CMTrends

News and Perspectives for CM Professionals

in this issue

April 2016

ISSUE 23

SAE EIA-649C on the Horizon

by A. Larry Gurule

CMPIC LLC, i-Infusion, G-33 Comittee Member

At its winter meeting, which was held in Mesa, AZ, SAE International's G-33 Configuration Management Committee gave the go-ahead to initiate a project that will be used to field a new revision of SAE/EIA 649 Configuration Management Standard. The project Sponsor for the revision will be A. Larry Gurule, Vice-Chair of the G33, i-infusion, Inc. President, and CMPIC instructor. The reason for this action is that the current standard, SAE EIA-649 Rev B, is in the fifth year of a five year revision cycle and is due for review according to SAE's operating standards. The explanations cited for this action are articulated in the Rationale statement associated with the project: "This standard is being revised to clarify principles and content, as well as to remove opinions, in order to improve the quality and adoptability, by all enterprises, of the delivered product." SAE/EIA 649 is a global Configuration Management (CM) standard meant to establish and guide appropriate CM in both commercial and government enterprises, across all functional areas of those enterprises, and for all products.

Some of the items being discussed by the committee for inclusion in the revised standard are:

- Including processes as products
- Adding a Configuration Identification principle regarding Validation & Release
- Increasing the scope of structuring beyond just Rationalized structures (i.e. BOM's) to embrace non-Rational (activity based) and Symantec (inheritance) relationships
- Clarification/articulation of the domains of CM (day-to-day (non-contracted) and Acquirer/Supplier (contracted)) and how they pertain to the 5 CM functions and their principles

If you are interested in participating in this project and are a current member of the G33 committee, please contact Mr. Gurule. His contact information can be found in the Roster tab of the SAE/G33 Committee site.

If you are not a member of the G33 and would like to participate in the historic project, please visit the G33 Configuration Management Committee site located at: http://www.sae.org/servlets/works/committeeHome.do?comtID=TEASSTCG33 and click on the link titled "Join the Committee .ppt". Once you have downloaded and completed the form, email it to SAE Staff Represent (a link to the SAE email address can also be found on the G33 committee page).

About the G33: SAE International's G-33 Configuration Management Committee prepares positions on commercial and government policies, practices, specifications, and standards dealing with technical data, drawing practices, and configuration management practices. It promotes understanding of configuration and data management principles and develops standards. The committee provides innovative solutions and educational services through workshops and related publications.

SAE/EIA-649B, Configuration Management Standard is one of the standards that are the responsibility of the G33.

Others include: SAE/EIA-649-1, CM Requirements for Defense Contracts; SAE/EIA-649-2, CM Requirements for NASA Enterprises; SAE/GEIA-HB-649A, CM Standard Implementation Guide.

Larry Gurule is President of i-infusion, Inc. and a CMPIC Associate Instructor. Larry is an active SAE G33 Configuration Management committee member, Vice Chair of the SAE/SSTC/G33 Configuration Management Committee, and project sponsor for 649C revision. Larry is also an experienced consultant specializing in process and knowledge driven environments, including product development, engineering, manufacturing, supply chain, retail, distribution, and service/process industries. Larry has also owned and/or held senior-level positions in manufacturing, software and service based businesses, as well as lectured to and/or consulted with hundreds of individuals from Fortune 500 companies and various government agencies on process improvement and enterprise IT implementation initiatives. Larry holds a Mechanical Engineering degree from the University of Colorado and is a CMPIC SME and CMII Certified Professional.

A. LARRY GURULE

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"Relieving the Burden of CM"

by Larry Gurule, CMPIC LLC & i-infusion

"Systems Ideation, Materials Engineering, and Configuration Management"

by Peter Bilello, CIMdata, Inc.

WORKSHOP: "CM Terminology Workshop"

by Daniel McCurry, Boeing Commercial Airplanes

"Configuration Management and the Business of Engineering"

by David Ewing, Aras Corp

"What Came Through"

by Tina O'Dell, Cummins Inc.

