



CMTrends

News and Perspectives for CM Professionals



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What is SAE/EIA-649-1: Configuration Management Requirements for Defense Contracts?

by **A. Larry Gurule and Daniel K. Christensen**
i-Infusion & CMPIC NAVAIR



Some Background & History

The Department of Defense (DoD) publishes military standards (MIL-STD) to ensure defense contractors and suppliers employ consistent, efficient, and effective processes and conform to government policy. Section 12(d) of the National Technology Transfer and Advancement Act of 1996, Public Law (PL) 104-113, directed the federal government to use technical standards that are developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments.

During acquisition reform in the late 1990s and early 2000s, and in response to PL 104-113, the Department cancelled many of the military standards and adopted commercial standards in their place as a cost-saving measure. For example, the Department adopted ANSI/EIA-649, “National Consensus Standard for Configuration Management,” then cancelled MIL-STD-973, Configuration Management (CM) in 2000.

However, some of the commercial process

standards were not developed or structured for use on defense contracts. The foreword of the Society of Automotive Engineering (SAE) International current version, ANSI/EIA-649-B, “Configuration Management Standard,” states:

Because of the broad scope of its applicability, this standard is not written as a requirements document, per se, but as the foundation document upon which requirements may be structured.

The foreword goes on to address the “per se”:

In the acquirer / supplier context there are several methodologies to conformance by a supplier: ...

- Acquirer uses 649 as the basis for developing either, or both, an enterprise CM requirements document or a specific project CM requirements document to impose on suppliers.
- The requirements documents may state 649 principles as requirements and reference 649



paragraphs. Compliance with the contractual requirements constitutes conformance with 649.

Because the ANSI/EIA-649-B contains the text “this standard is not written as a requirements document, per se,” it has been applied inconsistently in DoD contracts.

Gap Analyses and Development of the EIA-649-1

In 2010, the Air Force briefed the DoD Defense Standardization Council (DSC) regarding the need to reinstate several military standards, including the cancelled MIL-STD-973 for CM. The DSC, which champions standardization throughout DoD to reduce costs and improve operational effectiveness, agreed that having some select standards applicable across DoD acquisition programs could improve program execution. The DSC directed the Defense Standardization Program Office (DSPO) to work with the Services to form a CM gap analysis working group to confirm the need for an enterprise-wide approach to certain process standards, including CM. In 2011 the CM gap analysis working group submitted its findings indicating that suitable standards do not exist to meet DoD’s requirements. The DSC agreed with the findings.



In March 2012, the Defense Standardization Executive directed that the standards working groups’ first course of action should be to engage non-government standard organizations to determine whether existing standards could be modified or whether there is interest in developing new standards in these areas. This direction complies with PL 104-113, which states that:



Federal agencies and departments shall consult with voluntary, private sector, consensus standards bodies and shall, when such participation is in the public interest and is compatible with agency and departmental missions, authorities, priorities, and budget resources, participate with such bodies in the development of technical standards.

Understanding the length of time it takes to develop a standard, the Army requested and received DSC approval to release MIL-STD-3046, Interim Standard Practice for Configuration Management, for use on contracts while the CM non-government standard (NGS) was developed. The MIL-STD-3046, released on March 6, 2013, will be cancelled when the CM NGS is published or after two years.

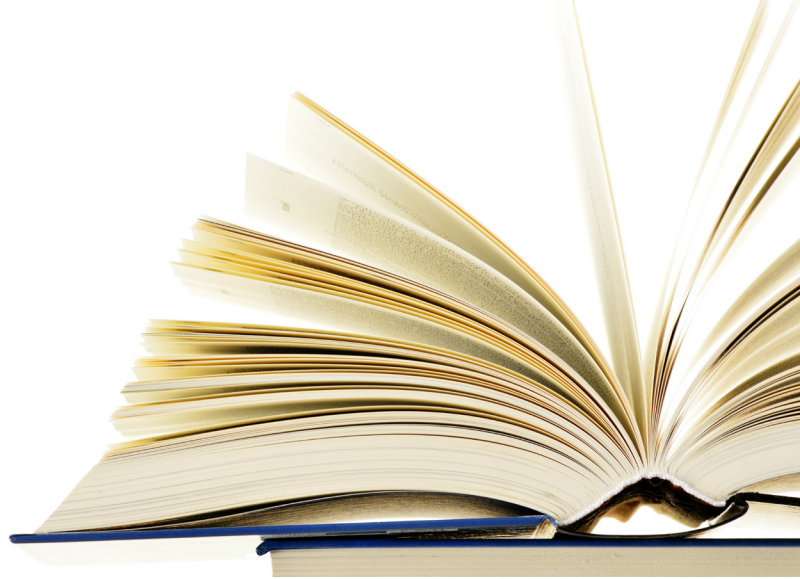
The Navy stood up and led the chartered Configuration Management Standards Working Group (CMSWG) to develop the CM NGS. The CMSWG includes participants from the uniformed Services, including the United States Coast Guard, and other DoD agencies (i.e., Defense Contract Management Agency, National

Security Agency, and Defense Logistics Agency). The CMSWG generated an initial draft standard, which was presented to the SAE G-33 Committee on Configuration Management in October 2013. The SAE G-33 Committee initiated a formal project in November 2013 to develop the EIA649B addendum, referred to as EIA-649-1, Configuration Management Requirements for Defense Contracts.

