Organizing Workshop of the BKCASE Project

Naval Postgraduate School
Monterey, California
December 8-9, 2009

BKCASE

Welcome

To the beginning…

Workshop Objectives

1. Teambuilding: the participants will commit to the project and select roles for themselves
2. Project scoping: the participants will agree as to the scope of the project
3. Primary Technical Decisions: as many of the primary technical decisions as possible will be made – perhaps tentatively with the opportunity to revisit, including basic architecture for both SEBoK and GRCSE – but decisions on SEBoK are more important now than decisions on GRCSE
4. Primary Management Decisions: how the project will conduct business, what the schedule will be, etc. with SEBoK more important now than GRCSE
5. Objectives until next meeting: tasks will be developed and assigned for participants to complete before our next meeting
6. Financial: support for participants will be explained and committed. Participants will understand how travel is supported.

Workshop Rules

1. Primarily meet in plenary session
2. Everyone has a voice
3. Establish breakout groups as necessary
4. Record decisions and major points in real-time on slides that all can see
5. Strive for consensus on all substantive matters
6. Expect courtesy and professional behavior at all times
7. Record extensive minutes and publish them after each workshop
8. In future workshops, use collaboration technology to allow remote participation

Nominal Agenda

Time	Topic
Tuesday, 8 December	
7:30a	Continental Breakfast in the Peacock Room
8:00a	Introductions and Administration
9:00a	Overview and Project Scoping
10:15a-5:30p	Primary Technical Decisions for SEBoK
11:45a	*Working Lunch in Peacock Room*
5:45	Dinner shuttle to *Fish Hopper*
6:00	Dinner at *Fish Hopper* in Cannery Row
Wednesday, 9 December	
7:30a	Continental Breakfast in the Peacock Room
8:00a	Primary Management Decisions for SEBoK including Team Formation
11:00a-2:00p	Primary Technical and Management Decisions for GRCSE
11:45a	*Working Lunch in Peacock Room*
2:00a	The Way Ahead Including The Next Workshop and BKCASE collaboration website access
3:00	Conclude

How We Got Here

In Spring 2007, 3 phase effort was proposed:

1. GSwE2009 (formerly GSwERC) – a reference curriculum for graduate software engineering with the “right” amount of systems engineering
2. GRCSE – a reference curriculum for graduate systems engineering with the “right” amount of software engineering
3. A fully interdisciplinary reference curriculum for systems and software engineering

Phase 1 Primary Products

- Graduate Software Engineering 2009 (GSwE2009): Curriculum Guidelines for Graduate Degree Programs in Software Engineering
- GSwE2009 Companion Document: Comparisons of GSwE2009 to Current Master's Programs in Software Engineering
- GSwE2009 Companion Document: Frequently Asked Questions on Implementing GSwE2009

Endorsed by INCOSE, NDIA SE Division, Brazilian Computer Society

Sponsored by DoD, IEEE Computer Society, and possibly ACM

GSwE2009

iSSEc

Integrated Software & Systems Engineering Curriculum (iSSEc) Project

Graduate Software Engineering 2009(GSwE2009)

Curriculum Guidelines for Graduate Degree Programs in Software Engineering

Version 1.0

September 30, 2009

GSwE2009 Table of Contents

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GSwE2009 Authors

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GSwE2009 Content

GSwE2009 includes the following:

- A set of outcomes to be fulfilled by a student who successfully completes a graduate program based on the curriculum (see summary below)
- A set of student skills, knowledge, and experience assumed by the curriculum, not intended as entrance requirements for a specific program, but as the starting point for the curriculum's outcomes (see summary below)
- An architectural framework to support implementation of the curriculum
- A description of the fundamental or core skills, knowledge, and experience to be taught in the curriculum to achieve the outcomes. This is termed a *Core Body of Knowledge* (CBOK) and includes topic areas and the depth of understanding a student should achieve.

Additional materials included in this document:

- The fundamental philosophy for GSwE2009 development as described in a set of guiding principles (see summary below)
- A discussion of how GSwE2009 will evolve to remain effective
- A mapping of expected outcomes to the CBOK and to the total GSwE2009 program recommendations
- A description of Knowledge Areas (KAs) discussed in GSwE2009 that are not yet fully integrated into the current version of the Software Engineering Body of Knowledge (SWEBOK)
- Glossary, references, and other supporting material.

