring category on the far left (or at the beginning of the horizontal line). There will be two vertical axes-one on the far left and one on the far right. The vertical axis on the far left point will indicate the frequency for each of the categories. Scale it so the value at the top of the axis is slightly higher than the highest frequency number. The vertical axis on the far right will represent the percentage scale and should be scaled so that the point for the number of occurrences on the left matches with the corresponding percentage on the right.



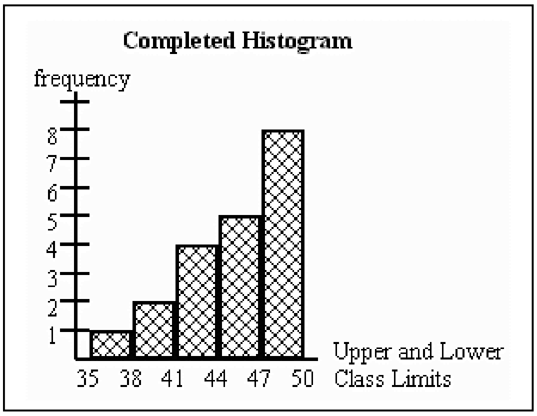
5. Plot the bars on the Pareto Chart. Using a bar graph format, draw the corresponding bars in decreasing height from left to right using the frequency scale on the left vertical axis. To plot the cumulative percentage line, place a dot above each bar at a height corresponding to the scale on the right vertical axis. Then connect these dots from left to right, ending with the 100% point at the top of the right vertical axis.



6. Interpret the Pareto Chart. Use common sense-just because a certain problem occurs most often doesn't necessarily mean it demands your greatest attention. Investigate all angles to help solve the problems-What makes the biggest difference? What will it cost to correct the problems? What will it cost if we don't correct this problem?

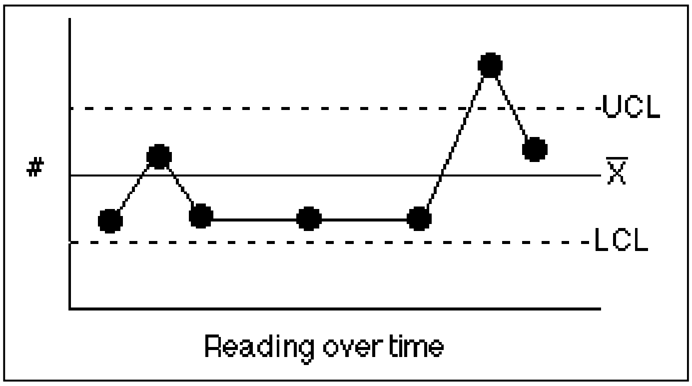
6. Histogram

The histogram is a bar chart showing a distribution of variables. An example would be to line up by height a group of people in a course. Normally one would be the tallest and one would be the shortest and there would be a cluster of people around an average height. Hence the phrase "normal distribution". This tool helps identify the cause of problems in a process by the shape of the distribution as well as the width of the distribution.



7. Control Chart

The control chart is a line chart with control limits. It is based on the work of Shewhart and Deming. By mathematically constructing control limits at 3 standard deviations above and below the average, one can determine what variation is due to normal ongoing causes (common causes) and what variation is produced by unique events (special causes). By eliminating the special causes first and then reducing common causes, quality can be improved.



TOTAL QUALITY CONTROL

CASE STUDY:SHORTENING CUSTOMERS' TELEPHONE WAITING TIME

This is the story of a QC program that was implemented in the main office of a large bank. An average of 500 customers call this office every day. Surveys indicated that the callers tended to become irritated if the phone rang more than five times before it was answered, and often would not call the company again. In contrast, a prompt answer after just two rings reassured the customers and made them feel more comfortable doing business by phone.

