Project Performance International

Systems Engineering

Newsletter (SyEN)

SyEN #019 - April 29, 2010

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Dear Colleague,

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 their values.

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A Quotation to Open On

"It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change." - Charles Darwin

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Featured Article

A Method for the Determination of an Optimum Set of Verification Requirements

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1. Definitions:

System or software requirement: a characteristic that any correct implementation of the system or software is required to possess, usually to a defined degree under defined conditions.

System or software verification requirement: the required quality of the evidence that a system or software requirement has been satisfied in the system or software

Specified requirement: a requirement in a recorded form (specific record)

Requirements Specification: a specific record of a set of requirements

System or software requirements specification: a specific record of a set of system or software requirements

Verification requirements specification: a specific record of a set of verification requirements (sometimes referred to as a “test requirements specification”, although this terminology is accurate only if the verification requirements explicitly direct and limit verification method to “test”).

Where “system requirement” is referred to below, reference to “software requirement” is also intended.

2. Determination of an Optimum Set of Verification Requirements – Precepts

- Each system requirement, to be valid, must, if satisfied, confer a benefit on the “owner” of the requirement.
- If a system requirement is not satisfied, the failure to satisfy represents a loss to the owner of the requirement.
- If there is a possibility that a system requirement has not been satisfied, that possibility gives rise to an Expected Loss, i.e. the loss if the requirement were not satisfied, times the probability of the requirement not being satisfied. Expected loss is, of course, the same thing as risk.
- The loss arising from failure to satisfy a requirement may, itself, be subject to uncertainty as a result of potential variability in the magnitude of departure from satisfaction. For example, taking a requirement for an MTBF of 2000 hours or more as a reference, the loss will be much greater if the actual MTBF is 100 hours, than if the actual MTBF is 1999.5 hours. Thus Expected Loss must, where applicable, accommodate the relative probability of different degrees on non-compliance.
- A system verification activity aims to identify the presence and degree of any non-compliance with a requirement.
- System verification activities consume resources – time, money, human effort, etc.
- For a verification activity to be worth performing at all, the reduction in risk achieved as a result of the verification activity must exceed in value the cost of the verification activity.
- For a verification activity to be optimum, the magnitude of risk reduction, less the cost of the verification activity, must be the maximum possible.
- The primary factor which governs the magnitude of risk reduction is (or should be) the verification requirement (for well-founded verification requirements).
- The primary factors which govern the cost of the verification activity are the verification requirement, and the verification design.

- An optimum verification requirement maximises the magnitude of risk reduction, less the cost of the verification activity, subject to an optimum verification design to satisfy that verification requirement.
- For the above concepts to be applied in practice, value, loss, and cost variables must be expressed in common units.
- On a gross scale, the traditional concepts of utility provide a suitable means of expressing value, loss, and cost in consistent (and therefore arithmetically combinable) units.
- Subject to some qualifications regarding coupling in value between requirements, the above concepts may be applied on a requirement-by-requirement basis.

3. Determination of an Optimum Set of Verification Requirements – Method

3.1. Populate Table 1 below.

Column 1: System Requirement	Column 2: Worst Outcome of Concern	Column 3: Priority of Avoidance	Column 4: Weight %	Column 5: Utility Function for Value of Avoidance, over range: Req't to Worst	Column 6: PDF for Outcome, no verification Unit: original Req't to Worst	Column 7: PDF for Outcome, no verifivation Unit: Utiles 0 to 10	Column 8: Mean of PDF in Utiles Range: 0 to 10	Column 9: Risk in Utiles= Mean of PDF in Utiles Times Weight	Column 10: Upper Limit of Verification Cost (break-even)
R0001									
R0002 etc									

Table 1: Determination of Verification Break-Even Points

The upper limit of verification cost (Column 10) is determined as follows:

Q1: What is the maximum amount you would be prepared to pay for a fully compliant system (Cost:FC)?

Q2: What is the maximum amount that you would be prepared to pay for a system for which the outcome with respect to each requirement was at the worst (Column 2) figure (Cost:WC)? If such a system were of negative value, i.e. you would pay money to avoid such an outcome, and receive no system, express the maximum you would pay as a negative figure.

Value of Risk Avoidance (Value:RA) = Cost:FC minus Cost:WC.

The Upper Limit of Verification Cost (break-even) = Value:RA x Weight%

3.2. For each system requirement, construct a graph with an X Axis in Verification Cost, with a value range of zero to Value:RA, and a Y Axis of (Risk Reduction minus Verification Cost), with a value range of +Value:RA to –Value:RA.

3.3. Divide the X Axis into equal scale divisions, at least 5. Plot the origin point (0,0).

3.4. For each of the other scale points on the X Axis, ask and answer the question: "For $x expenditure on verification with respect to this requirement, what is the maximum amount of risk reduction I can achieve? Calculate the amount of risk reduction by recalculating in Table 2 columns 6-9 inclusive from Table 1, converting the risk reduction to monetary units, then subtracting the cost of verification at that level.

Requirement: R0001

Column 1: Verification Cost Scale Point, $	Column 2: PDF for Outcome verification at Column 1 level. Unit: original Req't to Worst	Column 3: PDF for Outcome verification at Column 1 level. Unit: Utiles 0 to 10	Column 4: Mean of PDF in Utiles Range: 0 to 10	Column 5: Risk in Utiles with Verif. = Mean of PDF in Utiles Times Weight	Column 6: Verification Net ROI= ((Table 1 Column 8 less Table 2 Column 4) divided by 10 times Table 1 Column 10) less Table 2 Column 1)
Scale Point 1 $					

Scale Point 2 $					
Scale Point 3 $					
Scale Point 4 $					
Scale Point 5 $					

Table 2: Development of Verification versus Verification Net ROI Relationship

3.5. Find the point of the curve from Step 3.4 corresponding to the maximum Verification Net ROI.

3.6. If the maximum Verification Net ROI is a positive figure, transform this level of verification into the corresponding verification requirement, taking care to derive and express the qualities of the evidence to be provided by verification at this level, rather than the method anticipated in the calculations to achieve these qualities.

3.7. If the maximum Verification Net ROI is zero, specify as the verification requirement “none”, or alternatively, specify a low cost default verification requirement such as “Certification of compliance”.

4. Application

The development of an optimum set of verification requirements requires non-trivial effort, and the application of skills which include risk and risk analysis, the technical aspects of verification, the programmatic aspects of verification, and the design, and design optimisation, methods of systems engineering.

Typically, the rigour of the approach described will be justified for high value projects involving medium or high levels of risk due to complexity, technology and/or management. The approach may be justified for small subsets of requirements for lower value projects.

Systems Engineering News

NASA Conducts Systems Engineering Student Competition

College students in the USA were invited to participate in NASA’s fourth annual systems engineering paper competition where awards include cash scholarships and VIP invitations to attend a future space shuttle or rocket launch at NASA’s Kennedy Space Center in Florida. NASA’s Exploration Systems Mission Directorate has invited teams of undergraduate and graduate students throughout the USA to submit a paper on an exploration systems mission topic. Papers were due on April 23.

The winning teams will be announced in May.

