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## Using Quality to Develop an Internet Resource

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**Abstract:** The experience of the Office of the Secretary of Defense Quality Management Office (QMO) illustrates how to apply Quality Management Principles to the development of an internet based Quality Management resource.

Specific examples show how Quality principles shaped the efforts to serve QMO customers using the internet, and how others can do the same. The article provides guidance to help those responsible for managing the application of internet technology to improve the performance of organizations. The guidance includes specific examples and exploration of the conceptual basis for applying Quality principles to the application of internet technologies.

Applying Quality methods to creating an internet resource has many advantages, however, the ideas presented here must be applied carefully. In very large scale internet efforts, such as creating and managing the entire web site for a large international organization, other issues take on greater importance and different strategies may be necessary. However, the ideas presented here do apply to those responsible for managing content for portions of such sites.

### Introduction

The internet provides a wealth of opportunities to apply Quality Management to improve customer service and organizational performance. As with many new opportunities, the initial rush to act has resulted in poor implementation of internet strategies, in many cases. Using Quality Management is an ideal way to reduce waste and increase the benefits that result from development, deployment and continual improvement of [internet resources](#). This approach combines the strengths of Quality and the internet.

**Internet Resource:** web sites, email lists, intranets, online databases, online training and internet applications, which are made possible by internet technologies (such as Hyper Text Transfer Protocol).

This paper will address the most important ways to apply Quality principles when developing internet resources: system thinking, paradigms, innovation, customer focus, experimentation or improvement cycle (PDSA), teamwork and communication, data based decision making and vision.

In the old days technical experts managed the IT (Information Technology) systems. For many reasons, that usually resulted in isolated groups of technical experts making decisions about how the organization used IT. Often this resulted in technical solutions that did not support the organization's customers and that were difficult for the rest of the organization to use. IT systems were often very inflexible, and while easier to maintain (as a result of dictating standards rather than accommodating various user needs) they were not very customer friendly.

Internet technology allows organizations to apply IT solutions in ways that were not possible previously. Using internet technology it is possible to create and deploy new IT solutions at a fraction of what it previously cost. Even more importantly, intelligent use of internet technology gives organizations the ability to develop internet applications [gemba](#). Those with experience with the Quality Management field recognize, more than most, the importance of having decisions made as close to the level of impact as possible.

**Gemba:** the place where real action occurs - where products and services are developed, where services are provided and wherever the customer comes into contact with the service provider - from [Gemba Kaizen](#) by Masaaki Imai

## Getting Started

The Department of Defense (DoD) has been involved in the internet since its inception. In 1996, as the World Wide Web began to seep into the mainstream consciousness, the Office of the Secretary of Defense Quality Management Office established a web site. As with many initial sites, it was largely an online brochure. In 1997, the focus shifted to finding ways to use the internet to more effectively achieve the mission of the office.

Quality Management principles guided our efforts as we moved forward. First, it was necessary to understand what we wanted to improve. Focusing just on the web site was too limiting. Instead, we needed to focus on using internet technology to improve, first, the service to our customers, and second, our internal efficiency.

Our primary customers were over 3 million DoD civilians, active duty troops, reservists and National Guard members located all over the world. The internet provides an ideal tool for us to serve them better and in ways that were never previously practical.

## Systems Thinking

By focusing on our mission (to develop policy, provide program oversight and serve as the DoD focal point for Quality Management) our efforts were concentrated on the areas that would make the largest immediate impact. The most obvious area for immediate impact was in our role as a focal point. However, other areas have not been ignored: we do, for example, provide related policy and guidance documents online.

One option was to improve the processes currently used to run the office. Is that what we did? No. Instead we focused first on the new possibilities to best serve customers made possible by internet technology. Systems thinking allowed us to examine the opportunities for systemic change rather than merely focusing on how to incrementally improve current practices. When deciding how to proceed, we explored the following questions:

- Can we able to accomplish things that were previously impractical?
- How will potential changes influence other processes in the office?
- What are other organizations doing with this new technology?
- How can we implement new ideas in a way that improves our internal efficiency?

- What do our customers want us to offer online?

