



CM Trends

News and Perspectives for CM Professionals

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ISSUE 17

The opinions of the authors are not necessarily the opinions of CMPIC LLC

How Do You Manage Corrective Action?

by **Steve Easterbrook**
CMPIC LLC

What is your workplace like? Are people moseying down the hallways smiling and whistling “Zippity Do Da” or do you have a lot of corrective action meetings and company-funded stress management classes?



Even companies that have the best products and the best employees might still be in the corrective action mode.

In many environments, employees spend a significant portion of their workday “fighting fires”. Unfortunately, many organizations believe that putting out fires is continuous improvement. It is not. Putting out fires is an indication that the organization is in the corrective action mode and, typically, corrective action is a symptom of poor CM or individuals failing to adhere to good CM processes.

Imagine being in the forestry business. To remain

in business, you must cut your forest for lumber, sell your product, and plant new trees for future production. This is continuous improvement.

But imagine your company’s forest is always on fire. How are you going to find the time to make robust improvements given your situation? This is the corrective action mode. It impairs future prospects and improvement of an organization.

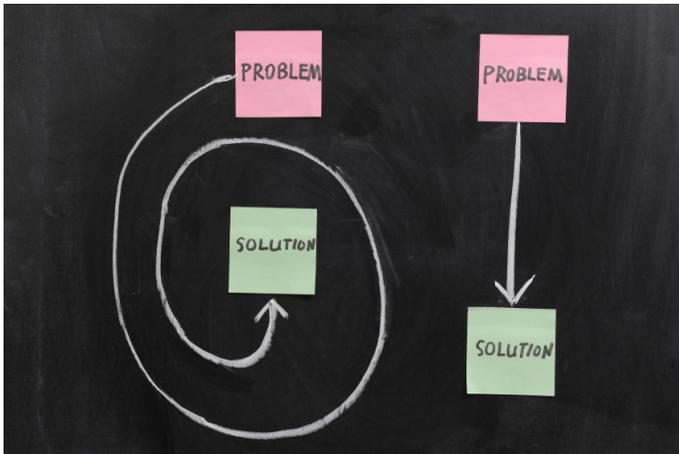
Given that many companies are in corrective action mode, how does one explain that many of these companies eventually get excellent products out the door? Well, they do it with a lot of meetings, stress, and muscle... resulting in extra cost.

And a large percentage of those corrective action



costs remain hidden in overhead (evaluating fixes, implementing changes to fix items, meeting time,

costs to “rework” documentation, etc.). That cost is “felt” by the organization, but is not accurately accounted for. As a result proper emphasis is not placed on improving processes to eliminate deficiencies.



Here are some techniques organizations use to manage corrective action, many do not work:

Calling in the Fire Fighters: Fire fighting is the accepted management methodology. Successful firefighters are more often promoted to management positions than qualified process improvement experts. Process improvement experts are not as glamorous.

Buy Software: It is true that software and automation have the potential for enormous benefits. But, if not implemented in conjunction with working processes automation will only allow individuals to make bad decisions faster. This is obviously the case if CM processes are not effective or efficient.

Constant Inspection: If you are constantly inspecting to see if you follow your procedures and checking to see if the product matches its documentation, but find you are documenting a lot of discrepancies with nothing getting resolved, then you’re on a Merry-Go-Round. This is not a solution.

Hire A Consultant: Companies often hire consultants who are supposed to come in and

turn things around. Many believe that because the consultant comes from a well known firm they must be an expert. When the smoke clears, the consultant will submit a report telling the company what most of the employees already knew - that things need to be improved. Don’t get me wrong, there are good consultants out there, but the irony is that even the recommendations of the best consultants often get ignored when they recommend process improvement (especially improvements associated with CM processes).

Deck the Halls: Fill the lobby with photos of all the famous consultants the company has hired, drape flags across the building for all the quality certifications earned, and cover the building in mottos and slogans stating the company’s commitment to quality, assuming this will motivate people and ensure something magical will happen.

Layoffs: The company might even contemplate handing out pink slips since it doesn’t understand how process improvement could correct the situation.

What are your experiences with how organizations manage corrective action?

Comment on this article or post your own questions to CMPIC’s network of over 1,000 CM Professionals. Connect with us on LinkedIn:

Join our group ™

Search: "CMPIC Configuration Management Trends"

Steve is President of CMPIC. Steve has been working in configuration management for over 28 years. He has 12 years of experience as a Configuration Management manager in government and commercial organizations and another 16 years as a CM educator, lead assessor, and consultant. Steve has taught, lectured to, and/or consulted with thousands of individuals from hundreds of commercial and government organizations on the subject of CM process improvement.