The CMSWG distributed multiple drafts of the EIA 649-1 for review across DoD and industry. To date, this group has adjudicated more than 3,750 comments to provide a standard compliant with DoD policy and supported by both DoD and industry. In addition to writing the EIA-649-1, the CMSWG modified 19 CM-related data item descriptions (DID) to prescribe deliverables compliant with EIA-649-1. Additionally, the CMSWG reviewed and updated five CM-related DoD forms (DD Forms) and added detailed instructions to support consistent implementation and use in support of EIA-649-1: DD Form 1692 (Engineering Change Proposal (ECP)), DD Form 1694 (Request for Variance (RFV)), DD Form 1695 (Notification of Revision (NOR)), DD Form 1696 (Specification Change Notice (SCN)) and DD Form 2617 (Engineering Release Record (ERR)).

SAE EIA-649-1, Configuration Management Requirements for Defense Contracts

ANSI/EIA-649-B and other standards, including MIL-STD-3046 and DoD addenda to ISO/IEC/IEEE 15288 Systems and Software Engineering – System Life Cycle Processes, influenced the development of the EIA-649-1. Other key sources of information that guided the EIA-649-1 development include current DoD policy (in particular, the interim DoD Instruction 5000.02, Operation of the Defense Acquisition System) and related DoD guidance such as the Defense Acquisition Guidebook (DAG) Chapter 4 on Systems Engineering (in particular, section 4.3.7 on Configuration Management) and the military handbook MIL-HDBK-61A, Configuration Management Guidance.



Consistent with ANSI/EIA-649-B, the EIA-649-1 makes use of the acquirer and supplier roles to define requirements. The SAE G-33 website contains the following information describing the scope of the EIA-649-1:

This document defines configuration management requirements which are to be applied, based on program needs, in contracts with suppliers for products and/or their designs during the contract period of any Configuration Item (CI) which meets the following criteria:

- a. Developed wholly or in part with Acquirer funds, including non-developmental items when the development of technical data is required to support the products or services being acquired or
- b. Designated for configuration management for reason of integration, logistics support or interface controls.

By defining how CM requirements are to be applied in contracts with suppliers, EIA-649-1 drives the program to understand and quantify the requirements as accurately and as early as possible to support effective CM and control of the system baseline.

The foreword to the EIA-649-1 further emphasizes the standard's purpose and inherent linkage to EIA649B:

This document defines requirements for a Defense enterprise implementation of the American National

Standards Institute / Electronics Industry Association, ANSI/EIA-649 in an Acquirer/Supplier contractual relationship.

The requirements are intended to be tailored by the Acquirer and cited in contracts or similar agreements with Suppliers to establish requirements for Configuration Management tasks consistent with ANSI/EIA-649 and each of its functions and principles.

Unless otherwise indicated, the requirements described herein apply to both hardware and software systems.

It is the responsibility of the Acquirer to determine the specific needs for their respective programs and ensure that their contracts or agreements sufficiently communicate those requirements.

This standard also applies when other types of agreements exist, such as agreements between government organizations who play the roles of acquirer and supplier.

Finally, this document is intended to be used as a stand-alone reference, invoked on a contract where the acquirer intends to be consistent with ANSI/EIA-649 Principles, and may be used for Department of Defense (DoD) programs in all phases of the acquisition life cycle.

Even though the EIA-649-1 is intended to satisfy DoD contracting requirements, this CM standard applies to any commercial or government enterprise engaged in acquirer/supplier CM activities.

Appropriate CM, the “Goldilocks Factor”

The EIA-649-1 is intended to help the government and industry in the acquirer role place CM requirements on DoD contracts by supplying the “shall” statements for implementing the EIA649B CM functions and principles.

It is important to understand that the EIA-649-1 is intended to be tailored to fit the unique needs of

ANNEX A Tailoring Worksheet

A.1 General

This Annex is a tool for practitioners to use to aid them in tailoring requirements of this standard and is not intended to be part of the contract.

A.2 Matrix Description

A check mark in the column entitled “Applies” indicates where the Acquirer has determined the applicability of the SAE Configuration Management Requirements for Defense Contracts, EIA-649-1.

