BKCASE EB Workshop

June 2014
BKCASE Workshop XIV

• Workshop XIV – INCOSE Symposium
• Location:
  Green Valley Ranch Resort & Spas
  2300 Paseo Verde Parkway
  Henderson, NV 89052
• Dates: June 25-26, 2014

• BKCASE June Workshop - Objectives:
  – Discuss and agree EB plans for 2014/15
  – Agree activities and leadership for Senior Editor tasks
  – Discuss GB/EB relationship and shared goals
  – Produce plans for SEBoK v1.4
BKCASE Workshop XIV

Wednesday, June 25, 2014

8:00 am – Opening Remarks/Agenda Review – Rick Adcock, Editor-in-Chief
8:30 am – SEBoK v. 1.3 Report – Rick Adcock

9:00 am – Editors’ Future Plans – Presented by Each Editor
10:30 am – Break
11:00 am – Editors’ Future Plans (cont.) – Presented by Each Editor

12:30 pm – Lunch

1:30 pm – Publishing (Sandbox, IP, etc.) – Senior Editor Publication

2:30pm – Break-Out Sessions
   GRCSE Plan – Dave Olwell, Senior Editor GRCSE
   SEBoK Integration – Alice Squires, Senior Editor Integration
   Outreach – Senior Editor Outreach

4:00 pm – Out briefs from Break-Out Sessions – Rick Adcock
5:00 pm – Adjourn
BKCASE Workshop XIV

Thursday, June 26, 2014
*Please wear your BKCASE polo.*
8:00 am – Summary of Day 1 – Dave Olwell

8:30 am – Parallel Sessions
   Knowledge Area Sub-Teams
   Governing Board Meeting – Art Pyster
10:30 am – Break

11:00 am – Editorial and Governing Boards Joint Discussion – Rick Adock/Art Pyster
11:50 am – Group Picture (wear your BKCASE polo!) – location TBA

12:00 pm – Lunch

1:00 pm – Plans for SEBoK v. 1.4 – Senior Editor Publication
3:00 pm – Break
3:30 pm – Discussion and Actions – Rick Adcock
4:30 pm – Adjourn Session
SEBoK v. 1.3

- SEBoK v. 1.3 is a minor release which continues our commitment to regular updates of the information referenced in our guide to the systems engineering body of knowledge.
- The primary focus of the Editorial Board for this release was review of references to ensure that they continue to represent the most current information and resources from the systems engineering community. In addition, we have generated a number of new case studies.
The primary changes from SEBoK v. 1.2 are:

- A new use case intended to help individuals who are unfamiliar with systems engineering understand key concepts and navigate the SEBoK to get acquainted with the discipline;
- Three new case studies on
  - Business Transformation,
  - Next Generation Air Traffic Control,
  - NASA's Mission to Saturn;
- Updates to the Hubble Space Telescope Case Study
- Minor updates to references and content to reflect new sources of information, in particular the publication of the newest version of the Project Management Body of Knowledge (PMBOK).
Acknowledgements and Release History

Guide to the Systems Engineering Body of Knowledge (SEBoK) > Letter from the Editor > Acknowledgements and Release History

This article describes the contributors to the current version of the SEBoK. For information on contributors to past versions of the SEBoK, please follow the links under "SEBoK Release History" below. To learn more about the updates to the SEBoK for v. 1.3, please see the Letter from the Editor.

Contents
1 Governance
2 SEBoK v. 1.3 Authors
3 SEBoK Release History
4 Wiki Team
5 SEBoK Discussion

Governance

The SEBoK is shaped by the BKCASE Editorial Board and is overseen by the BKCASE Governing Board. A complete list of members for each of these bodies can be found on the BKCASE Governance and Editorial Board page.

SEBoK v. 1.3 Authors

Table 1 lists the authors who have specifically contributed materials for v. 1.3 and explains what materials they have provided.

Table 1. SEBoK v. 1.3 Authors

<table>
<thead>
<tr>
<th>Author</th>
<th>Contribution</th>
</tr>
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<tbody>
<tr>
<td>Mikhail Belev, RBS (Russia)</td>
<td>Successful Business Transformation within a Russian Information Technology Company</td>
</tr>
<tr>
<td>Hamid Darbi, Stevens Institute of Technology (USA)</td>
<td>Federal Aviation Administration Next Generation Air Transportation System</td>
</tr>
<tr>
<td>David H. Oxwell, Naval Postgraduate School (USA)</td>
<td>Use Case 0: Systems Engineering Notices</td>
</tr>
<tr>
<td>Brian Saundra, University of North Texas (USA)</td>
<td>Hubble Space Telescope Case Study</td>
</tr>
<tr>
<td>Mike Vinarsik, Bocab Allen Hamilton and University of Detroit, Mercy (USA)</td>
<td>How Lack of Information Sharing Jeopardized the NASA/ESA Cassini/Huygens Mission to Saturn</td>
</tr>
<tr>
<td>Brian White, CAU&gt;SE(USA)</td>
<td>Hubble Space Telescope Case Study</td>
</tr>
</tbody>
</table>
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Editor Interviews

• Current role
  – Are you in the right role?
  – Who should you be working with?

• Plans
  – Detailed plans?
  – Vision?

• Other issues
  – Integration?
  – SEBoK Future developments?
Editor Interviews

• Current role
  – Are you in the right role?
    • Broadly yes
  – Who should you be working with?
    • Other editors in related KA, need more editors in some areas
    • INCOSE WG, wider community?