These questions, and more, must be explored when deciding how to proceed. Taking advantage of internet technologies should fundamentally change the way an organization operates - not just serve to do the same things cheaper or faster.

## New Paradigm

Using internet technology allows a great deal of flexibility. The printing press was a similar great leap forward. The use of the printing press allowed for tremendous innovation, however, certain innate limitations exist in the technology. The most significant, in the context of this article, is the fact that once a work is printed it cannot be edited. The web allows you to publish work, update it, and make the most current version immediately available to the next person anywhere in the world who accesses the site. This allows for very easy implementation of continual improvement of the [content](#) of web sites.

**Content:** the actual material presented online. The words in a book would be the content of the book. Without useful content, technological implementations are not worth much.

A key question, often overlooked, is: What do your customers actually want to get from you online?

The fact that internet technology allows for easy updating of content does not mean that it is easy for organizations, designed for the old technology, to take advantage of this new option. A new paradigm is needed to capture the advantages of publishing content and having the ability to continuously update it based on user feedback, changes that naturally occur, discoveries, etc.

While this "easy continuous updating" advantage inherent in internet technology offers great potential, it does little good unless the organization has pushed decision making authority down to the level where the material is being created. Many organizations have cumbersome approval processes before updates can be made to a web site. Adapted from the old printed word paradigm, that approach does not work well in the internet world.

From a systems thinking perspective, a reinforcing loop is created that works to reinforce the application of Quality principles while moving forward into the new internet technology world. Adapting the organization to allow for decisions to be made at the level the material is created will allow the organization to take advantage of easy continuous updating. Which in turn will make the material more valuable (up to date, continually improving, etc.) to users. Which will reinforce the decision to decentralize decision making where appropriate. An organization that fails to decentralize decision making will have difficulty in the new world.

## Innovation

The new technologies present great opportunities, but how they can best be used is far from certain. Luckily internet technology is very well suited to experimentation. Various possibilities can be tested without expending many resources, in terms of dollars or staff time. Also the technology is perfectly suited to instantaneous adjustments and

modifications. While this provides new possibilities, the problems caused by [tampering](#) remain, so care must be taken in this area. For very large projects (complete web sites for large international organizations) experimentation requires more care.

**Tampering:** action without understanding - meddling. Often caused by a pre disposition for action and a failure to think systemically.

We all know the problems with trying to guess how customers will react to various alternatives (using surveys or other tools). With the internet, one has the opportunity to provide services to customers and watch what they do. Further investments can be based on the customer's actual use of your resource (and their real time feedback). To do so you must first make your best guess about what they would value.

For example, although we had no requests for an email announcement list, we believed that such a list would establish a stronger connection to our office. Given that the audience we aim to reach consists of over 3 million people scattered all over the world, creating a communication system that involves people is very important. We sent an average of one email every few weeks. This did not overwhelm participants yet provided a connection to our office. Most messages referred to resources to further the practice of Quality Management in the Department of Defense. This was a very successful new service offered by our office, at very minimal cost to us.

### Customer Focus

From the outset of our efforts to maximize the benefits of applying internet technology to our office we encouraged visitors to contact us, using an email link on the bottom of every web page. In addition, we prominently requested feedback on the home page. Often sites make it very difficult or impossible for customers to give feedback (normally with the excuse that they "can't" manage the volume of email they would receive). While this effort does pose a challenge, a quote from Peter Scholtes: *"it would be easy if weren't for the damn customers"* should help focus the organization on what is most important. If an organization fails to understand that they should encourage feedback from customers, the likelihood for successful application of the ideas found in this article is small.

Did we experience any problems, such as too much email? Yes. We received a drastic increase in the number of email messages asking for the name of the Secretary of Defense, information on the Secretary of Defense for my school report and the like. Did we decide to close the door on the customer feedback we most wanted (related to Quality Management) because of this? No.

The layout of our home page was modified to provide easy, obvious, access to the Secretary's home page and almost immediately most of those email messages disappeared. Encouraging feedback while not unduly increasing the workload is difficult. Preventing customers from emailing the organization, to make life easier for the organization, is a poor solution. Redesigning the site so the customers get what they want themselves is the best solution.