"What is BIM and Why do CM Professionals Need to Care About it?"

by Alan Kiraly, Bentley Systems

"649C and the -1A: The Vision and Roadmap from the Project's Sponsors Themselves"

G-33 Committee - Larry Gurule & Mike Treadwell

"Configuration Management Professionals: Crimes and Misdemeanors"

by Jeff Windham, US Army

"CM and Lean Management: Doing the Job of 5 People with Just 2"

Jennifer Lewin, Elbit Systems of America

"Statistical Graphics: Avoiding Deceptive Practices"

by Susana Young, Toro Company

"Why is the Windshield of Your Car Larger than Your Rear View Mirror?"

by Mike Treadwell, Northrup Grumman

"Establishing and Managing Configuration Items and Baselines throughout the System Engineering Lifecycle"

by Nick Freije, SPAWAR System Center Pacific

"Balancing Configuration Management: Example of Responsive CM in a Lab Environment"

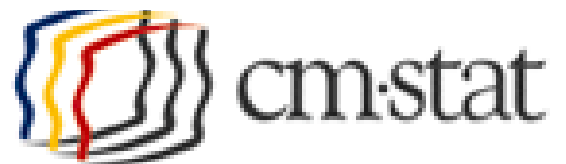by Mitch Kaarlela, Lockheed Martin

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The Long Awaited CM Guidance Handbook GEIA-HB-649A has been Published

by A. Larry Gurule

CMPIC LLC, i-Infusion, G-33 Comittee Member

On March 1st, 2016 SAE International's Standard Works announced the release of GEIA-HB-649A, Configuration Management Standard Implementation Guide.

Initiated to synchronize content and harmonize terminology contained in both the GEIA-HB-649 and the MIL-HDBK-61A with its companion standard SAE/EIA-649B, The Configuration Management Standard, by consolidating the two handbooks.

The content of the handbook has been updated to reflect current process information with a variety of user visual aids that can be tailored to execute each unique Configuration Management (CM) process, as well as including new topics that were not previously addressed such as: software, firmware, and contracts. This handbook provides a one-stop shop for all CM professionals and practitioners hoping to obtain recommended practice implementation guidance information as it contains actual use cases provided by Industry/Commercial and the Government/Department of Defense representing a cohesive and aligned community.

Handbook GEIA-HB-649A, Configuration Management Standard Implementation Guide, is intended to assist the user to understand the SAE/EIA-649B's 37 standard principles and its 5 functions for Configuration Management (CM) and how to plan, as well as implement effective CM. It provides CM implementation guidance for all users (CM professionals and practitioners within the commercial and industry communities, DoD, military service commands, and government activities (e.g. National Aeronautics and Space Administration (NASA), North Atlantic Treaty Organization (NATO)) with a variety of techniques, examples and templates. Information about interfacing with other management systems and processes are included to ensure the principles and functions are applied in each phase of the life cycle for all product categories and all functional areas of an enterprise.

The handbook is now on sale from the SAE Standards site that can be found at:
http://standards.sae.org/geiahb649a/

www.cmpic.com

CM Trends   **09**

Command Media Soup
Process CM

by Jon M. Quigley, Kim Robertson, & Joe Townsend
Value Transformation LLC

Day One Out-Brief

Mike Tarquist, CEO of Genesis, had contracted with the world's largest certification body to do an independent audit of the company's command media. The results of the first day's debrief was conducted by Aacton Fitzhugh. Aacton's credentials were impressive. Prior to becoming an ISO auditor, he had worked for BAE Systems Military Air and Information. Later, he supported Mission Quality Assurance for Rolls-Royce. He started the first days out briefing.

"As you know, the ISO 9100 Quality System implementation covers eight main business principles, which are customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making, and mutually beneficial supplier relationships.

"Generally, your Policies, Procedures, and Standards, those elements that comprise what Genesis refers to as its 'Command Media', dovetail together nicely. Unfortunately, they are written at such a high a level that they do not allow for much in the way of continuous improvement. While I have no doubt that this was done intentionally, it rather defeats the purpose of ISO certification."

