

APPLYING DEMING'S 14 POINTS TO INFORMATION QUALITY: The 14 Points of Total Information Quality Management

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Abstract:

Information Quality is no longer an optional characteristic for business effectiveness. Information is a strategic resource applied to manage every other resource in the enterprise. Poor quality Information can and will cause downstream business processes to fail. Mr. English describes Dr. Deming's System of Profound Knowledge the 14 Points of Management Transformation and how to apply them to sustainable Information Quality Management:

Deming's System of Profound Knowledge and the 14 Points

"A New World: Information Flows. The people of the world no longer live in isolation. Information flows across borders." (1) Information today is being created at a rate much faster that we are able to understand and apply effectively. We are moving to what I call the *emerging* Realized Information Age 3.0.™ New rules and regulations are required for the new era of Information and Knowledge Management as the new engine for change.

- **Appreciation for a System:** "A system is a network of interdependent components that work together to try to accomplish the aim of the system." (2) There is no system if there is no aim or purpose. Dr. Deming uses the Orchestra model to illustrate the need for operating absolutely as a single ensemble of musicians, not allowing different sections of instruments to vary from the composer's score. (3)
- **Knowledge about Variation:** "Variation there will always be, between people, in output, in service, in product." We must understand what the variation is trying to tell us about a process or people. (4)
- **Theory of Knowledge:** "Theory of Knowledge teaches us that a statement, if it conveys knowledge, predicts future outcome, with risk of being wrong, and that it fits without failure observations of the past." (5). "Information is not Knowledge"(6). "Knowledge is Information that comes from theory" (7). Management in any form is prediction. "Without theory, there is no way to use the information that comes to us on the instant" (8). As we study the lessons learned from the outcomes of the theory, we can develop knowledge to verify the accuracy of the theory and continually reduce variation.
- **Psychology:** "Psychology enables us to understand human behavior in the interactions between people and circumstances," (9) such as interaction between customer and supplier or teacher and student. People are uniquely different. "A manager must be aware of their differences, and use them for optimization of everybody's abilities and inclinations" (10).

The 14 Points for Management

1. Create Constancy of purpose
2. Adopt the new Philosophy: Reliable Service Reduces Cost
3. Cease Dependence on Inspection alone
4. End the Practice of Lowest Price Acquisition
5. Improve Constantly and Forever the System of Production / Service Quality
6. Institute Training on the Job

7. Institute Leadership
8. Drive out Fear
9. Break down Barriers Between Staff Areas
10. Eliminate Slogans and Targets
11. Eliminate Quotas for Staff and Management—Substitute Leadership
12. Remove Barriers to Pride of Workmanship
13. Institute a Vigorous Program of Education and Self-Improvement
14. Take Action, Putting Everybody to Work to Accomplish the Transformation

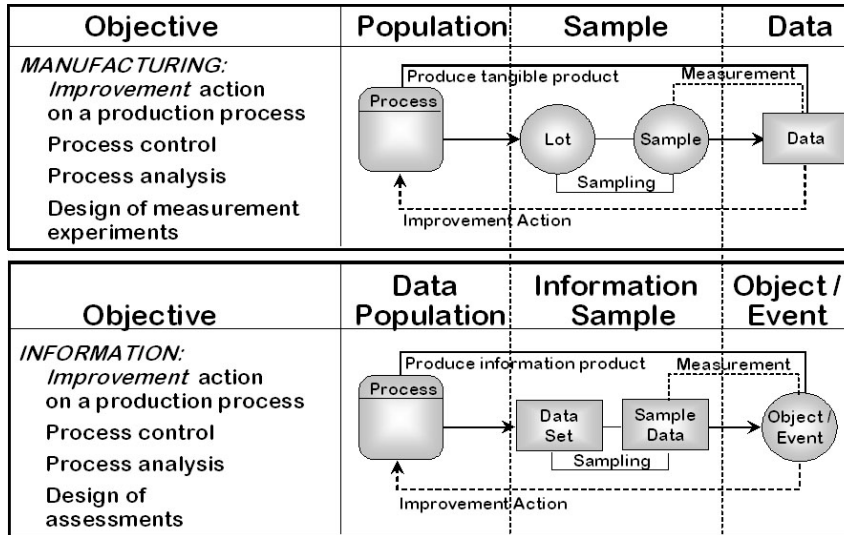


Figure 1. Assessing Manufacturing Quality versus Assessing Information Quality (11).