Two examples of very popular web sites that make it very easy to email them: amazon.com and CBS Marketwatch. Amazon does a great job of trying to let you help yourself with an online help desk and includes an email link in case you can't (*update – December 2001, Amazon no longer makes easy to email them*). CBS Marketwatch uses another method of encouraging customer interaction: each article includes an email link to the author.

## PDSA

Another belief was that our customers would appreciate a calendar for DoD Quality Management related events and deadlines. We set up the calendar and entered in some content. We encouraged others to enter events and deadlines. Very little content was added. We again contacted people, emailed people, phoned people but no additional content was added. We tried, but could not succeed in making the calendar successful. After several unsuccessful attempts to make this work it was removed from the site. The cost of this failure was small - a couple days of staff time (no software to buy, contractors to pay, mailing costs...).

The **Plan-Do-Study-Act cycle** provides a framework to improve results by planning for improvement, testing out possible improvements on a small scale, studying the results and then implementing desired improvements as standard practice in the organization.

Not all experiments result in wonderful improvements. The results of this experiment led us to the conclusion that other areas were more deserving of attention.

## **Teamwork and Communication**

The DoD creates excellent Quality Management material (training material, reports, and handbooks), and has done so for years. However, in the past, it was not easily available to many in the Department. The internet allows us to distribute the material much more effectively. We also use email and the web to enable collaborative efforts to update previous material and create new material. Doing so has allowed us to use expertise as never before (from all over the DoD).

All the new and updated material encourages users to send us feedback and to provide suggestions for how it can be improved. This again will help us work together to create material that meets the needs of personnel from all over the DoD. For example, instructors using training material who add to or otherwise improve material for their audiences share those improvements with us so we can make them available to everyone else. This "open source" Quality material is similar to the "[open source](#)" software movement that has gained popularity due to the internet. In this one example many Quality Management concepts are involved: teamwork, communication, innovation, efficiency, systems thinking, PDSA, flattening the organizational structure, cycle time reduction.

**"open source" software** - software that makes the underlying code available to the general public. A programmer can then add features and make those improvements available to the community. The most famous example is the Linux operating system.

## Getting Results

Using systems thinking when developing internet based services results in dramatic increases to effectiveness and efficiency. Each of the individual improvements made will then integrate with the other improvements to create an improved whole.

The effectiveness of an internet strategy will largely depend on how it is integrated into the way the organization does business. Focusing on creating a web site that looks good and provides some value to customers is helpful but a very limiting strategy. A broader strategy, to achieve the maximum benefit from internet technology, is to take a systemic approach toward improving the organization.

### Resources:

[www.useit.com](http://www.useit.com)

[www.curiouscat.com/guides](http://www.curiouscat.com/guides)

Jakob Nielsen's thoughts on web usability  
Curious Cat Management Improvement  
Connections – online guides to management  
improvement resources (the author manages  
this site)

### Books:

Free, Perfect and Now by Robert Rodin  
Fourth Generation Management by Brian Joiner  
The Leader's Handbook by Peter Scholtes  
Designing Web Usability by Jakob Nielsen

## Biography

John Hunter served as the Deputy Directory for Web Operations for the Office of the Secretary of Defense Quality Management Office (QMO). John directed internet initiatives for the QMO where he managed the QMO web site, consulted with Department of Defense organizations on using the web to enhance performance, created and was the application development manager for the Interactive Customer Evaluation system (online at icelink.disa.mil).

John has served on the Board of Directors of the American Society for Quality - Public Sector Network and the Board of Directors for the Washington Deming Study Group. He is a member of the Madison Area Quality Improvement Network and participates in the W. Edwards Deming Institute.

In 1995, he created the Quality Management Resource Guide: [www.curiouscat.com/guides/](http://www.curiouscat.com/guides/). Since that time he has continued to use the internet to assist those applying quality management. A native of Madison, Wisconsin, he earned a Bachelor's Degree in Economics from Davidson College in 1988.

Prior to this assignment, John worked for several federal government organizations: the House Subcommittee on Mining and Natural Resources, the Census Bureau, and the Office of Personnel Management.

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