1. Selection of a Theme.
   Telephone reception was chosen as a QC theme for the following reasons: (1) Telephone reception is the first impression a customer receives from the company, (2) this theme coincided with the company's telephone reception slogan, "Don't make customers wait, and avoid needless switching from extension to extension", and (3) it also coincided with a company-wide campaign being promoted at that time which advocated being friendly to everyone one met.

   First, the staff discussed why the present method of answering calls made callers wait. Figure 3.1 illustrates a frequent situation, where a call from customer B comes in while the operator is talking with customer A. Let's see why the customer has to wait.

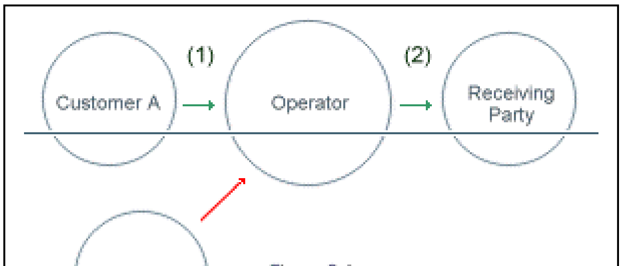


Figure 3.1
WHY CUSTOMERS HAD TO WAIT

   At (1), the operator receives a call from the customer but, due to lack of experience, does not know where to connect the call. At (2), the receiving party cannot answer the phone quickly, perhaps because he is unavailable, and nobody can take the call for him. The result is that the operator must transfer the call to another extension while apologizing for the delay.

2. Cause and Effect Diagram and Situation Analysis
   In order to fully understand the situation, the circle members decided to conduct a survey regarding the callers who waited for more than five rings. Circle members itemised factors at a brainstorming discussion and arranged them in a cause-and-effect diagram (Figure 3.2). Operators then kept check sheets on several points to tally the results spanning 12 days from June 4 to 16. (See Figure 3.3.)