Paragraph	Requirement	Sub requirement	Applies Y/N	Change or Clarification	SOW Paragraph	DID No.	CDRL Number	CDRL Tailoring
3.0 Configuration Management Requirements	(1)							
	(2)							
	(3)							
	(4)							
3.1 Planning and Management	(1)	a.				DI-SESS-80858 Supplier's Configuration Management Plan		
		b.						
		c.						
		d.						
		e.						
		f.						
		g.						
		h.						
		i.						

a defense acquisition or sustainment program. To help facilitate this, EIA-649-1 contains a tailoring worksheet in Appendix A listing all the CM requirements, or “shall” statements, by paragraph number. CM practitioners may use the worksheet to help tailor the requirements of this standard to fit their program’s phase, acquisition strategy, and system development approach. This worksheet is not intended to be part of the contract but to help determine which requirements, i.e., activities and deliverables, are needed for placement on contract



Status: SAE Balloting

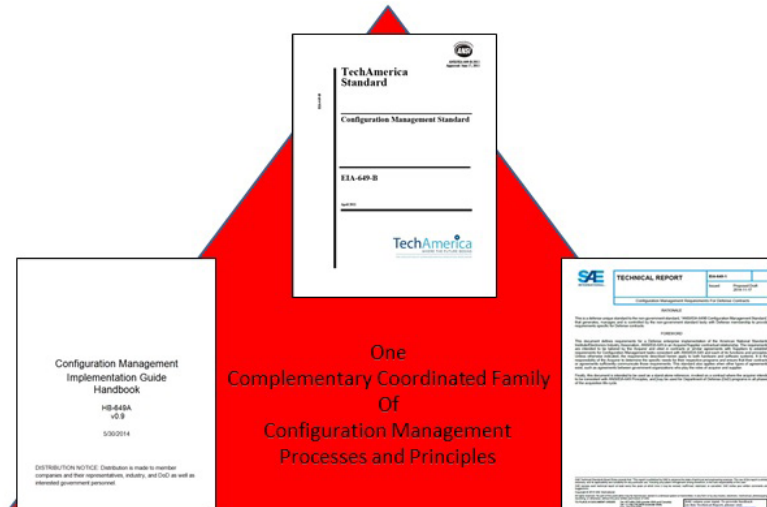
The EIA-649-1 successfully completed two rounds of formal voting at the SAE G-33 Committee level in September. The SAE Aerospace Council formally approved EIA-649-1 on October 15, 2014.

SAE International issuance of EIA-649-1 occurred

November 20th, 2014. Formal DoD adoption of the EIA-649 -1 is anticipated to occur by December 2014, and the standard will be synchronized with the cancellation of the interim MIL-STD-3046 and associated DIDs.

Complementary Coordinated Family of CM Principles and Processes

The acquirer should use EIA-649-1 in concert with the EIA649B and leverage the guidance provided in associated handbooks, such as EIA HB 649 and MIL-HDBK-61A. With this arsenal of collaborative and standardized CM requirements and guiding information, the CM professional should have a strategic advantage in implementing and executing acquirer/supplier (i.e., government/contractor) CM more efficiently and effectively.



Larry Gurule is President of i-infusion, Inc., as well as a CMPIC Associate Instructor. Larry is an active SAE G33 Configuration Management committee member, as well as 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



Daniel K. Christensen is the Configuration/Data manager for the Naval Air Systems Command (NAVAIR) and DSC CMSWG Chairman. Daniel is a certified Enterprise CM Professional and a member of the International Society of CM. Additionally, Daniel is a certified CMII Professional from the Institute of CM, CMPIC Masters Certification of Enterprise CM and CM Subject Matter Expert from the University of Houston, and certified Configuration and Data Manager from NDIA. As a member of SAE International, Daniel is the government liaison to the G33 committee, the government liaison to the NDIA Technical Information Division committee and is a 2012 recipient of the TechAmerica Associate Technical Fellowship award.

DANIEL K. CHRISTENSEN

***NEW* CMPIC Course 10: EIA-649-1 Configuration Management Requirements for Defense Contracts**

SAE ANNOUNCES RELEASE OF A NEW CM STANDARD: “SAE/EIA-649-1 CM Requirements for Defense Contracts” issued November 2014.



CMPIC will be offering a NEW, 3-day course entitled “EIA-649-1 CM Requirements for Defense Contracts” starting in 2015. Class will be offered both publicly and on-site.

This class will cover the full standard, which is self-described as the following:

This standard is for placing tailored Configuration Management requirements on Defense contracts.

...

This document defines requirements for a Defense enterprise implementation of the American National Standards Institute/Electronics Industry Association, ANSI/EIA-649 in an Acquirer/Supplier contractual relationship. The requirements are intended to be tailored by the Acquirer and cited in contracts

or similar agreements with Suppliers to establish requirements for Configuration Management tasks consistent with ANSI/EIA-649 and each of its functions and principles.

