Project Performance International

Systems Engineering

Newsletter (SyEN)

SyEN #014 - November 24, 2009

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SyEN is an independent free newsletter containing informative reading for the technical project professional, with scores of news and other items summarizing developments in the field, including related industry, month by month. This newsletter and a newsletter archive are also available at www.ppi-int.com.

Systems engineering can be thought of as the problem-independent, and solution/technology-independent, principles and methods related to the successful engineering of systems, to meet stakeholder requirements and maximize value delivered to stakeholders in accordance with stakeholder values.

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A Quotation to Open On

"There are two ways of constructing a software design; one way is to make it so simple that there are obviously no deficiencies, and the other way is to make it so complicated that there are no obvious deficiencies. The first method is far more difficult." - C. A. R. Hoare

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Feature Article

Common Sense on Reliability Engineering (Part 1 of 3)

Albertyn Barnard

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"Unfortunately, the development of quality and reliability engineering has been afflicted with more nonsense than any other branch of engineering."- Patrick O'Connor

Many people believe that reliability engineering is a specialised discipline of engineering. The INCOSE Systems Engineering

Handbook, for example, refers to it as a specialty area of systems engineering, and describes it under the heading *"Design for Acquisition Logistics - Integrated Logistic Support"* [1]. Many companies therefore believe that reliability engineering should be part of logistics or maintenance, resulting in a reactive approach to handling equipment failures. Other people believe that reliability engineering relies heavily on mathematics and statistics, and is in practice nothing but "applied statistics". However, many of these beliefs are questionable when we apply common sense to this issue.

Reliability can simply be defined as the absence of failures in products and systems. When a product or system does not fail, it is reliable, and when it fails, it is not reliable! When a failure occurs, and the failure mode is analysed to determine its root cause, it is nearly always the result of human error. This implies that failures are primarily caused by errors made by people such as systems engineers, design engineers, production personnel, users and maintenance personnel. *"The achievement of reliability is essentially a management task, to ensure that the right people, skills, teams, and other resources are applied to prevent the creation of failures"* [2].

An example to illustrate this statement is the failure of an electronic component, such as a power transistor in a typical power supply unit. Is it really failure of a specific component, or is it merely the predictable end result of inadequate quality of design or production by people?

Further analysis will reveal that all failures, in theory and almost always in practice, can be prevented. Note that failure prevention does not imply that a product should be designed and produced to be infallible, but rather that the failure mode is prevented from occurring (e.g. a system failure can be prevented by replacement of a component subject to wear-out). *"There is no fundamental limit to the extent to which failures can be prevented"* [2]. Therefore, reliability and reliability engineering can be defined as follows:

Reliability is the absence of failures in products and systems

Reliability engineering is the management function that prevents the creation of failures

These definitions are also in agreement with viewpoints of many world leaders on quality, such as Philip Crosby, who wrote *"All non-conformances are caused. Anything that is caused can be prevented"* [3]. This viewpoint implies that reliability engineering should focus on the prevention of failure during design and production, and not on the correction of failure during operations. We need to practise proactive approaches to reliability (i.e. failure prevention), rather than reactive approaches (i.e. failure correction or failure management).

Verification of design and production

"I believe that the concept of failure is central to understanding engineering, for engineering design has as its first and foremost objective the obviation of failure." - Henry Petroski

Understanding and anticipating possible causes of failure are fundamental to preventing them. How can this be achieved during product development and production? Figure 1 shows that both design and production should be followed by verification (e.g. by *analysis* or *test*). If a design or process deficiency is identified during verification, it has to be corrected, and verified again. Although this is a well-known iterative process, few engineers understand that it is also applicable to reliability! Verification should therefore not only show that the product complies with specifications, but should also identify design and production weaknesses which may lead to failure during operations.
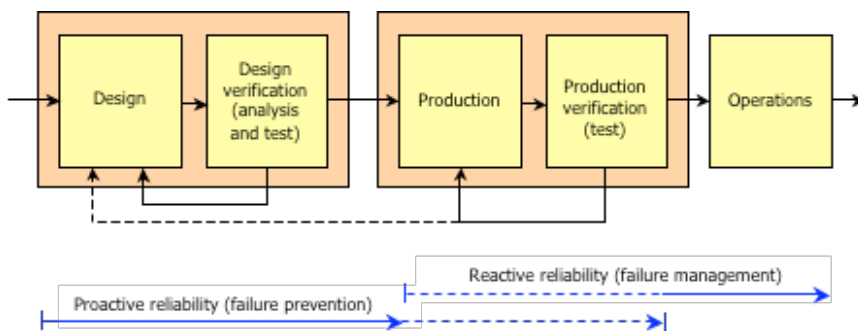

Figure 1: Verification of design and production

Once in operation, reliability cannot be improved to levels higher than the inherent reliability. Reliability can only deteriorate to lower levels due to various other factors. It is evident that reliability activities change from proactive to reactive once production has started, although some reliability engineering activities are applicable to the production phase.