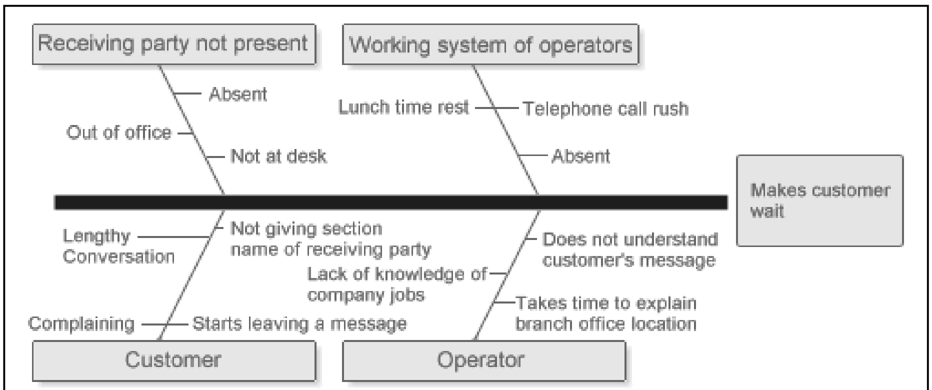


Fig. 3.2 Cause and Effect Diagram

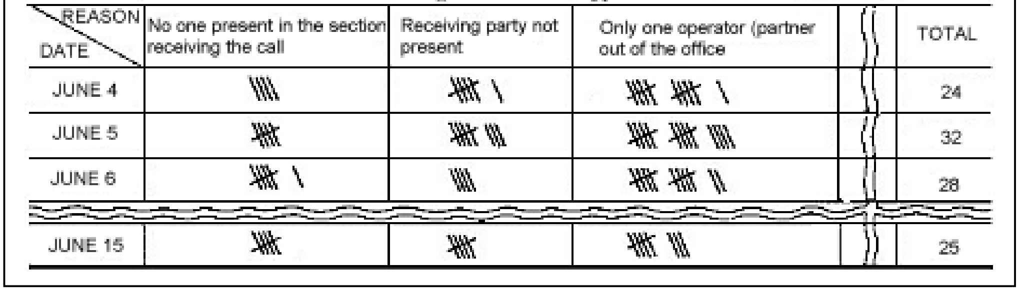


FIGURE 3.3 ***Checksheet - Designed to Identify the Problems***

3. Results of the Checksheet Situation Analysis

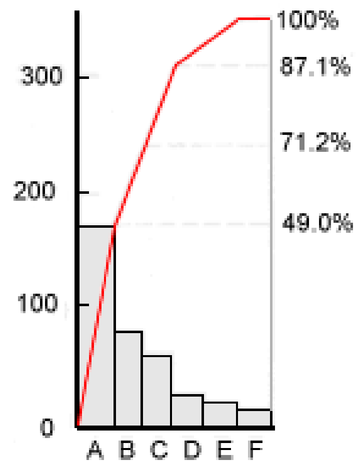
The data recorded on the checksheets unexpectedly revealed that 'one operator (partner out of the office)' topped the list by a big margin, occurring a total of 172 times. In this case, the operator on duty had to deal with large numbers of calls when the phones were busy. Customers who had to wait a long time averaged 29.2 daily, which accounted for 6% of the calls received every day. (see figures 3.4 and 3.5)

FIGURE 3.4 ***Reasons Why Callers Had to Wait***

		Daily average	Total Number
A	One operator (partner out of the office)	14.3	172
B	Receiving party not present	6.1	73
C	No one present in the section receiving the call	5.1	61
D	Section and name of receiving party not given	1.6	19
E	Inquiry about branch office locations	1.3	16
F	Other reasons	0.8	10
	Total	29.2	351

Figure 3.5

Reasons why callers had to wait. (Pareto Diagram)



4. Setting the Target

After an intense but productive discussion, the staff decided to set a QC program goal of reducing these waiting callers to zero. That is to say that all incoming calls would be handled promptly, without inconveniencing the customer.

5. Measures and Execution.

(1) Taking lunches on three different shifts leaving at least two operators on the job at all times. Up until this resolution was made a two-shift lunch system had been employed, leaving only one operator on the job while the other was taking a lunch break. However since the survey revealed that this was a major cause of customers waiting on the line, the company bought in a helper operator from the clerical section.

(2) Asking all employees to leave messages when leaving their desks. The objective of this rule was to simplify the operator's chores when the receiving party was not at his desk. The new program was explained at the employees' regular morning meetings, and company-wide support was requested. To help implement this practice, posters were placed around the office to publicize the new measures.

(3) Compiling a directory listing of the personnel and their respective jobs. The notebook was specially designed to aid the operators, who could not be expected to know the details of every employee's job or where to connect his incoming calls.

6. Confirming the Results.

Although the waiting calls could not be reduced to zero, all items presented showed a marked improvement as shown below. The major cause of delays, 'one operator (partner out of the office)," plummeted from 172 incidents during the control period to 15 in the follow-up survey.

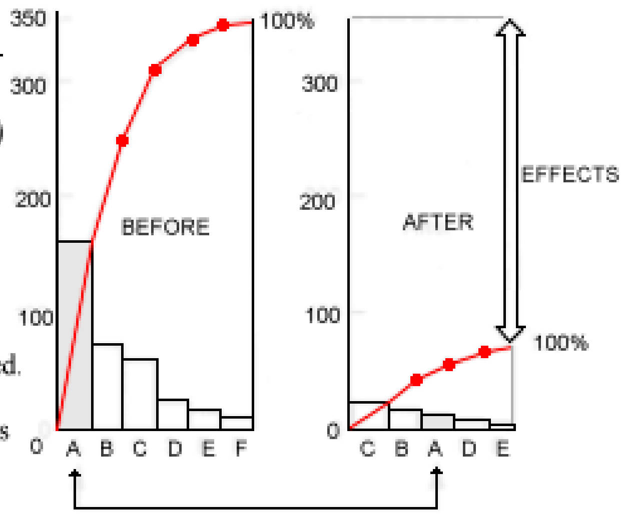
FIGURE 3.6 Effects of QC (Comparison of Before and After QC)