STEVE EASTERBROOK

Deja Vu

Recapture of Heritage Design Management CM

by **Jon M. Quigley & Kim Robertson**

Value Transformation LLC

Leveraged Innovation Logistics

Mike and Akio had been invited to one of the Genesis Test Equipment logistic repair depot by Lina Hendrik, the facility manager, to discuss an idea she had regarding retrofit of a discontinued product line still widely used in an automotive niche market segment.

As they walked to the back storage bay Lina began discussing the situation, “We are still providing logistics support to over 1,900 fielded units. These cycle through the depot about 150 units per month for recalibration and upgrade to the last design improvement we made, which was some 10 years ago. Most of the units are now with their third or fourth owner. These are generally small specialty repair and diagnostic shops catering to owners of European cars from the 60’s through the 90’s.”



She continued, “We are seeing some interesting metal fatigue in the same supports and bell housings throughout the product line in addition to the normal logistics issues of hard use and ageing electronics.”

Mike was silent for a moment, “Didn’t we do one last production run of housings and brackets for stock before ending our official support of the product about 18 months ago?”

“Yes, that’s right.” Lina replied, “We did a short run of 300 units but have very few of the items remaining in stock and still have a very high demand for depot level support. It really isn’t profitable for Genesis but we have met the demand despite diminished margins. My team has been kicking this problem around for about a month and we think we have an idea and direction that will still provide the support the current GDG 1500 series owners need while encouraging leveraged innovation with a Genesis funded start-up. I’ll let Lonzo explain what we have in mind. I think you’ll like it.”

They entered the area conference room and after looking at examples of the fatigued parts, the short meeting began.

Lonzo explained, “I believe that with a slight redesign of the housing and a new set of electronics, a steady bread and butter type revenue stream exists for at least another 10 years on the GDG

1500 series. We suggest an outsourcing of logistics support to another firm. This will focus Genesis on our new technologies but will retain the good will of the market segment.”

Mike nodded, “So instead of planned obsolescence we facilitate planned transitional support.”

“That’s correct,” Lonzo replied. “I’ve run the numbers based on the electronic design recommendations that we just made assuming we would have to reverse engineer our own mechanical designs for the brackets and housing.”



Akio’s eyebrows shot up, “Reverse engineer?”

Lina chimed in, “Unfortunately that is correct. Before turning the records retention function over to configuration management, Genesis facilities made an uninformed decision to dispose of all engineering three years after end of product manufacture. Facilities convinced IT that the electronic CAD files should be purged as well. We’ve had engineering looking at our remote sites and we have nothing on file. All of this was prior to our starting up our PLM system.”

Akio stepped out of the meeting to make a few calls. He returned to the meeting, his normally expressive face was wearing an expression seldom seen. It was almost radiant.

Akio announced, “Mike, I think this is just the project we have been looking for to prove our thoughts on additive manufacturing! I’ve set up a

meeting with a friend of mine for Monday. Let’s see what he can do with 3D scanning.”

Human Heritage

Jason gave three quick raps on Mike’s closed door, waited a minute, opened the door and said, “He’s here.”

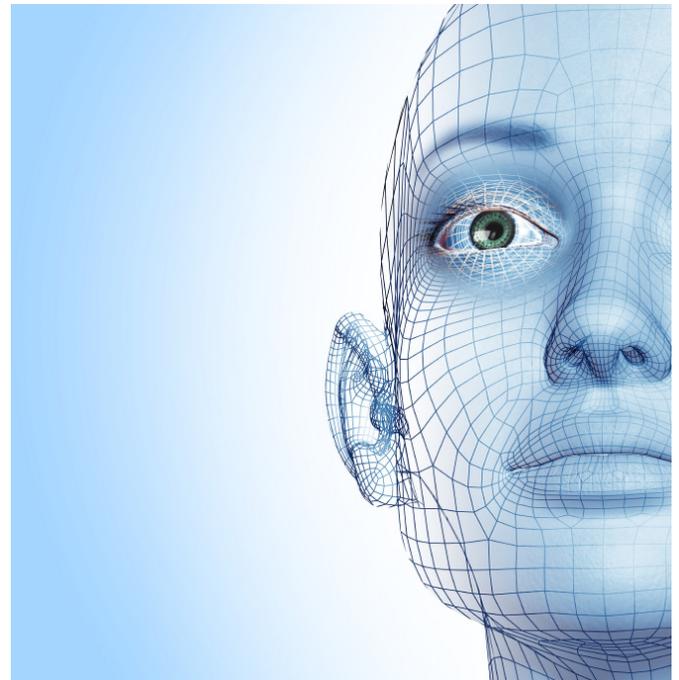
They snagged Akio on the way to the cafeteria. The sound of laughter grew louder as they rounded the corner and were greeted with cries of, “Here’s Mike and Akio! You’ve got to do it, Mike and Akio!”