What is meant by "Analysis" and "Test" in this context?

Any engineering analysis that provides knowledge on potential product failure modes, and the prevention thereof, can be used as valuable reliability engineering tool. Examples include electronic component derating analysis, worst case circuit analysis, tolerance analysis, thermal analysis, finite element analysis, vibration analysis, etc.

Failure analyses, performed with the objective of understanding how the product or system will react to potential failure modes, are extremely useful to influence design during development. Typical analyses include reliability block diagram analysis, design (and process) FMEA (Failure Mode and Effects Analysis) and FTA (Fault Tree Analysis).

HALT (Highly Accelerated Life Testing) and HASS (Highly Accelerated Stress Screening) are overstress test methods that

provide early knowledge on design and production weaknesses, providing opportunities for improvements that will lead to higher field reliability. The application of these methods requires the use of special test equipment to subject development models or production units to environmental stresses far beyond specification levels. HALT is used during design, and HASS during production.

[The second part of this series will discuss "Analysis" as a verification method in more detail, while the third and last part of the series will discuss "Test", with special reference to HALT and HASS – Editor].

REFERENCES

[1] INCOSE, *Systems Engineering Handbook*, version 3.1, August 2007
[2] O'Connor, P.D.T., *Commentary : Reliability – Past, Present, and Future, IEEE Transactions on Reliability*, Vol. 49, No. 4, December 2000
[3] Crosby, P.B., *Quality without tears*, McGraw-Hill, 1995

BIOGRAPHY

Albertyn Barnard received the degrees M Eng (Electronics) and M Eng (Engineering Management) from the University of Pretoria in South Africa. He has provided consulting services in reliability engineering to the defence, nuclear, aerospace and commercial industries since 1982. He provides training in reliability engineering to local industry and at post-graduate level at the University of Pretoria. He has presented numerous technical papers at local and international symposia, and won the Ad Sparrius Best Paper Award at the 2004 INCOSE SA conference, as well as the Gold Award at the 2009 International Applied Reliability Symposium Europe. He has been a member of the management committee of INCOSE SA for a number of years, and served as President of INCOSE SA in 2008. His company, Lambda Consulting, specialises in reliability engineering activities applicable to the development phase of products, with emphasis on reliability analysis of electronic design and HALT (Highly Accelerated Life Testing). Lambda Consulting established the first commercial HALT laboratory in South Africa in 2008.

Systems Engineering News

Russell L. Ackoff, Management Consultant & Systems Thinker 1919 -2009

Professor Russell L. Ackoff has been described as a Renaissance Man, architect, city planner, philosopher, behavioral scientist, trailblazer in the field of organizational operations, the pre-eminent authority on organizational systems theory, best-selling author, world traveler—even a humorist. Recognized internationally as a pragmatic academic, Russ, as he was known to all, devoted most of his professional life to "dissolving" complex societal and organizational problems by engaging all stakeholders in designing solutions.

More Information

OMG Announces Program to Certify Practitioners of Model-Based Systems Engineering Using SysML

OMG(TM) announces the latest set of examinations to certify practitioners of Model-Based Systems Engineering (MBSE) using the OMG Systems Modeling Language (OMG SysML(TM)). The program's founding sponsors IBM(R), Lockheed Martin and Sparx Systems have made construction and validation of the exams possible.

More information

Systems Engineering Certification Tutorial Webinar

The INCOSE Hampton Roads Area (HRA) Chapter and Northrop Grumman Corporation (NGC) are hosting a tutorial webinar to help participants prepare for the certification exam as a part of achieving an INCOSE Certified Systems Engineering Professional (CSEP) certification.

Begun Thursday, November 19th and running through April 2010, the tutorial consists of 16 weekly sessions, held from noon to 1:30 p.m., Eastern Time USA, for up to 125 INCOSE participants, on a first-come-first-serve basis. To join in, logon with your personal INCOSE Connect username and password, or your Corporate Advisory Board organization's INCOSE Connect username and password, to:

https://connect.incose.org/tut/sehandbook/default.aspx

For details of how to join INCOSE as an individual member, and for details of Corporate Advisory Board (CAB) membership, see www.incose.org.