More information

Annual Systems Engineering Conference 2010 (ASEC10) - “Systems Engineering: Adding Value in Challenging Times”

In 2010 INCOSE UK will introduce a new 3-day conference format offering a combination of the plenary presentations, tutorials, workshops and discussion sessions which have made up the previous Spring Conferences and Autumn Assemblies.

More information

New! Online Library Exclusively for IIBA® Members

The International Institute of Business AnalystsIIBA® announced the launch of the new Online Library. This library gives IIBA members exclusive free access to a huge online selection of 300 books, and new books will be added each quarter.

More information

The StaMina Competition

The STAMINA (STAte Machine INference Approaches) competition aims to identify the best technique for learning deterministic finite state machines (FSMs). It extends former competitions, especially Abbadingo, and focuses on the complexity of the learning with respect to the alphabet size. Stamina relies on an adapted generation protocol for target machines and strings. It aims to encourage the development of novel learning algorithms and to encourage cross-fertilization between the machine learning and software engineering communities. A prize of £700 (about $1146) will be awarded to the winner.

More information

IT Systems Engineer Named Best U.S. Job

San Francisco-based research and analysis group Focus has named systems engineer as the "best job in America."

In determining the best job, the study looked at positions that will achieve growth in demand by 10 percent or more over the next decade, based on Bureau of Labor Statistics (BLS) estimates. Focus excluded positions that did not require at least a bachelor's degree and two-to-seven years of experience. Focus also eliminated jobs that did poorly during the recession.

More information

Thoughts on Interaction – Free Self-Paced Learning Program

By Gene Bellinger

Based on the feedback from individuals interacting with the Moodle Systems Thinking courses and the Systems Thinking World Learning Programs a new Systems Thinking learning program has been developed and is currently in beta evaluation.

When asked how this learning program differed from the previous learning programs I came up with the following cooking analogy.

Moodle Courses – an environment where you read about cooking and answer questions about cooking.

Systems Thinking World Program – an environment where you read about cooking then answer questions about cooking. Your mentor then responds to your answers and everyone has a chance to observe the exchange.

Thoughts on Interaction Program – an environment where you cook from a recipe, taste your own cooking and answer questions about your cooking. Your mentor gets to respond to your answers and taste your cooking and everyone else has a chance to observe the exchange and sample your cooking.

More information

TRAK Architectural Framework Released Under Open Source License

TRAK is a general enterprise architecture framework aimed at systems engineers. TRAK, based on MODAF 1.2, was originally commissioned by London Underground Limited. Development started in 2009 and was based on the then current views of architectural description within London Underground which were based on ISO/IEC 42010 and tied to the systems engineering lifecyle defined in ISO/IEC 15288 . Although the original intent was to develop a rail-specific architecture framework in adapting MODAF to suit local needs, any defence or domain-specific content being removed, the result was a domain-free metamodel and viewpoints that were only based on representing complex systems.

TRAK was released under open source licenses in February 2010. It is said to be in the process of being formally adopted by the UK Department for Transport.

More information

ESMD Space Grant Project 2010 Systems Engineering Paper Competition

NASA's Exploration Systems Mission Directorate Space Grant Project proudly announces the fourth annual Systems Engineering Paper Competition. This competition is designed to assist NASA with strengthening the nation's future STEM workforce in the areas of science, technology, engineering and mathematics.

More information

INCOSE Certification Announces a January 2011 Sunset of Systems Engineering Handbook Version 3.1 as the Basis for INCOSE Certification Exam

Version 3.1 of the INCOSE Systems Engineering Handbook remains the sole basis for the INCOSE CSEP/ASEP exam until further notice. An announcement will be made when Version 3.2 can also be used. For planning purposes, an exam update is currently scheduled for late April 2010, after which time both Version 3.1 and 3.2 may be used.

After January 2011, only Version 3.2 of the INCOSE Systems Engineering Handbook will be used as the basis for the certification exam, and Version 3.1 will be retired. This timing allows a transition period for those already using Version 3.1 of the handbook to prepare for the examination.

More information

Requirements Engineering Specialist Group (RESG) Establishes LinkedIn Group

The Requirements Engineering Specialist Group has established LinkedIn group at:
www.linkedin.com/groups?home=&gid=2662234

Additional information: http://www.resg.org.uk/

Featured Societies

The IET Systems Engineering Network

The Systems Engineering Network is a Community of the UK-based The Institution of Engineering and Technology. The scope of Systems Engineering Network includes, enterprise management, acquisition, project management (planning, execution, assessment, risk and configuration management) and supporting technical processes covering the whole system life cycle.

This encompasses systems and processes involving humans, hardware and/or software enablers and spans their design, modelling, analysis, implementation, operational evaluation, disposal and/or replacement.

To join this Network you must register on the IET website. Registration is free to visitors, and enables the visitor to use IET discussion forums, post comments on articles and blogs, and join the Contacts Network to locate and send messages to other professionals.

More information: http://kn.theiet.org/communities/systems/about.cfm

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INCOSE Technical Operations

Net-Centric Operations Working Group

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

Charter

To advance the knowledge, the understanding and the use of systems engineering in net-centric applications

Leadership

Chair: John Hsu, The Boeing Company

Contact Net-Centric Operations Working Group for additional information or to join this group.

Accomplishments/Products

The NCO Working Group was formed in International Symposium 2005 in Rochester, New York, USA. At that time three interim teams were formed. They were:

Literature Survey

Perform literature survey to collect the existing public accessible documents and information for System of Systems Engineering (SoSE) Process and Architecture Development Guidance (ADG) from INCOSE papers, commercial companies, government, net-centric communities, Net-Centric Operations Industrial Consortium (NCOIC), Association for Enterprise Integration (AFEI), and other professional societies, such as, American Institute of Aeronautics and Astronautics (AIAA), etc.

Team Leader: Dr. Cihan Dagli

Team Members: Hillary Sillitto, Charles Adler, Michael Maar, Tom Huynh, Michael Henshaw

Defining the Needs and Reason for Net-Centric Operations

Conduct survey with CAB members and Chapter members.

Team Lead:Karl Geist

Team Members: Naomi Cohen, Maxwell (Max) Miller, John Osmundson, Leonard Sadauskas

Understanding Perspectives from Different Stakeholders

Identify, communicate and conduct survey with different stakeholders. They can be commercial companies, governments and institutes worldwide.

Team Lead: Duncan Kemp

Team Members: Joe Bedocs, Gary Crosby, Dave Snell

We presented a panel discussion and three papers in IS 2006. They were:

- Different Approaches to Realizing Net-Centric Solutions.
- Network Centric Operations Implementations in Several Domains.
- Systems Engineering Net-Centric Solutions: An Analysis of Different Perspectives.

Current Projects

During the working group meeting held in IS 2006, we have formed the following three project teams:

Architecture Development Guidance

- Study the DoDAF, MODAF, etc.
- Identify the insufficient areas in DoDAF, MODAF, etc.
- Develop a robust ADG
- Understood architectural principles and practices
- Develop Enterprise Architecture considering hardware/software systems, political, economic, social, technological, ecological, and legal aspects.
- Develop Services Oriented Architecture
    - Focus on usability rather just on performance.
    - Users may be people and/or other systems.
    - Flexible enough to be not used by original architects and designers

System-of-Systems Engineering Process

- Understand the existing System-of Systems Engineering (SoSE) process.
- Develop a robust SoSE Process that will be best supportable to network system development.
- There is a need for more and better “synthesis” techniques that can produce more robust and balanced SoS solutions.
- Integration of systems engineering and software.
- SoSE Management

- Develop SoSE Risk Management.
- Develop SoSE Trade Study methodology.
- Develop SoSE Technical Performance Measurement.
- Develop SoSE verification and validation strategy.