Sangita Morales looked at her notes before responding. "We have implemented ISO and AS9100 with a slightly different set of definitions, summarized as: write down how you do things, actually do them that way, audit to make sure you are doing them that way, review your Command Media to see if you can make any improvements that will improve quality while lowering cost to your customers, and have a collaborative relationship with your suppliers."

"It is a rather simplified summary, but we can get into details later if you wish," answered Aacton. "I would caution you not to comingle ISO and six-sigma in the area of cost savings to the customer."

"Can you elaborate on that, Mr. Fitzhugh?" replied Sangita.

"I suggest that you read the article 'Does ISO 9001 pay' by Basak Manders and Henk J. de Vries. They evaluated the question using 42 empirical studies that showed that ISO 9001 did indeed enhance financial performance. Six-sigma, on the other hand, may

actually drive some costs while lowering others to achieve the stated goal of 3.4 Defects Per Million Opportunities (DPMO)."

"Thank you," Sangita replied. "As I remember, their conclusion was that financial impact was mostly through increased sales. We look forward to assisting you in any way we can as you continue your audit tomorrow."

Peanut Butter Sandwich Policies & Procedures

Later that day, Mike met with Aacton over dinner. Peter Dobbs joined them.

"I'm glad that you could make the time to perform this audit of Genesis," Mike said. "Is there anything I can personally do to assure that you have access to all the records and personnel you need?"

Aacton twirled his moustache and frowned. "Not really. That Sangita woman is starting to grate on my nerves. Does she know nothing about ISO?"

"She knows rather a great deal, actually," Mike said as he sipped on his cold coffee. "She trained under Akio Akiyama before he went to work for Mitsikara."

"Really," smiled Aacton, "That explains a lot. Akio is an odd fellow who claimed that relying on process alone was a poor choice for any company. I still remember his arguments against writing your Command Media at a lower level."

"Let me see if I can remember his argument." Mike smiled as he pictured Akio taking off his glasses and with his unruly eyebrows standing out like bat wings.

"'No one can survive if they have to live in a house that is as sterile as an operating room and no business can survive if their policies, procedure, and work instructions are written to such a low level that it allows for no freedom of action. It is not possible to

proceduralize everything. An employee can be placed in the position where they do everything correctly per the command media and, as a result, do the wrong thing.'"

"Oh, spot on," smiled Aacton. "Let me have a go,

'Our command media is written at the peanut butter sandwich level. If we go below that level, we open Pandora's box and then have to specify the quality level and certified suppliers for the bread, the peanut butter, the knife, the dimensional thickness of the peanut butter applied, as well as the masking of the peanut butter on the bread so that it doesn't leak out of the edges and yet provides the correct amount of peanut butter.'"

Peter Dobbs, the Genesis director of Supply chain chimed in, "'If you need to address additions like butter, margarine, jam, jelly, or honey into the process, it gets more complicated.'"

Laughing loudly Aacton continued, "'Any consideration relative to varying levels of mission assurance further complicates it.' Jolly good, that; Peanut Butter Sandwich Policy and Procedures… only in America!"

"Perhaps not," said Mike. "Many international companies that are known for the quality of their products use very similar methodologies. Where it makes sense to have process to control the quality of an item, like conformal coating a printed circuit

board, the process documents are written to the lowest level possible, combining elements of ISO with six-sigma. Where it doesn't make sense to do so, the process documents are written at the highest level possible."

Aacton Fitzhugh quickly changed the conversation by ordering another pint of Black Sheep Bitter Ale. Raising his glass for a toast he said, "To Great Britain. God bless her breweries."

Reaching Within

The following day, Aacton continued his audit. As a single auditor he attempted to look not only at the Genesis Policies, Procedures, and Standards but at their specific to implementation processes and process certification for applied coating and other M&P activities. What he found was enlightening.

Genesis kept their Command Media at such a high level that it could be applied to any contract or commercial opportunity without tailoring. Yet the implementation of specific to implementation processes and process certification were at such a low level that they bettered six sigma goals while returning significant savings due to the lack of Material Discrepancy Reports.