Note: SyEN is not affiliated in any way with INCOSE or with any other professional society. The publisher of SyEN, Project Performance International, believes strongly in the value to the engineering and project communities of INCOSE, IIBA and other professional societies. Editor

Artisan Acquires to Expand Consultancy and Training Services

Artisan Software Tools has acquired Brass Bullet Ltd, a systems engineering consultancy based in Swansea in the UK.

The acquisition is part of Artisan's (Cheltenham, UK) growth strategy and gives the company full ownership of Brass Bullet's consultancy and training offerings in software design, Systems Engineering and Enterprise Architectures.

More information

Featured Societies - Human Factors and Ergonomics Society (HFES)

The mission of HFES is to promote the discovery and exchange of knowledge concerning the characteristics of human beings that is applicable to the design of systems and devices of all kinds.

The Society furthers serious consideration of knowledge about the assignment of appropriate functions for humans and machines, whether people serve as operators, maintainers, or users in the system. And, it advocates systematic use of such knowledge to achieve compatibility in the design of interactive systems of people, machines, and environments to ensure their effectiveness, safety, and ease of performance.

The Society was founded in 1957. It has 23 technical groups and numerous local and student chapters, mainly in the United States, but also in China and Europe. HFES is a member of the International Ergonomics Association (IEA), a federation of the world's ergonomics societies.

The following definition of human factors/ergonomics was adopted by the International Ergonomics Association in August 2000:

"Ergonomics (or human factors) is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and other methods to design in order to optimize human well-being and overall system performance."

More information

INCOSE Technical Operations

INCOSE Tools Database Working Group (TDWG)

http://www.incose.org/practice/techactivities/wg/tools/

Charter

The TDWG Charter is to:

- Deliver a tools comparison & information database for general COTS systems engineering tools
- Provides SEs a resource to obtain information on available tools based on their specific need

Leadership

Chair: Randy Bullard, AFIT Center for Systems Engineering

Co-Chair: Thomas Lockhart, HQ, Air Force Materiel Command

Members of the TDWG meet twice yearly - at the International Workshop and the International Symposium. They also use the INCOSE Connect, the web-based collaboration space provided for technical activities. Benefits of participation on this working group include gaining a detailed working knowledge of the various SE Tool categories and COTS tools and when to apply them to solve SE problems.

There are several ways to participate including:

- **Working Member:** Participates in the development of SE Tool related products; participates in most TDWG meetings
- **Reviewing Member:** Participates in the review of Working Group products and technical papers; frequently participates in TDWG meetings
- **Information Member:** Receives information via e-mail, but currently not active due to business demands; participates in TDWG meetings as often as possible

Presentations

(Size: 200K)

Contact Tools Database Working Group for additional information or to join this group.

Accomplishments/Products

- **Requirements Management Tools:** Through a collaborative effort with the Requirements Working Group, a RMT survey was constructed and distributed to 14 COTS vendors. The latest survey responses are available as part of the Tools Database.
- **Systems Architecture Tools:** Through a collaborative effort with the Systems Architecture Working Group, a SA Tool survey was constructed and distributed to 10 COTS vendors. The latest survey responses are available as part of the Tools Database.
- **Measurement Tools:** Through a collaborative effort with the Measurement Working Group, a Measurement Tool survey was constructed and distributed to nine different COTS vendors. The latest survey responses are available as part of the Tools Database.
- The Tools Database currently lists over 1,500 Commercial Off-the-Shelf (COTS) and Government Off-the-Shelf (GOTS) tools of interest to systems engineers. These tools are listed alphabetically by tool name and by tool vendor.

Upcoming Projects

- Learn how to leverage the INCOSE collaborative environment to support working group activities.
- Institute a requirement for annual tool data verification.
- Develop a combined tools database format/taxonomy.
- Streamline the input process to the survey, making it easier on vendors; establish periodic mandatory update process.
- Look into including "does your tool support standards xxxx?" as part of the tools survey.
- Explore inclusion of features to make the tools information more useful such as a "print option" to make pages printable or a "compare" capability, allowing database user to compare models side-by-side.

Systems Engineering Software Tools News

Vitech Releases CORE 6

Vitech Corporation has announced the release of CORE 6, a major capability enhancement with respect to CORE 5.1.5. CORE provides comprehensive functionality supporting model-based systems engineering (MBSE). With the addition of COREsim, CORE also provides discrete event simulation capability, enabling improved analysis of timing, resource utilisation and logical inconsistencies in problem domain and solution level models.

Returning to CORE 6, improvements over CORE 5.1.5 include:

- support for SysML Activity, Sequence and Requirements diagrams
- comprehensive automated versioning capability
- new and better documentation and support.