Leptig Varonick looked up from his laptop. Mike smiled at the slightly built archeologist-turned-engineer and laughed, “I’m game.”

Jason motioned to the empty chair, “Sit in the chair so he can take some photos.”

Leptig walked slowly around Mike with his iPhone snapping away. He then sat down in front of his laptop made some image manipulations and pulled up a 3D picture image of the Genesis Test Equipment CEO.

“This is done using one-two-three D Catch from



Autodesk,” Leptig smiled.

He handed the laptop to Mike so he could rotate the image.

After lunch Lina and Lonzo joined Leptig and Akio in Mike’s office.

“I would very much appreciate a run down on how your project is going,” said Mike after taking a sip of his now suitably cold coffee. “It is called AC LLC isn’t it?”

“That’s right. AC stands for Artifact Capture. One-two-three D Catch is the kind of technology that helped propel me to start the non-profit corporation,” Leptig said. “That was two years ago and now I’m involved in one of the largest artifact 3D image capture projects in the United States.”

The discussions lasted well into the evening.

Two Months Later

It was time for the mid-year celebration at Genesis and as Mike walked to the podium he motioned Leptig to join him.

“I’d like to thank each of you for a great first half this year. We have seen the introduction of product into two new market segments as well as innovations in all our other segments. Thanks to recommendations from our logistics support group we have also started up a new additive manufacturing group and were able to spin off some of their activities to provide new opportunities to a disadvantaged



community. Critical to this was our partnering with AC LLC, this year’s recipient of the Genesis Cultural Heritage Grant. It is my great pleasure to introduce Dr. Leptig Varonick, AC LLC’s founder.”



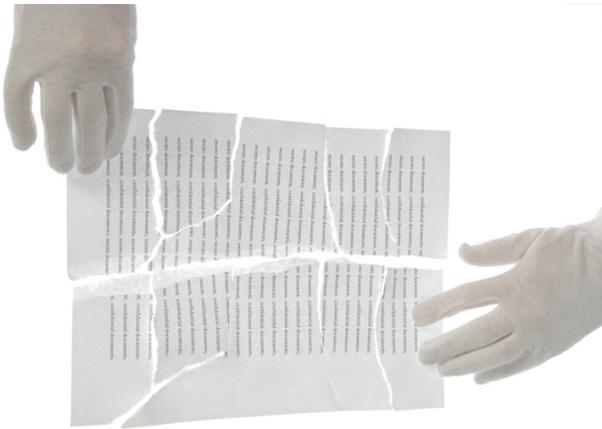
Leptig smiled at the assembly and spoke, “One of the worst things that can befall mankind is the loss of any portion of its collective cultural heritage. Every artifact destroyed and every lesson learned along the way from antiquity to the present is the loss of a precious thing. AC LLC was created to prevent this loss from happening and to assure cross-cultural access to artifacts via identical copies using non-potentially destructive technologies. Copies offer the advantage of studying without harming what may be the only item in existence. They can also be used for people to acquire the skills necessary to properly handle in situ finds in the field.

“If you truly understand configuration management,” Leptig continued, “you know it is all around you. It might be said to be part of the human condition. As evidence, I’ll simply offer that cross bow firing mechanisms found at the Terracotta Warrior site in China had interchangeable parts. Those parts were also interchangeable with firing mechanisms found over 2,000 miles from the site and this is circa 210 BCE. I am personally convinced that for interchangeability to be so abundantly evident it had to have existed in some form at a much earlier date. Perhaps even predating the helve hammer mills in China say around 1050 BCE.

