



# Systems Engineering Newsletter

Brought to you by Project Performance International (PPI)

SyEN #002 - November 15, 2008

Dear Colleague,

SyEN: Informative reading for the project professional, containing scores of news and other items summarizing developments in the profession and related industry, month by month. This newsletter and a newsletter archive are also available at [www.ppi-int.com](http://www.ppi-int.com).

The first edition of SyEN was produced entirely in the format of a HTML email. For this edition, you are receiving a skeleton by email, with links to website-based news pages. Please tell us which format you prefer - you may simply reply to this email.

If you are presently receiving this newsletter from an associate, you may elect to receive the newsletter directly in future by signing up for this free service of PPI using the form at [www.ppi-int.com](http://www.ppi-int.com). If you do not wish to receive this SE eNewsletter, please reply to this e-mail with "Remove" in the subject line, from the same email address. Your removal will be confirmed.

The newsletter presents in-depth coverage of the month's news in systems engineering and directly related fields, plus limited information on PPI's activities and events. Please forward this e-mail to friends and colleagues who you think would be interested.

We hope that you find this newsletter to be informative and useful. Please tell us what you think. Email to: [contact@ppi-int.com](mailto:contact@ppi-int.com).

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## A Quotation to Open On

"Each problem that I solved became a rule which served afterwards to solve other problems" - Rene Descartes (1596-1650), Discours de la Methode

## Feature Article

### Systems Engineering Patterns

Have you ever sat down to think about a problem, and felt that there was something familiar about it? Then you wrack your brain to remember what you did the last time this problem posed itself. Drawing on experience, or rules-of-thumb derived from experience, is called “business smarts”, and most of us avail ourselves of these shortcuts to finding workable solutions.

What if it were possible not only to learn from our own experience but also from those of experienced and respected colleagues? This shared learning is the essence of the systems engineering pattern. As early as 1998, during the 8th Annual INCOSE symposium, Barter first proposed the use of patterns as a way to supplement the systems engineering body of knowledge. In 2002, Maier and Rehtin mention patterns as a useful form of heuristics. The author applied personal pattern-writing experience to systems engineering problems and documented this approach in two symposium papers in 2003 and 2005. She also describes the results of a patterns writing tutorial conducted during the symposia from 2004-2006 (Haskins, 2008). Others who have joined the chorus include Merrick and Barrow, Simpson and Simpson, Cloutier and Verma, and Forsberg and Mooz, to name a few. Dr. Cloutier of Stevens Institute of Technology is extending his research into systems engineering patterns one step further with the creation of an online repository. He has established the following pattern form for capturing System Engineering Architecture Patterns:

<b>Pattern Name</b>	The name of the pattern should be descriptive to enable the pattern user to understand the usage
<b>Aliases</b>	Other names by which the pattern may be known
<b>Keywords</b>	Keywords which assist in locating appropriate patterns when needed
<b>Problem Description</b>	Brief discussion of the constraints the pattern may impose
<b>Problem Context</b>	What is the problem this pattern can be used to solve
<b>Forces</b>	Challenges that exist in the problem being addressed by the pattern, and the problems in applying the pattern
<b>Pattern Solution</b>	Discussion on how the pattern solves the problem being addressed
<b>Sketch</b>	This can be one or more diagrams necessary to represent the pattern.
<b>Interfaces</b>	Discussion of the critical interfaces or information flows necessary in implementing the pattern
<b>Resulting Context</b>	What are the issues remaining when the pattern is applied/used
<b>Example</b>	An example of how the pattern may be applied
<b>Pattern Rationale</b>	Why the pattern works
<b>Known Uses</b>	Where else is the pattern being used in other places or applications
<b>Related Patterns</b>	Other patterns what may work in conjunction or in association with this pattern
<b>References</b>	Other information that may be useful in understanding or applying the pattern
<b>Authors</b>	Who identified and documented the pattern

### Example Patlet

<b>Pattern Name</b>	Concurrent Engineering (CE)
<b>Problem Description</b>	Good design is challenged by the complexity of modern systems and communication gaps between the many specialities that contribute to the solution
<b>Problem Context</b>	Large projects are generally organized in specialized groups
<b>Pattern Solution</b>	Adopt CE practices to coordinate and integrate the results of team efforts
<b>Pattern Rationale</b>	<ul style="list-style-type: none"> <li>From Chestnut (4, p.37) "The generation of a balanced design requires that each major design decision be based on proper consideration of system variables... This necessitates the closest coordination of select personnel skilled in SE who work as a homogenous system design team."</li> <li>From Chase (5, p.14) "Only if clear communications among the varied specialized efforts is established can there be an integrated coherent program effort, such as is required to design and develop a system composed of complex subsystems that must function effectively together as a unified entity."</li> </ul>
<b>References</b>	<ul style="list-style-type: none"> <li>Chestnut, Harold. 1967. Systems Engineering Methods. John Wiley &amp; Sons, Inc.</li> <li>Chase, Wilton P. 1974. Management of Systems Engineering. John Wiley &amp; Sons, Inc.</li> </ul>

The full pattern can be viewed at [http://patterns4se.com/reference/Multi\\_Disciplinary\\_Teams.PDF](http://patterns4se.com/reference/Multi_Disciplinary_Teams.PDF)

The references given with this article include examples of systems engineering patterns and more information about how to create your own literature. The author welcomes additional questions on this subject – [cecilia.haskins@incose.org](mailto:cecilia.haskins@incose.org).