Phase 2 - BKCASE

- Spring 2009, proposal for GRCSE + SEBoK presented to DoD and approved in principle
- Led by Stevens and NPS
- Currently supported by DoD through the Systems Engineering Research Center, and by INCOSE, IEEE Systems Council, IEEE Computer Society, and the NDIA SE Division
- Volunteer labor for most authors + reviewers
- Limited funding for core team, some travel, and infrastructure

Authors… So Far

1. Rick Adcock
2. John Baras
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4. Tim Ferris
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24. Brian Wells

Observations About Authors

- Highly skilled, well-recognized group
- Good representation of defense/aerospace companies, universities, INCOSE, IEEE, USA, government military
- Some representation from Europe, Asia, Australia
- No real representation from commercial companies, South America, Africa
- Will need help from current authors to recruit additional authors to round out team

Draft BKCASE Objectives

1. Create a SEBoK that is globally recognized by the SE community as the authoritative BoK for the SE discipline

2. Create a graduate reference curriculum for SE (GRCSE – pronounced “Gracie”) that is globally recognized by the SE community as the authoritative guidance for graduate programs in SE

3. Facilitate the global alignment of related workforce development initiatives with SEBoK and GRCSE

4. Transfer stewardship of SEBoK and GRCSE to INCOSE and the IEEE after BKCASE releases version 1.0 of those products, including possible integration into their certification, accreditation, and other workforce development and education initiatives.

Draft BKCASE Vision

Systems Engineering competency models, certification programs, textbooks, graduate programs, and related workforce development initiatives around the world align with BKCASE.

SEBoK Value Proposition

1. There is no authoritative source that defines and organizes the knowledge of the SE discipline, including its methods, processes, practices, and tools. The resulting knowledge gap creates unnecessary inconsistency and confusion in competency models, certification programs, educational programs, and other workforce development initiatives around the world. SEBoK will fill that gap, becoming the “go to” SE reference.

2. The process of creating the SEBoK will build community consensus on the boundaries of the SE discipline – what is in and what is out of the SE discipline, although those boundaries will likely be fuzzy in places. <understand how other disciplines work well together>

3. Having a common way to refer to SE knowledge will facilitate communication among systems engineers. Having common ways to identify metadata about SE knowledge will facilitate search and other automated actions on SE knowledge.

Adcock's Revised Value Proposition

1. There is no authoritative source that defines and organizes the knowledge of the SE discipline, including its methods, processes, practices, and tools. The resulting knowledge gap creates unnecessary inconsistency and confusion in understanding the role of SE in projects and programmes; and in defining SE products and processes. SE BOK will fill that gap, becoming the "go to" SE reference.

2. The process of creating the SE BoK will help to build community consensus on the boundaries and context of SE thinking and to use this to help understand and improve the ability of management, science and engineering disciplines to work together.

3. Having a common way to refer to SE knowledge will facilitate communication among systems engineers and provide a baseline for competency models, certification programs, educational programs, and other workforce development initiatives around the world. Having common ways to identify metadata about SE knowledge will facilitate search and other automated actions on SE knowledge.

System Trends

1. ***Complexity:*** adaptive and emergent
2. ***Criticality:*** essential to day to day life
3. ***Security:*** increasingly valuable and vulnerable
4. ***Time Compression:*** we're all on internet time
5. ***Legacy:*** unplanned, ill-suited and growing
6. ***Workforce:*** great diversity, youth are perhaps best equipped for change & virtualization

Scale

Geography:

- ***Global:*** Internet, Toyota manufacturing
- ***National:*** U.S. hurricane early warning system, Singapore water purification system
- ***Local:*** Chicago 911 system

Scope:

- ***Enterprise:*** Federal Express Billing System
- ***System of Systems:***
- ***System:*** 2010 Prius
- ***Component:*** Boeing 787 Engine

What is Systems Engineering?

- Systems Engineering is an interdisciplinary approach and means to enable the realization of successful systems. (INCOSE)
- Systems Engineering integrates all the disciplines and specialty groups into a team effort forming a structured development process that proceeds from concept to production to operation. It considers both the business and technical needs of all customers with the goal of providing a quality product that meets the user needs. (INCOSE)
- Systems engineering is a robust approach to the design, creation, and operation of systems. In simple terms, the approach consists of identification and quantification of system goals, creation of alternative system design concepts, performance of design trades, selection and implementation of the best design, verification that the design is properly built and integrated, and post-implementation assessment of how well the system meets (or met) the goals. (NASA)

Several Primary References

Some of the primary documents to consider when developing SEBoK

1. INCOSE SE Handbook version 3.1 (which incorporates INCOSE G2SEBOK)
2. ISO 15288
3. Singapore SE Handbook v2
4. INCOSE UK Chapter SE Competency Framework
5. PMBOK
6. SWEBOK

and others….