SoSE Research and Education

- Focus on SoSE Process.
- Study Architecture modeling.
- Study International standardized educational methods and terminology

Overview of Net Centric WG - July 2006 - In Microsoft PowerPoint - Size: 1.1MB

Systems Engineering Software Tools News

New Product Releases from No Magic

No Magic announced these product releases: MagicDraw version 16.8 beta, Cameo Business Modeler, Cameo Data Modeler, SysML plugin & UPDM plugin.

More information

Systemkey(TM) Launches at DEMO2010

Systems Thinking Institute LLC (systemkey.net) announced risk analytics innovation with Systemkey(TM), chosen by IDG/Network World as among 60 most promising technologies for 2010. Launched at DEMO2010, Systemkey claims successful field trials delivering probability and severity risk exposure results three times faster than current methods; up to five times lower cost.

More information

Systems Engineering Books, Reports, Articles and Papers

Architecture and Principles of Systems Engineering

Charles Dickerson (Author), Dimitri N. Mavris (Author)
Publisher: Auerbach Publications, Publication Date: November 19, 2009
ISBN-10: 1420072536, ISBN-13: 978-1420072532

Summary:

The rapid evolution of technical capabilities in the systems engineering (SE) community requires constant clarification of how to answer the following questions:

What is Systems Architecture?

How does it relate to Systems Engineering?

What is the role of a Systems Architect?

How should Systems Architecture be practiced?

A perpetual reassessment of concepts and practices is taking place across various systems disciplines at every level in the SE community.

Architecture and Principles of Systems Engineering addresses these integral issues and prepares you for changes that will be occurring for years to come. With their simplified discussion of SE, the authors avoid an overly broad analysis of concepts and terminology. Applying their substantial experience in the academic, government, and commercial R&D sectors, this book is organized into detailed sections on:

- Foundations of Architecture and Systems Engineering
- Modeling Languages, Frameworks, and Graphical Tools
- Using Architecture Models in Systems Analysis and Design
- Aerospace and Defense Systems Engineering

Describing ways to improve methods of reasoning and thinking about architecture and systems, the text integrates concepts, standards, and terminologies that embody emerging model-based approaches but remain rooted in the long-standing practices of engineering, science, and mathematics. With an emphasis on maintaining conceptual integrity in system design, this text describes succinct practical approaches that can be applied to the vast array of issues that readers must resolve on a regular basis.

An exploration of the important questions above, this book presents the authors' invaluable experience and insights regarding the path to the future, based on what they have seen work through the power of model-based approaches to architecture and systems engineering.

More information

Thoughts on Software and Systems Engineering

By Ian Sommerville

There seem to be a significant number of people in the software engineering community, especially in the US, who believe that a 'body of knowledge' for software engineers can be (a) defined (b) agreed and (c) made a requirement for licensing. IMHO, they have really got this wrong:

1. Bodies of knowledge reflect the past not the future. Generally, it is greybeards who get involved in such things because young folks are just getting on with their work/life, etc. BOK's reflect what these greybeards know and often they don't know or understand recent important developments. I know – I'm an oldster too – and all the time I have to actively work to stay open-minded about new developments rather than falling back on what I might think of as 'fundamentals' but which may be no such thing. Us 60's folk have to remember one of our heros, Bob Dylan – "don't criticise what you can't understand".

2. There is a truly immense diversity in software engineering and an engineer developing mission critical software for a spacecraft really has very little in common with a developer tailoring SAP systems for an enterprise. The BOK for the former includes lots of hardware stuff, safety, etc; the BOK for the latter, lots of stuff about business and business processes. Really, let's not kid ourselves that there is some 'fundamental core' that is of practical value to both of these types of software engineer.

My SE book reflects my experience and interests in SE – but I would never claim this was some kind of universal body of knowledge.

More information

How to Pursue a Career in Ergonomics Engineering

The Human Factors and Ergonomics Society has been the predominant ergonomics engineering group in America since 1957. With 23 technical groups and numerous chapters across the nation, the society aims to facilitate idea exchange and help people achieve careers in this emerging field. Designers focus on human and machine elements in their ergonomic product designs and strive for effectiveness, safety and ease of performance. At their website, www.hfes.org, individuals who are interested in

this type of design work can learn many things about becoming an ergonomic consultant, product designer, manufacturer, safety inspector, quality tester or researcher.

More information

Industrial and Systems Engineering for the 21st Century - Discovery and Assessing the Multi-Faceted Needs of Industry

Gary W. Foster
Publisher: Storming Media, Publication Date: 2009
ISBN-10: 1423534514, ISBN-13: 978-1423534518

Product Description:

This is a AIR FORCE INST OF TECH WRIGHT-PATTERSONAFB OH report procured by the Pentagon and made available for public release. The Storming Media report number is A897283. The abstract provided by the Pentagon follows: Although industrial and systems engineers possess broad skill mixes and play diverse roles working in industry, it is hypothesized that industrial and systems engineers have unique fundamental core competencies and associated knowledge that distinguish themselves from other related disciplines. This study was intended to discover from an industry viewpoint what these core competencies and associated knowledge are and how or whether they change according to different key sample subgroups. The researcher suspects that industry's perception of what constitutes key competencies to produce ideal industrial and systems engineers may not be identical to what key competencies industry is actually utilizing. Therefore, this study was designed to discover if any differences exist along these two different dimensions by analyzing incumbents' responses. To accomplish this, the researcher developed a knowledge based survey instrument to identify what specific industrial and systems engineering (ISE) knowledge items (KI's) are being applied in industry jobs. In addition, this instrument also asked incumbents to rate these 350 KI's to determine how much educational emphasis should be placed on each of them for undergraduate education curriculum development.

More information

Reductionism and Systems Thinking: Complementary Scientific Lenses

By Lindsey Tuominen

I'm sure many of you have heard the old story about a group of blind men trying to describe an elephant. One guy grabs the elephant's leg and says an elephant must be like a tree. Another guy grabs the end of its tail and says it's like a woman's ponytail. Another one catches a breeze from the elephant's flapping ear and says the creature is more like a large fan. (Okay, obviously I don't remember the details of the story, but you get the picture.) One of the places I heard this story in detail was in a course on Indian Philosophies, and it was used as a way of describing the difficulty any one person will have in understanding the whole of reality.

Scientists, of course, have a general common goal of understanding all of material reality. Each one of us has a limited range of personal experiences, and we can only conduct so many experiments in a lifetime, but we try to listen to other scientists in order to get a better idea of what else material reality might involve beyond the experiments we have dealt with on our own. The broader the range of approaches we use to study a given phenomenon, or to study a range of phenomena, the better we can understand the whole of reality……

More information

Reports from the Field on System of Systems Interoperability Challenges and Promising Approaches

This report identifies challenges and some successful approaches to achieving system of systems (SoS) interoperability. Although systems of systems (SoSs) and their challenges are not limited to the Department of Defense (DoD), this report is based on the challenges and successes reported in interviews with various DoD personnel and some contractor personnel. The information presented does not necessarily represent the opinions of the author or those of the Carnegie Mellon Software Engineering Institute (SEI).