More information

"Modeling for Environmental Sustainability" Web Seminar Series

Fridays beginning November 6, 2009, 11:00 - 12:10 PM EST
Presented by: Chris Soderquist, President, Pontifex Consulting, Climate Interactive Team Member

Modeling for Environmental Sustainability will help you develop a greater understanding of the impact we have on the environment and the feedback systems that impact us. Each session will apply basic Systems Thinking concepts, software mechanics, and the dynamic modeling process to a special environmental topic. Because the human population is a fundamental component to our impact on the environment, we will first look at the dynamics associated with population growth...and potential future scenarios that might result. The next session will dive into (pun intended) issues associated with water; the final session will explore the common dynamics of commodity systems.

The Webinar is offered by isee systems, providers of the STELLA and iThink systems thinking software.

More information

Artisan Works to Improve Models, Display

Modeling company Artisan Software Tools has focused on adding model display improvements to its Artisan Studio modeling environment. It has also released a new automated model checker.

More information

Systems Engineering Books, Reports, Articles and Papers

CMMI with Agile, Lean, Six Sigma, and Everything Else

By Mike Philips

I repeatedly encounter those seeking the one solution that will solve the problems in their organization. Such a search is often commissioned by a boss who wants the single answer and a quick fix to the organization's problems. In this column, I try to describe how to relate some of these answers rather than trying to make any of them—even CMMI—a single solution.

More information

Thinking in Systems: A Primer

By Donella H. Meadows

This paperback book was released on December 3, 2008 by Chelsea Green Publishing. ISBN-10: 1603580557, ISBN-13: 978-1603580557

Simulation-Based Engineering of Complex Systems

By John R. Clymer

This hardcover book was released as a 2nd Edition on March 16, 2009 in the Wiley Series in Systems Engineering and Management. ISBN-10: 047040129X, ISBN-13: 978-0470401293

Decision Making in Systems Engineering and Management

By Gregory S. Parnell, Patrick J. Driscoll, Dale L. Henderson

Publisher's Description: *"This comprehensive textbook provides a logical process for fact-based decision making for the most challenging systems problems. It is composed of three bedrock elements to improve readers' understanding and analysis of the most challenging systems problems that exist today: systems thinking, which identifies important interconnections between a system and its environment; systems engineering, which describes the activities of professional systems engineers; and systems decision making, which provides fact-based information to support major system decisions made at every life cycle stage."*

This hardcover book was published on February 8, 2008 in the Wiley Series in Systems Engineering and Management. ISBN-10: 0470165707, ISBN-13: 978-0470165706

Analytical Methods for Risk Management: A Systems Engineering Perspective

By Paul R. Garvey

Publisher's Description: *"A Text on the Foundation Processes, Analytical Principles, and Implementation Practices of Engineering Risk Management"*

Drawing from the author's many years of hands-on experience in the field, the book presents the foundation processes and analytical practices for identifying, analyzing, measuring, and managing risk in traditional systems, systems-of-systems, and enterprise systems. After an introduction to engineering risk management, the book covers the fundamental axioms and properties of probability as well as key aspects of decision analysis, such as preference theory and risk/utility functions. It concludes with a series of essays on major analytical topics, including how to identify, write, and represent risks; prioritize risks in terms of their potential impacts on a systems project; and monitor progress when mitigating a risk's potential adverse effects. The author also examines technical performance measures and how they can combine into an index to track an engineering system's overall performance risk. In addition, he discusses risk management in the context of engineering complex, large-scale enterprise systems.

This hardcover book was published on October 20, 2008 by Chapman & Hall/CRC. ISBN-10: 1584886374, ISBN-13: 978-

Conferences and Meetings

Business Analyst World

30 November - 1 December, 2009, Ottawa, Canada. More information

Model Driven Day (MDDAY) 2009

26 November 2009, Paris, France
More information

SysML Day NEW

2 - 4 December, 2009. Singapore.
More information

1st Annual Global Conference on Systems and Enterprises (GCSE)

2 - 4 December, 2009. Singapore.
More information

4th South-East European Workshop on Formal Methods (SEEFM 2009)

4-5 December 2009, Thessaloniki, Greece
More information

International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CISSE 09)

December 4 - 12, 2009
Sponsored by the University of Bridgeport - Technically co-sponsored by the IEEE Computer Society, Communications Society and Education Society (Connecticut Section)

More Information

Introduction to Dynamic Modeling with STELLA and iThink NEW

Colorado Springs, CO — December 9-11, 2009

More information

Intermediate Dynamic Modeling with STELLA and iThink NEW

Colorado Springs, CO — December 14-16, 2009

More information

INCOSE 2010 International Workshop

7 - 10 February, 2010. Phoenix Marriott Mesa, Mesa, Arizona.
More information

Semantic Models for Adaptive Interactive Systems

In conjunction with 2010 International Conference on Intelligent User Interfaces (IUI 2010) in Hong Kong, China, on February 7th, 2010