Introduction to Information Quality and Deming’s 14 Points for Management Transformation

Most Quality Professionals who know Dr. Deming’s Quality Management Theory probably do not know that before Deming went to Japan, he worked with the U.S. Census Bureau to develop statistical quality controls for the census sampling processes. As a result he reduced the costs of sampling to one-third samples, reducing the costs significantly (12).

An important aspect of applying Dr. Deming’s Management Theory is that Information is the second-most important resource to the organization, next to its people resources. Information is the resource that is used to manage every other resource of the enterprise. Information emerges as an “Information Product,” with data created by “Information Producers” as “raw material” that can be combined with other data and transformed into useful “Information Products,” such as financial reports, order fulfillment documents that Knowledge Workers require to perform their work or make decisions effectively. Errors in accuracy, valid values, missing data, lack of timeliness of information delivery or poor quality of presentation of information can and will cause downstream processes that require that information to fail. Information Quality is critical to effective business performance, service-delivery and manufacturing quality. Defects in product specification caused by poor quality information, such as wrong dimensions, chemical compositions or other specification data can and will cause defective products.

Dr. Deming’s System of Profound Knowledge and the 14 Points of Management Transformation apply directly to “intangible” Information as a product of Information Capture or Create and Maintain processes.

Data is raw material from which Information is derived and presented to Knowledge Workers so they can perform their work effectively.

Point 1: Create Constancy of Purpose for Improvement of Product and Service

Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.

“Management has two sets of problems—those of today—and those of tomorrow, for the company that hopes to stay in business.” (13). If a product (automobile, lawn mower, or printing press is not maintained on a proper schedule, the product will wear out faster, decreasing its value and potentially alienating the Customer.

- Management has two sets of problems:
 - Those of today: “It is easy to stay bound up in the tangled knots of the problems of today, becoming even more efficient in them.” (14) Poor management causes workers to firefight to solve problems, never getting to the root cause.
 - Those of tomorrow: “No company without a plan for the future will stay in business.” (15)
- “This obligation to the Consumer *never ceases.*” (16)

Customers are the real source of funding commercial enterprises—Investors simply want a quick win from their share holdings. If the company ceases to continually improve its products, Customers will look elsewhere. “The consumer is the most important part of the production line.” (17)

IQ Point 1: Create constancy of purpose toward improvement of Information Product and Service, with the aim to become a competitive, intelligent Learning Organization, and to stay in Business, and to provide jobs. (18)

Information can “decay over time” (become obsolete or incorrect). “Information Decay” is the equivalent of Product Obsolescence. If a Customer moves and does not update their address information with the organization, it may lose contact with the Customer and their potential Customer-Life-Time Value. On average today, 15 to 20% of families or individuals change address each year. Address changes and contact details are vital to maintaining contact with an organization’s Customers and their ongoing business with them. If Product prices in retail checkout terminals are not updated, products may be sold with a wrong price. A price less than the actual price will cost the retailer. If the price is higher than actual, the Customer will be unhappy.

Information Management has two sets of problems:

- **Those of today:** Firefighting is how most Information Systems organizations operate. They use data profiling tools to find out patterns of “data” quality problems and conduct data “cleansing” sic. “Information Scrap and Rework.” Reactive “Inspect and Correct” approaches to Information Quality will always fail because they do not address root causes of failure and information defects.
- **Those of tomorrow:** Information Systems Leadership and staff fail to recognize that the processes for developing application systems and databases are broken. They rarely seek to identify the root cause of information problems, nor do they understand how to design quality into the information *production* processes and *database design.* Chief Information Quality Officers must be appointed to address Information Quality as “Continuous Information Process Improvement” as an Enterprise Culture.”

“The obligation to the Knowledge Worker never ceases.” (19).

“Price has no meaning without a measure of the Information Quality being purchased.” (20).

Point 2: Adopt the New Philosophy: Reliable Products and Services Reduce Costs

“We can no longer tolerate commonly accepted levels of mistakes, defects, material not suited for the job, people on the job that do not know what the job is and are afraid, handling damage, antiquated methods of training on the job, inadequate and ineffective supervision, and management not rooted in the company, job hopping in management...” (21)

“Point 2 really means a Transformation of Management.” (22)

- “Reliable Service Reduces Costs.”
- “This transformation is a transformation away from Quality by “inspect and correct” to Management through ‘Continuous Process Improvement.’”