More information

Combining Attributes for Systems of Systems in Multi-Attribute Tradespace Exploration

Debarati Chattopadhyay[1] and Adam M. Ross[2] and Donna H. Rhodes[3]

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Abstract

One of the principal value propositions for the creation of Systems of Systems (SoS) is the ability to generate stakeholder value beyond that which can be delivered by a single system or even a collection of systems. The dynamic interactions among the component systems in a SoS make conceptual design decisions for SoS more complex compared to traditional system design. There are several heuristics and qualitative guidelines for designing SoS in the literature, but there is a lack of practical quantitative methods for SoS concept exploration. Development of quantitative methods for SoS conceptual design will greatly improve the ability of decision makers to select SoS designs in the concept design phase that will be value robust over time, by allowing them to consider a larger and more complete set of possible alternative SoS designs than is possible with qualitative methods alone. Multi-Attribute Tradespace Exploration has been used in the past to compare large numbers of system alternatives on a common cost-utility basis. In this method, the designer elicits the decision maker's needs and formulates these as quantified attributes.

The systems are then analyzed in terms of their ability to achieve the desired levels of attribute metrics. SoS-level attribute calculations must reflect component system interactions and emergent SoS-level value, as well as the added costs and benefits in the SoS as compared to that of the component systems operating alone. This paper introduces techniques for the SoS attribute combination modeling within the Multi-Attribute

Tradespace Exploration method when considering SoS with heterogeneous component systems. Combining the attributes for the SoS-level must take into account the nature of the attributes provided by the component systems as well as the concept of operations for SoS. The techniques used for SoS attribute combination are classified according to the level of coordination between the component systems in the SoS. Using the information about the complexity of the method required along with knowledge about the control structure in the SoS, the SoS architect can estimate the added SoS integration costs. The ability to combine attributes contributes an essential constituent for the extension of the tradespace exploration methodology from the single system to the SoS level, allowing for the comparison of many SoS alternatives on a common cost-utility basis.

More information

Architecting the System of Systems Enterprise: Enabling Constructs and Methods from the Field of Engineering Systems

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Abstract

Engineering systems is a field of scholarship focused on developing fundamental theories and methods to address the challenges of large-scale complex systems in context of their sociotechnical environments. The authors describe facets of their recent and ongoing research within the field of engineering systems to develop constructs and methods for architecting enterprises engaged in system-of-systems (SoS) engineering,. The ultimate goal of the research is to develop a framework for characterizing, designing, and evaluating SoS enterprise architectures throughout the system lifespan as various forces result in entering/exiting of constituent systems, changing environment, and shifting enterprise profile. The nature of systems-of-systems demands constructs for multi-dimensional architectural descriptions, as well as methods for design and evaluation that employ dynamic approaches. In this paper, two important elements in an emerging framework are described, including a holistic enterprise architecting framework and an epoch-based analysis method for examining possible futures of the SoS enterprise.

More information

Conferences and Meetings

The Second International Conference on Complexity, Systems Thinking, and Social Entrepreneurship

April 30 – May 2, 2010, Adelphi University, Garden City, New York, USA
More information

Fifth Workshop on SHAring and Reusing architectural Knowledge - SHARK 2010

32nd Int. Conf. on Software Engineering (ICSE 2010)
May 2-8, 2010, Cape Town, South Africa
More information

Systems Engineering and Test Evaluation (SETE) 2010

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

Model-Based Engineering of Real-time and Embedded Systems (MoBE-RTES 2010)

(organized in conjunction with ISORC 2010)
May 4th, 2010, Carmona (close to Sevilla), Spain
More information

ISORC 2010 Symposium - 13th IEEE Computer Society symposium dealing with the rapidly expanding field of object/component/service-oriented real-time distributed computing (ORC) technology.

May 5-6, 2010, Carmona (close to Sevilla), Spain
More information

International Workshop on Advances and Applications of Problem Orientation (IWAAPO-2010) at ICSE

May 8th, 2010, Cape Town, South Africa
More information

The First International Workshop on Dependable Services and Systems (IWODSS 2010)

May 17-18, 2010, Montreal, Quebec, Canada
More information

The 2010 International Symposium on Collaborative Technologies and Systems (CTS 2010)

May 17-21, 2010, The Westin Lombard Yorktown Center, Chicago, Illinois, USA
More information

Software Process Improvement and Capability Determination (SPICE) 2010

18-20 May 2010 - Pisa, Italy
More information

12th Annual NASA/ESA Product Data Exchange Workshop (PDE 2010) NEW

May 18-20, 2010, Norway
More information

EuSEC 2010: Systems Engineering and Innovation

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

Siemens PLM Connection Americas 2010

Gaylord Opryland, Nashville, TN, USA
May 24 – Thursday May 27, 2010
More information

XP2010 Workshop: Dealing With Usability in an Agile Domain

June 1, 2010,Trondheim, Norway
More information

3rd International Conference - From Research to Teaching Formal Methods: The B Method (TFM-B'10)

June 7, 2010, Nantes, France
More information

Exploring Modelling Methods for Systems Analysis and Design (EMMSAD 2010)

In conjunction with CAiSE 2010
June 7-8, 2010, Hammamet, Tunisia
More information

11th Workshop on Business Process Modeling, Development, and Support (BPMDS'10)

In conjunction with CAiSE 2010
June 7-8, 2010, Hammamet, Tunisia
More information

Fourth International i* Workshop - istar 2010

In conjunction with CAiSE 2010
June 7-8, 2010, Hammamet, Tunisia
More information

6th International Workshop on Enterprise & Organizational Modeling and Simulation (EOMAS 2010)

In conjunction with CAiSE 2010
June 7-8, 2010, Hammamet, Tunisia
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

2nd International Workshop on Future Trends of Model-Driven Development (FTMDD 2010)

In conjunction with the 12th International Conference on Enterprise Information Systems (ICEIS 2010)

June 8 - 12, 2010, Funchal, Madeira - Portugal
More information

2nd International Workshop on Advanced Enterprise Architecture and Repositories (AER 2010)

June 8 - 12, 2010, Funchal, Madeira - Portugal
More information

The Fourth IEEE International Conference on Secure Software Integration and Reliability Improvement (SSIRI 2010)

June 9-11, 2010, Singapore
More information

Model-Based Verification & Validation from Research to Practice

2nd Workshop in conjunction with SSIRI 2010

June 9-11, 2010, Singapore
More information

3rd Workshop on Model-based Testing in Practice

June 15 - 16, 2010, Paris, France, in conjunction with ECMFA 2010
More information

The Fifth Workshop "From code centric to model centric: Evaluating the effectiveness of MDD

(C2M:EEMDD)" NEW

Held in conjunction with ECMFA 2010
June 15 - 18, 2010, University Pierre & Marie Curie, Paris, France
More information