### References on Patterns

1. R. H. Barter, "A Systems Engineering Pattern Language," Proceedings of the 8th Annual INCOSE International Symposium (Vancouver, BC, July, 1998).
2. R. Cloutier, Center for Patterns and Systems Engineering, <http://www.patterns4se.com>.
3. R. Cloutier and D. Verma, "Applying the concept of patterns to systems architecture," Systems Engineering, Volume 10, Issue 2, 2007, pp 138-154.
4. K. Forsberg and H. Mooz, "Simple Yet Profound Enterprise Impact," Proceeding of the 17th Annual International Symposium of the INCOSE (San Diego, 25-28th June, 2007).
5. C. Haskins, "Using Patterns to Share Best Results - A Proposal to Codify the SEBOK", Proceedings of the 13th Annual International Symposium of the INCOSE (Washington, DC, June 30 – July 3, 2003).
6. C. Haskins, "Application of Patterns and Pattern Languages to Systems Engineering," Proceedings of the 15th Annual International Symposium of the INCOSE (Rochester, New York, USA, July, 2005).
7. C. Haskins, "Using patterns to transition systems engineering from a technological to social context," Systems Engineering, Volume 11, Issue 2, 2008, pp 147-155.
8. D. Leonard and W. Swap, "Deep Smarts: How to Cultivate and Transfer Business Wisdom." Boston, Mass.: Harvard Business School Press, 2005.
9. M. W. Maier and E. Rechtin, "The Art of Systems Architecting", 2nd ed., CRC Press, Boca Raton, FL, USA, 2002.
10. P. Merrick and P. Barrow, "Testing a Requirements Pattern Language through Reverse Engineering." Proceedings of the 14th Annual International Symposium of the INCOSE (Toulouse, France, June, 2004).
11. J. Simpson and M. Simpson, "Foundational Systems Engineering Patterns for a SE Pattern Language," Proceedings of the 16th Annual International Symposium of the INCOSE (Orlando, FL, USA, July, 2006).

## Developments in Systems Engineering

### INCOSE Introduces Free Webinars for Corporate Advisory Board (CAB) Member Companies

About INCOSE and CAB membership: [www.incose.org](http://www.incose.org)

The International Council on Systems Engineering (INCOSE) has introduced free monthly webinars for CAB member companies. Soon to be presented are:

- 19 November, "SE Professional Certification", Dave Walden
- 10 December: "Incremental Commitment Model", Barry Boehm

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### Business Process Modelling Notation (BPMN) Forum

<http://groups.google.com/group/BPMNforum?lnk=srg>

Cris Kobryn, Editor, BPMN Forum, email: [editor@BPMNforum.com](mailto:editor@BPMNforum.com)

In response to the increased interest in using Business Process Modelling Notation (BPMN) for Business Process Modelling, a BPMN Forum discussion group has been launched in GoogleGroups. Participants are invited to use this forum to discuss anything related to the specification and application of the BPMN, such as:

- BPMN specifications
- BPMN modelling tools
- BPMN processes
- BPMN publications.

If you are interested in joining the BPMN Forum, you can search GoogleGroups, or access it directly at <http://groups.google.com/group/BPMNforum>

In addition to this mailing list, other information related to BPMN may be found on the BPMN Forum website: <http://www.bpmnforum.com>

## **Featured Society: International Institute of Business Analysis (IIBA™)**

Five years old, the IIBA is a rapidly-growing, international, independent, non-profit, member-based professional association serving the field of business analysis. The IIBA defines enterprise business analysis as a way for organizations to:

- identify, analyze and solve business problems and opportunities
- determine the feasibility of a solution
- define the solution scope and develop the business case
- continue to assess, refine, and validate the business need and solution
- evaluate the business benefits brought about by a solution.

The IIBA states that the work of business analysts can also include:

- driving business architecture discussion and development
- creating-functional decomposition of business areas
- providing thought leadership within their enterprises
- assisting business areas in understanding the big picture (rather than talking in terms of project teams and business lines)
- aligning project portfolios with overall business strategy
- creating feasibility studies for new products, markets and systems
- making strategic recommendations for process improvements and streamlining across departmental boundaries and geographical locations.

The IIBA aims to serve professionals in roles relating to business systems such as requirements management, systems analysis, business analysis, requirements analysis, project management, and consulting. The IIBA's programs and activities are designed to promote the role of the business analysis professional throughout the world. Some key activities include:

- The creation and publication of the Business Analysis Body of Knowledge® (BABOK®)
- The creation and administration of the Certified Business Analysis Professional™ (CBAP®) designation
- Chapters for local member networking
- Endorsed Education Provider (EEP™) services.

The BABOK® is a collection of knowledge within the field of Business Analysis which aims to reflect current, generally accepted practices. The BABOK® describes Business Analysis areas of knowledge, their associated activities and the tasks and skills thought to be necessary to be effective in their execution. The BABOK® is growing and evolving. The IIBA regards each release as a move toward a complete body of knowledge. The IIBA criteria for including information in the guide are that it is proven, generally accepted and widely applied. The BABOK® provides the basis for the IIBA Certified Business Analysis Professional™ (CBAP®) Certification. In that the BABOK® is concerned with problem definition and development of system solutions, the BABOK® emphasizes many principles and practices common to other systems engineering-related societies such as INCOSE.

The current official version of the BABOK® is version 1.6. Version 2 is expected to be finalized in late 2008, and the CBAP® exam is intended to be updated following its release.

The IIBA serves its 5000 (and growing) members from headquarters in Toronto, Canada, and locally via a rapidly-growing international network of Chapters. The IIBA functions primarily as a virtual organization, via the members of its Board of Directors, Senior Leadership Team, and several committees.