• Plans
  – Detailed plans?
    • New and updated articles
    • How to move to maintenance?
  – Vision?
    • Alignment with other BoK, Standards, INCOSE, etc. (Parts 2 and 3)
    • How to manage interface with related disciplines (Parts 5 and 6)
    • How to include systems thinking, MBSE, Agile, enterprise application & SoS?

• Other issues
  – Integration?
    • Not too bad, start a review
  – SEBoK Future developments?
    • Make more accessible to other users
    • Consider what value SEBoK provides
    • Look at EB ways of working
SEBoK Plans

• The role of the Editorial Board is to work with this community of interest on an ongoing review of the current SEBoK content and structure and to develop plans for its maintenance and evolution.

• Some of the areas under consideration for revision over the next 18 months include:
  – Improve the ways in which Part 1 (SEBoK Introduction) provides a starting point for different SEBoK users to find and navigate knowledge relevant to them. This will include consideration of some of the SEBoK Use Cases which were not expanded in previous releases.
  – Review of Part 2 (Systems) with help from the International Society for the Systems Sciences (ISSS) to better understand the relationships between systems science and systems thinking as applied to engineered systems. We hope this will lead to an improved integration of systems principles, concepts, patterns and models into the other systems engineering focused knowledge areas across the SEBoK.
  – Continue the alignment and co-evolution of Part 3 (Systems Engineering and Management) with other systems engineering life cycle documentation, in particular the planned new release of ISO/IEC/IEEE. Systems and Software Engineering -- System Life Cycle Processes and the INCOSE Systems Engineering Handbook v. 4.0.
  – Assess our coverage of knowledge on systems engineering application and practices. This may include expansion of the Service and Enterprise knowledge areas in Part 4 (Applications of Systems Engineering). It will also consider how systems engineering practices such as architecting, life cycle management and model based systems engineering are addressed across the SEBoK.
  – Identify the other groups, both within the systems engineering community and beyond, with interest in the topics of Part 5 (Enabling Systems Engineering) and Part 6 Related Disciplines and form stronger relationships with them.

• We aim to ensure that our coverage of existing systems engineering knowledge is complete and to push the boundaries of that knowledge into new approaches and domains.
SEBoK Plans Part 1
(Includes Integration)

Vision

• Maintain Part 1 to keep it up to date with the rest of the SEBoK as it evolves. Look at two particular areas of Part 1:
  – Introduction, consider how to make this more of a general introduction to the SEBoK. Do we need a better “Simple Guide to SE” article?
  – Review and complete the “SEBoK Use Cases”

• Part 1 will also be the primary focus for a cross SEBoK integration review.
# Part 1 Articles

<table>
<thead>
<tr>
<th>Articles</th>
<th>Plans/comments</th>
<th>Next review for</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part 1 Introduction</strong></td>
<td>Update for version 1.4</td>
<td>V 1.4</td>
</tr>
<tr>
<td>Systems Engineering Overview</td>
<td>Review for wider audience</td>
<td>V 1.4 or 1.5</td>
</tr>
<tr>
<td>Economic Value of Systems Engineering</td>
<td>Updated for v1.2</td>
<td>V 1.6</td>
</tr>
<tr>
<td>Systems Engineering: Historic and Future Challenges</td>
<td>Review challenges</td>
<td>V 1.6</td>
</tr>
<tr>
<td>Systems Engineering and Other Disciplines</td>
<td>Review with Part 6</td>
<td>V 1.5</td>
</tr>
<tr>
<td>Scope of the SEBoK</td>
<td>Alignment with other parts</td>
<td>V 1.5</td>
</tr>
<tr>
<td><strong>Structure of the SEBoK</strong></td>
<td>Alignment with other parts</td>
<td>V 1.4</td>
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<table>
<thead>
<tr>
<th>Articles</th>
<th>Plans/comments</th>
<th>Next review for</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEBoK Users and Uses (KA Introduction)</td>
<td>Review how users are identified</td>
<td>V1.4</td>
</tr>
<tr>
<td>Use Case 0: Systems Engineering Novices</td>
<td>New for v1.3</td>
<td>V1.5</td>
</tr>
<tr>
<td><strong>Use Case 1: Practicing Systems Engineers.</strong></td>
<td>Review against sebok changes</td>
<td>V1.4</td>
</tr>
<tr>
<td>Use Case 2: Other Engineers</td>
<td>Review with Part 6</td>
<td>V1.5</td>
</tr>
<tr>
<td>Use Case 3: Customers of Systems Engineering.</td>
<td>Review with Part 4</td>
<td>V1.5</td>
</tr>
<tr>
<td>Use Case 4: Educators and Researchers</td>
<td>Review against GRCSE</td>
<td>V1.6</td>
</tr>
<tr>
<td>Use Case 5: General Managers.</td>
<td>Review with parts 4 &amp; 5</td>
<td>V1.5</td>
</tr>
<tr>
<td><strong>New Use Cases</strong></td>
<td>Consider new cases and ways to tie use cases into Case Studies</td>
<td>V1.5 or 1.6</td>
</tr>
</tbody>
</table>
Many of the reviews and possible updates of Part 1 require a look at the current state of other SEBoK Parts.

Part 1 team will look across the SEBoK to identify a number of things, including:
- Could the Use Cases be updated or done differently?
- Does Part 1 continue to align correctly with the rest of the SEBoK?
- Identify key concepts and terms and ensure they are consistently described across the Parts (e.g. Context, Boundary, Life Cycle, Architecture, Enterprise, Service, etc.)