2nd International Workshop on Model-driven Product Line Engineering NEW

Held in conjunction with ECMFA 2010,br /> June 15th-18th, 2010, University Pierre & Marie Curie, Paris, France
More information

6th European Conference on Modelling Foundations and Applications (ECMFA 2010)

June 15-18, 2010, Paris, France
More information

117th Annual American Society for Engineering Education Conference

June 20 - 23, 2010, Louisville, Kentucky, USA
More information

2nd International Workshop on Abstractions for Petri Nets and Other Models of Concurrency

a satellite event of Petri Nets 2010
June 21, 2010, Braga, Portugal
More information

International Workshop on Formalization of Modeling Languages

Colocated with ECOOP 2010
June 21 or 22, 2010 – Maribor, Slovenia
More information

PETRI NETS 2010

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

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

Collocated with Petri Nets 2010

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

IEEE International Conference on Systems of Systems Engineering

June 22 - 24, 2010, Henry Ford College, Loughborough University, UK
More information

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

June 23-25 2010 Prague, Czech Republic

More information

1st International Workshop on Collaborative Modeling & Simulation - CoMetS'10

June 28 - 30, 2010, TEI of Larissa (Greece)
More information

CREARE - 1st Workshop on Creativity in Requirements Engineering NEW

Held in conjunction with REFSQ 2010, Essen, Germany
29th June 2010, in Essen, Germany
More information

First International Workshop on Product Line Requirements Engineering and Quality (PLREQ'10) NEW

Held in conjunction with REFSQ 2010, Essen, Germany
June 30, 2010, Essen, Germany
More information

2nd International Workshop on Model Transformation with ATL

In conjunction with Tools 2010 Federated Conferences.
June 30, 2010 - Malaga, Spain
More information

16th International Working Conference on Requirements Engineering: Foundation for Software Quality (RefsQ 2010)

30 June – 2 July, 2010, Essen, Germany
More information

IV Brazilian e-Science Workshop

(in conjunction with CSBC 2010)
July 2010, Belo Horizonte, MG, Brazil
More information

Transformation Tool Contest 2010

Satellite workshop to TOOLS 2010, 1 - 2 July, 2010, Malaga.
More information

2010 International Conference on System Science and Engineering (ICSSE2010)

July 1-3, 2010, National Taipei University of Technology, Taipei, Taiwan
More information

10th International Conference on Web Engineering NEW

July 5 - 9, 2010 in Vienna, Austria
More information

Summer Computer Simulation Conference (SCSC 2010)

July 11–14, 2010, Ottawa, Canada
More information

20th Annual INCOSE International Symposium (IS10)

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

Eighth International Workshop on Dynamic Analysis (WODA 2010) NEW

Co-located with ISSTA 2010
July 12th or July13th 2010, Trento, Italy

4th ACM International Conference on Distributed Event-Based Systems (DEBS 2010)

July 12-15, 2010, Cambridge, United Kingdom
More information

4th IEEE International Workshop on Requirements Engineering For Services (REFS'10)

In conjunction with COMPSAC 2010
Seoul, Korea, July 19 - 23, 2010
More information

1st International Workshop on Complexity and Real World Applications Using the Tools and Concepts from the Complexity Sciences to Support Real World Decision-making Activities

July 21-23, 2010, Southampton, England, UK
More information

System Dynamics Society 2010 Conference

July 25 – 29, 2010, Seoul, Korea
More information

ECAI 2010 Workshop on Intelligent Engineering Techniques for Knowledge Bases NEW

Aug 16, 2010, Lisbon, Portugal
More information

The 7th Annual INCOSE SA Conference NEW

August 17 - 19, 2010, CSIR International Convention Centre, Pretoria, South Africa
More Information

The 2nd International Workshop on Enterprise Architecture Challenges and Responses

To be held in conjunction with ICIS 2010
August 18 – 20, 2010, Yamagata University, Yonezawa, Japan
More information

The Second International Conference on Advances in System Testing and Validation Lifecycle (VALID 2010)

August 22-27, 2010 - Nice, France
More information

Improving Systems and Software Engineering Conference (ISSEC 2010) NEW

23 - 26 August 2010
Brisbane Convention & Exhibition Centre, Brisbane, Australia
More information

2nd International Workshop on Model-Driven User-Centric Design & Engineering (MDUCDE'10)

September 1st & 2nd, 2010, Valenciennes/France
More information

European Systems & Software Process Improvement and Innovation

1-3 September 2010, Grenoble Institute of Technology, France
More information

1st International Workshop on Reuse in Business Process Management (rBPM 2010)

September 13, 2010, Hoboken, New Jersey – USA
More information

Modeling Business Information Systems (MoBIS 2010)

September 15-17, 2010, Dresden, Germany
More information

7th International Conference on Quantitative Evaluation of SysTems (QEST) 2010

September 15 - 18, 2010, Williamsburg, Virginia, USA at the College of William & Mary, Computer Science Department,
More information

First International Workshop on Evolution Support for Model-Based Development and Testing (EMDT2010)

Co-located with the International Scientific Colloquium (IWK2010)
September 16, 2010, Ilmenau, Germany
More information

15th International Workshop on Formal Methods for Industrial Critical Systems (FMICS 2010)

September 20-21, 2010, Antwerp, Belgium
More information

8th International Symposium on Automated Technology for Verification and Analysis (ATVA 2010)

21-24 September 2010, Singapore

More information

EPEW 2010: 7th European Performance Engineering Workshop

University Residential Center of Bertinoro, Italy
23-24 September 2010
More information

Challenges of Systems Engineering - International Workshop (RuSEC2010) NEW

September 23-24, 2010, Moscow, Russia
More information

ACM International Conference on Design of Communication (SIGDOC'10)

September 26-29, 2010, São Carlos - São Paulo - Brazil
More information

54th Annual Meeting of the Human Factors and Ergonomics Society

September 27-October 1, 2010, San Francisco
More information

The 18th International Requirements Engineering Conference (RE 2010)

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

Fourth IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2010)

September 27-October 1, 2010, Budapest, Hungary
More information

Model-based Testing and Test Automation - From Research into Practice (MoTes2010)

September 27 – October 2, Leipzig, Germany
More information

Fifth International Conference on Graph Transformation

27 September - 2 October, 2010. University Of Twente, Enschede, The Netherlands
More information

PDMC 2010
9th International Workshop on Parallel and Distributed Methods in verifiCation

Joint with 2nd International Workshop on High Performance Computational Systems Biology (HiBi 2010)
September 30 - October 1, 2010, Twente, The Netherlands

Co-locating with
5th International Conference on Graph Transformation (ICGT 2010) , 29 September - 1 October, 2010
17th Annual workshop on Software Model Checking (SPIN 2010), 27 September - 29 September, 2010
More information

ACM/IEEE 13th International Conference on Model Driven Engineering Languages and Systems

October 3-8, 2010, Oslo, Norway
More information

Fourth Asia-Pacific Conference on Systems Engineering (APCOSE 2010)

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

2010 isee User Conference

October 4-6, 2010, The Westin Providence, Providence, Rhode Island, USA
More information