IS 15288

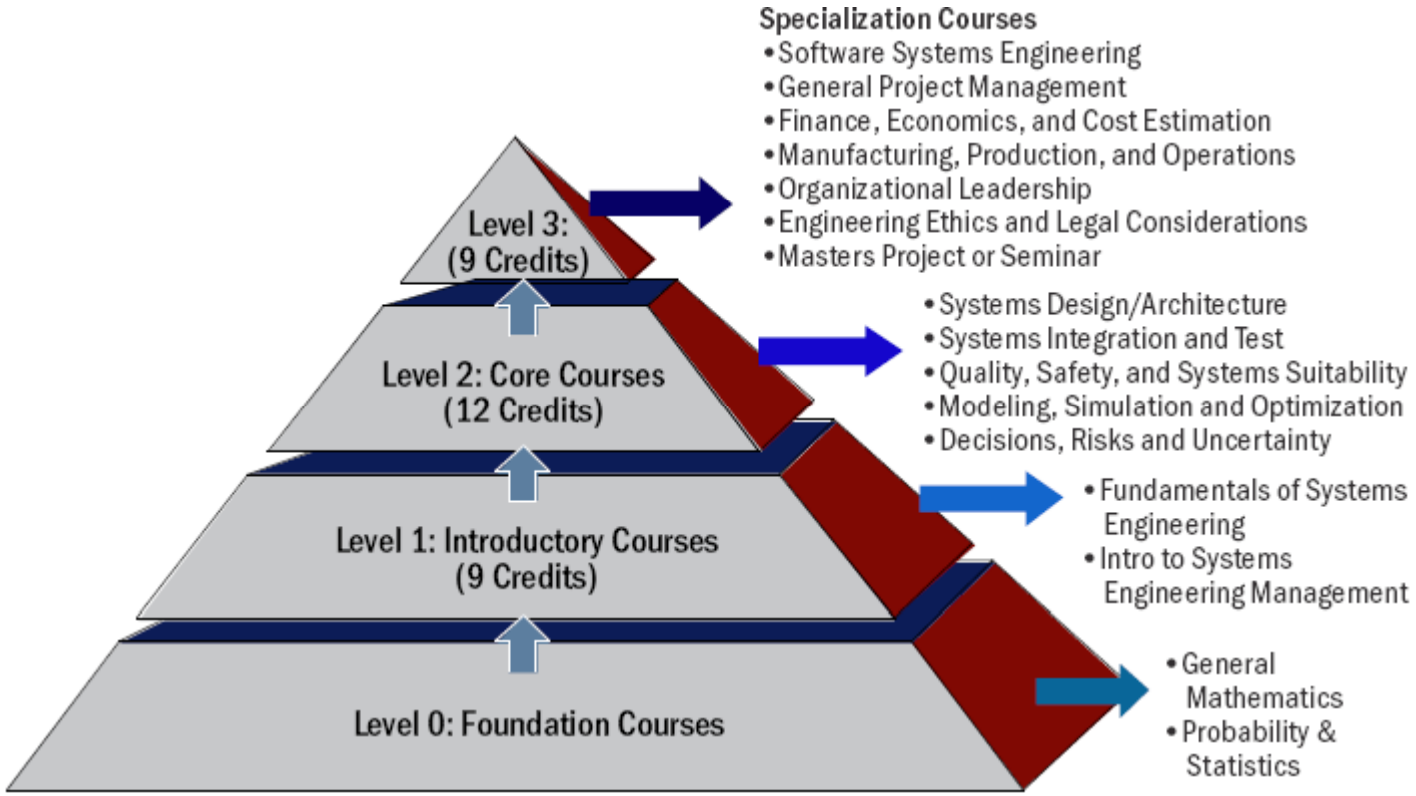
"The INCOSE Systems Engineering Handbook, version 3 (SEHv3), represents a shift in paradigm toward global industry application consistent with the Systems Engineering Vision. The objective for this document is to provide an updated description of the key process activities performed by systems engineers. The intended audience is the new systems engineer, an engineer in another discipline who needs to perform systems engineering or an experienced systems engineer who needs a convenient reference."