IQ Point 2: Adopt the New Philosophy: Reliable Information Production and Delivery Reduce Costs.”

“Reliable, Quality, Shared Managed Information Reduces Costs.” (23)

We are no longer in an Industrial Age of heavy equipment and machinery with *manual* production procedures. Most of our manufactured products are controlled by information systems with “invisible” procedures directing the product production. Without accurate control data for specific product designs, manufacturing processes may fail.

Point 3: Cease Dependence on Mass Inspection Alone to Achieve Quality

Creating 100% inspection to improve quality is an acknowledgement that one is planning for defects. Inspection is too late, acknowledgement that the process has not the capability required for the specifications. Inspection to improve quality is too late, ineffective and costly.” (24)

“Price has no meaning without a measure of the Information Quality being purchased.”

IQ Point 3: “Cease dependence on mass data profiling and data assessment to increase Information Quality. Instead, Design Quality into Information Processes.”

“This means a transformation of Business and Information Systems Management.” (25)

- *Business Management and Knowledge Workers* must define *all* Information Requirements for Systems Development as the Information Consumers and Knowledge Workers who create and apply Information. Information Systems are NOT the products of the Information Systems Department. They are the counterpart to Industrial-Age robotic and machinery that molds and produces the physical component or batch material or finished product.
- *Information Systems Development* must design quality into the data capture and information delivery processes in the application programs. Data create and maintenance application programs must be easy-to-use with business rule tests that assess validity, completeness of the data as it is captured.

Data profiling and data assessment only tells you some of the problems you have with your data, but give you no clue as to the root causes of the defective information. To find and eliminate the information defects, you must first understand the root cause of the defective information produced. Only then can you identify how to improve the quality of the information process creating the defects. Instead, design quality into the information production processes.

- Eliminate the need for mass data “profiling” and inspection: Instead, design quality into the Information Production and Delivery (Presentation) Processes. (26)
- Design Quality into the Information Systems and Database designs to meet Information Producers and Information Consumers requirements.

Point 4. End the Practice of Awarding Business on the Basis of Price Tag Alone. Instead, Minimize Total Cost. Move toward a Single Supplier for any One Item, and a Long-Term Relationship of Loyalty and Trust.”

Today’s focus on cost reduction via price negotiation, and decreased time-to-market causes defects that cancel out gains of quality improvement of products, services and information quality.

IQ Point 4: “End the Practice of Awarding or Rewarding Information Systems and Database Design Quality on the Bases of Price Tag Alone, or “On-Time-Within-Budget,” or Capturing Information at the Lowest Price.”

“Instead, minimize Total Cost of Ownership of Information Systems, Database Designs, and Information Production.” (27)

“Price has no meaning without a measure of the Quality of the Information being purchased, whether from Internal Information Producers or External Information Brokers.”

Quality comes *not* from Data Profiling or IQ Assessment (Inspection), but from Improvement of the Information Processes that create, update, and deliver Information to internal Knowledge Workers and external Customers and end-Consumers. (28)

Outsourcing, off-shoring, third-party systems and database development all contain risk. The suppliers of information systems and services have an aim to make the highest profit off of their products and services. Information Quality Software developers are among the worst suppliers. They deliberately try to keep their customers locked into to “data profiling” and “data cleansing” software of the obsolete “Inspect and Correct” Model of Information Quality Management. Their software is very expensive and lucrative for themselves, while they never mention Information Defect Prevention Capabilities they could be and should be creating.

The practice of lowest bidder of third-party software development ends up increasing costs as software and systems with minimal Customer Information requirements, create defective designs of software systems and databases. When speed and development time reduction requirements are imposed, the quality of data captured and information delivered deteriorate and decrease Knowledge Worker effectiveness. Chief Information Officers, Chief Information Quality Officers and Executives must understand the new rules and regulations of the emerging **Realized** Information Age 3.0.TM Information purchased from Brokers must have a warranty for its quality—NOT a disclaimer of quality.

Third-Party Software Providers are not the answer either. They generally do NOT understand an individual organization’s unique requirements for information capture and information delivery to the Knowledge Workers who require the information to perform their work effectively.