	Reasons why callers had to wait	TOTAL NUMBER		DAILY AV.	
		BEFORE	AFTER	BEFORE	AFTER
A	One operator (partner out of the office)	172	15	14.5	1.2
B	Receiving party not present	73	17	6.1	1.4
C	No one present in the section receiving the call	61	20	5.1	1.7
D	Section and name of receiving party not given	19	4	1.6	0.3
E	Inquiry about branch office locations	16	3	1.3	0.2
F	Other reasons	10	0	0.8	0
	Total	351	59	29.2	4.8

Period: 12 days from Aug. 17 to 30.

FIGURE 3.7

Effects of QC (Pareto Diagram)



Problems are classified according to cause and presented in order of the amounts of time consumed. They are illustrated in a bar graph. 100% indicates the total number of time consuming calls.

from 'The Quest for Higher Quality - the Deming Prize and Quality control," Ricoh Company Ltd.

4. Find a solution for the problem

5. Implement and evaluate
   When the cause of a problem has been identified, and a "cure" found, it must be implemented and evaluated once again, to confirm that the solution is working. If not, the analysis starts once again. See also the case study "Shortening customers' telephone waiting time". This cycle needs to be applied to every process in every operation, and it should never stop.

   You might ask, if a problem has been fixed, why can't it be checked off the list of things to correct, and fogotten about?

   Because nothing is static: suppliers may change some aspect of their materials; equipment may develop problems that, however slight, affect output; technology may be upgraded, requiring new and different training, and so on.

   Total quality control should allow for this ongoing cycle of continuous quality improvement, a concept that Japan has been using for a long time but which is still quite a revolutionary idea to most western organisations.

The principle behind the continuous improvement is Kaizen, a Japanes term which can be translated:

Kai = change Zen = good

Kaizen means improvement. Moreover it means continuing improvement in personal life, home life, social life, and working life. When applied to the workplace Kaizen means continuing improvement involving everyone - managers and workers alike. Kaizen can be stated the following:

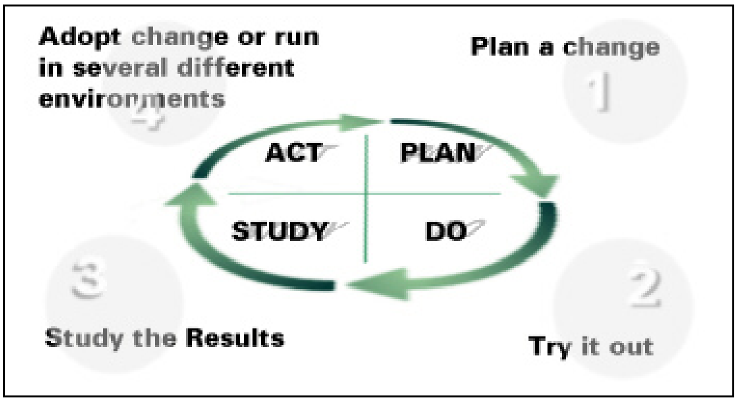
- "In its broadest sense, quality is anything that can be improved."
- "There is <u>always</u> a better way."
- "There is <u>no</u> acceptable best way."

It is through Kaizen that the processes which bring forth or sustain the product are made more competitive. If customer satisfaction (the larger the better) and cost (the smaller the better) are chosen as the primary quality characteristics, then the focus of workplace Kaizen is to improve value, and hence competitive advantage. Total Quality Control is the system to implement Kaizen.

<u>Tools for continuous improvement</u>

1. The Deming Wheel

The process of continuous improvement, called PDSA or, alternatively, PDCA (Plan/Do/Study or Check/Act), is often referred to as the *Deming Wheel*, although Deming called it the *Shewhart Cycle* (after its inventor, Dr. Walter Shewhart, a statistician and author of Statistical Methods from the Viewpoint of Quality Control), illustrated below:



Step 1: Identify a problem area or the opportunity for improvement, the reason for working on it, and an indicator- with an emphasis on the customer-for measuring improvement.