Mike had stopped by just before lunch and asked if he would like to visit some of the Genesis suppliers and customers to assess those aspects of the Genesis ISO 9001 compliance.

"Why yes," Aacton replied. "I have a few questions for both."

"I thought you might," Mike laughed. "Here is a list of the closest ones."

Mike introduced Aacton to Jason Stewart saying, "Jason, this is Aacton Fitzhugh. I'd like you to escort him to any of our customers and partners he would like to visit. Please use the company helicopter to save time. I've notified the executive staff of each that he might be stopping in. You can confirm with each as Aacton's schedule firms up."

Jason nodded. "Mr. Fitzhugh, where would you like to go first?"

"I would like to start with BGS, then move on to ACS and finish with Mitsikara," he answered.

Jason frowned. "We can certainly do that. It doesn't make sense as far as air time. If you wish to visit all three, we can make a single loop by going to BGS, Mitsikara, and then ACS rather than back-tracking."

"I'm in no hurry," fumed Aacton, "We will do it in the order I specified."

As the Sikorsky S-92 lifted, Jason coordinated their itinerary with the three firms.

Just before leaving their last stop, Aacton asked Zuberi Sumbako if he had ever been disappointed in any aspect of the Genesis operations or the support they had given Mitsikara.

Zuberi had simply asked, "Should I be? We hired Akio Akiyama, their Director of C&DM, to run our corporate office for a reason. He routinely out

performed Kaizen's Toyota and made Genesis one of the leanest and most balanced manufacturing companies in their market sector. His protégée, Sangita Morales, will certainly out do my dear friend Akio, given a little more time. When I expressed concerns about the future of Genesis with him gone, he told me that his intellect was a spark compared to the flame of potential he saw burning within her."

Aacton was silent during the return trip. As he reached within to make sense of what he had seen, he had a paradigm shift. He asked Jason to contact Mike and cancel the second de-brief.

Day Three

The ISO team was uncharacteristically busy pouring over the library of Engineering Notebooks Akio had left behind. Occasionally, short interviews were conducted with employees from every function involved in the design, development, manufacturing, test, and integration of Genesis products. One of the interviews was with Mike.

Aacton Fitzhugh looked lost as Mike joined him in the cafeteria.

"Ah," Aacton said as he looked up. "This company of yours is a blasted Gordian knot and I'm jigged if I can unravel it. No matter how hard we poke at it, we can't find a chink large enough to wedge it apart to see what's inside."

Mike smiled and shoveled some ice into his fresh cup of coffee to cool it down.

"The thing is," Aacton continued, "I can't quite grasp the blend of various statistical control systems you have in place."

"Aren't they all trying to say the same thing, when you strip away the fluff?" Mike replied. "Continuous improvement, zero defects, MRP, MRP II, ISO, six-sigma, Kaizen, Just in Time – they are all facets of the same diamond as described by various people looking at it. The trick, as my management team sees it, is to make conscious decisions about how we utilize all of them based on the current state of the art and the capabilities of the company and its personnel.

"Let me give you an example that may help put it into perspective for you. When Akio joined us, he found a set of Command Media that was ineffective. It didn't start out that way; we let it grow that way. Process Change Requests (PCRs) would be written as a result of internal and external audit against various Policy, Procedure, and Standard documents. Each PCR was reviewed against the document it was written and approved, approved after modification, or rejected. Unfortunately, one basic principle of configuration management was not in place.

"The PCR process did not act like an ICCB, an Integrated Change Control Board. This would include the questions: Is the PCR written against the right

document, is the issue it is trying to address systemic or due to lack of training, and how does this change impact the whole of the suite of Command Media documentation?

"As a result, after ten years we ended up with sections in the standard pertaining to Bills of Materials addressing non BOM requirements instead of those items being addressed in the standard that pertained to them. It was a case of doing everything correctly per the PCR process and, as a result, doing the wrong thing for Genesis."

"How did you resolve it?" Aacton asked. "Did you use a requirements traceability system?"