Review team:
- Ariela Sofa (Part 1 Editor) & Alice Squires (Senior Editor Integration)
- Cihan Dagli, Ken Zemrowski
- Others, both from EB and from outside?
Creating people, teams and enterprises to enable good SE

Enabling SE
Creating people, teams and enterprises to enable good SE

Systems
Systems Knowledge and how it relates to SE

SE & Management
“Standard” Life Cycle, Process and Practices

Related Disciplines
The other disciplines involved in a Life Cycle and how we work with them

Applications of SE
The different Contexts in which “Standard” Life Cycle, Process and Practices are applied

Case Studies
Part 2

Vision
• Ensure P2 covers systems knowledge relevant to SE and form stronger links to SysSci community
• Consider how best to cover models and modelling in the SEBoK
• Provide a link between the “Systems Approach” to complex problems and SE

Part 2 Team:
• Mike Yearworth, Janet Singer (ISSS), Duane Hybertson, Cihan Dagli (Integration team)
• Dov Dori & TBC
# Part 2 – SysSci Basics

<table>
<thead>
<tr>
<th>Articles</th>
<th>Plans/comments</th>
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<tr>
<td>Systems (Part Introduction)</td>
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<tr>
<td>Systems Fundamentals (KA Introduction)</td>
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<td><strong>What is a System?</strong></td>
<td>Basic definitions</td>
<td>V1.4</td>
</tr>
<tr>
<td>Types of Systems</td>
<td>Basic definitions</td>
<td>V1.4</td>
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<tr>
<td>Groupings of Systems</td>
<td>Review with Part 4</td>
<td>V1.5</td>
</tr>
<tr>
<td>Complexity</td>
<td>Review literature, discuss with INCOSE WG</td>
<td>V1.5</td>
</tr>
<tr>
<td>Emergence</td>
<td>Review literature</td>
<td>V1.5</td>
</tr>
<tr>
<td>Systems Science (KA Introduction)</td>
<td>Review KA logic</td>
<td>V1.4</td>
</tr>
<tr>
<td><strong>History of Systems Science</strong></td>
<td>Review need for this article</td>
<td>V1.4</td>
</tr>
<tr>
<td>Systems Approaches</td>
<td>Review, consider expanding methodology coverage</td>
<td>V1.5</td>
</tr>
<tr>
<td>Systems Thinking (KA Introduction)</td>
<td>Review KA logic</td>
<td>V1.4</td>
</tr>
<tr>
<td><strong>What is Systems Thinking?</strong></td>
<td>Review literature</td>
<td>V1.4</td>
</tr>
<tr>
<td>Concepts of Systems Thinking</td>
<td>Review literature</td>
<td>V1.5</td>
</tr>
<tr>
<td>Principles of Systems Thinking</td>
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<td>V1.6</td>
</tr>
<tr>
<td>Patterns of Systems Thinking</td>
<td>Review literature</td>
<td>V1.6</td>
</tr>
</tbody>
</table>
Part 2 – System Models Challenge

• The current “Representing Systems with Models” KA is mature.
  – Good quality material with wide links
  – Lack of a definitive source for “what is MBSE”

• How to provide a better coverage of Models and Model Based SE (MBSE) in the SEBoK?
  – Cover “system representation” concepts in Part 2?
  – Create overview of MBSE somewhere in SEBoK?
  – Include MBSE details in other Parts/KAs?

• Whatever we do, it would have value to make MBSE more visible at the top level of the SEBoK to reflect its strategic role in SE
Part 2 – System Models Review

• How to provide a better coverage of basic “system representation” concepts and details of (MBSE) in the SEBoK (recognising need for more visible MBSE coverage)?

• Create a review team:
  – Dov Dori (Editor) & Greg Parnell
  – Plus review team from MBSE WG (initial meeting at IS)

• Outputs:
  – “Quick Wins” for V 1.4 (Sept 2014)
  – Plan for full solution (Jan 2015)
  – Implement changes V1.5 and V1.6
Part 2 Systems Approach Challenge

- Systems Approach KA is as mature as the BoK it represents.
- There is a lack of a clear definition of the links between Systems Science, Systems Thinking and SE
- New P2 editors are actively involved in considering this gap as part of INCOSE/IFSR working group
- The outputs of which will enable
  - Improvement in this KA
  - Better links into rest of SEBoK
Part 2 – Systems Approach Review

• How to express the Systems Approach and through this better link Systems Science, Systems Thinking and SE across the SEBoK?

• Create a review team:
  – Mike Yearworth, Janet Singer (ISSS), Duane Hybertson, Rick Adcock
  – Plus review team from SysSci WG

• Outputs:
  – “Quick Wins” for V 1.4 (Sept 2014)
  – Plan for initial solution (Sept 2014 with update Jan 2015)
  – Implement changes V1.5 and V1.6
Part 3

Vision

• Continue the alignment and co-evolution of Part 3 (Systems Engineering and Management) with other systems engineering life cycle documentation, in particular the planned new release of ISO/IEC/IEEE. Systems and Software Engineering -- System Life Cycle Processes and the INCOSE Systems Engineering Handbook v. 4.0.