Step 2: Break down the problem area to determine its subparts, identify the components with the most impact on the customer, clarify the problem statement, and set a target for improvement.

Step 3: Evaluate the information gathered, and identify and verify the root causes of the problem. Utilize cause and effect analysis and the questions, "What causes this?" and "Why does this condition exist?" to eliminate the problem's symptoms and identify the underlying or root cause.

Step 4: Identify and select the proposed solutions or countermeasures to correct the root cause of the problem identified and verified in step 3. Evaluate potential countermeasures for effectiveness and feasibility, and support the one chosen for implementation with appropriate data such as cost-benefit analysis, barrier/aid identification, and an action plan to assure any barriers are overcome.

Step 5: Confirm that the problem and its root causes have been identified, countermeasures implemented, and the problem decreased and the target for improvement met.

Step 6: Assure that once a problem and its root causes have been identified and countermeasures implemented, the problem doesn't recur. Once the data obtained in step 5 confirm that the countermeasures have been successful, the improvement can be standardized, using control charts and/or standards or procedures. Replication should be utilized where the results are successful and can be shared with other areas doing similar work.

Step 7: Decide what will be done with any future problems, evaluate the team's effectiveness and lessons learned, and develop an action plan for remaining problems. This step identifies the Deming Wheel as a tool, which should continue to be used to evaluate the problem and any changes in circumstances. By continually turning the wheel, adjustments can be made as circumstances change.

2. Benchmarking

Another method employed in continuous quality improvement is known as benchmarking. Benchmarking involves the comparison and measurement of similar processes, and might take place on any of three levels:

- Within a company (e.g., between departments)
- Between a company and its competitor(s) or
- Against other industries.

It may not be known beforehand whether the process selected for comparison is better, equivalent or worse than the one being measured, but often those doing the benchmarking will look for the "best in class" -- a top-notch yardstick against which to measure and which, it is hoped, will aid in their own process improvement.

Benchmarking is not new. We all perform it to some extent every day, and never give it a second thought. For example, we may realize that our colleague has found a quicker route to work. The majority of us will be keen to learn how this improvement has been achieved, so we ask. We get the maps out and clarify exactly the route taken, and implement the action to achieve the improvement...until an even better route is identified. Improvement is a never ending journey.

What can be so difficult about examining how other organizations have achieved improved performance?
The answer is nothing, but "examining others" is a world away from really learning "how" they achieved the improvement.

1. How do you identify a suitable activity to benchmark?

As with all improvement activities, it is better to start with a known problem area that is able to be defined, or an activity where improvement will provide maximum benefit.
Once the subject activity is identified, spend as much time as possible defining it. The more clearly you know your problem, the easier it will be to identify differences that will lead to major improvement.

2. How do we gather the information?

- Develop a questionnaire with all the information you want to obtain. Remember to phrase questions to gain maximum comparative information. Ask open-ended questions-How? Where? When? Who? What?-and allow for scaled answers (very important, important, not important). Review the questionnaire with a team of others to identify ways to improve it.
- Complete the questionnaire for your own organization. This is a good test of the questions and also ensures that you can respond to similar requests for information from your benchmarking partners.
- Write down your reasons for asking each question. Again, this will test if all the questions are really necessary, and will provide you with a ready-made answer when the partner asks, "Why do you want to know that?"
- Talk to the benchmarking partner. Describe and clarify your areas of interest, objectives and primary questions. Ask if these areas have been covered before (the information you seek might already be available).
- Arrange a visit (eyes are as useful as ears-and they double your chances of learning).