Website: [www.theiiba.org](http://www.theiiba.org)

Note: IIBA is a trademark owned by International Institute of Business Analysis. This trademark is used with the express permission of International Institute of Business Analysis. BABOK® and Business Analysis Body of Knowledge® are registered trademarks owned by International Institute of Business Analysis. CBAP® is a certification mark owned by International Institute of Business Analysis. This certification mark is used with the express permission of International Institute of Business Analysis.

# Systems Engineering Software Tools News

## Vitech Expands Webinar and Training Courses for Systems Engineering, Systems Architecture and CORE®

<http://www.prweb.com/releases/2008/10/prweb1418914.htm>

Vitech Corporation, the developer of the integrated systems engineering and architecture software suite, CORE, is expanding its webinar and training courses with new offerings beginning in October 2008.

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## EmbeddedPlus SysML Toolkit 2.5.0 Now Available

<http://www.embeddedplus.com/SysML.php>

EmbeddedPlus has announced the general availability of "SysML Toolkit" release 2.5.0. SysML Toolkit is a modelling tool that allows systems engineering modellers to create models based on the Systems Modelling Language (SysML). SysML toolkit provides support for the SysML 1.1 standard which assists in modelling of a broad range of systems including hardware, software, data, personnel, procedures, and facilities.

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## SEER for IT: Estimate the Other 60% of IT Systems Costs

The concept for SEER-IT began five years ago when a major customer requested a model to capture the non-software portions of an IT system. In April 2008, SEER for IT (SEER-IT) was introduced. A [datasheet](#) is available. Also available is an introduction to [SEER for IT video](#) and a [press release](#). Contact a Galorath representative or [info@galorath.com](mailto:info@galorath.com) for more information.

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## Estimate Anything By Comparison with the new SEER Estimate by Comparison

SEER Estimate by Comparison is Galorath's next generation comparison sizing tool, replacing SEER-AccuScope. With Estimate by Comparison, estimates can be performed for any parameter found in all flagship SEER models, including those for Hardware, Manufacturing, IT and Software. Estimate by Comparison shares copy/paste functionality with the entire SEER model suite.

Click [here](#) for Dan Gallorath's blog entry about Estimate by Comparison.

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## SEER for Software (SEER-SEM) Version 7.3

Galorath has released version 7.3 of SEER for Software (SEER-SEM). Version 7.3 includes numerous enhancements, including improved metrics and benchmarking, availability of the [ISBSG database](#) with over 4,000 completed projects, enhanced schedule / cost modelling for overextended schedules, and knowledge bases for items such as Agile and SAAS. SEER Estimate by Comparison Pro is included with all SEER-SEM editions (see article above). Also the central server based installation has been improved.

Click [here](#) to read the press release. Refer to the SEER for Software 7.3 Release Notes for detailed descriptions of all of the new features and enhancements. [Click here](#) for a blog entry on Software Estimating.

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## SEER for Manufacturing (SEER-MFG, Formerly SEER-DFM) Version 6.0 Enhanced With New Processes

SEER for Manufacturing (SEER-MFG) version 6.0 for part, process and assembly is now available. Its major development focus is additional processes. Refer to the SEER for Manufacturing 6.0 Release Notes for detailed descriptions of all of the new features and enhancements. [Click here](#) for a blog entry on Manufacturing Estimating.

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## No Magic Mitigates Risk through Data Interoperability

<http://www.openpr.com/news/57588/No-Magic-Mitigates-Risk-Through-Data-Interoperability.html>

No Magic, Inc., a provider of business architecture and modelling software, has announced the release of Cameo DataHub 2.0. Cameo DataHub is an enterprise-class product offering enabling the import, export, continuous synchronization and creation of relationships between popular business products including No Magic's own Cameo™ Requirements+, MagicDraw®, SysML and DoDAF/UPDM as well as Telelogic's DOORS, IBM Rational's RequisitePro and CSV formatted files. No Magic says that compatibility with additional tools is to be announced soon.

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## Artisan GSN Modeler Early Availability Program

<http://www.artisansoftwaretools.com/products/artisan-gsn-modeler/>

Artisan GSN Modeler, states Artisan, provides developers of safety-critical systems with a powerful and easy-to-use visual modelling environment for the creation of well-structured, complex Safety Arguments using the Goal Structuring Notation (GSN).

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## Artisan Studio 7.0

<http://www.embeddedstar.com/weblog/2008/10/28/artisan-7-uml/>

Artisan Software Tools recently announced Artisan Studio 7.0 model-driven development tool suite. The company states that Artisan Studio provides complete support for UML, OMG SysML™, and Architectural Frameworks in a single, integrated environment. Artisan Studio 7.0 includes major new features and tool improvements for both systems and software engineers.

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## First-Time MagicDraw® Course Offered in South Africa

<http://www.magicdraw.com>

Due to the increased popularity of MagicDraw® and recent requests for formal training in South Africa, No Magic has announced a new training course "Practical UML and URDAD-based Business Analysis Using MagicDraw®".

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## MagicDraw®, SysML plugin and DoDAF plugin version 16.0 beta 2 are released

<http://www.magicdraw.com>

No Magic has announced the beta releases of MagicDraw, SysML plugin and DoDAF plugin version 16.0 beta 2. MagicDraw 16.0 release is focused on the latest UML 2.2 specification, including improvements in support and usability, model merge, DSL, code engineering, Report Wizard, Teamwork server and SVN communication. This new release uses MDA/MDD to enable generation of code for Oracle databases. In addition, model merge now adds capability to visually merge diagram changes. Diagramming improvements now enable conversion of diagrams to other types of compatible diagrams.