Redundant databases within the enterprise increases costs and decreases the ability of sharing information effectively with minimal costs. For getting information from one database to another, causes the organization to create Data Transformation and Movement Software to enable the software to be moved properly to the downstream redundant database files. This increases costs of creating extract, transform and load operations to the downstream redundant databases. Why do Information Management staff not create single enterprise-strength databases that all Knowledge Workers can share from? The short answer is that they have always developed Information Models and databases for specific Functional Applications. See IQ Point 8, “Break down barriers between Business Areas, and between Systems and Business Areas.”

See the “System of Profound Knowledge: “Manage the Enterprise as a Single System.” IQ Point 5. “Information Quality must be built into the Information Production Design Stage.”

Point 5. Improve Constantly and Forever the System of Production / Service Quality

“Quality must be built in at the design stage.”

Deming described the work of a Japanese producer who was producing transmissions at a much higher level of quality than the specs. Why? He knew that by exceeding the specs, there would be fewer defects and more customers delighted by the higher quality. A student of Dr. Deming’s seminar came to him after class. He told Deming, “I need to know the minimum level of quality necessary to satisfy the customer.” Dr. Deming replied: “So much misunderstanding conveyed in such few words.” (29)

IQ Point 5: “Improve Constantly and Forever the System of Information Production and Service Delivery Quality”

“Information Quality must be built into the Design Stage.” Quality must be built in at the design stage of application systems design and programming. All Information requirements must be defined clearly, completely, and correctly. Business rule and valid-value tests must ensure validity of the data captured.

“Deming cites an example of a computer programmer who learned that she had programmed very well the specifications as delivered to her, but that they were deficient. If she had only known the purpose of the program, she could have done it right for the purpose, even though the specifications were deficient.” (30)

Quality of Information Systems must be designed in. Screen designs must be ergonomic and easy to use. Error-proofing techniques, such as repeating information or verifying business rules must be applied to information to insure information is present, complete, valid and accurate.

The Information Management Team must identify all Information Requirements for Knowledge Workers to be able to perform their work. The Information must be available when the Knowledge Workers require it. The data must be accurate, complete and available on their timeframe. Figure 2 and Figure 3 illustrate a new tool for capturing Information and documenting the specific Groups of Information for Knowledge Worker Groups who require specific Information (Information Group) for their work. Knowledge Workers may require one or more Information Groups, such as Customer Name and Address, Order and Order Item, Order Financial Information, for example.

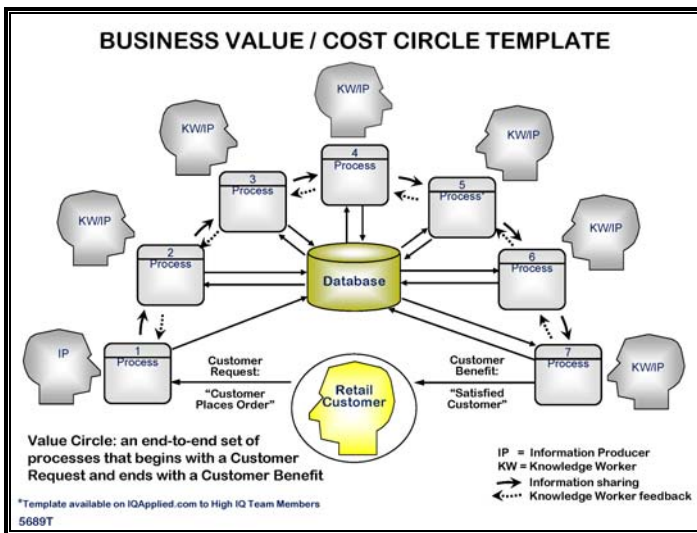


Figure 2: Business Value Circle Template (31)

This Template is used to document Information Groups required by the various Business Areas or Knowledge Worker Groups to perform their work effectively. This also documents Information Dependencies for the overall Business Value / Cost Circle. This tool also documents the waste caused by activities that add cost and not value to the Process or Product.

