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THE COLLAPSE OF PREVAILING WISDOM—  
DIFFERENT STROKES  
FOR DIFFERENT FOLKS

by

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Abstract

We have accepted on faith many of our improvement tools without really understanding their impact on the performance of the organization. This paper challenges some of the basic principles that TQM was founded upon. The data presented in this paper was obtained from the International Quality Study (IQS) performed over a three-year period by Ernst & Young and the American Quality Foundation. With over two million pieces of information in its database, it is the largest, most complete management practice benchmark resource in the world today. This

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report highlights similarities and differences between countries. It also defines best practices based on the statistical analysis of the business results achieved internationally.

**“Quality improvement activities have been taken on a blind leap of faith. It is no wonder that so many organizations have fallen into the failure chasm.”**


Dr. H. James Harrington

## **Introduction**

It seems that management is always looking for something new, grasping at straws in the hope that something new will work because the improvement approach that they started last quarter has not paid off yet. Old, standard approaches like strategic planning, root-cause analysis, zero defects and team problem-solving have been repackaged and sold as the latest way to save the world’s economy. New, more complicated tools like quality policy deployment, quality function deployment and the seven advanced management tools have emerged, capturing management’s imagination. Management quickly embraced these concepts, even though they often were not using the tools they had in hand. Management around the world have accepted each new concept in a blind leap of faith, never questioning the soundness of the new approach. Management rationalized that if it’s good for someone, it must be good for me, and if a little is good, a lot must be better.

Based upon the lack of sound data required to validate the many improvement approaches that are being considered today, the American Quality Foundation decided to launch a major international data collection effort. The objective of this effort was to statistically quantify the

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impact that the popular improvement activities have on organizational performance. To that point in time, there had been no global benchmarking database for improvement activities, no inventory or assessment of merging quality practices, no way to link practices with results, nor any basis for establishing which practices worked best within or across industries, countries and cultures.

To accomplish this task, the American Quality Foundation acquired the help of Ernst & Young. They realized that they could not do a total international best practices study in a reasonable period of time. As a result, they selected four countries that were among the most advanced: one in Europe (Germany), two in The Americas (U.S. & Canada), and one in Asia (Japan). They then boxed in the study by selecting two service industries (banking and health care) and two manufacturing industries (computer and automotive) to study.

## Data Collection

Data was collected from more than 500 businesses in Canada, Germany, Japan and the United States. Information was directed at 102 areas of management practices and how they relate to quality. In addition, trend data was collected showing how the organization was performing three years earlier, now, and what they project they will be doing three years in the future.

## International Key Comparisons

Due to the thoroughness of the study, it is impossible to report all of the comparisons in this paper. Also, to simplify this paper I have not included the data from Canada since it is similar to the U.S. data in most cases.

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**Use of Business Process Improvement Tools**

Question—“How often do you use process simplification to improve business processes?”

**Figure 1—Percentage of businesses indicating that they always or almost always use process simplification.**

<b>Country</b>	<b>Percentage</b>
Germany	6%
Japan	47%
United States	12%

Analysis—Japan’s emphasis on process simplification was one of the major differentials discovered during this study. This is an area that demands attention if Germany and the United States are going to compete head-on with Japan.

Question—“How often do you use process cycle time analysis?”

**Figure 2—Percentage of businesses indicating that they always or almost always use cycle time analysis.**

<b>Country</b>	<b>Percentage</b>
Germany	6%
Japan	55%

United States	21%
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**Figure 3—Percentage of organizations using cycle time analysis.**

	Manufacturing	Service
Past	40%	5%
Present	64%	10%
Future	95%	30%

Analysis—Japan’s focus on reducing cycle time has provided them with a very significant advantage in many industries. Not only has Japan been effective at reducing development cycle time, they have been equally effective at reducing the cost to develop a new product. The U.S. has recognized that Japan has a significant advantage in this area and plans to close the gap. Germany has not.

**Use of Teams**

Question—“What percentage of employees are involved to some measurable extent in various quality-related teams?”