...

Finally, this document is intended to be used as a stand-alone reference, invoked on a contract where the acquirer intends to be consistent with ANSI/EIA-649 Principles, and may be used for Department of Defense (DoD) programs in all phases of the acquisition life cycle.

The course content will address the full standard, including associated DID’s and DD Forms. Each student will receive a licensed PDF copy of the latest version of “SAE/EIA-649-1 Configuration Management Requirements for Defense Contracts” after successful completion of this class.



Course schedule and fees will be announced on the CMPIC website by January 2015.

Please visit www.CMPIC.com/649-1 for more details.

Putting Data Hooks in the System

Supply Chain CM

by Jon M. Quigley & Kim Robertson
Value Transformation LLC



The Vendor Survey

As he listened to the vendor survey summary Peter Dobbs, the new director of Supply Chain Management, wondered what Genesis Test Equipment was thinking about even considering BGS as a supplier? The technology was brilliant and the unit price for their new dual sided controller board was very attractive, but their processes were far from the level of maturity he had expected. Success of the new Genesis Albedo program being built for Mitsikara rested on this procurement.

Akio summed up the vendor survey results, “None of the BGS specifications or statements of work used a standardized paragraph numbering system. Instead of the same information always being the same paragraph number in every statement of work its place varied from statement of work to statement of work. A similar issue existed in the BGS specifications. Supplier data requirements were not consistent across subcontracts. Some had 11 consecutively numbered DRLs and others had 34. DRL three in one SOW was DRL 23 in another.

“Their PLM system is not integrated with their supplier DRL submittals,” Akio continued, “Vendor DRLs are sent directly to the product development leads bypassing supply chain management and CM. While some DRL submittals may have been entered

into the BGS PLM system there is no document BOM associated with the Statements of Work. The configuration management process as a whole is not well documented and their configuration management planning based on their documentation appears poor; however ...”

Jason, the newest VP, felt he should let people know he was a no nonsense kind of guy. He had to set boundaries. Jason cut Akio off mid-sentence, “There is no “however”. This vendor really has nothing to offer Genesis due to its lack of document management and poor configuration control. I admit the BGS controller looks technically attractive. That said, I firmly believe we can’t afford the documentation risk. I propose we move to Xenophon’s board and call it good. They are our second best fit and closer to our needs than Nuevail’s proposal. Xenophon’s boards are pricey but I dealt with them when I was at Jamison and they were easily qualified as a preferred vendor and ...”

Mike had set down his coffee as soon as Jason had interrupted. He picked up his pencil with both hands, carefully regarded it. A sound like a rifle shot echoed in the small room as he snapped it in two. He hoped Jason had understood the message as he calmly said, “Akio please finish your thought.”

Akio nodded, “...their documentation appears poor; however, BGS licensing of the new D-Wave quantum computing technology makes their design far

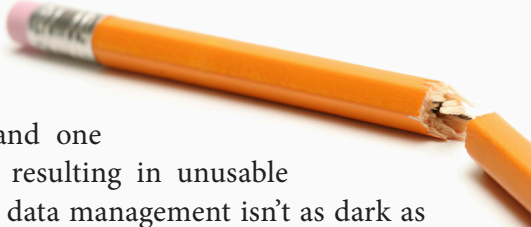
superior to anything on the market and will give us an advantage over our competitors that should hold for four years.”

Jason scowled. He didn't like being reprimanded in front of others. Despite Mike's private request to curb his tendency to talk over the top of other people it still stung. Mike's message that he would not tolerate such behavior was now very clear.

Mike took a sip of his long cold coffee and looked around the room. “Thank you Akio and Jason. Does anyone else have input?”

Vielgin Yelnacki, the program manager, looked at her notes, “I was involved in evaluating all vendor estimates against our very specific requirements. Based on the criticality of the BGS quantum computing capability to our business I also vote we use them. No one else even comes close to their alignment with our requirements. Xenophon and Nuevail LTD were much higher but took exception to more than 30 percent of the functional baseline. We have had issues with both delivering on time. We simply can't afford that on the Albedo program. It would ruin our preferred supplier status with Mitsikara.”

Sangita Morales chimed in, “I estimate that one third of our searches for information at BGS successfully result in meaningful data. This is better than the



national average of half the result being a null set and one fourth of the rest resulting in unusable information. Their data management isn't as dark as it appears on the surface. BGS is a young company and I think we can easily bring them along in a leader follower kind of arrangement.”

“I still think it is a bad move,” Jason stated. “This is one of the most damning vendor survey's I have ever seen. Financial control at BGS is good and quality appears adequate but they are poor everywhere else.”