“In a similar way, one of the worst things that can befall a company is the loss of its intellectual property. Part of this IP includes a product’s design heritage. Artifacts can be mislaid and be buried

for thousands of years only to resurface again. Intellectual property once gone can be recreated through reverse engineering but that is expensive, and opportunities that present themselves may prove too costly simply due to the non-recurring costs and, thus, passed by. But that is no longer the case.”

Leptig paused for a moment before continuing, “I have been reading up on your company’s history and was impressed by the nearly contemporary look and feel of the GDG 1500 series. Would it surprise you to know that all of the engineering for it was destroyed years ago?”



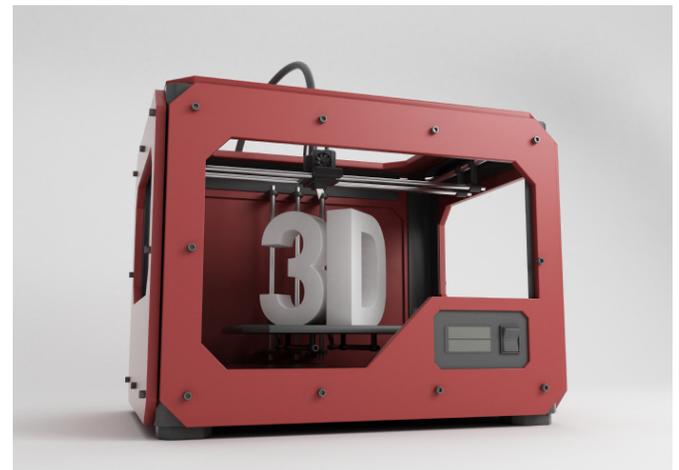
“That is where the association between Genesis and AC LLC started. The same technologies being employed at the Smithsonian to digitally capture its 137 million-piece collection with high-tech scanners was used on critical components of the GDG 1500 series. Rather than reverse engineering your lost engineering, we were able to capture 3D scans of the items, modify the results to beef up weak areas, and then use additive manufacturing to produce the parts needed to perform logistics operations such as returning fielded units to factory specification at a fraction of the cost of making the same item on CNC machines. One of the updated parts can be seen on the screen behind me.”

Leptig paused for a question from the audience. Palo Wolffe scoffed, “So why was this important on a product line that hasn’t been built for years? I mean who really cares. Why don’t we make them

buy new? Isn’t this just like my smart phone? Every two to three years I throw away the old one and buy something more powerful.”

Akio smiled and said, “I’ll take this one. The simple answer is because there is no equipment on the market today that does what the GDG 1500 series does and we have no plans to make a new model. It is in a way part of our collective cultural heritage as the equipment primarily runs diagnostics on classic European sports cars. I, for one, can’t imagine we would abandon a market where we are building the test equipment for their modern equivalents.

“While it is no longer profitable for Genesis to continue logistics support, a steady revenue stream did exist for a small company to continue GDG 1500 series logistics support if the obsolete electronics were updated and mechanical fatigue issues could be resolved. After fatigue patterns were analyzed, the structural weak points were modified and an on demand additive manufacturing capability was set up. From project inception to finished product, this saved over 200 hours of engineering per part and a reduced production cost of 80%. The capability of 3D scanning and additive manufacturing will allow us to do some very amazing things in the



future including exact fit replacement upgrades to onboard diagnostic equipment originally designed by others. Before 3D scanning there was no way to tell exactly the volumetrics of the area with which we had to work. Now that space can be determined by the 3D scan along with exact placement of all

interfaces.”

Mike asked, “Leptig, what do you see as the greatest single issue involving digitized images and how can Genesis and others in industry help resolve it?”