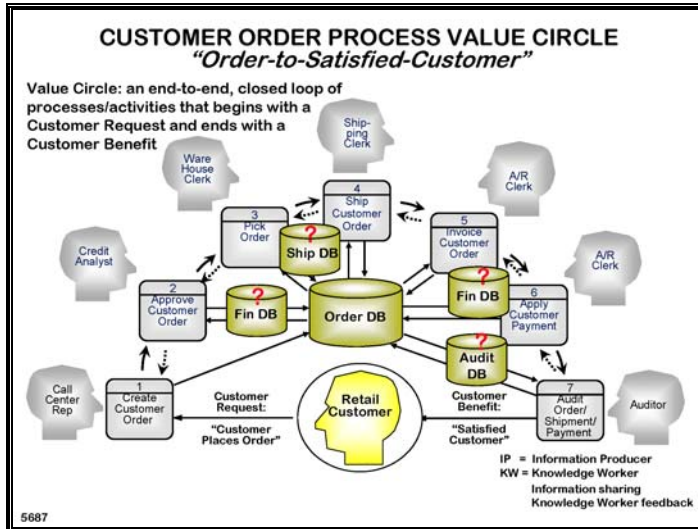


Figure 3: Business Value Circle Example (32)

This Business Value Circle example documents the Information Groups, the Information Producer Roles, the Knowledge Worker (Information Consumer Roles) and here identifies redundant databases in this Business Value Circle.

Point 6. Institute Standardized Training on the Job

Without standardized formal training on the job, employees may not develop skills to perform their work effectively.

IQ Point 6: “Institute Training for All Personnel so they can Perform Work Effectively”

Training for Information Producers to know how to capture all information completely, correctly and on a timely basis. This ensures that the downstream Knowledge Workers have all the information they need at the right time to perform their work effectively. Knowledge Workers must have training in the requirement to protect the information, use the information properly and perform their work effectively. Failure to control sensitive, personal identity information has become a criminal offense.

Training includes education and training for various groups from within Information Systems Departments and the Business Departments who create and/or require information to perform their work:

- *The Information Quality Management Team:* Quality Management Systems Principles and Processes: (Deming, Juran, Kaizen, Shewhart, Quality Function Deployment (QFD), The TIQM® Quality System for Total Information Quality Management and the 14 Points for Information Quality Management Transformation.
- *The Executive Leadership Team:* Executive Briefing “What Executives Must Know and Do” to lead the Information Quality Revolution, focusing on the Strategic aspects of Quality Management applied to Information Quality.

- *Information Producers:* Error-proofing techniques to prevent errors in information capture or update (Plan-Do-Check/Study-Act Cycle).
- *Information Consumers (internally) and Knowledge Workers:* Information Policies on Information control, protection and privacy. Techniques for Information Process Improvement (Plan-Do-Check/Study-Act Cycle)
- *Business Supervisors and Middle Management (apart from Executive Leadership):* Business Management accountability for empowering Information Producers and Knowledge Workers
- *Information Systems Developers:* Policies and Procedures for application development of Enterprise-strength systems, including screen design, and quality controls designed into the application screens
- *Information Architects and Database Designers:* New Enterprise-strength Information Model development for Information Requirements
- *External Information Suppliers and Business or Trade Partners:* Information Policies, Procedures and Controls

Point 7: Adopt and Institute Leadership

The job of Management is Leadership—not Supervision. Management must work to continually improve quality of all work within the enterprise, from manufacturing work to information work.

Management must remove barriers to effective work by listening to the workers who know the problems of the work environment and work processes.

IQ Point 7: Adopt and Institute Leadership within the Information Systems Department and within all Areas of Information Producer and Knowledge Worker Teams

Leadership must be proactive to bring about change within all business areas, especially including the Information Systems organization. The Executive Leadership Team should have training and coaching to lead the Information Quality Culture into Enterprise Behavior. It is critical for the ELT to create an atmosphere of collaboration and team work. Executives often need help in communicating with staff that no one will be discharged for participating in the new environment of quality information for enterprise survival. A new tool for breaking down barriers is the use of Business Value Circles to identify information created in one business area and required by other business areas. Knowing who needs information from whom, decreases the need to hoard information in private, proprietary databases.

Point 8. Drive out Fear

Fear causes people to perform—not for the company—but for their own survival if they are unable to meet their “Performance Standards.” When people fear for their jobs, they will resort to self-preservation behavior as seen in Maslow’s Hierarchy of Needs. This causes enterprise failure as the fearful people seek to preserve their jobs.