Mike was quiet for a long time, “Jason, I understand your concerns. Let's see if BGS is willing to learn from us before we make any decisions. If they are, then the contact is theirs. I'll set up a meeting with their president tomorrow. Vielgin, I'd like you, Sangita, and Akio there. I'm also inviting Zuberi Sumbako.”

Mike continued, “Jason, this is ultimately a strategic as well as a program call. I'd like to talk with you about that. Let's meet in my office in one hour.”

“Roger that,” mumbled Jason.

Back to Basics

Akio followed Mike back to his office, “That was some exit!”

Mike laughed. “Simple and effective communication is sometimes the best. I think I'll save this form for special circumstances. I will not be able to break another pencil around here for at least five years.”

Akio took off his glasses. His unruly eyebrows flaring, “We had to go through mentoring suppliers like this once before. Do you want me to go through full CM training with BGS?”

Mike nodded, “Yes, I'm sure BGS will be glad to have the help. We can't afford to lose them as a strategic partner. I also want you to convert Jason in the process. He is new to Genesis and needs to see the

larger internal and external collaborative picture. I'll set that in process motion when I meet with him in a few minutes.”

A despondent Peter knocked at Mike's door shortly after Akio left. Two hours later Mike finished their conversation with, “Now you understand how we work internally, why BGS is the only acceptable solution, and what we are up against. Are you in?”

Peter nodded, “It is an entirely different paradigm and approach than I have ever seen before; but I'm in.”

Mike grinned, “Yes I figured it might be. I want you to work closely with Akio's team on this. Consider him your temporary lead until how you operate is how we operate.”

Peter returned to the office with a new respect for Mike, Akio, and CM. This actually could be fun.



Follow Through

Cindy Delacour the BGS CEO was concerned. She was under pressure from the consortium that provided the BGS venture capital at start. So far she had been able to meet their demands but it has cost almost more than the company and its employees could bear. All of them had taken second mortgages on their homes in order to make the payments to the investors and their profits were nonexistent.

After 3 years they were barely afloat.

Her employees were bright, innovative, and dedicated. Something was missing in the mix and several key programs had slipped through their fingers because of it. She just couldn't nail it down. If they lost this bid to Genesis they were looking at closing the doors.

Sabastian knocked on her door. “There is a call from Genesis on line two.”

Cindy didn't know if she should answer or not. Peter Dobbs hadn't been too friendly during the vendor survey and she feared more bad news. “Is it Jason?”

Sabastian shook his head, “Mike Tarquist.”

Cindy raised her eyebrows and picked up the phone, “Mike, good of you to call. Of course I can make it. I'd like to bring Sabastian Mills if that is OK. Good see you tomorrow at ten.”

Sabastian looked at her and couldn't read her expression, “Good news?”

She smiled nervously, “I'm not sure. He was friendly enough. He didn't say we lost the competition so I'm hopeful. They are sending over the results from the vendor survey and we are to discuss it tomorrow. He also wants a copy of our current financial condition sent over ASAP.”



“I’m on it but do you have any idea why?” Sebastian queried.

Cindy shook her head and she started to look worried.

Course Correction

“Thank you for coming,” Mike said. “Let’s start with a few simple things and progress from there. First, I’d like to have Zuberi Sumbako talk to you and then we can get down to specifics.”

Zuberi stood up and grinned at the assembled group. “We have a saying where I was born. It is ‘Tunaweza kufanya hivyo’. It means ‘We can do this!’ Nothing can be done alone. Everything lasting we accomplish in life depends on collaboration. I ask you all to enter into these discussions with the end goal in mind. Genesis knows what it is about and they have been good mentors to me and Mitsikara. So let us begin shall we? First off, Cindy and Sebastian, you need to understand how companies like Genesis and Mitsikara view our vendors. We view them as strategic partners and not a set of random commodity providers. As time and programs mature these strategic partners not only provide us products but are integrated into the design process so that leveraged innovation can occur.”

Cindy asked, “Exactly what is leveraged innovation?”

Zuberi laughed, “A very good question. Leveraged innovation is the utilization of the talent available