GRCSE Value Proposition

- There is no authoritative source to guide universities in establishing the outcomes graduating students should achieve with a master's degree in SE, nor a guidance source on reasonable entrance expectations, curriculum architecture, or curriculum content.
- This gap in guidance creates unnecessary inconsistency in student proficiency at graduation, makes it harder for students to select where to attend, and makes it harder for employers to evaluate prospective new graduates.
- GRCSE will fill that gap, becoming the "go to" reference to develop, modify, and evaluate graduate programs in SE. <do we want to include domain specific SE programs as well as SE discipline?>

INCOSE Curriculum Framework

"A Reference Curriculum for a Graduate Program in Systems Engineering" by Jain, Squires, Verma, and Chandrasekaran, 2007



Initial BKCASE Strategy

1. Publish incrementally/iteratively with GRCSE trailing SEBoK
2. Create common vocabulary to facilitate communications among the team
3. Throughout the project, involve professional societies to facilitate quality, acceptance, and their eventual role as stewards
4. Build early consensus and maintain it throughout the lifetime of the project
5. Rely on and include academia, industry, and government from multiple fields for authors and reviewers
6. Extensively leverage volunteer labor for both authoring and review
7. Rely on existing source material wherever possible and involve principals from efforts that created source material wherever possible
8. Leverage the processes used to create GSwE2009 and the NPS Modeling and Simulation Acquisition Curriculum
9. Keep completely open and collaborative at a global level – but authors make content decisions
10. Hold physical workshops every 3 months to synchronize teams and build team relationships – rely on virtual meetings, email, and other collaboration technology at other times
11. Keep the team focused on the value propositions when conflicts arise.

Nominal Schedule

#	Milestone	Date
1	Project Start	September 2009
2	Inaugural Workshop	December 2009
3	Workshop 2	March 2010
4	Workshop 3	June 2010
5	SEBoK 0.25 published for review	July 2010
6	Workshop 4	September 2010
7	GRCSE 0.25 published for review	October 2010
8	Workshop 5	December 2010
9	Workshop 6	March 2011
10	Workshop 7	June 2011
11	SEBoK 0.5 published for review	July 2011
12	Workshop 8	September 2011
13	GRCSE 0.5 published for review	October 2011
14	Workshop 9	December 2011
15	Workshop 10	March 2012
16	Workshop 11	June 2012
17	SEBoK 1.0	July 2012
18	Workshop 12	September 2012
19	GRCSE 1.0	October 2012

Early SEBoK Technical Questions

1. What is the scope of SE to be included in the SEBoK?
2. How much is the SEBoK a guide to knowledge located elsewhere and how much knowledge is included within it?
3. How will domain-specific knowledge be handled?
4. What is the architecture of the SEBoK; e.g., is a classic tree-structured hierarchy an adequate way to structure SE knowledge?
5. How should the evolving nature of the discipline be accommodated?
6. Where there are multiple definitions, techniques, models, etc. for a single concept (such as *architecture*), how do we select which one(s) to include?
7. How will software engineering and project/program management and human/system integration be integrated into the SEBoK?
8. How do we expect the SEBoK to be used by the community?
9. How shall we deal with case studies?
10. How do we deal with the scale of different systems (enterprise, global, ….)
11. What are the final products of the project?

Primary Technical Decisions

1. The SEBoK organizes domain independent SE knowledge. It provides a structure for that knowledge, defines important terms, summarizes important topics, selectively helps users choose among popular alternative methods, facilitates search, printing, and application by its intended users, and identifies references which elaborate more fully on all topics. For Version 0.25, the SEBoK will include a set of primary references based on the expert opinion of the SEBoK authors. For subsequent versions, secondary references may be added.

2. The BKCASE Project will develop recommendations on how INCOSE and the IEEE will maintain and evolve SEBoK in accordance with the BKCASE charter, assuming those organizations become stewards of SEBoK after Version 1.0 is released. Version 1.0 of SEBoK itself will include features to facilitate its maintenance and evolution, including the ability for SEBoK users to readily propose new references and evaluate existing references, as well as readily propose changes to all other aspects of the SEBoK.