## Systems Engineering Books, Reports, Articles and Papers

### Writing Software Requirements Specifications

by Donn Le Vie, Jr.

- What is a Software Requirements Specification?
- Why Should Technical Writers be Involved with Software Requirements Specifications?
- What Kind of Information Should an SRS Include?.....

<http://www.techwr-l.com>

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### How to Do Systems Analysis (Wiley Series in Systems Engineering and Management)

Synopsis: This book focuses on systems analysis, broadly defined to also include problem formulation and interpretation of proposed alternatives in terms of the value systems of stakeholders. Therefore, the book is a complement, not a substitute to other books when teaching systems engineering and systems analysis. The nature of problem solving discussed in this book is appropriate to a wide range of systems analyses. Thus the book can be used as a stand-alone book for teaching the analysis of systems. Also unique is the inclusion of broad case studies to stress problem solving issues, making How to Do Systems Analysis a complement to the many fine works in systems engineering available today.

<http://www.addebook.com>

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### OMG Advances Standards at Technical Meeting in Orlando, FL

Members of the Object Management Group™ (OMG™) met in Orlando, FL during the week of September 22-26, 2008. At this meeting, nine new and revised specifications finished the adoption process and were approved by the OMG Board of Directors.

<http://www.earthtimes.org>

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### Method Framework for Engineering System Architectures

By Donald G. Firesmith, Charles B. Hammons, Peter Capell, DeWitt Latimer, Tom Merendino

Synopsis: The publisher states that the Method Framework for Engineering System Architectures enables system architects and process engineers to efficiently create methods for engineering system architectures. Each method is composed of three components: work products to be produced, work units to be performed, and those roles that perform the work units which produce the products. The book covers the engineering of architectures of software-intensive systems. That includes systems consisting of combinations of data, equipment, facilities, hardware, human roles, procedures, materials, and software. These practical frameworks, designed for wide applicability, have the ability to grow and evolve from the system's earliest concept until it is retired.

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### Handbook of Research on Modern Systems Analysis and Design Technologies and

## Applications

By Mahbubur Rahman Syed, Sharifun Nessa Syed

Synopsis: Due to unawareness of the development cycle of systems from its conceptualization to implementation, almost half of corporate IS projects are delayed or abandoned before completion. The introduction of system analysis and design concepts and their implementations have proven to significantly enhance the success rate of system delivery. 'The Handbook of Research on Modern Systems Analysis and Design Technologies and Applications' provides a compendium of terms, definitions, and explanations of concepts in various areas of systems and design, as well as a vast collection of cutting-edge research articles from the field's leading experts that, together, convey the current state of knowledge on systems analysis and design. Further, this incisive reference source fully contextualizes the best contemporary understanding of current and emerging tools by guiding readers through the evolution of systems analysis and design practices.

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## SysML for Systems Engineering

By Jon Holt, Simon Perry, Institution of Engineering and Technology

Synopsis: Systems modelling is an essential enabling technique for any systems engineering enterprise. These modelling techniques, in particular the Unified Modelling Language [or UML], have been employed widely in the world of software engineering and very successfully in systems engineering for many years. However, in recent years there has been a perceived need for a tailored version of the UML that meets the needs of today's systems engineering professional. This book provides a pragmatic introduction to the systems engineering modelling language, the SysML, aimed at systems engineering practitioners at any level of ability, ranging from students to experts. The theoretical aspects and syntax of SysML are covered and each concept is explained through a number of example applications. The book also discusses the history of the SysML and shows how it has evolved over a number of years. All aspects of the language are covered and are discussed in an independent and frank manner, based on practical experience of applying the SysML in the real world.

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## 9 Steps to a Hassle Free and Effective Software Development Project

Following these nine steps may be the ultimate secret weapon to winning business and successfully delivering new easy-to-use software that meets and exceeds expectations.....

<http://www.techlinks.net>

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## Systems Engineering Competencies Framework

By Robert Halligan

An issue identified by the United Kingdom Chapter of the International Council on Systems Engineering (INCOSE) Advisory Board (UKAB) was the inability of individuals and enterprises to identify the competencies that are required to conduct good systems engineering. Some enterprises found that they "did not know what it is they did not know" about systems engineering and that individuals did not have a clear career path to become a "chartered systems engineer".

An objective determined by the INCOSE UKAB was 'to have a measurable set of competencies for systems engineering which will achieve national recognition and will be useful to the enterprises represented by the UKAB'.

Subsequently, the UKAB through a series of workshops defined a set of Competencies for Systems Engineering, and a competency framework intended to enable both employers and employees to define the required systems engineering skills needed from both individuals and teams.

Participants in the development were:

- BAE Systems
- EADS Astrium
- General Dynamics United Kingdom Limited
- Loughborough University
- UK Ministry of Defence
- Thales
- University College London

together with a number of other organizations which provided comment.

The competencies that were considered to be predominantly associated with Systems Engineering are grouped into three themes: Systems Thinking, Holistic Lifecycle View, and Systems Engineering Management.

Systems Thinking contains the under-pinning systems concepts and the system/super-system skills, including the enterprise and technology environment.

Holistic Lifecycle View contains all the skills associated with the systems lifecycle from need identification, requirements, and design for the whole of the system lifecycle through to, ultimately, disposal.

Systems Engineering Management deals with the skills of choosing the appropriate lifecycle and the planning, monitoring and control of the systems engineering activities.