• In particular:
  – How well does Life Cycle Models KA align with current thinking?
  – Align the “Concept Definition”, “System Definition”, “Realisation”, “Deployment and Use” KAs with latest development in SE Hnbk and ISO standard.
  – Review “Product and Service Life Management” alongside Part 4
  – Consider coverage of Standards across the SEBoK.
  – Consider closer links into Part 2, as it matures.
Growing Industry Collaboration (Garry Roedler)

**Standardization Goals, Objectives, Needs**

- Large number of standards combined or fast-tracked
- Coordinated development

**ISO/IEC JTC1/SC7**

- Systems & software engineering standards
- Some coordination between committees

**IEEE-CS**

- Large number of standards combined or fast-tracked
- Coordinated development

**INCOSE**

- SE References, including SE Handbook

**Others**

For specific resources:

- TechAmerica – EIA-632A
- ISO/IEC JTC1 SC27
- ISO TC 184
- CMMI – Some PAs (e.g., M&A)

**Reference Curricula**

- Grad Ref Curriculum for SE - GRCSE
- Grad Ref Curriculum for SW

**SEBoK SWEBok**

- SE Body of Knowledge
- SW Body of Knowledge

**Vocabularies**

- SE & SW Processes - SEVOCAB

**Complementary And Supplementary**

Influence other key SE & SW resources
Evolution of Key SE&A Resources (Garry Roedler)

Integrated evolution of the key SE resources through collaboration. Much of this evolution has occurred; growth & sustainment is necessary.
# Part 3 Detailed Plans

(Concept Definition, System Definition, Standards)

<table>
<thead>
<tr>
<th>Knowledge Area</th>
<th>Article (per V1.1)</th>
<th>Article (per revision)</th>
<th>Proposed Authors</th>
<th>Description of Change</th>
<th>1.3</th>
<th>1.4</th>
<th>1.5</th>
<th>1.6</th>
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<td>Concept Definition</td>
<td>Mission Analysis</td>
<td>Mission Analysis</td>
<td>Ryan, Bearden, Roedler</td>
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<td>Concept Definition</td>
<td>Stakeholder Needs and Requirements</td>
<td>Stakeholder Needs and Requirements</td>
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<td>System Definition</td>
<td>System Requirements</td>
<td>System Requirements Definition</td>
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<td>System Definition</td>
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<td>Architecture Definition</td>
<td>Martin, Dickerson, Faisandler, Cook, Mitchell</td>
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<td>System Definition</td>
<td>Logical Architecture Design</td>
<td>Logical Architecture View</td>
<td>Martin, Dickerson, Faisandler, Cook, Mitchell</td>
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<td>Martin, Dickerson, Faisandler, Cook, Mitchell</td>
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<td>System Design Definition</td>
<td>System Design Definition</td>
<td>Martin, Dickerson, Faisandler, Cook, Mitchell</td>
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<td>Coordinate with INCOSE AWG</td>
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<td>System Definition</td>
<td>System Analysis</td>
<td>System Analysis</td>
<td>Roedler, Forsberg, Parnell</td>
<td>Factor in feedback and lessons learned. Clarify interactions with the Technical and Technical Management processes. Determine if any tics are needed with M&amp;S/MBSE.</td>
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<td>Coordinate with INCOSE DAWG, RWG, and AWG</td>
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<tr>
<td>SE Standards</td>
<td>Relevant Standards</td>
<td>Relevant Standards</td>
<td>Zemrowski, Roedler, Jones</td>
<td>Revise article to address current revision objectives. Add information on MBSE and other SE related standards.</td>
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<td>Zemrowski, Roedler, Jones</td>
<td>Revise article to address current revision objectives.</td>
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<td>x</td>
<td></td>
<td></td>
<td>Coordinate with INCOSE Stts Init.</td>
</tr>
</tbody>
</table>
Part 3 Other Plans

• “System Realization” & “Systems Deployment and Use”:
  – Include in plans for alignment with standards

• Life Cycle Management & Product and Service Life Management
  – Include in plans for alignment with standards
  – Update “Decision Management for v1.4 (align with System Analysis Article)
  – Review “Risk” and “Quality” for v1.5 (align with Lean article)
  – Consider Product and Service with part 5

• do we have sufficient Editors for these KA?
Part 3 Other Plans

• Life Cycle Models:
  – Need to review maturity of this KA
  – Consider clear separation between “Overview of how life cycle thinking has evolved” and “Current Best Practice”.
  – Do we cover Lean and Agile approaches and is our language accessible to none traditional SE domains?
  – (New Editors appointed)
Part 3

- Part 3 Team
  - Barry Boehm & TBC: LCM
  - Garry Roedler: Concept Def, System Def
  - Ricardo Valerdi (TBC): Realization, Dep & Use
  - Greg Parnell: SE Management
  - Kevin Forsberg (TBC): R&S Management
  - Ken Zemrowski: Standards (& Integration Review)
Part 4

Vision

• Expand the scope of SE knowledge outside of “Traditional” Product to cover Service and Enterprise applications
• Ensure P5 fully covers knowledge relevant to Product and Service SE
• Promote discussion on how SE applies to Enterprise and how System of Systems should best be integrated into SE

Team

• Judith Dahmann, Mike Henshaw, Sam Seymour, James Martin
Part 4: Product and Service Challenges

• Product SE KA is mature, only small changes planned for v1.4
  – SEMP and MDAL content

• Service SE KA,
  – current content is based around a fairly narrow view of software intensive Service System.
  – Need to review scope of Service Systems
Part 4 Service Plans

• Scope of Service Systems
  – clarification of service and service systems
    • Talk to original authors (James Martin, Bud Lawson)
    • and other interested in this topics
  – Look at service article in Part 2 and intro to part 4
  – Work with other Part 4 editor and others

• Plan
  – V1.4 reorganise current material, clarify scope move some material forward
  – V1.4 reconsider intro to Part 4 (with other editors)
  – V1.5/6 additional graphics to navigate and explain
  – V1.5/6 service systems examples or case studies

• Aim for stronger integration of Part 3 and Part 4
Part 4 Enterprise & SoS Challenges

• Both SoS and Enterprise SE are relatively new areas with limited definitive literature.