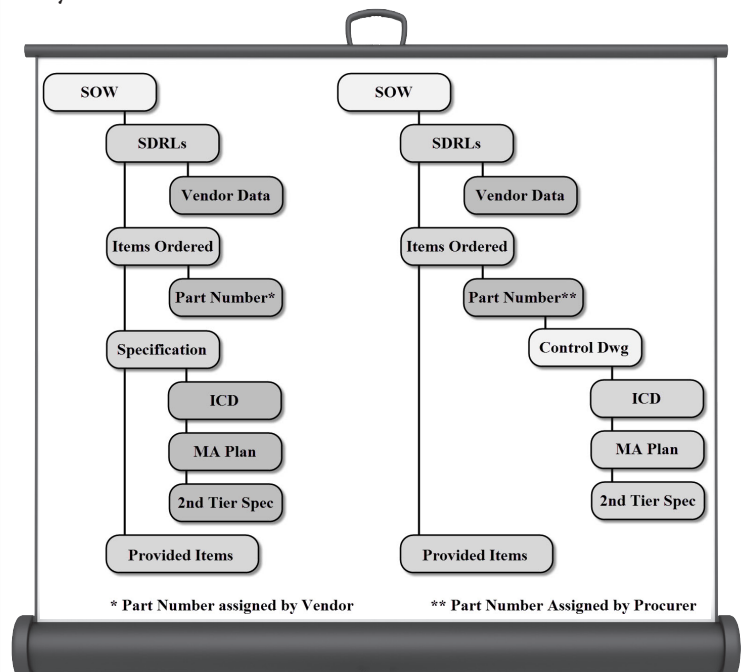


in multiple companies to the benefit of all as well as to the consumer. I have looked at the results of the Genesis vendor survey. It is not as good as you are capable of. Please do not take that the wrong way. You are young as a company. You are a seedling trying to grow in a very hostile environment. You are dying due to lack of cash flow and sound CDM processes. Genesis can help you grow healthy and strong. Please listen to them. The mentoring Genesis provided to Mitsikara was pivotal in one of our recent product launches. We couldn’t have done it without them.”

Remix

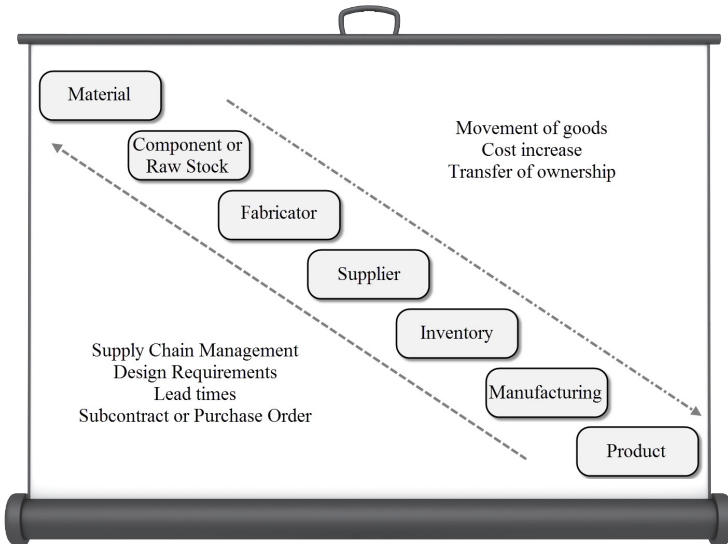
Six weeks later Cindy stood in front of Genesis Test Equipment’s executive board.

“Good morning,” Cindy said. “Our team has worked closely with Akio, Vielgin, and Sangita to straighten out our CM and supply chain issues. This graphic shows the relationship between any supplier and the end product. Along the way, critical data is generated that we had failed to capture or link in our PLM system.



“CM, contracts, and supply chain now work closely together to make sure that data from suppliers and customers are released in our PLM system and linked to the contract requirements. We also link supplier

items within the PLM system. This hinges on the use of document bills of materials that provide the hooks in the system to establish the required data links. We can now access all vendor data with fewer than four mouse clicks. Our structure for major subcontracts looks like this.



“It addresses the cases where the item part number is specified by the vendor as well as the case where the procurer supplies it. We are transitioning to a similar methodology for our standard commodity items that includes not only parts, materials and practices review of the item and its documentation but any associated royalty and technology leases schedules. We are using this this approach on all new major subcontracts and parts mastering. Older mastered parts are being looked at and missing data added in the PLM system. The parent child relationship linking approach was tested in the PLM system development lab and we know it is sound.”

Mike smiled, “How did you address specification and statement of work standardization and tracking the changes in requirements within the documents.”

Cindy nodded. “That was one of the easier items. We didn’t realize that by deleting paragraphs we no longer needed in the documents how difficult we were making things for ourselves. Moving to the Dynamic Object Oriented Requirements System for requirements tracking and with Sangita’s mentoring we were able to rectify that. Let me pull up a graphic

for your showing it in more detail. What you see is a typical Specification structure that uses all of the paragraphs and a preferred method of identifying requirements that are not imposed or changed.