IFM 2010: Integrated Formal Methods 8th International Conference

October 11 – 14, 2010, Nancy, France
More information

Sixth Nordic Conference on Human-Computer Interaction (NordiCHI 2010)

October 16 – 20, Reykjavik Iceland
More information

FMCAD 2010 - Formal Methods in Computer Aided Design

October 20 – 23, 2010, Lugano, Switzerland
More information

NDIA 13th Annual Systems Engineering Conference

October 25-28, 2010, Hyatt Regency Mission Bay, San Diego, CA, USA
More information

Requirements Days 2010

October 26 – 28, 2010, München, Germany
More information

Complex Systems Design & Management 2010

October 27-29, 2010, Paris, France
More Information

29th International Conference on Conceptual Modeling

1-4 November 2010, Vancouver, BC, Canada
More information

2010 IITA International Conference on Control, Automation and Systems Engineering (CASE 2010)

Nov 7, 2010 - Nov 8, 2010. Taipei, Taiwan
More information

Annual Systems Engineering Conference 2010 (ASEC10) NEW

November 8-10, 2010, Heythrop Park Hotel, Chipping Norton, Oxfordshire, UK
More information

SEPG Latin America 2010 NEW

November 10-12, 2010, Medellín, Colombia
More information

CMMI 10th Annual Technology Conference and User Group NEW

November 15-18, 2010
Hyatt Regency Tech Center – Denver, Colorado, USA
More information

ICECSE 2011 "International Conference on Electrical, Computer and Systems Engineering"

January 25-27, 2011, Dubai, United Arab Emirates
More information

Education & Academia

Fraunhofer Attract Gruppe "Architectures for Auditable Business Process Execution (APEX)" Researcher Position

Researcher position to be filled as soon as possible. The positions is part of a newly founded Fraunhofer Attract research group on the topic: "Architectures for Auditable Business Process Execution (APEX): Monitoring, Control, and Compliance in the Insurance Domain" which is directed by Prof. Dr. Jan Jürjens. Goal of the project is the development of concepts and solutions for business processes and their execution in the context of service-oriented IT architectures.

The project goal in particular includes the compliance with relevant regulatory documents regarding Corporate Governance and IT security (such as Solvency II).

More information

SEAri Addresses Challenge of ‘Epochs’ Within System’s Lifespan

The process of designing complex systems to meet specific stakeholder needs is a challenge in itself, but the real world ups the ante even further because it is constantly changing.

Although traditional systems engineering approaches often assume one fixed context, a real system is likely to encounter multiple contexts throughout its lifespan. At the MIT Systems Engineering Advancement Research Initiative (SEAri), researchers have observed that systems are fielded in a period of time—or “epoch”—in which a system’s needs and context are relatively fixed. But then a change in political, economic, resource, or market factors—or even a security threat—triggers a new epoch.

More information

PostDoc positions at Mälardalen University, Sweden

MRTC/Mälardalen University, Sweden offers 2 post doctoral positions:

1. Expert in modeling and analysis of dependability (availability, reliability, fault tolerance, redundancy, etc)
2. Expert in architecture-based verification

More information

School of Systems and Enterprises | Stevens Institute of Technology new Washington, DC Location!

Stevens Institute of Technology, Washington DC is located in the Ronald Reagan Building in the heart of the Federal Triangle area of the nation's capital. This location will be utilized not only for delivery of graduate level education but also as a venue for conferences, seminars, and meetings, which are of vital interest to government and industry stakeholders and the community within Washington DC. Many of our program offerings are currently delivered to government agencies and industry partners who have significant presence in the Washington, DC metro area. This location enhances our ability to continue serving our current relationships, as well as establish new partnerships with practitioners, students and sponsors in the DC area. Initial program offerings include Graduate Certificates in Systems Engineering and Architecting, Project Management, Space Project Management, Space Systems Engineering, Software Engineering, and Systems-centric Software Engineering. Stevens - Washington, DC will also be offering the "Seminar Series at Stevens" for a yearly subscription.

More information

Some Systems Engineering-Relevant Websites

http://www.zachmaninternational.com/index.php

This is the website of the legendary John Zachman. The Zachman Framework™ is an Enterprise Architecture (EA) framework, which provides a formal and highly structured way of viewing and defining an enterprise. It consists of a two dimensional classification matrix based on the intersection of six communication questions (What, Where, When, Why, Who and How) with six rows according to reification transformations. The six rows are labeled in The Zachman Framework™: Identification, Definition, Representation, Specification, Configuration and Instantiation.

In Zachman's words "Since The Zachman Framework™ classification was observed empirically in the structure of the descriptive representations (the architecture) of buildings, airplanes and other complex industrial products, there is substantial evidence to establish that The Zachman Framework™ is the fundamental structure for Enterprise Architecture and thereby yields the total set of descriptive representations relevant for describing an Enterprise."

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http://en.wikipedia.org/wiki/TAFIM

Technical Architecture Framework for Information Management (TAFIM) is a 1990s reference model for enterprise architecture development, first defined by the United States Department of Defense (DoD) Defense Information Systems Agency/Center for Information Management in 1986.

TAFIM provides enterprise-level guidance for the evolution of the DoD Technical infrastructure. It identifies the services, standards, concepts, components, and configurations that can be used to guide the development of technical architectures that meet specific mission requirements. TAFIM defined:

- a target common conceptual framework or reference model for an information system infrastructure
- and the specific applications that the information system must support.

It also subsumed the widely accepted Open Systems Interconnection (OSI) reference model within the network services and communications area.

TAFIM provided the platform from which the current and very popular TOGAF was developed.

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http://en.wikipedia.org/wiki/TISAF

This Wikipedia page gives a history and overview of the Treasury Information System Architecture Framework (TISAF), a 1990s Enterprise Architecture framework to assist U.S. Treasury Bureaus to develop their Enterprise Information System Architectures (EISAs).

The TISAF was developed by the U.S. Department of the Treasury in 1997, and let to the development of the Treasury Enterprise Architecture Framework (TEAF). TISAF was the first-generation framework. The TEAF represents the second-generation framework for Treasury.

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http://en.wikipedia.org/wiki/Treasury_Enterprise_Architecture_Framework

This Wikipedia page gives a history and overview of the Treasury Enterprise Architecture Framework (TEAF), which is an Enterprise architecture framework for United States Treasury. TEAF is based on the Zachman Framework. TEAF was developed by the US Department of the Treasury and published in July 2000. The TEAF represents the second-generation framework for Treasury. TISAF was the first-generation framework.

The TEAF prescribes architectural views and delineates a set of notional products to portray these views. TEAF has since developed into the Treasury Enterprise Architecture (TEA), which aims to establish a roadmap for the modernization and optimization of the U.S. Treasury Department's business processes and IT environment.

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http://www.whitehouse.gov/omb/e-gov/fea/

The US Federal CIO Council published the Federal Enterprise Architecture Framework (FEAF) Version 1.1 in September 1999. The FEAF promotes shared development for US federal processes, interoperability, and sharing of information among US federal agencies and other governmental entities. The FEAF provides direction and guidance to U.S. federal agencies for structuring an enterprise architecture. The FEAF describes eight components of an enterprise architecture:

- Architecture Drivers
- Strategic Direction
- Baseline Architecture
- Target Architecture
- Transitional Processes
- Architectural Segments
- Architectural Models
- Standards

FEAF provides guidance in describing architectures for multi-organizational functional segments of the U.S. Federal Government. These Federal architectural segments collectively constitute the Federal Enterprise Architecture (FEA).