• Questions:
  – What does applying SE to Enterprise really mean?
    • Engineering an Enterprise,
    • creating Enterprise systems,
    • enabling planning of product and service plans,
    all of these or something else entirely?
  – Is SoS a cross cutting system idea, a fourth application context or both?

• International groups looking at this include INCOSE, IEEE, NDIA
Part 4 Enterprise & SoS Review

• How to express the relationships between Enterprise, SoS and SE?

• Create a review team:
  – Judith, Mike, James
  – Plus reviews team from WGs
    • INCOSE SoS Working Group
    • INCOSE Intelligent Enterprise Working Group and INCOSE UK Enterprise SE WG
    • IEEE Systems of Systems Technical Committee.
    • Other interested groups?

• Outputs:
  – “Quick Wins” for V 1.4 (Sept 2014)
  – Plan for full solution (Sept 2014)
  – Implement changes V1.5 and V1.6
  – Include creation of “tailoring guides” and case studies for both ESE and SoS
Part 2: Systems

- Systems Approach
- Engineered Systems

Part 3: SE & Management

- Through Life Management Processes
- Practices*
- Standards

Part 4: Applications of SE

- Applying SE to:
  - Product System context
  - Service System context
  - Enterprise System context
  - System of Systems context

- Combining, Tailoring and Customising to Domain Application

Part 5: Enabling SE

- Successful SE enabled by:
  - Individuals
  - Teams
  - Enterprises

Part 6: Related Disciplines

- Relationships with:
  - Project Management
  - Engineering Design
  - Specialist Disciplines

Part 7: Examples

*Practices = Life Cycle Models, Methods, Models, Patterns, Tools, etc.
Part 5

Vision

- Ensure P5 covers the most up to date and relevant aspects of Enabling knowledge
- Align P5 with expert reviewers and authors, making use of expert groups such as INCOSE, ISSS, etc.
- Review the structure of P5 to make it easier for relevant (none SE) experts to review and update material

Team

- Heidi D & Tim Ferris (TBC)
- Mike Pennotti (education article)
- Plus external reviewers and possible authors
Part 5 Challenges

• Part 5 expert review:
  – What's relevant to SE vs latest material
    • current part 5 is a bit out of date in places
  – Current structure makes it difficult for domain experts to review their area of expertise as it is spread across the articles
  – Consider organising along Part 6 structure with overview of how specialist disciplines enable SE and dedicated articles of key specialist topics
Part 5 Plan

• Hold off any new material for 1.4?
  – May update specific sections
  – Insert SE Education article if ready
• Review structure and purpose of Part 5
• Hold workshop around this topic, as part of INCOSE AF series (include competency WG, HELIX, etc.)
• Identify review team and outline for changes:
  – People from SE community with interest in this
  – Identify relevant experts e.g. industrial psychology, etc.
• Plan for future updates up to v1.5 & v1.6:
  – Evolve specific articles
  – Create new structure

• Need another Editor for new Part 5, possibly for INCOSE Competency community?
Part 6

Vision
• Ensure P6 covers the most up to date and relevant aspects of related disciplines
• Align P6 with expert reviewers and authors, making use of expert groups such as INCOSE, IEEE, etc.

Team
• Alice Squires (editor) plus TBC
• PoC for relevant Working Groups
## Part 6 Authors

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<thead>
<tr>
<th>SEBoK Section Related Discipline</th>
<th>Confirmed Authors</th>
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<tr>
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<td>Ajoy Muralidhar</td>
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# Part 6 Maturity

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Part 6 Forward Plan

- Version 1.4 (Nov 2014)
  - all SME authors recruited
  - SMEs provide roadmap for content and suggestions for structure
  - complete essential content updates
  - leave structure mostly intact
- Version 1.5 (May 2015)
  - add new articles to complete final ‘consensus’ structure (to provide common look and feel) with developing content
- Version 1.6 (Nov 2015)
  - final structure updates if needed
  - final mature content to meet all known gaps

Note: Security Engineering SEBoK Maintenance Plan:
  - www.parshift.com/s/INCOSE_SSE_SEBoK-Maintenance_project_white-paper_FINAL.pdf
Part 7

Vision

• Create logical structure for required CS coverage
• Reconsider how Case Studies can best be integrated into SEBoK.

Team

• Brian White & Brian Sauser
Part 7

• New/updated case studies in states of review/editing/revision:
  – GPS (update)
  – Gaspar: Business Development (Maritime)
  – Gaspar: Offshore Design (Maritime)
  – Forsberg: Design for Maintainability-Parts Incubator (Health Care)
  – Johnson: Launch Test Range System (Space)
  – Boehm: Next Generation Medical Infusion Pump (Health Care)
2 X 2 Case Study Profiler

- **Degree of Engineering Difficulty**
  - Complex SE
  - Conventional SE

- **Degree of Complexity**
  - Complicated
  - Complex

- **Quadrants**
  1. **Complex SE**
     - Cassina/Huyens; Maritime Business Development
  2. **Conventional SE**
     - Car Parts Incubator; Launch Test Range System
  3. **NextGen; Hubble Space Telescope**
  4. **IBS; GPS**
Case Studies plans

• 2x2 matrix for case studies:
  – Sets scope for CS needs
  – Consider 5 CS per cell, new CS will replace existing ones

• Consider the Implementation matrix

• Reconsider value of vignette, possibly remove

• Guidance for how to write a CS
  – Existing list of candidate
  – use sandbox and WG’s as sources of CS