IQ Point 8: Drive out Fear of Information Producers and Knowledge Workers who cannot keep up with artificial quotas

Company call centers for order fulfillment, help-desk support, banking transactions, stock trades are enabling more efficient electronic transactions. However, call-center staff have different levels of capability, cause fear among those who cannot attain their quotas.

Some years back I was having lunch with an Insurance client, when a fellow colleague came up to join us. When I asked her what her job was, such said she was an administrative assistant to the actuaries. I asked her “what do you do?” She replied that she produced the reports the actuaries use to determine risk and underwriting. When I told her she had a very important job, she had a strong visceral reaction. She pushed

herself away from the table and crossed her arms, saying “oh that’s not my problem.” She failed to see the importance of her work and the need for accurate actuarial and underwriting information.

Point 9. Break down Barriers between Staff Areas

A most significant problem in Leadership today is the obsolete management of the enterprise by managing the specializations of labor only—failing to manage the Enterprise as a Single System of interdependent parts. By isolating business areas with quotas and targets, business areas end-up competing against each other, rather than against their external competitors. One of my earliest clients consisted of six business divisions. In analyzing their Information Systems, I found that each division had its own ordering system. The retail units took every order they could, because they had quotas to increase sales. The Finance department had a different performance measure—to decrease operating costs. The effect was that the sales units took every order they could, while the Accounts Receivables Department was rejecting orders of less-credit worthy Customers. The Departments failed to understand the real mission of the enterprise (as a single system) to delight their customers through book, magazines, journals and other information delivery media.

After some realignments and information systems process improvements, the different Departments were able to work together as a single team with a single Order Processing System and with enterprise-strength Customer and Product Databases.

IQ Point 9: Break down Barriers between Information Systems and Business Areas

Information Systems Leaders must destroy the barriers that cause enterprise-threatening behavior. Business areas will want their own internal, functionally designed databases for information they require without capturing information they deep is not critical to their operations. Often people have to create their own information files, using spreadsheets and local databases because the information they require is housed in inaccessible and unprotected files, simply because they cannot get to enterprise-strength databases for information they need. This creates Information Anarchy. This causes information producers to create their own “islands” of information they can use, to the hardship of their downstream information consumers. Information Anarchy can cripple the enterprise if left unmanaged.

Point 10: Eliminate Slogans and Targets for the Work Force

Whenever slogans or targets are established for workers, the end result is reduced productivity and quality. Maslow’s hierarchy of needs kicks in. The workers’ livelihood is threatened, and the workers will simply perform only minimally to meet those targets. As a result they operate to their own interests of survival, becoming more and more fearful with poorer and poorer work performance.

IQ Point 10: Eliminate Slogans and Targets for Information Management & Information Systems

I consulted with an east-coast healthcare insurance provider who brought me in to help them implement a new technology called Object-Oriented Software. This technology focuses on “reuse” as a major benefit. As I worked with the project team, I noticed the Information Systems Department had posters up and down the hallways, such as “The Bug Stops Here” and “Quality is Job One.” Their goal was to implement OO Technology to help them reduce costs by 80 percent and increase information sharing by 80 percent. How well did these posters work to motivate quality? Zero!!! When I looked at their Information Standards for data naming, the first two characters of the file name were the 2-letter character code of the application system name!!! After two months, I listened in on the project team’s status report that contained minimal improvements from the last reporting period. In the end, the project team failed to meet their development deadline, and the project was terminated. Many of their most talented Information Systems staff left the company for better opportunities. Ultimately the company failed and is now out of business.

Point 11a&b. Eliminate Quotas for Staff and Management—Substitute Leadership

Quotas and Targets for staff and/or management create frustration among employees and managers alike. Targets are often missed, driving up frustration among all. See Deming's Point 8 above ("Drive out fear.")

IQ Point 11a: Eliminate Quotas and Numerical Goals for Information Producers and Knowledge Workers—Substitute Leadership

Dr. Deming described the job of an airline reservation agent who must make 25 calls per hour and must be courteous and not rush the callers. Her obstacles included slow delivery of information, and information missing from the reservation system. (33)

The consequence of the conflicting performance measures is devastating. One must rush to make 25 calls, with only 2.4 minutes per call. They can't!!! Do they try to meet airline Customers' satisfaction at their expense of missing their 25-call quota. No, they have families to feed and home mortgages to pay for. If Customers are not satisfied, they may not fly this airline again, costing the airline far more money than allowing reservation Agents to ensure they satisfy their Customers and retain their Customer Life-Time Value.