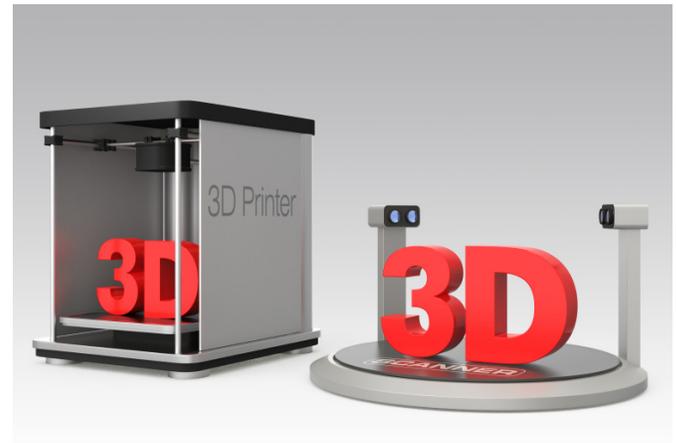
“One unresolved issue involving digitized images regardless of end use is that of configuration management. Traditionally engineering was represented in drawing format. In the 1980’s we introduced paper space renderings from CAD programs, thermal and structural models, Software Code and now in the case of precision 3D scanning bit clouds. For some 3D scanning projects the bit cloud is married to a CT scan or MRI capturing internal as well as external features adding a degree of Configuration management complication not currently addressed in the ISO or EIA standards. Eventually additive manufacturing resolutions will be equal to our present scanning capabilities. 3D printing to the sub-micron level will be not only possible but commonplace. Our challenge today is to creatively manage and preserve these precious scans in our PLM systems as the definitive representation of the objects they represent. The ability to always preserve the scan as a cultural product baseline is imperative.

“These artifact scans represent the greatest masterpieces of human achievement. They also evidence all the ravages of time. The urge to start manipulating the data clouds to remove this damage prior to printing will be at times uncontrollable. Without proper configuration

management, baseline reversibility as well as iteration management of cloned bit clouds, the source data could be compromised or lost forever.

“Imagine if you will, a masterpiece subjected to a poor restoration process. The restoration is what it is. You can’t undo it and go back. The starting place is lost forever. Now imagine always being able to go back. That is what we envision. We need to manage the data so we can always go back to the source 3D images if the original artifact is severely compromised or destroyed.

“We look to Genesis and those in other market segments using additive manufacturing to create the international CM standards for 3D image capture and model control. You are on the forefront of these technologies and archeology will rely on those new standards you create as we put the case forward to preserve artifacts across the globe via 3D scanning.”



Jon M Quigley PMP is a product development expert with more than 20 years of experience and a founder of Value Transformation LLC. Value Transformation LLC provides training and consulting on a range of product development topics. Jon has multiple advanced degrees and certifications, as well as US patents secured. He has co-authored or contributed to seven books. He can be reached at Jon.Quigley@ValueTransform.com.

VALUE TRANSFORMATION LLC

JON M. QUIGLEY



Kim Robertson is a NDIA Certified CM practitioner, consultant and trainer with over 30 years of experience in contracts, subcontracts, finance, systems engineering and configuration management. He has an advanced degree in operational management with a government contracts specialty. He is an associate of Value Transformation LLC and can be reached via LinkedIn.

KIM ROBERTSON

REGISTER NOW

CM Trends

2014 S.W.A.T.

Seminars, Workshops, And Training

**San Antonio, TX
18 - 20 August, 2014**

CMPIIC's annual event, CM Trends, is a 2.5-day seminar that encompasses the full spectrum of configuration management. Highly-skilled CM Professionals from both governmental and industrial organizations around the world will come together at this event to network, discuss ideas, and learn from the exceptional presentations. CM Trends encourages active discussions by facilitating group question & answer sessions, incorporating interactive workshops, and providing you with multiple opportunities each day to collaborate with your peers. In addition, CM Trends will host numerous exhibiting PLM Tool vendors that will be available to talk and answer questions throughout this event. By the end of CM Trends, you will return to your workplace with more ideas, motivation, and resources to help you and your company succeed. Attend CM Trends 2014 in San Antonio, TX to be a part of this education exchange.

Download a **Justification Letter** to attend.

Learn more at: www.CMPIIC.com/configuration-management-seminar

**Experience the Full Spectrum
of CM!**



CM Trends

2014 S.W.A.T.

Seminars, Workshops, And Training

Presentations



Peter A. Bilello, CIMdata Inc. - "Rethinking CM for the Circular Economy"

The product lifecycle is being extended and may eventually be radically changed, by a new focus on what happens after products reach the end of their traditional useful lives. Recycling, ordinarily deemed the "end" of the lifecycle, has been seen as a one-way trip into scrap yard shredders. The notion of the Circular Economy is upending this constricted view of recycling from termination to turnaround. The scrapping and shredding of the obsolete and the worn-out is being displaced by products expressly designed to be retrieved at end-of-life for reuse, remanufacture, upgrading, and repurposing. If the Circular Economy gains widespread acceptance, as is expected, it will have an enormous impact on next-generation products and how all the information about them is managed. This presentation will look at key Circular Economy concepts and how CM practices, processes, and practitioners must rethink CM to support it.