• How do CS fit into education, GRCSE, growth of SEBOK use?
SEBok Plans Summary

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  – V1.4 Introduction & Use Cases (3 articles)
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    • V1.4 “quick wins”
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    • V1.5/V1.6 improve Systems Approach definition and use

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    • V1.4 change to Part 4 Intro & Service Intro (2 Articles)
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    • V1.5/V1.6 SoS across SEBoK
  – V1.6 Service SE & Enterprise SE and SoS Case Studies

• Part 5
  – V1.4 Education article
  – Review P 5 structure
    • V1.4 “quick wins”
    • V1.5/V1.6 layout and SME inputs

• Part 6
  – V1.4 essential updates (TBC)
  – V1.5/V1.6 expert consensus

• Part 7
  – V1.4 complete planned Case Studies (5 articles)
  – V1.5/V1.6 update Case Study organisation and coverage
SEBok Plans
Summary

• SEBoK v1.4 (Nov 2014)
  – Approx 5 new articles plus 15 significant updates
  – 20+ other articles with possible minor updates

• SEBoK v1.5/V1.6 (May/Nov 2015)
  – 8 major content and structure reviews in progress
  – Moving into content maintenance across most of the SEBoK
Wider SEBoK Issues

• **Content:**
  – MBSE, coverage and visibility
  – Other applications such as affordable or resilient systems, cyber security, etc.
  – Better links to SE practice; within SEBoK or as related products
  – How to cover domains (is it possible?)

• **Useability and other BKCASE products:**
  – Who is reading SEBoK and why? Is it right for them?
  – Applicability to non traditional domains
  – Role for education; links to GRCSE and other products
  – Better use of graphics within articles
  – Key concept mapping as addition to glossary

• **Ways of working:**
  – Keeping focus on our original aims
  – How to identify and maintain references?
  – How to better review new and existing material?
  – When and where to meet?
  – How often to publish?
BKCASE Workshop XIV

Wednesday, June 25, 2014

8:00 am – Opening Remarks/Agenda Review – Rick Adcock, Editor-in-Chief
8:30 am – SEBoK v. 1.3 Report – Rick Adcock

9:00 am – Editors’ Future Plans – Presented by Each Editor
10:30 am – Break
11:00 am – Editors’ Future Plans (cont.) – Presented by Each Editor

12:30 pm – Lunch

1:30 pm – Publishing (Sandbox, IP, etc.) – Senior Editor Publication

2:30pm – Break-Out Sessions
  GRCSE Plan – Dave Olwell, Senior Editor GRCSE
  SEBoK Integration – Alice Squires, Senior Editor Integration
  Outreach – Senior Editor Outreach

4:00 pm – Out briefs from Break-Out Sessions – Rick Adcock
5:00 pm – Adjourn
EB Processes

• Roles
  – Role of editor
  – Role of authors

• Process flow
  – IP issues

• Inputs
  – Use of sandbox
  – Disqus
BKCASE EB Ways of Working

So far we have been using an approach developed for the original BKCASE project, when we had a bigger budget and team.

I am very keen that we develop our own ways of working which fit the new EB organisation:

1. How and where should the EB meet in the future, e.g:
   - What workshops and meetings should we have?
   - How often do we need to meet and in what size groups?
   - How should we make use of face-to-face, telecom, website, etc.

2. How and when should we publish updates to the SEBoK, e.g.
   - How often to up issues?
   - How to handle reviewing?
   - How to use the sandbox?
Meetings (discussion)

• Workshop before IS or IW are difficult, especially for US based EB for whom time is the biggest factor?
• At the end of the IS will work for more of us
  – Make this the decision making meeting
• During the IW, depending on other commitments
  – Make this content and situational awareness meeting
• Stand alone BKCASE meeting in an “interesting” venue might have value;
  – also move around the world a bit
  – Add some other dimension, e.g. GRCSE workshop or content based open review
  – Include telecom, video, etc.
• Organise focused meetings around the “Part Teams”
  – Make use of electronic working
  – Part team coordinator
• Regular newsletter
  – For the EB members
  – On the website for public consumption and to attract sponsorship
• Someone to drive outreach is needed; a volunteer or using a professional
Publishing (discussion)

• How and when should we publish updates to the SEBoK, e.g.
  – How often to update?
  – How to handle reviewing?
  – How to use the sandbox?

• Stagger the authoring/review process; authoring, editing and publishing in parallel
  – Generic deadlines for types of articles
• Be firmer on deadlines to make sure editing and publishing has time to do with sensible staff effort
  – Fix publishing and flex authoring not other way around
• Two updates per year right model on average;
  – Might consider on off changes for larger update;
  – Discuss this annually at IS?

• Sandbox:
  – Use for open reading and comment
  – Use as wiki development site; draft only for editors
  – Has to open and close around each update
  – Sandbox rules, we should review these

• Review of content:
  – Set some rules for review of different kinds of update:
    • Small change =
    • Significant update =
    • New article =

• Mechanisms for collecting feedback?
  – Set-up not
Day 2
BKCASE Workshop XIV

- Workshop XIV – INCOSE Symposium
- Location:
  Green Valley Ranch Resort & Spas
  2300 Paseo Verde Parkway
  Henderson, NV 89052
- Dates: June 25-26, 2014

- BKCASE June Workshop - Objectives:
  - Discuss and agree EB plans for 2014/15
  - Agree activities and leadership for Senior Editor tasks
  - Agree EB ways of working, leadership roles and publishing policy
  - Discuss GB/EB relationship and shared goals
  - Produce plans for SEBoK v1.4

} Day 2
BKCASE EB Meetings
(Proposal for 2014/2015)

• Meetings during INCOSE IW (plus IEEE conference, CSER, SERC event?):
  – Publishing and review planning meeting
  – Short workshops on areas of content, run in collaboration with WG as appropriate
  – SEBoK Forum, open overview and discussion of SEBoK status and direction
  – BKCASE to be included in IW market place and reports?