Requirements Typical			
Customer Req ID	DOORS ID	Unit Specification, 1-543A-78B-6 Revision A	Verification Method
	PSS-35	3.2 Lifetime and Reliability	
	PSS-36	3.2.1 Mission Life	
Unit_Spec_010	PSS-37	The mission life of the unit shall be no less than 10 years after acceptance.	Analysis
	PSS-38	3.2.2 Storage Life	
Unit_Spec_010	PSS-39	The unit shall not be degraded during 2 years of storage.	Analysis
	PSS-40	3.2.3 Storage Compatibility	
Unit_Spec_010	PSS-41	The unit shall be designed to be compatible with ground storage requirement 3.2.2	Analysis
	PSS-42	3.2.4 Reliability	
Unit_Spec_010	PSS-43	Unit reliability shall be greater than 0.985 after 7 years of operation plus 2 years of storage prior to operational use.	Analysis
	PSS-44	3.2.5 End of Life	
Unit_Spec_010	PSS-45	Unit reliability at End of Life (EOL) at 10 years of plus 2 years of storage prior to operational use shall be greater than 0.975.	Analysis

Requirements Change Tracking			
Customer Req ID	DOORS ID	Unit Specification, 1-543A-78B-6 Revision B	Verification Method
	PSS-35	3.2 Lifetime and Reliability	
	PSS-36	3.2.1 Mission Life	
Unit_Spec_010	PSS-37	The mission life of the unit shall be no less than 10 years after acceptance.	Analysis
	PSS-38	3.2.2 Storage Life	
Unit_Spec_010	PSS-39	The unit shall not be degraded during 2 years of storage.	Analysis
	PSS-40	3.2.3 Storage Compatibility	
Unit_Spec_010	PSS-41	RESERVED	Analysis
	PSS-42	3.2.4 Reliability	
Unit_Spec_010	PSS-43	Unit reliability shall be greater than 0.985 after 7 years of operation plus 2 years of storage prior to operational use.	Analysis
	PSS-44	3.2.5 End of Life	
Unit_Spec_010	PSS-45	Unit reliability at End of Life (EOL) at 10 years of plus 2 years of storage prior to operational use shall be greater than 0.975.	Analysis

“In addition we believe that three cleanliness levels are required. While we had moved away from intelligent numbering systems, this is a case where we believe it is necessary. We now parts master items with the ISO cleanliness level class. We believe this is advisable rather than using something else like a FS209 class coding. That was Akio and Zuberi’s recommendation and we have embraced it.

Mike asked if there were any questions. After they had been answered, he turned to Zuberi who had also been invited. “What do you think?”

Zuberi’s laughter filled the room. “I think this young tree will survive and that we both have a new strategic partner. I am so impressed with the progress that BGS has made that Mitsikara would like to work with them to retire their debt with their venture capitalists and become their new financial partner. As the Albedo system is core to our traction handling systems on all new and existing models I believe our backing in this regard will be retired rather quickly.”

Cindy was dumbfounded, “Thank you ... BGS couldn't done it without your help and that of Genesis.”

Zuberi smiled, “You must thank Peter Dobbs. He approached me about your financial situation and I agreed it was a good idea to assure your role in both out futures.”

Mike whispered to Peter, “Well played.”

Peter smiled. He had worked with Akio and the others to pilot the turnaround in supply change management at BGS. He couldn't wait to implement some of the newer innovations at Genesis. Multidiscipline collaboration, leveraged innovation and assisting strategic partner success were now part of his vocabulary.



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Why Can't We Just Use SharePoint?

by **Peter Schroer**
Aras Corporation

Article originally published on the [Aras website](#)

I'm often asked: Why can't we use SharePoint as our PLM system? It's a legitimate question. After all, SharePoint manages documents, has security, web interface, reporting ... even a workflow. It smells like a PLM system and you already own it. So, why not?

SharePoint does informal processes very well. If you want to replace your shared network drive with a document library in SharePoint, you will not be disappointed.

But remember that SharePoint treats EVERYTHING as lists; lists of documents, lists of products, lists of customers, lists of parts... This offers no value add over your shared network drive, except now you have web interface. Hmm... so what's really missing from SharePoint?

The #1 missing functionality is context (Configuration Management). You have a list of documents and a list of parts, but what's the connection between the two? And how does that relationship between parts and BOMs and documents change over time (Effectivity)? Configuration Management rules are difficult to implement. There are only a few PLM systems that do configuration management well, and they all have well over 50 man-years of development each on the CM rules.

The #2 SharePoint limitation is its workflow engine. SharePoint has a simple task engine; very easy to quickly build a List of people who need to approve a change. But in the real world workflows loop, branch,



loop again and need to programmatically change mid-process. That's just not possible without heavily customizing SharePoint.