Mike Bostelman, Cummins Inc. - "An Application of Configuration Management for a Highly Customizable Product"

MIL Spec – what is that?? Many people think the application of configuration management is limited to Department of Defense products, however there are many varied applications of Configuration Management. This talk will explore the Cummins Inc vision and application of configuration management. Cummins' products are customer driven and are highly customizable. We will examine how Cummins utilizes configuration management in a surprising way to manage the complexity of their products.



Cynthia Carr, Federal Reserve Board - "CM Metrics: the Good, the Bad & the Ugly"

Metrics captured from business processes are invaluable to us as managers. This presentation will look at how to set up a Metric program in your area or company.



Steve Easterbrook, CMPIC - WORKSHOP: "Configuration Management in Jeopardy"

The CM Profession will always be in jeopardy until its true role as a core business process is accurately explained and fully understood by all members of an organization since CM plays a critical role in project management, quality assurance, systems engineering, and more. When discussing CM, students always tell me I am preaching to the choir; I tell them I am trying to teach the choir to sing better. In this workshop we will assess how well we understand CM and how to best explain the CM "message" to others.

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CM Trends

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Presentations



Phil Ellwood, Airbus - "Using Operational Activity Management to Accelerate Change Decisions"

Steering efficient Change Management can already be considered a challenge. But with a large amount of changes yet to be decided, and extended and organizationally scattered Change contributors, it takes it to a new dimension! In particular, the time to bring a change to decision becomes quickly at stake. To cope with this situation, Airbus investigated a new approach with underlying Lean principles. The initial driver was to break the problem in smaller bricks, on which we can indeed have pragmatic levers to improve the performance. Thus we decided to try to improve the performance of each individual team contributing to the Change Process (several tens of teams): improving the performance of each local team should generate a global performance gain. Now, this is a nice vision and tactic, but the interesting point is then how we implemented it!



Detlef Haesner, usb GmbH - "Keep Track: The First CMPIC Europe Conference"

This presentation will provide you with an overview about the first CMPIC Europe conference. You will gain all necessary information about when the CMPIC Europe Conference will take place, the venue, and the planned conference program.



Mitch Kaarlela, Lockheed Martin Aeronautics - "The Problem with Baselines..."

This presentation will provide a detailed discussion on the topic of baselines from a CM perspective in today's environment. It will cover the many types of baselines being used and what they mean to a CM practitioner. The presentation will also cover the timing and relationships of various baselines with themselves and with corresponding acquisition milestones. What may at times seem rudimentary (the topic of baselines), is in-play today for proposed alterations that could have profound impact on Industry. Attendees will come away with more clarity on the subject and information that assists in understanding the implications to CM and their home organizations.



Alan Kiraly, Bentley Systems - "Data Centric CM"

A trend across industries is for organizations to state the desire for "data centric" asset management, project management, and other areas of information management traditionally dominated by document paradigms. What does a shift from "document centric" to "data centric" mean? How does it impact the established best practices that make these systems effective – namely configuration management? This speaker will share some amazing advances in technology for publishing and consuming information independent of traditional "documents" and will share his view of how configuration management must embrace these artifacts in order for them to realize their full potential.

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Rob McAveney, Aras - "Configuration Management in a Massively Multi-Disciplinary World"

As the pace of innovation continues to accelerate, the need for cross discipline collaboration and control has become amplified. With today's engineering of systems and systems-of-systems, new approaches to configuration management processes are necessary to enable resiliency in the massively multi-disciplinary environment ahead. Find out how coordinating software, electronics, mechanical, technical documentation, design, procurement, production, and service around the world will change PLM and configuration management in the future.



Leslie Miller, GE Power - "GE Power Generation Configuration Management Evolution and Vision"

A traditional Configuration Management organization can often be viewed as an administrative or bureaucratic function that is an extra step in execution for the engineering and design delivery. As modern product definition moves from document centric to digital, there are opportunities to integrate or combine configuration management responsibilities with other functional processes to deliver product data that meets customer requirements with quality and speed impossible with silo-ed processes and organizations. This presentation will describe how the GE Power Generation Configuration Management has changed over the last 5 years into a new digital enterprise, highlight recent innovations in product definition and product structure management, and identify challenges in achieving the 5 year vision for the organization.