**Figure 4—Percentage of businesses that indicate that 25% or less of their employees are involved in quality-related teams.**

Country	Present	Future
Germany	81%	58%

Japan	64%	62%
United States	51%	30%

**Figure 5—Percentage of organizations with more than half the workforce participating on natural work teams (Department Improvement Teams).**

	Manufacturing	Service
Past	22%	3%
Present	30%	8%
Future	53%	33%

Analysis—Both Germany and the United States plan to increase the level of team participation during the next three years. If Germany lives up to its plan, it will have a higher percentage of employees involved in quality-related teams than Japan. At the present time, the United States has a higher percentage of its employees on teams than Japan does and if its projection holds true, the United States will have approximately 50% more team involvement than Japan will be utilizing. This lack of team involvement flies in the face of what we have been told about Japan, but verifies Dr. Kaoru Ishikawa’s statement that quality control circles were developed to train Japanese employees, not to solve problems. It looks like the U.S. is over-correcting again. The most extensively used type of teams are the natural work teams (department improvement teams/Quality Control Circles). Manufacturing has been using these types of teams since the 1960s. They have been growing in usage for the last 30 years, but during the next three years their usage will almost double. The service industry has been slow to adopt this tool but will expand its use by over 300% during the next three years, starting to close the gap between itself and the manufacturing industry.

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Question—“To what degree is the formation of teams controlled within the organization?”

**Figure 6—Percentage of companies in the automotive industry where management “always or almost always” approves the formation of teams.**

<b>Country</b>	<b>Past</b>	<b>Present</b>	<b>Future</b>
Germany	41%	31%	28%
Japan	68%	68%	64%
United States	45%	30%	21%

**Figure 7—Percentage of companies in the computer industry where management “always or almost always” approves the formation of teams.**

<b>Country</b>	<b>Past</b>	<b>Present</b>	<b>Future</b>
Germany	24%	24%	15%
Japan	68%	68%	72%
United States	24%	14%	5%

Analysis—Japanese management maintain strict control over the formation of new teams and plan to continue the practice. In contrast, both the United States and Germany are reducing their controls. The tight controls Japan is applying are consistent with its management’s desire to reduce the percentage of people now involved in teams. Both the United States and Germany should assess the value-added content their teams are providing to determine if the restraints that Japan is using should be applied.

**Use of Improvement Tools**

Question—“For each improvement tool used, assess the importance of the contribution to the success your unit has realized in its attempts to improve quality. Evaluate each tool from the present, past and future aspects.”

This question will be analyzed only from the automotive and computer standpoints. In each case, we will discuss the industry individually.

**Figure 8—Average percentage of employees in the automotive industry currently using the four most popular improvement tools.**

<b>Tool</b>	<b>Germany</b>	<b>Japan</b>	<b>United States</b>
Brainstorming	12%	67%	37%
Statistical Process Control	13%	24%	38%
Cause and effect Analysis	8%	67%	21%
Pareto Charting	8%	52%	31%

Analysis—It is obvious that the extent that different countries use the quality improvement tools varies greatly from country to country. Japan is emphasizing the use of the problem-solving tools, while the United States has put primary emphasis on statistical process control. I was very surprised to learn that the United States is 50% more active in deploying statistical process control applications than Japan is. It looks like the U.S. is more in tune with the teachings of Dr. W. Edwards Deming than Japan is. Japan seems to have aligned itself with Dr. Joseph M. Juran. Germany, on the other hand, is running far behind both the United States and Japan in the use of all four quality tools.

**Figure 9—Tools that will be of primary importance in achieving future quality improvements in the automotive industry.**

<b>Priority</b>	<b>Germany</b>	<b>Japan</b>	<b>United States</b>
1	Statistical process control	Cause and effect analysis	Statistical process control
2	Failure mode and effect analysis	Brainstorming	Business process improvement
3	Design of experiments	Business process improvement	Pareto analysis
4	Cause and effect analysis	Failure mode and effect analysis	Histograms

Analysis—In the future, Business Process Improvement will become a very important tool used to improve both Japanese and U.S. processes. Germany’s automotive industry has still not set high priorities on improving its business processes.

**Figure 10—Average percentage of employees in the computer industry currently regularly using the most popular improvement tools.**

<b>Tools</b>	<b>Germany</b>	<b>Japan</b>	<b>United States</b>
Brainstorming	21%	63%	37%
Pareto analysis	12%	52%	31%
Histograms	21%	48%	23%

Cause and Effect analysis	11%	55%	21%
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**Figure 11—Tools that will be of primary importance in achieving future quality improvements in the computer industry.**

Priority	Germany	Japan	United States
1	Pareto analysis	Failure mode and effect analysis	Statistical process control
2	Business process improvement	Business process improvement	Business process improvement
3	Statistical process control	Cause and effect analysis	Pareto analysis
4	Failure mode and effect analysis	Quality function deployment	Brainstorming

Analysis—It is obvious that business process improvement is becoming a driving force throughout the computer industry. Although brainstorming is the quality tool currently used most frequently in all three countries, it is a tool that is viewed as having diminishing relative importance. Here again, in the computer industry, Japan makes much better use of the quality tools than Germany and the United States do.

**Quality Assurances Role**

Question—“What is the primary responsibility of the quality control function?”