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http://www.togaf.org/

The Open Group Architecture Framework (TOGAF) is a framework - a detailed method and a set of supporting tools - for developing an enterprise architecture. It may be used freely by any organization wishing to develop an enterprise architecture for use within that organization (see Conditions of Use at the website).

TOGAF is developed and maintained by members of The Open Group, working within the Architecture Forum (refer to www.opengroup.org/architecture). The original development of TOGAF Version 1 in 1995 was based on the Technical Architecture Framework for Information Management (TAFIM), developed by the US Department of Defense (DoD). The DoD gave The Open Group explicit permission and encouragement to create TOGAF by building on the TAFIM, which itself was the result of many years of development effort.

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http://www.opengroup.org/architecture/togaf8-doc/arch/chap37.html#tag_38_02

C4ISR stands for The Command, Control, Communications, Computers, and Intelligence, Surveillance, and Reconnaissance. The C4ISR Architecture Framework v1.0, released 7 June 1996, was created by the U.S. DoD in response to the passage of the Clinger-Cohen Act. It addressed the 1995 Deputy Secretary of Defense directive that a DoD-wide effort be undertaken to define and develop a better means and process for ensuring that C4ISR capabilities were interoperable and met the needs of the warfighter. Continued development effort resulted in the second version, C4ISR Architecture Framework v2.0, released in December 1997.

The C4ISR Architecture Framework evolved to become DoDAF v1.0, released in August 2003.

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http://cio-nii.defense.gov/sites/dodaf20/

The U.S. Department of Defense Architecture Framework (DoDAF), Version 2.0 is an overarching, comprehensive framework and conceptual model enabling the development of architectures to facilitate the ability of Department of Defense (DoD) managers at all levels to make key decisions more effectively through organized information sharing across the Department, Joint Capability Areas (JCAs), Mission, Component, and Program boundaries. Unlike the C4ISR Architecture Framework and earlier versions of DoDAF (1.0 and 1.5), DoDAF V2.0 focuses on architectural "data", rather than on developing individual "products" as prescribed in previous versions.

DoDAF V2.0 discusses DoDAF-described Models and Fit-for-Purpose Views: DoDAF-described Models (also referred to as Models) are created from the subset of data for a particular purpose. Once the DoDAF-described Models are populated with data, these "views" are useful as examples for presentation purposes, and can be used as described, modified, or tailored as needed. Fit-for-Purpose Views are user-defined views of a subset of architectural data created for some specific purpose (i.e., "Fit-for-Purpose"). While these views are not described or defined in DoDAF, they can be created, as needed, to ensure that presentation of architectural data is easily understood. This enables organizations to use their own established presentation preferences in their deliberations.

The models described in DoDAF, including those that are legacies from previous versions of the Framework, are provided as pre-defined examples that can be used when developing presentations of architectural data. This is a huge and very positive development in the evolution of DoDAF. DoDAF V2.0 marks the end of a very expensive experiment, the results of which were predicted more than a decade ago in advice given to the U.S. DoD by true gurus in the field like Rich Hilliard, but unfortunately not accepted.

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http://www.modaf.com/

This is a website for MODAF users and tool vendors. It is intended to be a portal for all things related to MODAF – news, jobs, tools, discussion, etc. modaf.com website is a commercial site and is not affiliated with the UK MOD.

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http://www.mod.uk/DefenceInternet/AboutDefence/WhatWeDo/InformationManagement/MODAF/

MOD Architecture Framework (MODAF) is an enterprise architecture framework developed by the U.K. MOD to support defence planning and change management activities.

MODAF provides a coherent set of rules and templates, known as Views that, when populated, provide a graphical and textual visualisation of the business area being investigated. Each View offers a different perspective on the business to support different stakeholder interests. The Views are divided into seven categories:

- Strategic Views (StVs) define the desired business outcome, and what capabilities are required to achieve it
- Operational Views (OVs) define (in abstract rather than physical terms) the processes, information and entities needed to fulfil the capability requirements
- Service Oriented Views (SOVs) describe the services, (i.e. units of work supplied by providers to consumers), required to support the processes described in the operational Views
- Systems Views (SVs) describe the physical implementation of the Operational and Service Orientated Views and, thereby, define the solution
- Acquisition Views (AcVs) describe the dependencies and timelines of the projects that will of deliver the solution
- Technical Views (TVs) define the standards that are to be applied to the solution

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http://www.nhqc3s.nato.int/HomePage.asp?session=1032436664

This is the home page for the NATO Architectural Framework (NAF). NATO Policy for Interoperability of C3 systems addresses development, from the perspective of achieving specified interoperability requirements, on the basis of three architectural views: Operational, System and Technical.

The NATO Interoperability Standards and Profiles are intended to contain and describe the capabilities and attributes of all procedures, data (standards and products) and their relationships necessary to develop the Technical View and part of the System View.

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http://www.img.forces.gc.ca/pub/af-ca/index-eng.asp

This webpage is the web home of the Canadian DND/CF Architecture Framework (DNDAF), developed by the Information Management Group (IM) under the authority of the Assistant Deputy Minister (Information Management) of the Department of National Defence.

The DNDAF has been developed to provide standard architecture framework for the continued development and management of the DND/CF Enterprise Architecture. The DNDAF offers an end-to-end process to initiate, implement, and sustain the DND/CF EA architecture activities. The DNDAF is currently organized into the following four volumes which specifies a standard approach and guidance in the use of supporting tools for the development and capture of the DND/CF EA. The DNDAF is organized into four volumes which are downloadable from the site:

- Volume 1: Overview and Definitions
- Volume 2: DND/CF Views and Sub-views
- Volume 3: DND/CF Architecture Data Model (DADM)
- Volume 4: User Guide.

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http://www.achats.defense.gouv.fr/article33349

AGATE (Atelier de Gestion de l'ArchiTEcture des systèmes d'information et de communication) is a framework for modeling computer or communication systems architecture. It is promoted by the Délégation Générale pour l'Armement (DGA), the French government agency which conducts development and evaluation programs for weapon systems for the French military. All major DGA weapons and information technology system procurements are required to document their proposed system architecture using the set of views prescribed in AGATE.

AGATE defines architectural views for systems and systems of systems, covering:

- Stakes and objectives of the system
- Description of the related organizations processes and information flows
- Security requirements, in compliance with DGA policy
- Services of the system, and traceability with operational needs
- Logical architecture of the system
- Physical architecture of the systems, and hardware and software products used in this architecture
- Life cycle of the system

An AGATE model is organized into 5 views:

- Stakes, Objectives, and context about the system
- Business architecture: describes organizations and Business processes managed by the modelized Information system
- Service-oriented architecture: describes the Services of the system.
- Logical architecture of the system
- Physical architecture of the systems, and hardware and software products used in this architecture.

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http://trak-community.org/

TRAK is a new, general enterprise architecture framework aimed at systems engineers. See general news in this edition of SyEN.