• Meeting at INCOSE IS:
  – EB annual meeting (Thursday pm after IS); include telecom reports
  – Joint GB/EB meeting (Friday am?)
  – EB social event?

• BKCASE annual workshop:
  – Sponsored event (venue plus food, etc.); free to attend
  – Expanded SEBoK Forum discussions, open to none EB members and include invited guests
  – Spring or autumn? Somewhere with a beach and shoe shops!

• Part team working sessions:
  – Organised by Part Team, with coordinator role TBD
  – Making use of telecom and other collaborative working tools
  – Include (quarterly?) EIC briefing
SEBoK Publishing
(Proposal for 2014/2015)

• Publishing includes:
  – Content authoring, editing and content review
    • Authors use sandbox, editor then transfers to Draft wiki
    • Small change review by editor; significant update review by editor plus at least 1 other; new article review by editor plus at least 2 others (editors call with EIC oversight)
    • Takes as long as it takes!
  – Technical review
    • Review of article against (expanded?) style guide
    • X hours per article
    • look into resources for this activity: tech editor, volunteers, staff, etc.
  – Wiki review and release (Y man hour & Z weeks)
SEBoK Publishing
(Proposal for 2014/2015)

• Future publishing process will be resource limited with fixed deadlines for submission of draft wiki content
  – EB agrees publishing schedule for coming year at IS:
    • Default 2 per year; may have one big release (or more small ones?)
    • limitations of resource to be clarified over time
  – Editors agree submission date with EIC for each release depending on type of content and other planned submissions
    • Editors can ask for extension up to final date at EIC discretion.
    • Allows technical review in parallel with editing to some extent
    • If you miss your deadline submit next time around!
  – After final date draft wiki closed for final wiki review
    • Using staff resources (Cranfield, INCOSE, IEEE, consultants)
    • Check over whole wiki as appropriate
    • Given enough time to be done at sensible workload!
Wider SEBoK Issues

• Content:
  – MBSE, coverage and visibility
  – Other applications such as affordable or resilient systems, cyber security
  – Better links to SE practice; within SEBoK or as related products
  – How to cover domains

• Useability and other BKCASE products:
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  – Role for education; links to GRCSE and other products
  – Better use of graphics
  – Key concept mapping

• Ways of working:
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  – How to identify and maintain references
  – When and where to meet
  – Publishing and review
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    • V1.5/V1.6 improve ESE KA
    • V1.5/V1.6 SoS across SEBoK
  – V1.5/V1.6 new “Application Tailoring” and Case Study articles

• Part 5
  – V1.4 Education article
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    • V1.5/V1.6 layout and SME inputs

• Part 6
  – V1.4 essential updates (TBC)
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• Part 7
  – V1.4 complete planned Case Studies (5 articles)
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BKCASE Workshop XIV

Thursday, June 26, 2014
*Please wear your BKCASE polo.*
8:00 am – Summary of Day 1 – Dave Olwell

8:30 am – Parallel Sessions
   Knowledge Area Sub-Teams
   Governing Board Meeting – Art Pyster
10:30 am – Break

11:00 am – Editorial and Governing Boards Joint Discussion – Rick Adock/Art Pyster
11:50 am – Group Picture (wear your BKCASE polo!) – location TBA

12:00 pm – Lunch

1:00 pm – Plans for SEBoK v. 1.4 – Senior Editor Publication
3:00 pm – Break
3:30 pm – Discussion and Actions – Rick Adcock
4:30 pm – Adjourn Session
GRCSE

• Original plan
  – Issued Dec 2012, 3 months after SEBoK 1.0
  – Planned minor update 2015
  – Planned major update 2018

• Summary of GRCSE 1.0

• Current usage:
  – Little formal feedback provided
  – Anecdotal examples of use

• GRCSE content:
  – Issues about things missing from SEBoK and thus not strong enough in GRCSE.
  – Can we do a better job of explaining SEBoK content in a GRCSE context.
  – And using that to provide feedback to SEBoK
  – Develop some “Use Cases”, maybe outside of GRCSE document; avoid this becoming a
    scoring and ranking activity

• GRCSE value:
  – Who is it for?
    • prospective students?
    • Existing programs?
    • New programs?

• Next steps
  – Don’t put a lot of effort into “improving” GRCSE
  – Promote a review of existing programs against it
  – How to connect with emerging new programs
  – How to connect with potential students
SEBoK Plans

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    - V1.4 change to Part 4 Intro & Service Intro (2 Articles)
    - V1.5/V1.6 changes in scope of service
    - V1.5 new Service SE Case Study
  - Enterprise & SoS review
    - V1.4 “quick wins”
    - V1.5/V1.6 improve ESE KA and re consider how SoS is presented and discussed across SEBoK
    - V1.6 new Enterprise SE and SoS Case Studies
SEBok Plans Summary

• Part 5
  – V1.4 Education articles
  – Review P 5 structure
    • V1.4 “quick wins”
    • V1.5/V1.6 improve layout and SME inputs

• Part 6
  – V1.4 essential updates (TBC)
  – V1.5/V1.6 expert consensus

• Part 7
  – V1.4 complete planned Case Studies (5 articles)
  – V1.5/V1.6 update Case Study organisation and coverage
SEBoK v. 1.4