For each competency, a table provides:

- A description
- Why it matters
- Effective indicators of knowledge and experience
  - Awareness
  - Supervised Practitioner
  - Practitioner
  - Expert

An Annex to the Framework "Guide to Competency Evaluation", gives guidance on how to evaluate individuals against the competency framework.

Both the Systems Engineering Competencies Framework Issue 2, and the Guide to Competency Evaluation, may be downloaded at: <http://www.incose.org.uk/products.htm>

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### Is Agile a Fad?

I attended today's Agile Denver meeting - this time in Boulder - to hear Mary Poppendieck's presentation, "Is Agile a Fad?"

I'll summarize some of her material here, mostly in reverse order, starting with the key points and conclusions of the talk, followed by some of the contextual info she presented leading up to those conclusions.....  
<http://agileadvocate.blogspot.com/2008/10/is-agile-fad.html>

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### Is Product Management Agile?

There's a lot of talk about Agile Product Management these days, and for obvious reasons. The thinking is that because of Agile development, Product Managers need to change how they function and adapt themselves to a new way of developing software and become "agile".....  
<http://onproductmanagement.wordpress.com/>

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### Designing Complex Systems: Foundations of Design in the Functional Domain (Complex and Enterprise Systems Engineering)

By Erik W. Aslaksen

Synopsis: Emphasizing a top-down approach, this book considers the purpose and basic features of design and how the concept of value can provide a quantitative measure of the wider interaction of the engineered object with its environment. This work also develops the domain in which functional design takes place and explores how the system concept can be embedded in that domain. The book proposes a number of functional design elements and develops them in considerable detail, outlining how they can be applied as part of a coherent design framework. For greater understanding of the discussed concepts, numerous examples and analogies are included.

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### A Practical Guide to SysML: The Systems Modeling Language

By Sanford Friedenthal, Alan Moore, Rick Steiner

Synopsis: SysML is a general purpose graphical modelling language used to specify, analyze, and design systems that may include hardware, software, and personnel. It aims to allow engineers to describe how a system interacts with its environment, and how its parts must interact to achieve the desired system behaviour and performance.

This book provides a guide for modelling systems with SysML. The book includes a full description of the language, along with a quick reference guide, and shows how the language can be applied to specify, analyze, and design systems. It contains examples to help readers understand how SysML can be used in practice. The book also includes guidance on how an organization or project can transition to model-based systems engineering using SysML, with considerations for processes, methods, tools, and training.

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### Complex Requirements on an Agile Project Addressing the challenges of complex requirements

The real world is a complex place, resulting in complex requirements for any system that has to work there. This is true regardless of development paradigm. Although "agile in the small" methodologies such as Scrum and Extreme Programming (XP) have done much to show us how to improve our approach, too many people have thrown out the requirements management baby with the bureaucracy bathwater after putting too much faith in the overly simplistic strategies of those processes. Luckily, with a bit of discipline, it is straightforward to address the inherent challenges of complex requirements in an agile manner without resorting to the documentation-heavy practices favoured by the traditional community.....

[http://www.ddj.com/architect/211800534?cid=RSSfeed\\_DDJ\\_All](http://www.ddj.com/architect/211800534?cid=RSSfeed_DDJ_All)

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### Opinion: Defence industry can tackle climate change

Can - indeed, should - the global aerospace and defence (A&D) industry save the planet from catastrophic climate change? According to a number of observers and industry insiders, the time to address this question is now.....

[http://www.janes.com/news/defence/systems/jdw/jdw081030\\_1\\_n.shtml](http://www.janes.com/news/defence/systems/jdw/jdw081030_1_n.shtml)

## Conferences and Meetings

### INCOSE UK 2009 Events Calendar

[www.incoseonline.org.uk/?CatID=Events](http://www.incoseonline.org.uk/?CatID=Events)

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### Project World/World Congress of Business Analysts - Beyond the BABOK® and PMBOK® - National Flagship Event

Orlando, FL, Nov. 18-21, 2008

<http://www.iirusa.com/projectworld/welcome.xml>

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### INCOSE U.K. Autumn Assembly – “Best Practice in Systems Engineering”

Heythrop Park, Oxfordshire, England, November 24-25, 2008

<http://www.incose.org.uk/events.htm>

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### The Fourth International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CISSE 2008)

December 5-13, 2008

<http://www.cisse2008.org/>

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### INCOSE International Workshop (IW) 2009

January 31 – February 3, 2009, San Francisco, CA

[www.incose.org/newsevents/events/details.aspx?id=44](http://www.incose.org/newsevents/events/details.aspx?id=44)

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### INCOSE Los Angeles Chapter (INCOSE-LA) 2009 Mini-Conference

February 7, 2009, Loyola Marymount University (LMU), Los Angeles CA

<http://www.incose-la.org>

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### MBSE'09, Second International Conference on Model-Based Systems Engineering

Herzeliya and Haifa, Israel, March 2-5, 2009

<http://eventseer.net/e/8077/35491/>

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### SAC 2009, 24th Annual ACM Symposium on Applied Computing

Hilton Hawaiian Village Beach Resort & Spa Waikiki Beach, Honolulu, Hawaii, USA, March 8 - 12, 2009

<http://www.acm.org/conferences/sac/sac2009>

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### Third Workshop on Engineering Complex Distributed Systems (ECDS 2009)

March 16-19, 2009, Fukuoka, Japan

<http://voyager.ce.fit.ac.jp/conferences/ecds2009/>

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### International Conference on Complex, Intelligent and Software Intensive Systems (CISIS) 2009