Tina O'Dell, Cummins Inc. - "A Year's Perspective: How Being the New Guy Reconciled an Expert to a Student"

Experts possess special skill or knowledge derived from training or experience, whereas students are those who study and are attentive, systematic observers. While one person may be involved in both of these activities either separately or concurrently, it is the keen leader that can identify the speciality of being both expert and student while retaining humility in the face of adversity. Ms. O'Dell will dive into her personal experiences of the last year to uncover the precarious position of acting in both of these roles at the same time.



Adam Prem, Booz Allen Hamilton - "Change: It's a Risky Business"

Implementing a change, whether it pertains to hardware, software, organizational, or even process, is almost always associated with a certain amount of risk. A very common question in our functional communities is, "What will break when we make this change?". But far too often we ignore the fact that implementing change can actually be the mitigation of a risk. In that regard, the question then becomes "What are we fixing or enhancing by making this change?". In 2010, with over 200 programs of record (PoR), the Space and Naval Warfare (SPAWAR) Systems Command began addressing programmatic risks (potential threats to cost, schedule, and technical performance of their products) by implementing an enterprise-wide method of risk planning, identification, analysis, mitigation, and escalation. The results lend intriguing credence in support of the principles of Configuration Management.

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Presentations



Tonya Santini, Northrop Grumman - "What to Do When You Feel Like Giving Up"

Are you frustrated? Are you tired of fighting the good fight? Do you want to just give up? In today's environment of budget shortfalls, complexity of systems, and cultures that need to be changed, it can become very overwhelming. This presentation will be about getting back to the basics and finding your passion for CM again.



Renee Sells, Assured Space Access Technologies & Alejandra Sudbury, Sentek Global - "Challenges with Agile CM and Acquisition Cycles"

Agile methods are generally a set of practices that compensate for each other. Recently, interest in these methods has been on the rise for the DoD acquisition community. However, agile processes can leave gaps and may introduce risks which require the organization to have an established method and understanding for using this method. Furthermore, how does the agile method for development fit into a historically conservative acquisition model? This presentation will explore the background of agile appeal such as the need for high quality software within a dynamic environment and a focus on value. The main purpose is to provide acquisition and development ideas about how to approach implementing agile in a DoD environment. The DoD community's challenge is to provide capabilities to our warfighters in a timely manner while learning to manage a system that can continue to change and adapt over time. Strategies, contracting concepts and even cost models will need to be redefined to accommodate the movement to agile processes.



Rick St. Germain, CMPIC Canada - WORKSHOP: "CM for Complex System Design"

The true strength of sound CM practice lies in the management of dynamic knowledge to predictably and repeatably achieve a desired result — our product. But when designing complex systems that interact with their environment, the design outcome is neither predictable nor repeatable. Highly structured CM methods only become effective after the design has emerged, and key knowledge may be lost. How, then, can we provide CM support during this critical design phase of complex systems? Drawing on the latest research in Complex Adaptive Systems, Rick explores techniques and methods that help us identify the type of system being developed and the most effective CM strategies that support those environments, in order to assure a more complete and effective handoff of knowledge for exploitation as new products. This presentation will be followed by a workshop to illustrate one of those techniques involved.



Ken Wallace, Sikorsky Helicopter - "Words are Cheap"

With the high cost of business tools, such as PLM systems, we as Configuration Managers, need to find ways to get the most out of these tools while keeping related costs low. This presentation will focus on areas where the effectual use of "Words" can be used to supplement your PLM tool. Those areas include: 1) Accurately documenting processes and procedures: This seemingly simple step can be a big help in cutting down mistakes and re-work when combined with training. 2) Training: Training on the PLM tool, training on the procedures and processes that drive the tools you are using, and timely training when these items get updated. 3) CCB's: The success or failure of a CCB can directly be affected by the way we speak/interact with each other. and 4) Customer Service (or: What does my mom have to do with CM?): While we (CM) may "own" the tool, ultimately, we are providing a service to our company.

* **More Speakers may be Announced!** View the most up-to-date list of speakers at: www.CMPIC.com/2014_CMTrends_Speakers.htm

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CMTrends

2014 S.W.A.T.

Seminars, Workshops, And Training

Exhibitors



Aras Enterprise PLM Solution for Configuration and Change Management. Aras provides the Aras Innovator suite for comprehensive configuration & change management with requirements management, parts, BOMs, documents, online workflows, stage-gate program management, global supplier management, quality compliance, CAD / EDA connectors and more. Aras is an advanced PLM platform and solution suite that is highly scalable, flexible, and secure

Bentley Systems, formerly Enterprise Informatics: Enterprise Informatics-eB Suite - eB Nuclear, eB Government, eB EPC, eB SharePoint. The eB Suite provides five key functions for managing the lifecycle of enterprise information: Document management, Document control and Change management, Records management, Document distribution, Configuration management.