• June 30 – Open Sandbox (?)
• Sep 26 – Close Sandbox to general input
• Sep 29 – 3 Edit/Author final review
• Oct 3 – All Authoring Complete
• October 24 – Near-Final Editor Submissions in draft Wiki
• Oct 27- Nov 7 – Initial EB Review
• Nov 10-14 – Final Editor Revision
• Nov 17-25 – Final EIC Review
• Dec 01-04 – Final Wiki Technical Review
• Dec 05 – SEBoK v. 1.4 Publication
Governor’s Board Meeting

1. Reaction to yesterday’s EB/GB meeting
   - Schedule, outreach, expansion, sense of progress, minor vs. major release
2. Expenses by three stewards
   - Through May 31, remainder of year
3. Steward commitments for 2014
   - IT, outreach, support for Rick
4. Steward commitments for 2015
   - What is needed for continued commitment
5. MOU update – state of review, issues
6. Sponsorship proposal
7. Standardization of SEBoK – ISO
8. Merging SEBoK and SWEBOK or creating another BOK
Reaction to Yesterday’s Discussion

- Small number of EB members problematic
- No report of metrics – how much change between versions – how well keeping references being updated – how much change to individual articles
- Maturity of the discipline and when is it time to include material in SEBoK – what are the rules for including immature topics – are there metrics such as how many refereed articles on a topic? how dynamic is SE? Do less mature areas get updated more frequently in the SEBoK?
More Reaction

- Monthly newsletter or similar could be a place to highlight emerging topics and immature areas
- Could someone other than Rick and Klaus be the editor for a newsletter or other communication mechanism – stewards can provide supplemental services – stewards can produce newsletters, press releases, ...
Yet More…

- Might be able to get others (PPI) to volunteer to provide newsletters, etc.
- Roles need to become discrete tasks that people can volunteer to do – stitch together a network of volunteers – new IT infrastructure in INCOSE will allow people to self-select from an online catalog of roles
- Have an Amazon review like review of SEBoK and GRCSE
- GRCSE wasn’t discussed much – CESUN and AC could provide some help – but we need a way to reach out to the world wide community of universities that are new to SE and want to establish a graduate program
- Tie universities being assessed for accreditation with GRCSE

Slides from GB meeting
• Reach out to universities in other disciplines who are trying to incorporate systems stuff – perhaps they are at other conferences we need to reach out to
• Can look at schedule of new standard releases for incorporation into upcoming releases of SEBoK
• Should include information in SEBoK on ties between competency models and bodies of knowledge
• The EB could assess how well a Part is “working” and whether a radical change is needed “soon”
• No one on the GB thinks we need a major release in 2015
• How do we expand our market to reach out effectively to Google, Apple, … and other commercial companies who approach development quite differently than our “traditional” customers

Slides from GB meeting
• Update Garry’s diagram that shows relationships between various artifacts (Handbook, SEBoK, 15288, …) and add IEEE Systems Software Engineer Competency Model
• GB does not endorse having SEBoK become an ISO Technical Report
• Could we track where people spend time and feed that back to organizations in the community

Slides from GB meeting
Body of Knowledge and Curriculum to Advance Systems Engineering

The Body of Knowledge and Curriculum to Advance Systems Engineering (BKCASE) began in the fall of 2003 to provide a single source of knowledge, information, and resources to the systems engineering community. The BKCASE initiative was founded on the belief that by providing a single, comprehensive source of knowledge, systems engineers will be better equipped to address the complex challenges they face in their work.

BKCASE Vision

The Body of Knowledge and Curriculum to Advance Systems Engineering Project (BKCASE) began in the fall of 2003 to provide a single source of knowledge, information, and resources to the systems engineering community. The BKCASE initiative was founded on the belief that by providing a single, comprehensive source of knowledge, systems engineers will be better equipped to address the complex challenges they face in their work.

BKCASE Products

To work towards this vision, BKCASE created two closely related products:

SEBoK - Guide to the Systems Engineering Body of Knowledge

A self-contained, authoritative guide to the knowledge most relevant and important to the advancement of systems engineering, SEBoK identifies a core body of knowledge, develops a comprehensive framework, and presents a product that allows readers to develop skills and knowledge.

GRCSE - Graduate Reference Curriculum for Systems Engineering

A curriculum guide for systems engineering majors, GRCSE provides a framework of knowledge and skills that is designed to support the development of a core body of knowledge and to enable systems engineers to apply their expertise in the real world.
Body of Knowledge and Curriculum to Advance Systems Engineering

The BKCASE products continue to provide a living, shared and authoritative guide to the full scope of Systems Engineering Knowledge, becoming the most used reference in the world to guide systems engineering graduate education and systems engineering practice. - BKCASE Vision 2014

- By continuing to work towards aligning technical initiative and research, competency models, certification programs, textbooks, standards and guides, graduate programs, and related workforce development initiatives around the world to BKCASE our sponsors can enhance their ability to
  - Share, use, evolve and co-create value from that knowledge with their stakeholders.
  - Providing a framework for the education, development and recognition of all those involved in the professional practice of Systems Engineering.
  - Better describe the place Systems Engineering holds in complex problem resolution and thus shape and grow that role.
Actions

• Create a EB Strategy & Plans document from the plans presented at the WS (Sept 2014)

• Distribute and agree with all EB (Sept 2014):
  – Plans for future meetings
  – Plans for future publishing

• Formally create Part Teams with identified area of strategy and Plans to deliver (Aug 2014 + Sept 2014)
  – Appoint Facilitator for each team
  – Agree plans with EIC

• Produce plan for outreach via updated BKCASE website (Oct 2014)

• Produce plans for better group working tools (Oct 2014)