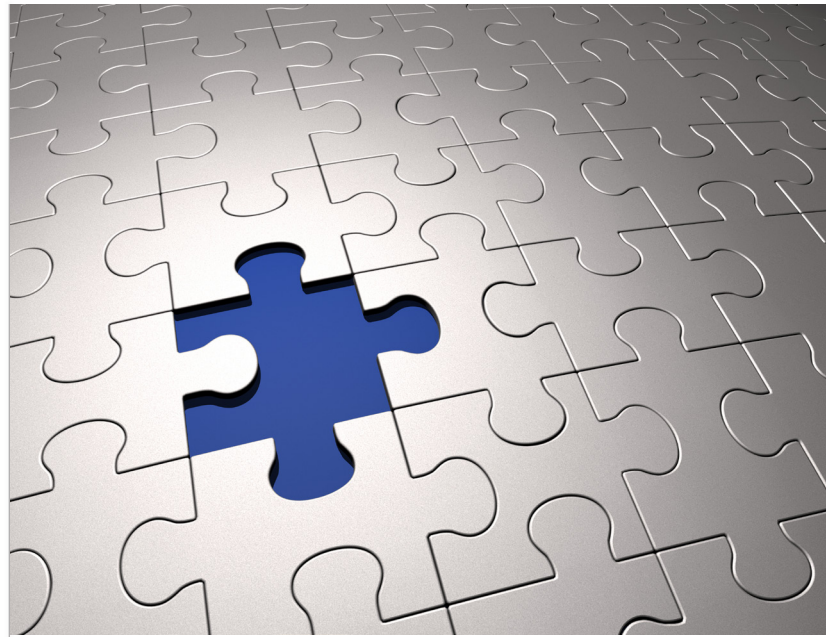
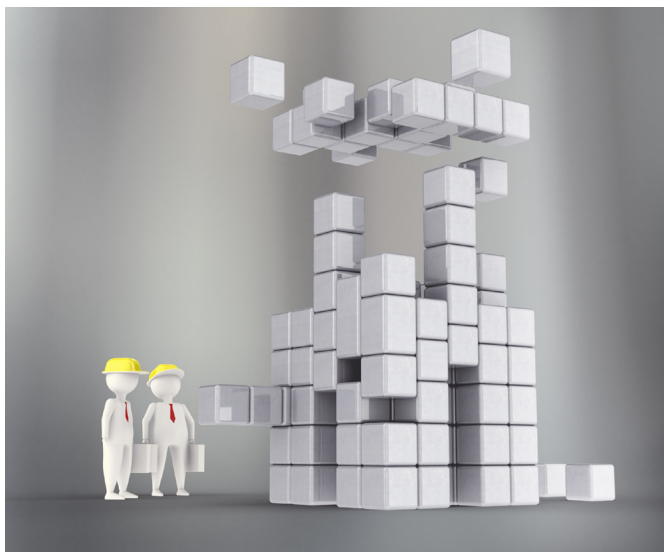
But SharePoint is of course infinitely customizable. It's possible to build the PLM functions that are missing from out-of-the-box SharePoint. Right? Well...

One of the first things you'll need to develop is formal Change Management controls. SharePoint will track changes and show the history of changes, but there is no concept of asking permission to make a change, which is the basic building block of a formal Engineering Change process. SharePoint lacks the out-of-the-box processes that prevent users from making random changes to documents. You'll also need to develop the business logic for Impact Analysis, Cost Analysis and Change Request workflows. My favorite quote

about SharePoint customization is from a Director of IT at General Motors. He refers to their SharePoint experience as the "SharePoint Graveyard." Over 2,000 SharePoint sites (tombstones) created throughout GM. All are 80% finished and then abandoned when the users found out the last 20% of functionality was not possible without considerable effort and knowledge.


And then you need to ask yourself, if SharePoint is capable of PLM, why isn't Microsoft pushing it as a PLM system? Recently, I heard a funny story about a huge Taiwan semiconductor manufacturing company who was pushed by a Microsoft sales person to use SharePoint as a PLM. After millions in customizing and a big failure, the company had to ctrl-alt-del and re-start their PLM journey from the beginning, with a commercial PLM solution. In general, Microsoft does not recommend SharePoint be used as the PLM system.

And finally, if SharePoint is capable of PLM, why did Microsoft provide joint development funding to both Aras and PTC to build SharePoint-embedded PLM solutions? Microsoft understands that the Configuration Management, CAD Management and complex workflow capabilities of commercial PLM system are not matched by SharePoint. However, I do agree that SharePoint has a role in bringing PLM data to the extended enterprise, especially if your PLM vendor sells expensive named-used licenses. And SharePoint has a powerful suite of Reporting and Business Intelligence applications which add value to any PLM deployment.



Bottom line: SharePoint is a powerful tool that has a very useful place in your PLM strategy, however, unless you are ready to invest significant time and resources into customization (i.e. building all the PLM functionality), it is not a replacement for choosing and deploying a real PLM system.

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Previously, he was a General Manager at both Workgroup Technologies and Thermo Electron. Peter began his career as a manager with Data General. He was also a member of the Nobel Prize winning design team at the prestigious IBM Thomas Watson Institute. Peter holds a BSEE, MENG EE, and MBA from Cornell University.

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