More information

1st Workshop on Semantically-Enabled Systems Engineering (SENSE-2010)

15 - 18 February, 2010. Andrzej Frycz Modrzewsk Cracow College, Krakow, Poland.
More information

IESS 1.0: First International Conference on Exploring Services Sciences

17 - 19 February, 2010. Geneva, Switzerland.
More information

The 1st Workshop on Model Based Engineering for Embedded Systems Design NEW

March 12, 2010 - Dresden, Germany

More information

CSER 2010 8th Annual Conference on Systems Engineering Research

17-19 March, Honoken, NJ, USA
More information

Track on REAL-TIME SYSTEMS at ACM SAC 2010

21 - 26 March, 2010. Sierre, Switzerland.
More information

The Third Edition of the Requirements Engineering Track (RE-Track'10)

22 - 26 March, 2010. Sierre, Switzerland.
More information

Symposium On Theory of Modeling and Simulation - DEVS Integrative M&S Symposium (DEVS'10)

April 11 - 15, as part of the 2010 Spring Simulation Multiconference at the Florida Mall Hotel and Conference Center in Orlando, FL, USA

WER'10: 13th Workshop on Requirements Engineering

April 12-13, 2010 - Cuenca, Ecuador

More Information

Agent-Directed Simulation Symposium (ADS 2010)

12 - 15 April, 2010, Orlando, Florida, USA.
More information

Second NASA Formal Methods Symposium (NFM 2010)

April 13 - 15, 2010, USA

More information

COFES: Congress on the Future of Engineering Software (COFES) 2010

15 - 18 April, 2010, Scottsdale, Arizona, USA.
More information

2010 The 2nd IEEE International Conference on Systems Engineering and Modeling (ICSEM 2010)

23 to 25 April 2010, Bangkok, Thailand

More information

22nd Annual Systems & Software Technology Conference (SSTC 2010)

26-29 April 2010, Salt Palace Convention Center, Salt Lake City, Utah
More information

Systems Engineering and Test Evaluation (SETE) 2010

3 - 6 May, 2010, Stamford Grand, Adelaide.
More information

Software Process Improvement and Capability Determination (SPICE) 2010

18-20 May 2010 - Pisa, Italy

More information

EuSEC 2010: Systems Engineering and Innovation

23 - 26 May, 2010, Stockholm, Sweden.
More information

The 22nd International Conference on Advanced Information Systems Engineering (CAiSE'10)

07-11 June 2010, Hammamet, Tunisia
More information

21st IEEE International Symposium on Rapid System Prototyping

June 8-11, 2010, George Mason University, Fairfax, Virginia, USA

More information

PETRI NETS 2010

21-25 June, 2010, Braga, Portugal
More information

ACSD 2010: 10th International Conference on Application of Concurrencyto System Design

Collocated with Petri Nets 2010

June 21-25, 2010, Braga, Portugal

More information

ISARCS 2010 - 1st International Symposium on Architecting Critical Systems Federated with CompArch 2010

June 23-25 2010 Prague, Czech Republic

More information

20th Annual INCOSE International Symposium (IS10)

11 - 15 July, 2010, Rosemont, IL, USA.
More information

The 18th International Requirements Engineering Conference (RE 2010)

Sep 27, 2010 - Oct 1, 2010, Sydney, Australia

More information

Fourth Asia-Pacific Conference on Systems Engineering (APCOSE 2010) 〜〰〜 **NEW**

4 - 6 October, 2010. Keelung, Taiwan.
More information

Complex Systems Design & Management 2010

October 27-29, 2010, Paris, France

More Information

Education & Academia

All Systems Are Go at University of Alabama in Huntsville

New center eager to team with local firms, Griffin says.

Huntsville is more about aerospace, defense and energy systems than it is about leading the development of the many sub-disciplines that feed them, said Mike Griffin, former NASA administrator and now King-McDonald Eminent Scholar at UAH.

Griffin is heading development of a Center for Systems Studies at UAH, which should make the school even more of an asset to the work of the region.

More information

Colorado Technical University to Offer Six New Online Advanced Degrees

Colorado Technical University has launched six new online advanced degree programs, including a Master of Science degree in systems engineering.

More information

Some Systems Engineering-Relevant Websites

http://www.marte-ug.org/

This is the website of the MARTE Users" Group. The MARTE Users' Group is a group of persons and institutions using, evaluating or developing tools for the Modeling and Analysis of Real Time and Embedded systems UML profile.

