



# MOC BEST PRACTICES

November, 2007

Volume 1, Number 1

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## Perspectives

In this "Perspectives" section, we intend to provide our perspective on current events in the industry, and how they relate to MOC best practices. In this inaugural edition of the newsletter, perhaps it's fitting to introduce the author.

Dr. Rainer Hoff has a B.A.Sc. and M.A.Sc. from the University of Waterloo, and a Ph.D. from Vanderbilt University, all in Mechanical Engineering. His research specialty was in the field of pressure vessels and piping. After a career in teaching at the university level, and consulting to industry, Dr. Hoff formed Gateway Group in 1991.



Gateway Group has been active as consultants and implementers of Enterprise Content Management systems in the process industries: chemical plants, refineries, paper and steel mills.

Dr. Hoff won the AIIM Carl E. Nelson award in 1999 "for development of new ideas to implement Electronic Document Management in the chemical and petrochemical arena." Currently Dr. Hoff is completing the work on a text book, MOC Best Practices which undertakes a scientifically rigorous assessment of MOC's as well as presenting a wealth of original research in this area.

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## Best Practices: Fact or Hype?

**The Economy:** The process industry is like any other industry in that it is subject to economic forces. A review of recent history shows that industry profitability took a hit during the 1982 recession; the industry response was to cut back on staffing. Again, during the 1991 recession, the response was to cut back on staffing.

**PSM:** Then, in 1992, OSHA 1910.119, the Process Safety Management regulations were released. This mandated that plant operators manage the hazards associated with processes using highly hazardous chemicals. The many paragraphs of this regulation require that a great deal of information be maintained and kept current: process safety information, hazards analyses, and operating procedures, to name a few. The paperwork burden was perceived to be so onerous that these regulations were jokingly referred to as "The Chemical Engineers Full Employment Act". A key element of PSM is the requirement for, and adherence to, a Management of Change, "MOC", procedure.

**EDM:** Many plant owners recognized that PSM compliance would require a great deal of document management. Also, the cutbacks of the previous recessions meant that there was no excess capacity to absorb the extra work. So, Electronic Document Management, "EDM", systems were widely reviewed and usually implemented in order to simplify the paperwork burden of PSM compliance. I participated in that first big wave of EDM implementations, in the mid-1990's, by leading EDM/PSM/MOC projects at a number of well-known companies: Boise Cascade, Citgo, Chevron, Coors Brewing, Exxon, Kerr-McGee, MeadWestvaco, Monsanto, and more.

**Best Practices:** At about the same time, Michael Hammer and James Champy released their seminal book, *Re-engineering the Corporation: A Manifesto for Business Revolution*. The ideas in this book, with suitable facilitation and assistance from large consulting companies, precipitated a wave of "re-engineering" efforts at almost every Fortune 500 company. Re-engineered business processes were considered to be "best practices", although there was no proof of the claim that they were "best".

Turn the clock forward to 2004...

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## Best Practices: Fact or Hype? (continued)

Update: The economy was doing well in 2004, particularly in certain segments where crude prices and refining margins were rising. PSM compliance had become routine. Occasionally, the industry experienced a wake-up call, such as the Baker Report, which mentions MOC exactly 49 times. The EDM systems, installed a decade prior, really needed upgrading and were often replaced with newer technology and, of course, a new buzz-word: Enterprise Content Management, “ECM”.

Best Practices II: Best Practices didn’t fare so well. “Re-engineering” and “best practices” were often misused as an excuse for staff cutbacks (remember “right-sizing”?), so employees had developed a natural distrust of these initiatives. Re-engineering is very difficult, and requires facilitators with a great deal of experience—these people were just not available, in sufficient quantity, during the re-engineering rush of the 1990’s—so lesser experienced, or even inexperienced, persons often led these efforts. The state of re-engineering deteriorated to such a point that Michael Hammer later wrote *The Reengineering Revolution: A Handbook*, and decried the misuse of his ideas presented in the prior re-engineering book.

A Personal Journey: As I worked with new and former clients alike, beginning in 2004, the topic of an MOC best practice came up repeatedly. Like any former researcher, I did what I had been trained to do when confronted with a question: conduct the appropriate research in the library and on the internet. Surprisingly, I discovered that no quantitative assessment had ever been done on MOC best practices and published in the open literature. There were indeed published anecdotes about what Company X had done, or how things were working well at Company Y—but no fundamental analysis and no set of guiding principles that could be applied to other locations, other environments or other companies. I took it as a personal mission to research the best practices for Management of Change in the OSHA 1910.119 context, and document these results in a textbook. At this point, the work is far along, with a first draft of the book, almost complete.

Best Practice Toolset: How do you go about determining best practices for a business process as complex as MOC? We’ve used 5 techniques in this quest:

1. **Assess the State-of-the-Art:** The current state of “what is everyone doing with MOC’s?” can be catalogued from several sources:
  - Compilation of MOC processes at the sites we’ve worked at (see previous list),
  - Compilation of MOC processes at sites who participated in the research for the textbook,
  - Review of software solutions for MOC, available as commercial-off-the-shelf offerings,
  - The OSHA website contains guidance documents,
  - Ideas from other fields. For instance the manufacturing field is rich with change and configuration management ideas. See for instance [www.icmhq.com](http://www.icmhq.com).
2. **Use Logic:** Simple logical reasoning can be used to determine certain aspects of the MOC process. For instance, change initiation must occur before change close-out.
3. **Satisfy constraints:** There may be regulatory, legal, physical or other constraints governing MOC. Obviously OSHA requirements must be satisfied, so this imposes constraints on the design of the MOC process.
4. **Optimize integer variables:** There are many combinations of “who does what, when, in what order”. Trying these various options out in the real world is hopelessly impractical—each new process trial would require defining the process, writing procedures, training people, exercising it for, say, 100 MOC’s, and compiling the results. A much more effective method of comparing different business processes is to use simulation tools.
5. **Optimize real variables:** There are many real variable parameters in a business process. For instance, suppose a person who hasn’t approved an MOC packet is sent an electronic reminder after ‘x’ hours. What value should ‘x’ be? Again, it’s difficult to try this in the real world and gather enough data to be statistically valid. This is another technique best accomplished using simulation.

Conclusion: Based on our work to date, it appears that it is possible to identify and optimize the characteristics of an MOC best practice. Both cycle times and effort can be reduced, often dramatically. But there’s no hype, and no glamour in undertaking this work. It’s simply a matter of clear thinking, attention to detail, and a lot of hard work.

In the Next Issue: We’ll outline a MOC Lifecycle Model in the next issue. You can get a sneak preview of this material by downloading the MOC Best Practices whitepaper at our website [www.gatewaygroup.com](http://www.gatewaygroup.com).