CMstat has been supporting the Aerospace & Defense industry worldwide for over twenty years as a leading supplier of comprehensive Configuration Management and Data Management (CDRL) solutions.



CMstat's mission has always been to develop fully functional Commercial Off The Shelf (COTS) products that are rapidly deployed and provide our customers with the fastest Return on Investment (ROI) possible. Go to www.cmstat.com for more info.

Professional Systems Associates, Inc. (PSA) builds CMPRO: Product Lifecycle Management (PLM) software that manages engineering, configuration, inventory, and product data. The experts at PSA work with organizations to understand their approaches to business and the processes used to achieve business objectives. This partnership approach to implementing and supporting CMPRO allows PSA to consistently facilitate and maintain successful PLM software implementations. For more information about CMPRO, please visit www.psysys.com.



* **More Exhibitors may be Announced!** View the most up-to-date list of exhibitors at: www.CMPIC.com/2014_CMTrends_Exhibitors.htm

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CM Trends

2014 S.W.A.T.

Seminars, Workshops, And Training

Discounted, Post-Event Classes

Wednesday, August 20 - Friday, August 22, 2014

Holiday Inn San Antonio Riverwalk
217 North St. Mary's Street
San Antonio, TX 78205

To celebrate CMPIC's 6th annual CM Trends event, CMPIC will be offering a special discounted rate for the classes listed below! Register now to attend one of these classes this August in San Antonio, TX.

Typically, these courses are priced at \$1275, but with your CM Trends 2014 registration, each course will only be \$800! Even if you are unable to make it to the CM Trends event, these courses will be offered at the discounted rate of \$995.

Class will start at 1PM Wednesday, 8AM Thursday, and 8AM Friday. Class will end by 5PM all days.

Course 6: CM Industry Standard ANSI/EIA-649B Principles and Applications Certification

ANSI/EIA-649, National Consensus Standard for Configuration Management, is perhaps the most widely accepted Configuration Management (CM) standard in use today. This standard applies to commercial as well as governmental organizations. The standard offers valuable advice on requirements for achieving successful CM implementations. This course will explain the logic and meaning behind the various EIA-649 principles, and offer options for implementation approaches and how best to apply the standard in various environments.

Course 7: Configuration Management Assessor Certification

This course is designed for Configuration Management (CM) professionals who are responsible for CM process improvement in their organization. The course will teach assessment techniques used to identify areas of improvement and uncover deficiencies in existing processes. The assessment criteria covers all the major elements of CM. Students completing this certification will be well prepared to produce assessment reports and plans for improvement that will enable them to move forward with CM process improvements.

Course 9: Configuration Management Standards & Practices Update

This course will provide an update and overview of current industry CM standards, industry practices, CM Tools, and overall trends. The purpose of this course is to assist in keeping your CM skills and education up to date. **Prerequisites required for this course:** Attendees should be familiar with Configuration Management practices as this course is not intended to teach basic CM principles and implementation practices.

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CM Trends

2014 S.W.A.T.

Seminars, Workshops, And Training

Registration & Fees

	Per Person Fee
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Option 2: CM Trends 2014 Seminars, Workshops, And a Training Class - Course 6, 7, or 9 5 days, Monday - Friday	\$1,695
Option 3: CMPIC Training Only - Course 6, 7, or 9 2.5 days, Wednesday - Friday	\$995
*All fees are in US Dollars.	

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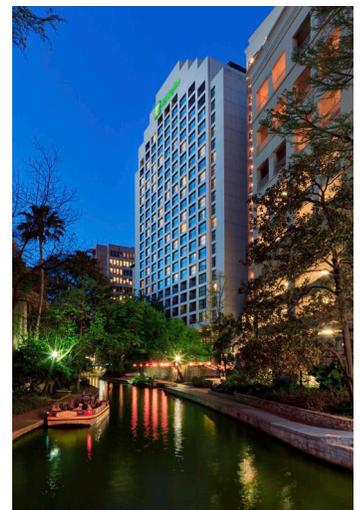
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This discounted rate will NOT be accepted after Friday July 18, 2014.



MORE INFO

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