This profile is a standard of the OMG but the MARTE Users' Group is independent of any organizations, including the OMG. It aims at providing a forum for discussing the usages of MARTE, identifying and disseminating the good practices of MARTE tools, influencing the standard and providing resources to MARTE users.

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http://web.archive.org/web/20071014215728/http://www.geocities.com/SouthBeach/1285/syspaper.html

http://web.archive.org/web/20071229151416/www.geocities.com/SouthBeach/1285/decision.html

The first page, originally on the recently shut down Geocities site, is titled "Engineer Your Love Life - A Systems Engineering Approach to Dating and Relationships". Yes, really! This paper presents a systems engineering approach to an unlikely (from an engineering point of view) problem - the real life process of finding and then maintaining a primary, lifetime partnership (traditionally defined by a marriage). Especially interesting is that the basis of the paper is the real case of Mr. Larry Kahn. The case is described from initial problem definition, through the first several years of an (apparently very successful) marriage.

The second page carries another paper from the same author, dealing with Naturalistic Decision Making and Selecting a Spouse. This project applied theories of how people make decisions to the problem of how to make a good partner choice.

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http://www.galorath.com/

This is the website of Galorath Inc. Galorath provides sophisticated tools for project cost, effort and duration estimation.

Standards and Guides

OMG's Model Interchange Working Group to Host Interoperability Demonstration

Members of OMG's(TM) Model Interchange Working Group (MIWG) will hold an Interoperability Demonstration on December 7, 2009 at the OMG Technical Meeting in Long Beach, California, USA from 09:00 - 12:00 PT. This half-day event will showcase the work the group has done to facilitate interoperability between UML(R)-based modeling tools. The group's focus is on model interchange between UML(R), OMG SysML(TM), and Unified Profile for DoDAF and MODAF (UPDM)-capable tools.

More information

Plans for CMMI Version 1.3

CMMI is a process improvement approach that aims to provide organizations with the essential elements of effective processes that, if implemented, ultimately improve performance of the organization.

The CMMI Steering Group has approved criteria for the next release of the CMMI Product Suite, CMMI Version 1.3. The update is planned to apply to all three CMMI constellations: Development, Acquisition and Services. Development drafts are being published monthly during the piloting period to give the developer (SEI) feedback on proposed changes as they move through the upgrade to Version 1.3. These monthly drafts are available for review and use from October 2009 through March 2010. If your organization is interested in reporting on its use of draft versions of a CMMI Version 1.3 draft model (CMMI-DEV, CMMI-ACQ, CMMI-SVC) during this period, email SEI Customer Relations (info at sei.cmu.edu).

More information

Status of CMMI for Services (CMMI-SVC)

CMMI for Services (CMMI-SVC) is a guide which aims to help service provider organizations reduce costs, improve quality, and improve the predictability of schedules. It sits along side CMMI for Development and CMMI for Acquisition.

CMMI-SVC aims to provide best practices in relation to:

- deciding what services they should be provided, defining standard services, and letting people know about them
- make sure that everything that everything need to deliver a service, including people, processes, consumables, and equipment, is provided for when needed, at an appropriate cost
- getting new systems in place, changing existing systems, retiring obsolete systems, while making sure that nothing goes seriously wrong with the service delivery
- setting up agreements, taking care of service requests, and operating service systems
- handling what does go wrong - and preventing things going wrong in the first place where possible
- ensuring that the organization recovers from disasters and gets back to delivering services if a disaster occurs.

CMMI® for Services was released as Version 1.2 (CMMI-SVC, V1.2) in February 2009 as Technical Report CMU/SEI-2009-TR-001

The model may be downloaded at
http://www.sei.cmu.edu/library/abstracts/reports/09tr001.cfm

More information

Status of CMMI® for Acquisition (CMMI-ACQ)

CMMI® for Acquisition (CMMI-ACQ) aims to be a best practices model that can help organizations improve relationships with their suppliers by helping improve the organization's own processes. The intended use of CMMI-ACQ is to increase control of projects, better manage global sourcing of products and services, and more successfully acquire solutions that meet the organization's needs.

CMMI® for Acquisition is based on the CMMI® Framework. The CMMI® for Acquisition model has 22 process areas: six are specific to acquisition practices and sixteen are shared with other CMMI® models.

The six process areas that are specific to acquisition practices are:

- Acquisition Requirements Development (ARD)
- Solicitation and Supplier Agreement Development (SSAD)
- Agreement Management (AM)
- Acquisition Technical Management (ATM)
- Acquisition Verification (AVER)
- Acquisition Validation (AVAL).