**Figure 12—Percentage of companies in the automotive industry that rate quality control’s function as being responsible for assuring compliance to quality standards.**

<b>Country</b>	<b>Past</b>	<b>Present</b>	<b>Future</b>
Germany	76%	82%	54%
Japan	87%	89%	86%
United States	64%	40%	15%

**Figure 13—Percentage of companies in the computer industry that feel QA’s primary role is that of enforcement.**

<b>Country</b>	<b>Past</b>	<b>Present</b>	<b>Future</b>
Germany	32%	42%	68%
Japan	45%	58%	54%
United States	50%	24%	21%

Analysis—It is obvious that both Japan and Germany are placing high emphasis on inspecting quality into the product to ensure that they protect their external customer. For example, at the present time 85% of the automotive companies in Germany and 63% in Japan feel that “Inspecting Quality In” is of primary or major importance, compared to 30% in the U.S. Over the next three years, Japan will reduce emphasis on inspection to only 58%, compared to the U.S. at 5%. The United States may be too aggressive in trying to empower their workers by removing the quality control function from the process, thereby potentially endangering their long-term reputation. Upper management should consider phasing in the elimination of checks and balances by starting in the executive office, then slowly rolling it out to the manufacturing process after

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the checks and balances have been eliminated from upper and middle management activities. If you cannot trust your managers to do their jobs right, why would you think that the line workers are any different. Top managers use more of their time inspecting others' work than for any other single item.


### **Summary**

Japan seems to be changing its focus from a team concept to an individual excellence approach, where the United States and Germany are focusing on team improvement to maintain and improve their competitive position. One obvious newly developing trend is the focus on business process improvement in both the United States and Japan. Germany needs to assess if this methodology will help them regain their favorable balance of trade.

### **Best Practices**


A team of analysts poured over the more than two million data points for over a year. The data was analyzed from two different viewpoints. One was to look at the data to assess the impact of the individual management practice on profitability, productivity and quality. The other took a more theoretical approach, constructing a causal model to help us understand the interaction between practices that create the critical path for improvement.

After a great deal of unsuccessful effort directed at identifying a statistically sound correlation between specific individual or groups of management practices to overall long-lasting organizational improvement data, a major breakthrough occurred. The analysis team decided to divide the data into three relative performance categories that they call high, medium and low



performers. Organizations were classified into the three relative performance categories using the following matrix based on 1996 dollars.

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<b>Performance</b>	<b>Profitability</b> Return on Assets	<b>Productivity</b> Value-added per employee	<b>Quality</b> External customer satisfaction index
Low	Less than 2.0%	Less than \$56,500	Low
Medium	2.0 to 6.9%	\$56,501 to \$89,000	Medium
High	over 6.9%	over \$89,000	High

\*—Based upon 1997 dollars

Once the data was divided into these three categories, definite trends began to develop. Now the puzzle began to come together statistically. Statistical tools like regression and correlation analysis provided clear relationships between certain management practices and organizational performance.

### The Collapse of Prevailing Wisdom

There is a big difference between wisdom and knowledge. Wisdom can be defined as intuitive beliefs and understanding. Knowledge, on the other hand, is information that is backed up by statistically sound research. Often, as we gain knowledge, the wisdom of the past has been proven wrong. At long last we can manage our improvement process by facts rather than beliefs.

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As the results of the statistical analysis began to come in, the idea of a universally beneficial set of best practices proved to be unsound. Many of the practices that we had considered to be basic principles of TQM and the quality movement proved to be ineffective or even detrimental under some conditions. For example:

- Eliminating quality control inspection
- The use of natural work teams
- Empowerment of the work force
- Benchmarking
- Not inspecting quality into the product/service

Analysis proved that it took a very different set of activities and beliefs to move a low-performing organization up to the middle performance level than it did to take a medium-performing organization and move it up to the high performance level. We also learned that a very different set of activities and beliefs needs to be implemented to keep the high-performing organizations performing at the high level.

Due to the restricted length of this paper and the complexity of the best practices analysis, only a few of the highlights will be covered

### When Best Practices Provide The Best Results

Now let's look at some management practices to determine when and how they should not be used.

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## **Natural Work Teams**


Natural work teams (department teams) have long been associated with the quality improvement effort. The results of this study indicate that their use has mixed benefits.

- Low-performing organizations--In these organizations, natural work teams provide a very positive impact on the organizations' overall performance. Low performers normally have many small and large problems to work on. Natural work teams do an excellent job of solving the many small problems.
- Medium-performing organizations--Increasing the team activities is less official and has mixed results.
- High-performing organizations--Widespread participation in natural work teams has a negative impact upon the organizations' performance, since the teams tend to stifle individual creativity and most of the simple problems have been solved.