One of my Healthcare Insurance clients had Accuracy goals for the Claims they processed. The targets of 97 to 99% accurate were assigned. Auditors within the same Department (conflict of interest) allowed the Claims Processors to review their work and fix errors or omissions they found so that they "*performed*" within quota. Was this *Quality* work? No, this was Information Scrap and Rework they had to do to meet their performance standards. This Information Scrap and Rework was waste that doubled the cost of claims processing to the company. The Claims Process was not in control and added costs from the hunting and chasing of information after errors and omissions were discovered, instead of a few simple in-line quality checks to ensure accurate and complete Information capture.

IQ Point 11b: Eliminate Quotas and Numerical Goals for Information Systems and Business Management for Information Quality

The managers of the Airline and Healthcare Insurance companies were negligent. Costs were considered more important than Customer Satisfaction. The Reservation Department Managers failed to understand the purpose of their work to continually improve *Information Quality* to satisfy their end-Customers who simply want to get from Point A to Point B safely.

Point 12. Remove Barriers to Pride of Workmanship

Executive Leadership in the US and Europe seems to have deteriorated from the notion of "Customer Satisfaction or your money back." Why? Executives have found a gravy train of wealth arising from short cuts in costs that lead to increased business profits that end up in the hands of the most affluent, while increasing quotas among the honest, hard-working staff.

Dr. Orsini tells the story of Dr. Deming when they were invited to observe a newly implemented automobile assembly line. Orsini noticed that Deming was watching a man at his station on the assembly line. Dr. Deming noticed that the robotic arms caused a dent in the trunk on a fairly consistent interval. When a car came through, the man at that point in assembly took his rubber mallet and hammered out the dent and sat back down. Deming posed the question. How could this man be proud of his work? He couldn't, because he was not able to perform value added work. The damage and loss was not recoverable.

IQ Point 12. Remove barriers to pride of workmanship of Information Products

In all of my three-decade career of consulting with hundreds of organizations around the world, where honest, working people want to do a good days work, but are inhibited by unrealistic quotas, noisy work space, poor computer equipment and software programs not developed with ergonomics in mind. They want to have pride in their work, but cannot because of shortcuts in work procedures or cost-cutting measures that stifle their work and their pride-of-workmanship for the Information Products they create.

Point 13. Institute a Vigorous Program of Education and Self-Improvement

The Industrial Age that transformed the cottage industry of the Agricultural Age is now giving away to the *emerging* Realized Information Age 3.0.TM Agrifarms are feeding the world with new information technologies that streamline crop planting and harvesting with new genetically engineered plants. The paradigm of the Industrial Age (specialization of labor) is over. The paradigm shift is coming rapidly, with improved Education and Self-Improvement guidance to accommodate the new Paradigm.

IQ Point 13. Institute a Vigorous Program of Education and Self-Improvement in Information and Knowledge Management in the emerging Realized Information Age 3.0

All of the new, emerging technologies are information-driven, enabling more and more efficiency in agriculture, space, health-care, and underwater exploration. New Knowledge is coming forth faster and faster. New technologies are required to exploit what the data are telling us. Knowledge Management will help us translate new lessons learned into the Knowledge and Wisdom required to benefit from the Knowledge possessed and shared.

The flood of new technologies and Knowledge require new forms of education and self-improvement to keep up with the flood of Information. The first are tools that enable Information Capture from communications and online sensing devices. New analytical methods are becoming required to sort out and analyze useful Knowledge coming from the new Information captured.

Point 14. Take Action, Putting Everybody to Work to Accomplish the Transformation

The Executive Leadership Team has always needed to focus on the strategic aim and mission of the enterprise. Failure to recognize and bring in the new Information-Age revolution can cause enterprise failure if one's competitor implements and effective Information Quality culture first!!!

IQ Point 14. Take Action, Putting Everybody to Work to Accomplish the Transformation to Bring in the Emerging Realized Information Age 3.0.TM

The Executive Leadership Team (ELT) has new requirements to understand the strategic nature of Information, Knowledge and Wisdom, and how they must lead the Transformation of Management to increase the accomplishment of the Aim of the Enterprise. Business-oriented Chief Information Officers and Chief Information Quality Officers must lead in the new Paradigm and Principles for Transformation.