Additionally, the model includes guidance on:

- acquisition strategy

- typical supplier deliverables
- transition to operations and support
- integrated teams.

The sixteen shared process areas include practices for project management, organizational process management, and infrastructure and support.

CMMI® for Acquisition was released as Version 1.2 (CMMI-ACQ, V1.2) in November 2007 as Technical Report CMU/SEI-2007-TR-017

The model may be downloaded at
http://www.sei.cmu.edu/library/abstracts/reports/07tr017.cfm

More information

Status of People Capability Maturity Model (P-CMM)

The People CMM is a maturity framework that describes the key elements of managing and developing the workforce of an organization. It describes an evolutionary improvement path from an ad hoc approach to managing the work-force, to a mature, disciplined development of the knowledge, skills, and motivation of the people that fuels enhanced business performance.

The People CMM aims to help organizations to

- characterize the maturity of their human resource practices
- set priorities for improving the competence of its work-force
- integrate competence growth with process improvement
- establish a culture of workforce excellence

The People CMM is designed to guide organizations in selecting activities for improving their workforce practices based on the current maturity of their workforce practices. By concentrating on a focused set of practices and working aggressively to install them, organizations can steadily improve their level of talent and make continuous and lasting gains in their performance. The People CMM guides an organization through a series of increasingly sophisticated practices and techniques for developing its overall work-force. These practices have been chosen from experience as those that have significant impact on individual, team, and organizational performance.

People Capability Maturity Model (P-CMM) was released as Version 2.0, Second in July 2009 as Technical Report CMU/SEI-2009-TR-003.

The model may be downloaded at
http://www.sei.cmu.edu/library/abstracts/reports/09tr003.cfm

More information

ISO 31000:2009 Risk management - Principles and guidelines

ISO 31000:2009 was published on 13 November, 2009. The standard provides principles and generic guidelines on risk management. ISO 31000:2009 is not specific to any industry or sector.

More information

ISO Guide 73:2009 Risk management - Vocabulary

ISO Guide 73:2009 was published on 13 November, 2009. The guide provides definitions of generic terms related to risk management..

More information

TMMi® Reference Model

The Test Maturity Model Integration (TMMi®) was developed by the TMMi Foundation to complement the existing CMMI framework. Version 2.0 of the standard was released this year. The TMMi Foundation, is a non-profit organization established with the sole intent of developing the TMMi standard.

TMMi® provides a structured presentation of maturity levels, allowing for standard TMMi assessments and certification, and enabling a consistent deployment of the standard and the collection of industry metrics.

More information

Some Definitions to Close On

Configuration Management

A discipline applying technical and administrative direction and surveillance to (1) identify and document the functional and physical characteristics of a configuration item, (2) control changes to those characteristics, (3) record and report change processing and implementation status, and (4) verify compliance with specified requirements.

Source: CMMI-DEV, V1.2

Configuration Item

An aggregation of work products that is designated for configuration management and treated as a single entity in the configuration management process.

Source: CMMI-DEV, V1.2

Configuration Baseline

The configuration information formally designated at a specific time during a product's or product component's life. Configuration baselines, plus approved changes from those baselines, constitute the current configuration information.

Source: CMMI-DEV, V1.2

Configuration Identification

An element of configuration management consisting of selecting the configuration items for a product, assigning unique identifiers to them, and recording their functional and physical characteristics in technical documentation.

Source: CMMI-DEV, V1.2

Configuration Control

An element of configuration management consisting of the evaluation, coordination, approval or disapproval, and implementation of changes to configuration items after formal establishment of their configuration identification.

Source: CMMI-DEV, V1.2

Configuration Status Accounting

An element of configuration management consisting of the recording and reporting of information needed to manage a configuration effectively. This information includes a listing of the approved configuration identification, the status of proposed changes to the configuration, and the implementation status of approved changes.

Source: CMMI-DEV, V1.2

Configuration Audit

An audit conducted to verify that a configuration item, or a collection of configuration items that make up a baseline, conforms to a specified standard or requirement.

Source: CMMI-DEV, V1.2

Configuration Control Board

A group of people responsible for evaluating and approving or disapproving proposed changes to configuration items, and for ensuring implementation of approved changes.

Source: CMMI-DEV, V1.2

The following alternative definitions are recommended by PPI as being more useful:

Configuration Management

A discipline applying technical and administrative direction and surveillance to (1) identify and document the characteristics of a configuration item, (2) control changes to those characteristics, (3) record and report change processing and implementation status, and (4) verify compliance with specified requirements.

Configuration Item

A work product that is designated for configuration management and treated as a single entity in the configuration management

process.