March, 16th - 19th 2009, Fukuoka Institute of Technology (FIT), Fukuoka, Japan

<http://www.cisis-conference.eu/conf/>

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### European Joint Conferences on Theory and Practice of Software (ETAPS) 2009

22-29 March 2009, York, UK

<http://www.cs.york.ac.uk/etaps09/>

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### Fifth Workshop on Model-Based Testing (MBT) 2009

March 22, 2009, York, UK

<http://react.cs.uni-sb.de/mbt2009/>

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## **The 2nd International Conference on Industrial Informatics and Systems Engineering (IISE 2009)**

Leipzig, Germany, 23-25 March 2009  
<http://siwn.org.uk/2009leipzig/IISE09.htm>

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## **INCOSE U.K. Annual Spring Conference**

March 30 – April 1, 2009  
<http://www.incose.org.uk/events.htm>

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## **The International Council on Systems Engineering Spring 09 Conference**

April 2 – 4, 2009  
Hosted by INCOSE Region V Chapters at the Virginia Modeling, Analysis and Simulation Center (VMASC), Suffolk Facility, VMASC West, 1030 University Blvd., Suffolk, VA 23435

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## **IDEAS 2009- XII Iberoamerican Conference on Requirements Engineering and Software Environments**

Medellín, Colombia, 13-17 April 2009  
<http://ideas09.eafit.edu.co/>

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## **Conference on Systems Engineering Research (CSER) 2009**

Loughborough, UK, 20 - 22 April, 2009  
<http://cser.lboro.ac.uk>

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## **Software & Systems Engineering Essentials 2009**

Steigenberger Hotel Berlin, Los-Angeles-Platz 1, 10789 Berlin, Germany Workshops - 25th May 2009, Conference - 26th & 27th May 2009  
<http://2009.see-conf.de/>

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## **ICMISE 2009: International Conference on Medical Information Systems Engineering**

Tokyo, Japan, May 27-29, 2009  
<http://www.waset.org/wcset09/tokyo/icmise/>

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## **EJC 2009 - 19th European Japanese Conference on Information Modelling and Knowledge Bases**

Maribor, Slovenia, June 1-5, 2009  
<http://www.pori.tut.fi/ejc/>

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## **INCOSE 19th Annual International Symposium (IS) 2009**

July 20-23, 2009, Singapore  
<http://www.incose.org/symp2009>

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## **2009 International Conference of the System Dynamics Society**

Albuquerque, New Mexico, July 26 - 30, 2009  
<http://www.systemdynamics.org/conferences/current/index.htm>

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## **PICMET '09 Conference: "Technology Management in the Age of Fundamental Change"**

August 2 - 6, 2009, Hilton Portland and Executive Tower, Portland, Oregon, USA  
<http://www.picmet.org/main>

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## **Education**

### **Associate/Assistant Professor in Requirements Eng. at DTU**

DTU Informatics, the Department of Informatics and Mathematical Modelling at the Technical University of Denmark in Lyngby, offers a position as associate/assistant professor in the area of Requirements Engineering to strengthen its Software Engineering Section.

Further information may be obtained from Head of Section Hubert Baumeister, phone +45 4525 3729, e-mail: [hub@imm.dtu.dk](mailto:hub@imm.dtu.dk)

[http://www.imm.dtu.dk/English/Research/Software\\_Engineering.aspx](http://www.imm.dtu.dk/English/Research/Software_Engineering.aspx)  
[http://www.dtu.dk/English/About\\_DTU/vacancies.aspx?quid=23036021](http://www.dtu.dk/English/About_DTU/vacancies.aspx?quid=23036021)

## People

Annual Elections are underway at the International Council on Systems Engineering (INCOSE). Positions up for ballot, and nominees, are:

- Secretary: Bob Kenley (USA)
- Director Commercial Outreach: Henk van der Linden (Netherlands)
- Member Board Representative, Region III: Jean-Philippe Lerat (France), Asmus Pandikow (Sweden)
- Member Board Representative, Region V: Jim Armstrong (USA), Bob Robinson (USA)
- Member Board Representative, Region VI: Yeoh Lean Weng.

## Related News

### Special Issue on Traceability in Model-Driven Engineering

The European Conference on Model-Driven Architecture has hosted four successful workshops on traceability in MDE. As a result of the success of these workshops, the [Journal on Software and Systems Modeling](#) therefore invites original, high-quality submissions for its theme issue on "Traceability", focusing on topics related to traceability in Model-Driven Engineering. We especially seek contributions presenting practical solutions that address traceability issues, as well as papers that present traceability tool solutions. We also seek papers that address how and when traceability information should be added to models, how it should be kept up-to-date, and how, when and for what purposes it can be used. Some specific topics of interest include:

- How, when and for what purposes traceability information should/can be added to models and artefacts generated and used in an MDE process.
- How traceability information should be kept up-to-date
- Tools supporting traceability of model and code artefacts
- Novel theoretical and technical approaches to handle model-driven traceability, e.g., semantics of trace links.
- Practical applications and experience with traceability

[http://www.cs.york.ac.uk/~paige/sosym\\_traceability.html](http://www.cs.york.ac.uk/~paige/sosym_traceability.html)

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### Distributed Systems Engineering

Web based systems are becoming increasingly popular as tools for user-driven access to information and services. They are increasingly being used to access multimedia systems, information systems, legacy applications and high-performance computational environments. The Distributed Systems Engineering Research Group is investigating systematic and rigorous techniques and integrated tools for the development of such applications. The group's underlying theoretical foundations are mainly in the areas of internet based systems design and modelling.