## **Quality-Related Meetings**

It is only good common sense that holding general meetings to communicate quality objectives and organizational performance should have a positive impact on improving the organization's performance. This is not true in all cases. If an organization does not have the trust of its employees, widespread participation in quality-related meetings can be a waste of time.

- Low-performing organizations--Widespread participation is not helpful at any level of the organization.
- Medium-performing organizations--Widespread participation is generally helpful at all levels of the organization.

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- High-performing organizations--These types of meetings are only helpful at the non-management level. Holding them at the middle and upper management levels does not provide a positive or negative result and often is a waste of time.

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## **Benchmarking**

This is a method that has gained considerable favor since Xerox won the Malcolm Baldrige Award. Although theoretically this practice should help any organization to improve performance, in fact, it does not.

- Low-performing organizations--For low-performing organizations, the use of benchmarking for marketing and sales can provide a negative impact.
- Medium-performing organizations--In this case benchmarking is helpful and should be considered.
- High-performing organizations--There is a high positive impact upon performance when these organizations use benchmarking. It is a key practice for ensuring that they stay on top.

## When A Best Practice Can Get You Into Trouble

Depending upon the organization's level of development, there are very different things that need to be concentrated on. Using the three relative performance categories, let's see which management practices could cause trouble.

### **Low-Performing Organizations**

These organizations need to concentrate on the very basics. They should focus on a few critical areas and try to improve customer relationships. They must resist the temptation to concentrate on too much and trying to change too fast. Clear, concise attention to fundamental processes like customer service, operations and cost controls is essential. It is important that these organizations build and strengthen their infrastructure to build for the future.

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The following is a list of management practices that could get you into trouble (things that low-performing organizations should not do).

- Emphasizing quality when assessing your senior managers.
- Encouraging widespread participation in quality meetings.
- Using world-class benchmarking.
- Emphasizing technological forecasting or competitor activities to identify new products.
- Emphasizing technology considerations for selecting vendors.
- Relying on surveys to obtain feedback from customers.
- Regularly using business partners as a source of process technology.
- Emphasizing empowerment.
- Opening planning on a widespread basis throughout the organization.
- Developing process technology internally.
- Using geographical expansion as the strategy for future growth.
- Removing quality control inspection.
- Benchmarking marketing and sales processes.

### **Medium-Performing Organizations**

Medium performing organizations need to focus their effort on improving their processes and establishing good measurement systems. Holding quality assurance accountable for enforcing the quality standards is beneficial for these types of companies. Focusing on applying business

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process improvement to critical processes allows these companies to make significant improvement in quality while reducing costs and cycle time. These companies should increase their communication related to the importance of quality through widespread participation in meetings devoted to quality issues. Developing and communicating mission and vision statements provide increased trust and direction for the organization.

The following is a list of management practices that could get you into trouble (things that medium-performing organizations should not do).

- Emphasizing quality and team performance in assessing senior management.
- Increasing hours of training in general knowledge topics.
- Selecting suppliers based upon their general reputation.
- Using cross functional teams or teams with customers on them to create design specifications.
- Shifting primary responsibilities for compliance with quality standards away from the quality assurance function.
- Downsizing the business by offering fewer services.
- Focusing on cost reduction to make decisions about acquiring technologies.

### **High-Performing Organizations**

To stay ahead of the competition, high-performing companies must reach out and be able to predict what the competition is going to do and what future customer requirements will be. These companies need to focus on developing advanced technologies and empowering their employees to increase their personal creativity. Adaptability and customization are important discriminating factors that keep these companies on the leading edge of meeting and exceeding

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customer expectations. Process improvement tools like benchmarking and business process improvement become key elements in their continuous quest for increased quality, productivity and profitability.

The following is a list of management practices that could get you into trouble (things that high-performing organizations should not do).

- Increasing participation in department improvement teams.
- Increasing hours of training in general knowledge topics.
- Making education and championing a primary role for the QA function.
- Focusing your technology on production processes.
- Relying on customer surveys as a primary input for improvement.
- Using cross functional teams with customers on them to create design specifications.

## Summary

In our research to date, I have been surprised at the little impact cultural differences between the three countries have had upon best practices. Our analysis to date indicates that the personality of the key management leaders in the organization and the business practices they employ have a bigger impact upon organizational performance than where the organization is headquartered. One thing we can say for sure is that there is no hypothetical universal best practice combination that is applicable to all organizations. As organizations strive to improve the differences in the personality of their key executives, their customers, competitors, and products require that different management practices be deployed to optimize the organizations' overall performance. Unfortunately, there is no one right answer for all companies.