3. How should a visit be performed?

- Prepare thoroughly. Find out as much as possible about the benchmarking partner from other sources (publications, consultants, trade associations, etc.) so that you can maximize knowledge gained from direct contact with the partner.
- Use a small team (two people is ideal) and nominate one as the leader. Thank the partner (again and again). Debrief as soon as possible after the visit.

4. What to do with the information gained?

- Use it to compare the similarities and differences in your two organizations and activities, in order to clearly identify improvement opportunities. Share the knowledge with all interested parties in your own organization, and then take the improvement action!

But several of the quality "gurus" warn of the limitations in benchmarking, some of which include copying a more successful competitor's performance without understanding the underlying reasons for the performance, and seeing it as an end in itself. Even if your company found it was the "best in class", that doesn't mean it's time to stop looking for ways to improve quality. The search for total quality control should be never- ending.

QUALITY ASSURANCE

Quality assurance is the method by which organisations try to ensure that their product conforms to specifications and meets customer expectations. "Assurance" consists of a system of rules or procedures setting standards for activities in an organisation. It is possible to develop this for one company, but having one which several conform to has its benefits. For example, the need for Quality System Standards was recognised in the 1960's by UK armed forces, which had suffered from high levels of equipment failure. Successful implementation there led to similar standards being applied to other high-risk industries (e.g., nuclear plants).

Once the benefits of applying such standards had become apparent, the concept spread to industries in general, leading to the development by the British Standards Institute in 1979 of a standardised, formal quality assurance system known as BS5750. Although companies could follow their own, internally developed quality standards, it also become apparent that implementing a formal, nationally approved system could give a distinct edge in an increasingly competitive marketplace, and more and more companies chose to go with BS5750. This, in turn, led to the development of an internationally recognised Quality System Standard known as ISO9000. Instituted by the Geneva-based International Organisation for Standardisation, and directly based on BS5750, ISO9000 (and no, it is not an incorrect acronym, but simply usage of the prefix "iso", meaning "equal") was formally adopted by a number of countries in 1987.

Like BS5750, ISO9000 has three levels, the first, ISO9001, is the most demanding. The second level concerns only production and installation, while level 3 is limited to final inspection and tests. ISO9001 covers the following areas:

Although the standards were originally developed for use in manufacturing, they have been expanded to apply to service industries as well. Sometimes ISO9000-type procedures are in place even if the system has not been formally adopted.

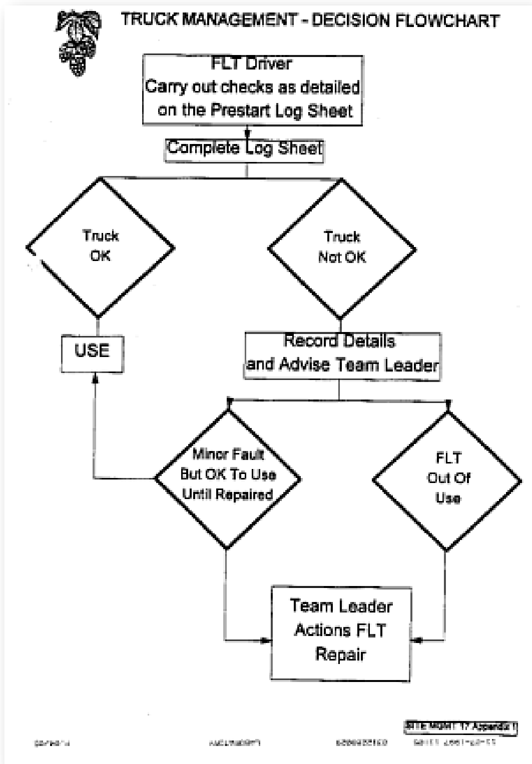
ISO9000 has a lot to recommend it: it's well laid out and easy to follow, provides opportunities to discover and implement quality improvements in operational processes, and reassures customers that a company is both in compliance with industry - wide system specifications and has a commitment to providing the best possible product. It would seem that ISO9000 is the perfect way to ensure quality. But is it? Rules are not always what they seem or appropriate:

Businesses often think that, once they "have ISO9000", they automatically have a quality product, but that may not be the case. Take another look at the list of areas above for ISO9001: each process is being monitored, but there's no guarantee that the process itself -- no matter how long or recently it's been in place -- is any good. It's been pointed out that, under ISO9000 rules, you could produce a lifejacket made out of concrete.