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http://www.rm-odp.net/

The Reference Model of Open Distributed Processing (RM-ODP, ITU-T Rec. X.901-X.904 | ISO/IEC 10746) is a joint effort by ISO/IEC and ITU-T, which provides a co-ordinating framework for the standardization of open distributed processing (ODP) which supports distribution, interworking, platform and technology independence, and portability, together with an enterprise architecture framework for the specification of ODP systems.

The RM-ODP family of recommendations and international standards defines essential concepts necessary to specify open distributed processing systems from five prescribed viewpoints and provides a well-developed framework for the structuring of specifications for large-scale, distributed systems.

The RM-ODP is based on precise concepts derived from current distributed processing developments and, as far as possible, on the use of formal description techniques for specification of the architecture.

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http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=33833

ISO 19439:2006 specifies a framework conforming to requirements of ISO 15704, which serves as a common basis to identify and coordinate standards development for modelling of enterprises, emphasising, but not restricted to, computer integrated manufacturing. ISO 19439:2006 also serves as the basis for further standards for the development of models that will be computer-enactable and enable business process model-based decision support leading to model-based operation, monitoring and control.

In ISO 19439:2006, four enterprise model views are defined in this framework. Additional views for particular user concerns can be generated but these additional views are not part of this International Standard. Possible additional views are identified in ISO 15704.

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http://en.wikipedia.org/wiki/Generalised_Enterprise_Reference_Architecture_and_Methodology

Generalised Enterprise Reference Architecture and Methodology (GERAM) is an enterprise-reference architecture that models the whole life history of an enterprise integration project from its initial concept in the eyes of the entrepreneurs who initially developed it, through its definition, functional design or specification, detailed design, physical implementation or construction, and finally operation to obsolescence. The architecture aims to be a relatively simple framework upon which all the functions and activities involved in the aforementioned phases of the life of the enterprise-integration project can be mapped. It also will permit the tools used by the investigators or practitioners at each phase to be indicated. The architecture defined will apply to projects, products, and processes; as well as to enterprises.

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http://en.wikipedia.org/wiki/CIMOSA

CIMOSA stands for "Computer Integrated Manufacturing Open System Architecture", is a enterprise modeling framework, which aims to support the enterprise integration of machines, computers and people. The framework is based on the system life cycle concept, and offers a modelling language, methodology and supporting technology to support these goals.

It was developed in the 1990s by the AMICE Consortium, in an EU project. Eventually the non-profit organization CIMOSA Association has been established to keep ownership of the CIMOSA specification, to promote it and to support its further evolution.

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http://en.wikipedia.org/wiki/Architecture_of_Integrated_Information_Systems

ARIS (Architecture of Integrated Information Systems) is an approach to enterprise modeling. It offers methods for analyzing processes and taking a holistic view of process design, management, work flow, and application processing.

The ARIS-approach not only provides a generic and well documented methodological framework but also a powerful business process modeling tool.

ARIS started as the academic research of Prof August-Wilhelm Scheer in the 1990s. It has an industrial background, and has sold very well, and in this way wide spread.

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http://www.updm.com/index.htm

UPDM is an industry-based initiative to develop a modeling standard that supports both the USA Department of Defense Architecture Framework (DoDAF) and the UK Ministry of Defence Architecture Framework (MODAF). The modeling standard is called the Unified Profile for DoDAF and MODAF (UPDM).

A UPDM Group was set up to:

- Significantly enhance the quality, productivity, and effectiveness associated with enterprise and system of systems architecture modeling
- Promote architecture model reuse and maintainability
- Improve tool interoperability and communications between stakeholders
- Reduce training impacts due to different tool implementations and semantics
- Improve the integration between system of systems modeling and system modeling to support post-acquisition life cycle design modeling.

This initiative is being conducted under the auspices of the Object Management Group (OMG).

A specification of UPDM is downloadable from the site.

Standards and Guides

ISO/IEC JTC1/SC7 Plenary meeting

23–28, May 2010, Niigata, Japan

Host

Information Processing Society of Japan /Information Technology Standards Commission of Japan(IPSJ /ITSCJ)

Organizer

IPSJ /ITSCJ
Organizer contact: Jacky Takahashi at: ing-sc7niigata@itscj.ipsj.or.jp

Meeting Location

Toki Messe Niigata Convention Center
Address: 6-1, Bandai-jima, Niigata-city, 950-0078, Japan

Web: http://www.tokimesse.com/english/

More Information

Some Definitions to Close On

Enterprise

Enterprise: A business organisation
Source: The American Heritage® Dictionary of the English Language, Fourth Edition

Enterprise Architecture

Enterprise Architecture: An enterprise architecture (EA) is a rigorous description of the structure of an enterprise, its decomposition into subsystems, the relationships between the subsystems, the relationships with the external environment, the terminology to use, and the guiding principles for the design and evolution of an enterprise.
Sources:

1. Giachetti, R.E., Design of Enterprise Systems, Theory, Architecture, and Methods, CRC Press, Boca Raton, FL, 2010.
2. MIT Center for Information Systems Research, Peter Weill, Director, as presented at the Sixth e-Business Conference, Barcelona Spain, 27 March 2007

Project Performance International News

OCD & CONOPS in Capability Development 5-Day Course in South Africa for the First Time!

PPI's OCD & CONOPS 5-Day course and workshop was initially delivered as an on-site course for the Brazilian Air Force (FAB) in 2008. This course was an instant success, leading to it being added to PPI's course offerings, both on-site and publicly.

This course has since been delivered in Brazil (twice), Australia and a 2-Day version has been delivered to an on-site client in the US.

Being delivered for the first-time on the African continent over 17 - 21 May, 2010 in Pretoria, South Africa, the course has received some excellent support.

This course recently became validated by ECSA (Engineering Council of South Africa) for 4 CPD points.

More information: http://www.ppi-int.com/training/ocd-conops-course.php

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Project Performance International Events

Systems Engineering 5-Day Courses

Upcoming locations include:

- London, UK
- Pretoria, South Africa
- Adelaide, Australia
- Wellington, New Zealand
- Melbourne, Australia
- São José dos Campos, Brazil
- Rio de Janeiro, Brazil
- Las Vegas, USA

View 2010/2011 Systems Engineering Course Schedule

Requirements Analysis and Specification Writing 5-Day Courses

Upcoming locations include:

- Las Vegas, USA
- Amsterdam, The Netherlands
- Stellenbosch, South Africa
- Adelaide, Australia

View 2010/2011 RA&SW Course Schedule

OCD/CONOPS 5-Day Courses

Upcoming locations include:

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

View 2010/2011 OCD/CONOPS Course Schedule

Software Engineering 5-Day Courses

Upcoming locations include:

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

View 2010/2011 Software Engineering Course Schedule

Cognitive Systems Engineering 5-Day Courses

Upcoming locations include:

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

View 2010/2011 Cognitive Systems Engineering Course Schedule

PPI Upcoming Participation in Professional Conferences

- April 26 - 29, 2010 - **SSTC 2010** - Salt Lake City, UT, 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)
- August 17-19, 2010 - **INCOSE SA Annual Conference 2010** - Pretoria, Gauteng, South Africa (Sponsor/Exhibiting)

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