Schedule

- Special session at IW – least conflicting - Art
- Workshop 2 on March 30-31st in Orlando, FL - Tom
- Special session at EUSEC on Sunday, May 23 and a BKCASE panel on May 26 - Rick
- Workshop 3 on July 8-9 or July 9 and 11 at the IS in Chicago - Art
- Workshop 4 on October 13-14 in Toulouse France hosted by EADS or AFIS – Jean Claude

Products for Workshop 2

1. No more than 10 pages on a single process area satisfying a template (including cross coupling between groups) to be provided by Alice – leads to about 250-300 pages total for SEBoK version 0.25
2. Introduction to SEBoK and SE in front including material on how to use SEBoK by different user types – Art lead, Bud, Rick, Barry (Gold Team)
3. Try for 3 pages per process area for March workshop

Products for IW Checkpoint

1. As far as you got in your writing
2. Assessment of how well things are going and issues you face in meeting Workshop 2 commitment
3. Categorization of all references according to the teams – Alice
4. Style Guide for writing – start with NPS and evolve it
5. Any insight into what beyond 15288 or any breakage in using 15288
6. How we will use SMEs who are not full authors
7. How we will engage with KM experts

Primary Technical Decisions

3. Primary direct SEBoK users will be (a) practicing systems engineers ranging from novices up through senior experts, (b) those responsible for defining and implementing SE processes within organizations, projects, and programs; (c) those responsible for certifying systems engineers and developing certification programs; (d) customers of SE organizations to help them better select and evaluate those organizations; (e) any project manager, engineer, technologist, researcher, or scientist who needs to know about SE; (f) those who educate and train systems engineers; and (g) the GRCSE author team. The SEBoK will facilitate easy access and use by these different types of users.

4. Secondary SEBoK users will be human resource professionals and other workforce development professionals, senior non-technical managers, and lawyers who will use the SEBoK with the support of systems engineers. The SEBoK will facilitate easy access and use by these users.

Primary Technical Decisions

5. The ISO/IEC/IEEE 15288 process structure will be the initial architecture for the SEBoK. The authors will divide into several teams. Each team will be assigned non-overlapping subsets of 15288 processes. Each team will independently develop initial SEBoK content for their process subset, including methods, techniques, and primary references, taking into account primary and secondary SEBoK users. At Workshop 2, the results of the individual team efforts will be jointly evaluated by the entire author team leading to a revised architecture.

6. Version 0.25 of the SEBoK will be domain independent. Domain dependent knowledge will be captured through case studies of individual systems within specific domains. Those case studies will be companion documents to Version 0.25. After Version 0.25 is complete, the decision to use case studies as the only means to capture domain specific knowledge will be revisited.

Scope

What is the scope of SE to be included in the SEBoK?

1. Start with the 15288 process structure and evolve from there, expecting to revisit in March 2010.
2. This is the leverage point so we can establish a first WBS for BKCASE and assign work to groups.
3. Each group will examine an assigned set of processes from 15288 and determine where SE fits in each process from the point of view of the users identified in point 8.
4. Methods and tools for each process will be captured under the process structure.
5. We will start as domain independent tied to domains through case studies for version 0.25.

Location

How much is the SEBoK a guide to knowledge located elsewhere and how much knowledge is included within it?

1. The SEBoK provides structure, definitions, top-level explanation of the area, etc. and provides pointers to the references which are not included in the SEBoK and which provide the "real" information about the topic.
2. Primary references only for version 0.25. Need to revisit whether to expand to larger set of references after version 0.25 and who will be able to add references after version 1.0.
3. Get advice from knowledge management experts on cost effective alternatives to book publication
4. Be mindful that web-minded people access information differently than most of the author team
5. We need to explain the process by which we selected specific references
6. We might end up with references added by readers in addition to those from the author team – perhaps with voting about quality, relevance, etc by readers
7. We should be able to do cross-connects between topics – very important
8. We should provide an index for the information – search engine providing dynamic index
9. Favor true archival information over transient conference papers, etc.

Domain-Specific Knowledge

How will domain-specific knowledge be handled?