ISO9000 is a good starting point, and should be customised for individual organisations. But in its current form, it doesn't cover enough ground; opportunities for quality improvements to a process are not necessarily spotted or acted upon; it doesn't allow for customer feedback, and it can be too inflexible.

CASE STUDY - FOUNTAIN BREWERY - FORKLIFTS

Forklifts are important pieces of equipment at the Brewery, as they are used to transport the completed packages of beer from their pallets to loading areas and then onto delivery trucks.



Scottish Courage follows ISO9002 procedures, adapted for the company's use, for the management and maintenance of their forklifts. A Truck Management Decision Flowchart is appended to this basic outline of procedures, which, when used in conjunction with the "FLT Prestart Log Sheet", helps the employees decide whether a forklift is operational, faulty but operational, or not fit for use. Scottish Courage implemented BS5750 in 1991 solely for its Small Packaging area. Quality System Manager *Terry McLaughlin* says there were two reasons for the implementation: it was seen as a good commercial advantage, and they were under external pressure from customers. "When Scottish Courage and Scottish & Newcastle merged in 1995," he recalls, "management looked at its business strategy and decided to make Quality System the foundation of operations. ISO then became the objective for everybody." Systems were phased in over several years, and the entire site received full ISO registration in July 1996.

"We've decided as a company that we want to base management on ISO and Total Quality; it enhances our business opportunities", says Terry. ISO procedures add consistency to the Brewery's operations, but "it's not seen as set in stone. It's an organic system, is being developed and will continue to be developed. Procedures are subject to regular change if we feel things are not as good as they could be."

TOTAL QUALITY MANAGEMENT

Total quality management is a holistic, dynamic approach to management. It involves all of the preceding aspects of quality, but takes them further and integrates them completely into an organisation. TQM focuses on:

- ➲ Customer satisfaction.
- ➲ Involvement
- ➲ Continuous improvement.

Customer satisfaction.

Whether the customer is external or internal to the company, this is what keeps a company in business. Marketing departments often take on the task of determining what the customer wants, via methods such as customer surveys. But surveys may have design pitfalls: if you don't ask the right questions, you won't get the right answers. For example, it's an asset if your salespeople are perceived by all concerned as polite and cheerful, but that won't improve your sales figures if they can't supply your customers with necessary product on a timely basis. TQM must consider both current and future customer needs, while keeping in mind such possibilities as the development of new products that customers might not think of on their own but which they would respond positively to.

Involvement.

To achieve TQ, everyone in an organisation must be committed. Achieving this commitment is not easy and takes a long time (for example, Juran would say five years). This is why most authors suggest that organisations need strong leadership and commitment from the top. Companies use mechanisms such as Quality Circles (which nowadays are cross-functional teams that meet regularly) and suggestion schemes to include people in the TQ objective. However, if these are not complete with training and information sharing, they won’t work. The best results come when people work on issues which are relevant to them, using techniques they are familiar with, and they have the responsibility and often the resources to effect changes. Prior to practical and effective implementation of the TQ the following breakthrough concepts are necessary:

- ➲ Change the way of thinking of the individual
- ➲ Change the way of doing things in the company

Continuous improvement

In the ideal TQM environment, all processes are constantly under examination, and everyone in the company is committed to the concept of continuous improvement. If an organisation recognises that analysis and improvement of processes must be never-ending in order to achieve and retain customer satisfaction, provides avenues for both customer and employee feedback, and uses all the quality tools available, Total Quality Management can be realised.