Configuration Baseline

The configuration information formally designated at a specific time during a product's life. Configuration baselines, plus approved changes from those baselines, constitute the current configuration information.

Configuration Identification

An element of configuration management consisting of assigning a unique identifier to a configuration item, and recording the item's characteristics in technical documentation, through establishment of a configuration baseline.

Configuration Control

An element of configuration management consisting of the evaluation, coordination, approval or disapproval, and implementation of changes to configuration items after formal establishment of their configuration identification.

Configuration Status Accounting

An element of configuration management consisting of the recording and reporting of information needed to manage a configuration effectively. This information includes a listing of the approved configuration identification, the status of proposed changes to the configuration, and the implementation status of approved changes.

Configuration Audit

An audit conducted to verify that a configuration item conforms to a specified standard.

Configuration Control Board

An organizational unit responsible for evaluating and approving or disapproving proposed changes to configuration items, and for ensuring implementation of approved changes.

Project Performance International News

Systems Engineering Goldmine Enhancement

PPI's Systems Engineering Goldmine (SEG) is a large (about 1GB), free archive of handbooks, papers, models, templates, examples, tools and standards relevant to the field of systems engineering. Well, behind the scenes we have been working on a major enhancement:

- much-increased metadata, including organization, keywords, date of release
- user-selectable views
- extensive search options
- addition of about 2400 new downloadable resources, many up-to-the-minute and of outstanding relevance.

For those with a technical interest, the redeveloped SEG is using a Drupal-based architecture. The project is lead by Dr. Darren Kelly, of SysML/Magic Draw fame.

Welcome to Michael Fletcher – Principal Consultant IT

PPI welcomes Michael Fletcher to the family, in the role of Principal Consultant, Information Technology. Michael holds a Graduate Diploma in Software Development, a Masters Degree in Information Technology and a Masters Degree in Computing. Michael is also a past recipient of an Apple University Consortium scholarship. Michael Fletcher will lead PPI's Information Technology Consulting Practice, with an emphasis on the integration of engineering software tools into project and business systems.

First PPI Cognitive Systems Engineering Courses Delivered

PPI's newest, and in many respects deepest course, Cognitive Systems Engineering, is up and running, with successful deliveries in Adelaide, Australia and Las Vegas, USA, over the October-November 2009 period. Feedback from delegates to this course, developed and delivered by Dr. Gavan Lintern, has been excellent.

Cognitive Systems Engineering (CSE) is an approach to the engineering of systems containing humans. CSE aims to amplify and make more reliable the human capability to perform cognitive work, by integrating technical functions of subsystems with the human cognitive processes that they need to support. Cognitive work involves the cognitive activities of knowing, understanding, planning, deciding, problem solving, integrating, analyzing, synthesizing, assessing and judging. CSE is relevant wherever humans perform critical functions.

Project Performance International Events

Systems Engineering 5-Day Courses

Upcoming locations include:

- Las Vegas, USA
- Singapore
- Amsterdam, The Netherlands
- Melbourne, Australia
- La Spezia, Italy
- London, UK

View 2009/2010 Systems Engineering Course Schedule

Requirements Analysis and Specification Writing 5-Day Courses

Upcoming locations include:

- Amsterdam, The Netherlands
- Las Vegas, USA
- Melbourne, Australia
- Cape Town, South Africa

View 2010 RA&SW Course Schedule

OCD/CONOPS 5-Day Courses

Upcoming locations include:

- Las Vegas, USA
- Pretoria, South Africa
- Adelaide, Australia

View 2010 OCD/CONOPS Course Schedule

Software Engineering 5-Day Courses

Upcoming locations include:

- Amsterdam, The Netherlands
- Melbourne, Australia
- Pretoria, South Africa
- Las Vegas, USA

View 2010 Software Engineering Course Schedule

Cognitive Systems Engineering 5-Day Courses

Upcoming locations include:

- Melbourne, Australia
- London, UK
- Las Vegas, USA
- Adelaide, Australia

View 2010 Cognitive Systems Engineering Course Schedule

PPI Upcoming Participation in Professional Conferences

- November 30 - December 3, 2009 - **I/ITSEC 2010** - Orlando, FL, USA (Exhibiting)
- May 3 - 6, 2010 - **SETE 2010** - Adelaide, SA, Australia (Sponsor/Exhibiting)
- May 23 - 26, 2010 - **EuSEC 2010** - Stockholm, Sweden (Sponsor)
- July 12 - 15, 2010 - **INCOSE International Symposium 2010 (IS10)** - Chicago, IL, USA (Sponsor/Exhibiting)

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