<http://www.jgroups-me.org/2008/11/distributed-systems-engineering.html>

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### INCOSE Central Office has changed

From the INCOSE eNote: Volume 5 Issue 10, 8 November 2008

After over 10 years of INCOSE Central offices being located in Seattle, Washington, USA, we announce the transition of all INCOSE Central services to a new office in San Diego, CA, USA effective immediately. The new office address and staff are as follows:

International Council on Systems Engineering (INCOSE)  
Central Office, 7670 Opportunity Road, Suite 220  
San Diego, CA 92111-2222  
Phone: 858.541.1725  
Toll Free: 800.366.1164  
Fax: 858.541.1728

Staff:

- Holly Witte, Managing Executive
- Christine Kowalski, Manager/Administrator
- Carol Berardino, Certification Administrator
- Carrie Lopez, Administrative Assistant

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### Global Earth Observation System of Systems needs INCOSE members

From the INCOSE eNote: Volume 5 Issue 10, 8 November 2008

Over the next decade, a Global Earth Observation System of Systems ([GEOSS](#)) will revolutionize our understanding of the Earth and how it works. With benefits as broad as the planet itself, this U.S.-led initiative promises to make peoples and economies around the globe healthier, safer and better equipped to manage basic daily needs. The aim is to make 21st century technology as interrelated as the planet it observes, predicts and protects, providing the science on which sound policy and decision-making must be built. Building an integrated, comprehensive and sustained global Earth Observation System opens a world of possibilities.

INCOSE has been selected to act as the GEOSS System Integration agent and architecture lead during the [Architecture Implementation Pilot \(AIP\)](#).

INCOSE has immediate need for 11 System Engineers trained and experienced in using UML and SysML syntax. Work is estimated to require approximately 600 hours of labor. This will be divided amongst 11 system engineers and 1 lead architect. So an average of 50 hours per engineer is expected. Artisan architecture development tool software will be provided for development of the architecture.

Included in references is a presentation of the five views required to be built for each of the societal benefit scenarios. The INCOSE team will hold interviews with societal benefit teams and develop required UML and SysML views. Contact [Lawrence McGovern](#) to participate in the GEOSS effort. No labour dollars will be expended but travel costs will be paid.

## Some Systems Engineering-Relevant Websites

<http://sesnetec.info/drupal/>

Systems Engineering: Simple (Not Easy) To Extremely Complicated - Fostering practitioner conversations about sustainable Systems Engineering for small to medium engineering groups in commercial, public and non-profit enterprises.

<http://www.psmc.com/>

Practical Software and Systems Measurement (PSM) was developed to meet today's software and system technical and management challenges. It is an information-driven measurement process that addresses the unique technical and business goals of an organization. The guidance in PSM represents the best practices used by measurement professionals within the software and system acquisition and engineering communities.

<http://www.syntegrity.com/>

Syntegration is a suite of powerful, science-based processes that optimize large group interaction.

These processes are an unprecedented breakthrough for addressing complex business and social challenges. They greatly accelerate and radically improve planning, decision making and alignment-building, and they elicit changes in behaviour that are necessary for real impact.

<http://sepatterns.typepad.com/sepatterns>

Why patterns for Systems Engineering? What are Systems Engineering patterns? These are a few topics that will be discussed on this blog. This blog is directed by Dr. Robert Cloutier of Stevens Institute of Technology.

<http://www.patterns4se.com>

This website is under direction of Dr. Robert Cloutier from the School of Systems & Enterprises at Stevens Institute of Technology. Dr. Cloutier wrote his Thesis on the topic of Applicability of Patterns to Complex Systems and has a natural interest in the subject. This website was therefore set up as a source of information on System Architecture Patterns. It contains both current and ongoing research in the field of System Architecture Patterns. One main goal of this website is to be a public repository for System Architecture Patterns.

<http://softreq-requirements-management.blogspot.com>

This blog discusses requirements management.

<http://gd.tuwien.ac.at/systemg/bahill/whatis/whatis.html>

What Is Systems Engineering? A Consensus of Senior Systems Engineers

[http://wiki.daimi.au.dk/cpntools/\\_home.wiki](http://wiki.daimi.au.dk/cpntools/_home.wiki)

CPN Tools is a tool for editing, simulating and analysing Coloured Petri Nets.

The functionality of the simulation engine and state space facilities are similar to the corresponding components in Design/CPN, which previously was distributed as a free tool for Coloured Petri Nets. Design/CPN has been replaced by CPN Tools and it is no longer possible to download or to get support or licenses for Design/CPN.

<http://www.mid.de>

Business Process Management Tools

[http://www.soreco.ch/ivy/pro/soreco/WebSite/index.jsp?navId=Products/xpertivy/was\\_ist\\_xivy](http://www.soreco.ch/ivy/pro/soreco/WebSite/index.jsp?navId=Products/xpertivy/was_ist_xivy)

Innovative approaches and tools in the areas of process management and process-based Web applications including Workflow Control.

<http://www.maad.com>

Micro Analysis and Design is a consulting services and software products company providing expertise in computer simulation and modelling, human factors engineering and custom software development. Working with our talented people and valuable software products will keep your organization on top.

<http://www.caciasl.com/products/simscript.cfm>

SIMSCRIPT II.5® is a simulation package for discrete-event and combined discrete-event/continuous simulation.

<http://www.tekknowledge.com>

Teknowledge Corporation sells software products and service solutions, and is increasingly focused on solutions for the financial services industry.