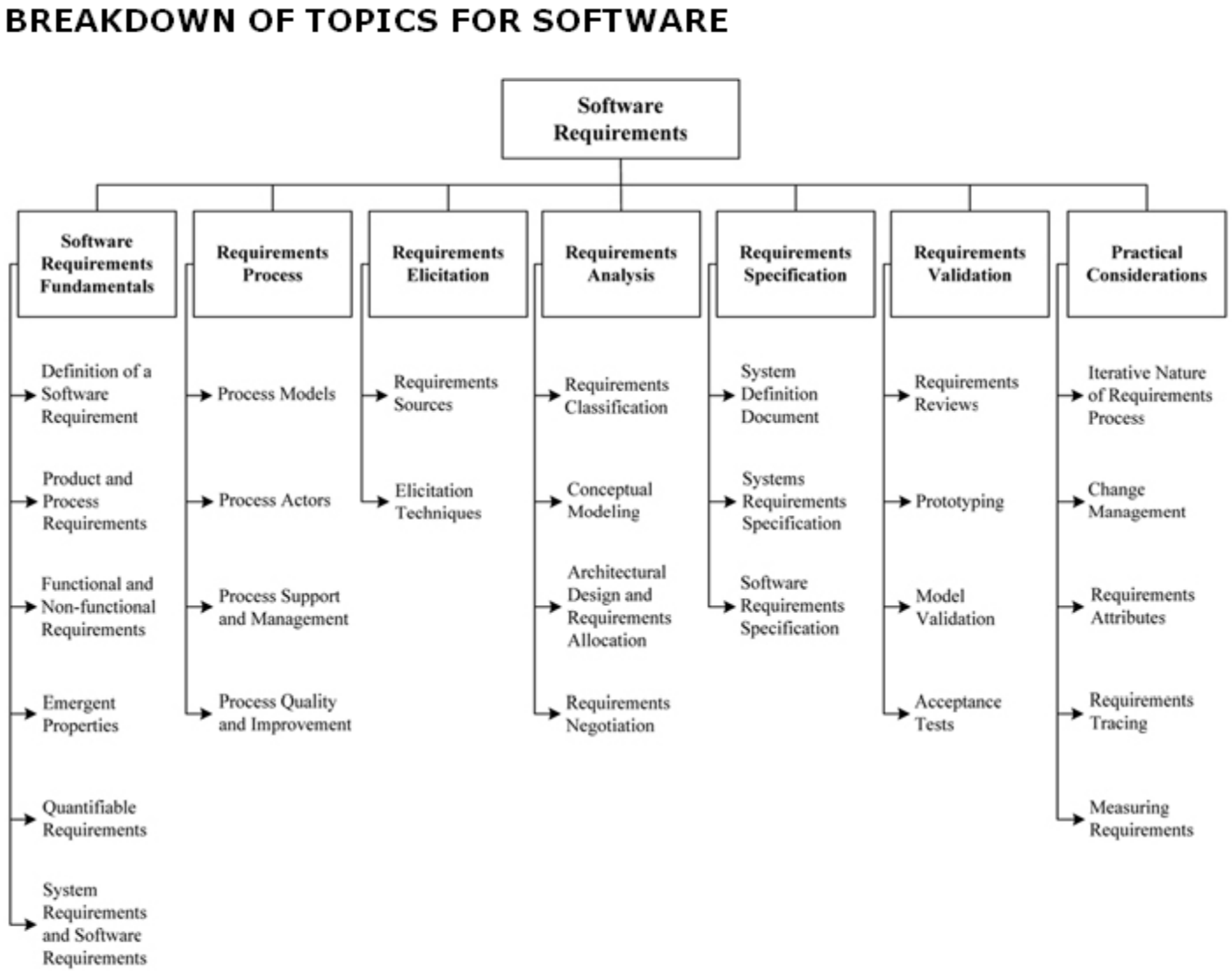
1. Decide how ontologies can help describe domain-specific knowledge in a way that links well to SE knowledge
2. Tell users a general approach to describe domain-specific knowledge in a way that integrates with the SE discipline knowledge and provide a few examples
3. Establish a SEBoK users group to get people to talk about their experiences applying this in different domains and on different problems
4. (yes) We will use case studies as a way of exploring domain-specific knowledge rather than more general ontologies and other pattern-based approached. This will be revisited after version 0.25.

Architecture

What is the architecture of the SEBoK; e.g., is a classic tree-structured hierarchy an adequate way to structure SE knowledge?

1. Use iso 15288 as the starting point

SWEBOK Example



Software Requirements

1. Software Requirements Fundamentals

1.1. Definition of a Software Requirement

At its most basic, a software requirement is a property which must be exhibited in order to solve some problem in the real world. The Guide refers to requirements on "software" because it is concerned with problems to be addressed by software. Hence, a software requirement is a property which must be exhibited by software developed or adapted to solve a particular problem. The problem may be to automate part of a task of someone who will use the software, to support the business processes of the organization that has commissioned the software, to correct shortcomings of existing software, to control a device, and many more. The functioning of users, business processes, and devices is typically complex. By extension, therefore, the requirements on particular software are typically a complex combination of requirements from different people at different levels of an organization and from the environment in which the software will operate.