Mike laughed. "We went back to basics. Each of the more than 130 documents that comprised our command media was printed out single-sided and the pages taped to the walls in a war room. We used push pins and string to trace every requirement from the highest level policy to the lowest level procedures. Next, we did a wall walk and kept those items driven by the law, by one of our customers, or that enhanced quality and profitability. It was the only way we could visualize the DNA of the thing from an overall systems perspective. When we were done, what was left was consolidated into fewer than 60 documents. As good as requirements traceability software is, it still can't give you a feel for your command media structure as good as pins and string."

Aacton was lost in thought, twirling his moustache for a minute. He shook his head, smiled, and looked at Mike. "Thank you. I am beginning to understand what you have done here. I will recertify your ISO compliance. There's no need for an out brief I think; no need at all, when you get down to it. This has been a paradigm shift for me."

A few weeks later, Genesis was informed that Aacton had taken a position with Mitsikara as Akio's understudy.

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, certifications, and US patents. He can be reached at Jon.Quigley@ValueTransform.com

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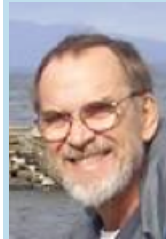
Kim Robertson is a NDIA Certified CM practitioner, consultant and trainer with over 30 years of experience in contracts, subcontracts, finance, systems engineering and configuration management. He has an advanced degree in operational management with a government contracts specialty and is the co-author of Configuration Management: Theory Practice and Application. He can be reached at Kim.Robertson@ValueTransform.com

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Joe Townsend is a recognized expert in Software CM, Release Management, and Change Management with over 16 years of experience. He is a regular contributor to multiple CM Groups on LinkedIn and has been published many times on Techwell.com. Joe is ITIL Version 3 Foundation – Certified. Joe has also provided a critical review of Configuration Management: Theory Practice and Application. He can be reached via LinkedIn.

JOE TOWNSEND

Baseline Defintions
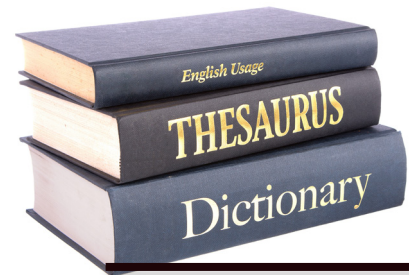
by **Steve Easterbrook**
CMPIC LLC

According to the dictionary: base·line = "a minimum or starting point used for comparisons".

According to EIA-649B Principle CI-11: "A baseline is established by agreeing to the definition of the attributes of a product at a point in time, and identifies a known configuration to which changes are addressed."

According to the CMMI and many other CM standards: "Configuration Baseline - The configuration information formally designated at a specific time during a product's or product component's life."

Ok, they all look about the same.

However, according to EIA-649B Principle CI-12: "The configuration of any product, or any document, plus the approved changes, is the current baseline."

According to the CMMI: "Configuration baselines plus approved changes from those baselines constitute the current configuration information."

And most other CM Standards: "Configuration baselines plus approved changes from those baselines constitute the current configuration."

So the issue is this:

EIA-649B states there is a "current baseline" which is the original plus approved changes. This means every time there is a change, you have a new baseline.

All other standards establish the baseline as the original starting point, i.e., there is no new baseline; it is rather the baseline plus approved changes equal the current configuration information.

For example, when you go on a diet your weight at the start of the diet is the baseline. If you weigh yourself the day after the first measurement, you do not establish a new baseline; what you have a day later is your current weight. And if you deduct that from your baseline measurement, then you know how much weight was lost.

It is my view that a baseline plus approved changes does not equal a "current baseline". A baseline is an agreed upon starting point for measurement and control. There is no such thing as a "current baseline".

Contribute to this discussion on the "CMPIC Configuration Management Trends" LinkedIn group.

Steve is the President of CMPIC LLC - the Configuration Management Process Improvement Center. Steve has been working in configuration management for over 30 years. He has 12 years of experience as a Configuration Management manager in government and commercial organizations and another 18 years as a CM educator, lead assessor, and consultant. Steve has taught, lectured to, and consulted with thousands of individuals from hundreds of commercial and government organizations on the subject of CM process improvement.

STEVE EASTERBROOK

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