<http://www.excelsoftware.com>

This site covers software models, design methods and CASE tools for Linux, Macintosh and Windows. Supported methods and notations include UML, OMT, Booch, Shlaer/Mellor, Yourdon/DeMarco, Gane & Sarson, Hatley/Pirbhai, CRC cards and Martin's Information Engineering. These tools promote an engineered approach to software development with integrated models, requirements traceability, code generation and reengineering of code to design.

<http://decisiondriven.wordpress.com/decision-driven-strategy/>

Decision Driven Strategy:

There is a decision pattern behind every strategy and every product. Exposing that pattern as a Decision Network gives you a unique set of controls.

## Standards and Guides

### ISO/IEC standard to increase international acceptance of certification of software engineering professionals

The increasing globalization of the software industry implies that a software engineering professional is likely to work in different countries over the course of a career. It is therefore important to develop ways to increase the international acceptance of professional certifications in this domain.

[http://www.finchannel.com/index.php?option=com\\_content&task=view&id=22843&Itemid=99999999](http://www.finchannel.com/index.php?option=com_content&task=view&id=22843&Itemid=99999999)

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### From 1 November ConsensusBuilder Will Be Shut Down.

Standards Australia has introduced Standards Hub - an upgraded system of developing Standards. From September to November 2008, projects are being transferred to the new Standards Hub from ConsensusBuilder. From 1 November Consensus Builder will no longer be operational.

Standards Hub is a one-stop-shop for all committee materials. Its simple user interface will allow for quick and easy communication with other committee members and streamline the public comment and ballot phases of Standards development.

<http://www.standards.org.au/cat.asp?catid=157>

## Some Definitions to Close On

### State

The Free Dictionary by Farlex defines "state":

1. A condition or mode of being, as with regard to circumstances: a state of confusion.
2. A condition of being in a stage or form, as of structure, growth, or development: the fetal state.
3. A mental or emotional condition: in a manic state.
4. Informal - A condition of excitement or distress.
5. Physics - The condition of a physical system with regard to phase, form, composition, or structure: Ice is the solid state of water.

The Merriam-Webster Online Dictionary defines "state"

1.
  - a. mode or condition of being <a state of readiness>
  - b. i. condition of mind or temperament <in a highly nervous state>
  - ii. a condition of abnormal tension or excitement
2.
  - a. a condition or stage in the physical being of something <insects in the larval state> <the gaseous state of water>
  - b. any of various conditions characterized by definite quantities (as of energy, angular momentum, or magnetic moment) in which an atomic system may exist

### Mode

The Free Dictionary by Farlex defines "mode":

2.
  - a. a manner, way, or method of doing or acting: modern modes of travel. See Synonyms at method.
  - b. a particular form, variety, or manner: a mode of expression.

c. a given condition of functioning; a status: The spacecraft was in its recovery mode.

The Merriam-Webster Online Dictionary defines “mode”:

1.
  - a. a particular form or variety of something <flying and other modes of transport>
  - b. a form or manner of expression : STYLE
2. a possible, customary, or preferred way of doing something <a spacecraft in reentry mode> <a computer operating in parallel mode>
3.
  - c. a manifestation, form, or arrangement of being; specifically : a particular form or manifestation of an underlying substance
  - d. a particular functioning arrangement or condition : STATUS <a spacecraft in reentry mode> <a computer operating in parallel mode>

### Interpretation

Note that both of these U.S. sources for definitions of words in the English language emphasise the fundamental distinction between state and mode:

- each emphasizes, through word and examples (some technical), the nature of “state” as a condition of something.
- each emphasises, through word and examples (some technical), the nature of “mode” as a condition of doing (function).

The definitions also reflect the overlap between the two concepts. As is pointed out in guidance on the application of states and modes, where the level of abstraction relationship of “states used to express dynamics required of the system at the highest level of abstraction” and “modes used to express required dynamics at a lower level of abstraction” is employed, a mode is, in fact, a class of sub-state.

Technical standards, especially requirements specification standards, relevant to engineering have used the terms “state” and “mode” extensively over the years, in most cases without defining these terms (e.g. DI-CMAN-80008, 80008A, 80025, 80025A, the corresponding DI-IPSCs).

Robert Halligan

## Project Performance International News

PPI announces the introduction of a new international location for delivery of its Systems Engineering 5-day training – the beautiful La Spezia, on the north-west coast of Italy. The first course will be conducted over 16-20 February, 2009.

La Spezia is a city in the Liguria region, at the head of the La Spezia Gulf. The city is home to one of Italy’s major commercial and military harbours, located between Genoa and Pisa on the Ligurian sea. La Spezia also hosts one of the biggest military companies of Italy, OTO Melara.

## Project Performance International Events

### Systems Engineering 5-Day Courses

Upcoming locations include:

- Las Vegas, USA
- Amsterdam, Netherlands
- La Spezia, Italy
- Sydney, Australia
- London, UK

[View 2008-2009 Systems Engineering Course Schedule](#)

### Requirements Analysis and Specification Writing 5-Day Courses

Upcoming locations include:

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

[View 2008-2009 RA&SW Course Schedule](#)

### Requirements Engineering 5-Day Courses

Upcoming locations include:

- Yokohama, Japan

[View 2008-2009 Requirements Engineering Course Schedule](#)

### OCD/CONOPS 5-Day Courses

Upcoming locations include:

- Melbourne, Australia
- Adelaide, Australia

[View 2008-2009 OCD/CONOPS Course Schedule](#)

### Software Engineering 5-Day Courses

Upcoming locations include:

- Amsterdam, Netherlands
- Melbourne, Australia
- Adelaide, Australia

[View 2008-2009 Software Engineering Course Schedule](#)

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Kind regards from the SyEN team:

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