An essential property of all software requirements is that they be verifiable. It may be difficult or costly to verify certain software requirements. For example, verification of the throughput requirement on the call center may necessitate the development of simulation software. Both the software requirements and software quality personnel must ensure that the requirements can be verified within the available resource constraints.

Requirements have other attributes in addition to the behavioral properties that they express. Common examples include a priority rating to enable trade-offs in the face of finite resources and a status value to enable project progress to be monitored. Typically, software requirements are uniquely identified so that they can be over the entire software life cycle. [Kot00; Pfl01; Som05; Tha97]

1.2. Product and Process Requirements ▲

A distinction can be drawn between product parameters and process parameters. Product parameters are requirements on software to be developed (for example, "The software shall verify that a student meets all prerequisites before he or she registers for a course.").

A process parameter is essentially a constraint on the development of the software (for example, "The software shall be written in Ada."). These are sometimes known as process requirements.

Some software requirements generate implicit process requirements. The choice of verification technique is one example. Another might be the use of particularly rigorous analysis techniques (such as formal specification methods) to reduce faults which can lead to inadequate reliability. Process requirements may also be imposed directly by the development organization, their customer, or a third party such as a safety regulator [Kot00; Som97].

Evolution

How should the evolving nature of the discipline be accommodated?

1. We need to design SEBoK for maintainability and evolution.
2. Should we produce the Amazon.com feature of making recommendations to readers about other parts of the SEBoK they might find relevant.
3. We should solicit feedback from readers for additional information about a topic, additional references, additional topics, corrections, and ratings of the information in the SEBoK. – in which version of SEBoK is this capability added? This could aid in our own development of SEBoK, especially for external review.

Selection

Where there are multiple definitions, techniques, models, etc. for a single concept (such as *architecture*), how do we select which one(s) to include?

1. Use SE VOCAB to help identify alternative definitions
2. Providing guidance on which ones to use – we would generate criteria/attributes to characterize the various techniques/models, etc. and possibly populate the techniques/models with respect to those criteria/attributes. We would not pick "winners" and "losers". If you cannot say anything good, don't say anything. Identify sweet spots if you can.
3. Advocating for a specific tool or method is not a good idea.
4. If there are a few really prominent methods, etc. they should be discussed explicitly in the SEBoK, not just by reference.

SwE and PM

How will software engineering and project management be integrated into the SEBoK?

1. <tbd>

Expected Use

How do we expect the SEBoK to be used by the community?

1. It will support defining GRCSE.
2. Provide the foundation for companies to define their internal SE processes.
3. Support professional certification of SEs.
4. Support workforce development (continuing professional development) of SEs and PMs, including selection, training, education, career path development, internal certification.
5. Customers of systems engineering organizations to help them select and manage expectations.
6. (yes) Users are any SEs – provide views for SEs.
7. (yes) Users are engineers, technologists, and scientists who might want to know something about SE; PMs, educators, accreditation groups; professional activities board.
8. (yes, but with the support of a SE) Users are human resource and other workforce development professionals, senior nontechnical managers, lawyers, who want to know something about SE.
9. (no) Users are anyone on the planet who might want to know something about SE.
10. Provide a comprehensive reference source for all practicing SEs from people in their first job as an SE up through the most senior Chief SEs
11. Provide a foundational reference source for all professionals from any application domain (such as finance, telecommunications, healthcare, defense, …) who need to know something about SE to do their job << uncertain whether to include >>

Final Products

What are the final products of SEBoK?

1. Provide an online “dynamic” version with an export function that produces a complete version
2. SEBoK itself
3. Information about how to use SEBoK tailored for each class of user – how much self-tailoring can be done by users vs. pre-defined by us?
4. SE terminology – presumably included within the SEBoK – we will use SE VOCAB from IEEE and ISO as a starting point
5. Publications and conference papers and conference presentations about SEBoK – produced as part of BKCASE, but not part of SEBoK itself
6. Recommended life cycle process for SEBoK after version 1.0

BKCASE Early SEBoK Management Questions

1. How will the author team be divided into groups and new authors added to groups?
2. How will decisions be made and recorded?
3. How will we conduct internal reviews?
4. How will we conduct external reviews?
5. How do we ensure consistency and integrate group efforts?
6. What collaboration environment is required for the authors to work?
7. What are the key milestones for the project?
8. How much work is actually required to deliver the SEBoK?
9. What will we consider success to be?
10. How do we interact with external organizations?