Often, Executives require coaching to understand the new paradigm with new requirements. They need to know how to implement them to move their enterprise to the next level amid the increasing competition from competitors within the US and abroad.

New heuristics are required to analyze the patterns in the information. While Executives need not know the technical aspects of the technologies, they must understand the Strategic aspects (Aim) of the Information and Knowledge that is realized:

- From Data, we know Facts, such as a person's birth-date and person's name or a product price
- From Information we know the Meaning of the Fact, we know how to use the Information
- From Knowledge, we know the significance of Information, and how to determine best use of Information
- From Wisdom, we Act on the Knowledge to make sound decisions and take the right actions (34)

Summary and Conclusion: The High Costs of Low Quality Information and how Deming's 14 Points can Eliminate the Waste Caused by Poor Quality Information Processes

Over the past 20 years I have documented Wastes and Costs caused by poor Quality Information. Studies of 122 organizations that failed to understand the importance of Quality Information, found themselves in a nightmare from which few recovered. Over those 20 years the 122 organizations lost an aggregate of \$1,212,374,479,000, nearly US\$ 1.25 Trillion!!! (35)

1. Create Constancy of Purpose toward Improvement of Information Product and Service, with the Aim to Become a Competitive, Intelligent Learning Organization, and to Stay in Business, and to Provide Jobs. We cannot delay any longer.

Information is vital to the operations of manufacturing, finance, healthcare, national defense, and other industries highly dependent on Information Quality to perform their work effectively. Not withstanding industry competition, we much learn much more about the effects of accelerated climate change and to prevent the potential for unthinkable consequences.

2. Adopt the New Paradigm in the New Economic Era of the Information Age: Reliable Information Reduces Costs.
3. Cease Dependence on Mass Data Profiling and Information Assessment to Achieve Information Quality. Instead Design Quality into the Information Production Processes.
4. End the Practice of Awarding or Rewarding Information Systems and Database Design on the Basis of Price Tag or “On-Time, Within-Budget Alone.” Instead, Minimize Total Cost. Ensure Software Companies Warrant their Software or refuse to accept it if they do not.
5. Improve Constantly and Forever the Processes of Information and Systems Engineering and Information Production. Design error-proofing techniques into application software and human information capture.
6. Institute training on the Job for the various roles of Information capture and delivery (presentation).
7. Institute Leadership for Information Quality.
8. Drive Out Fear so Information Producers and Knowledge Workers can work Effectively.
9. Break Down Barriers between Business Areas so Information Producers can Provide Quality Information to Meet their Information Consumers’ Needs.
10. Eliminate Slogans, Exhortations, and Targets for the Work Force.
11. Eliminate Quotas for Quantity of Information Work. Substitute Leadership.
12. Remove Barriers That Rob Information Producers and Their Managers of Their Right to Pride of Workmanship.
13. Institute a Vigorous Program of Education and Self-Improvement for the new skills required to bring in the emerging, Realized Information Age 3.0.
14. Put Everyone to Work to Accomplish the Information Quality Transformation. We must all join forces to eliminate the waste and to create an effective Information Quality Culture for the needs of the internal Knowledge Workers and the needs of our Customers and end-Consumers.

If you are a skeptic about the costs of Information Quality, go back to Footnote 35 and calculate what your costs of poor quality information and the Enterprise failure costs on the Aim of your Enterprise. If we can implement an effective Enterprise-Strength TIQM Quality System, I believe we can eliminate the Financial Crisis within five years.

Endnotes:

(1) Deming, W. E., *The New Economics: For Industry, Government, Education*, 2nd Ed. Cambridge, MA, MIT, Center for Advanced Educational Services, p. 1.

(2) *Ibid.*, p. 50.

(3) *Ibid.*, p. 96-97.

(4) *Ibid.*, p. 98.

(5) *Ibid.*, p. 102.

(6) *Ibid.*, p. 106.

(7) *Ibid.*, p. 106.

(8) *Ibid.*, p. 106.

(9) *Ibid.*, p. 107.

(10) *Ibid.*, p. 108.

(11) English, Larry P., *Information Quality Applied: Best Practices for Business Information, Processes and Systems*. Indianapolis, IN: Wiley Publishing, Inc.: 2009, p. 180.

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