Author Teams

How will the author team be divided into groups and new authors added to groups?

1. Initial groups established
2. New authors self-select on groups
3. John B get telecommunications, medical, and civil engineering infrastructure (water management, environmental engineers), civil aviation
4. Kevin get someone in highways and dams (public works) in Netherlands
5. Erik Aslaksen from Australia on construction (Kevin get him)
6. Mike Krueger on transportation system from California DOT (Kevin)
7. Nicole getting Guilherme Travassos from Brazil – combined SE/SW program – may represent the Brazilian Computer Society
8. Nicole getting Bobby Milstein from Center for Disease Control
9. Mobile communications Tom Strandberg from Sweden – Rick will get
10. Tim reach out to Yoshi to reach out to others in Japan from commercial sector
11. Tim reach out to someone in manufacturing sector in Taiwan and China
12. John S reach out to South Korea for Dr. S. on automobiles and ship building
13. Garry will reach out to South Africa – Johann Anselma in some domain not defense
14. Art reach out to IBM Global Systems on non-defense large scale systems
15. Mary reach out to someone in cloud computing - Amazon

Decision Making

How will decisions be made and recorded?

1. Major decisions of author team as a whole by consensus.
2. Extensive notes taken during workshops.
3. Minutes of workshops published.
4. Major decisions of groups by consensus.

Internal Reviews

How will we conduct internal reviews?

1. Need to provide read ahead material.
2. Review material will be stored on the Sakai site.
3. All authors will review everyone else's materials for March Workshop.
4. Review will be guided by a checklist of questions
5. Reviewers will be encouraged to provide improvements not just cite problems.
6. We should look for particular aspects that should be used across the project.
7. March 9 all draft material for workshop completed and posted.
8. March 18 all reviews completed.
9. At the workshop each team responds to reviews.
10. Use beginning of workshop to let teams huddle.

External Reviews

How will we conduct external reviews?

1. Analog to internal review processes
2. First round is selected invited SMEs

Consistency and Integration

How do we ensure consistency and integrate group efforts?

1. Created a template to help consistency for Workshop 2.
2. Review checklist for consistency for Workshop 2.
3. Pointers between process areas in our individual writeups.
4. Having everyone review everything creates a much better sense of understanding which will help consistency and integration.
5. Core team work on integration strategy for Workshop 2, informing all authors in advance of Workshop and drawing in some authors as appropriate.

Collaboration Environment

What collaboration environment is required for the authors to work?

1. Sakai site
2. Core team will set up Sakai structure
3. Steph will set up accounts for each author
4. Each team will store all their intermediate and final products on Sakai consistent with the agreed to structure
5. Core team to investigate how we share copyrighted material
6. Garry to check on ISO 15288 permissions for team during project life

Key Milestones

What are the key milestones for the project?

1. <tbd>

Volume of Work

How much work is actually required to deliver the SEBoK?

1. <tbd>

Success

What will we consider success to be?

One year after Version 1.0 is published…

- The authors are using it
- INCOSE/IEEE/DoD recognizes and publishes it on their websites
- Becomes a living document – others are adding case studies, commenting on it, downloading it, …
- SEBoK has started informing the INCOSE certification process
- INCOSE/IEEE are sponsors
- DAU has starting updating their courses to rely on SEBoK
- DoD SE Competency framework updated to rely on SEBoK
- Many corporations that recognize SE will post SEBoK as a reference asset for employee usage taking advantage of active links to connect references and influence their internal training programs
- Some corporations that do not yet recognize SE begin to use the SEBoK to help generate visibility and interest in SE
- Explicit recognition from sponsors on how well project did
- Citing SEBoK in publications by others
- Journal papers written by authors on SEBoK accepted for publication
- INCOSE Handbook updated to be consistent with SEBoK
- Educators using SEBoK to include SE in their programs

External Interaction

How do we interact with external organizations?

1. Get authors from the organizations we “care” most about such as INCOSE, IEEE, NDIA, …
2. Seek reviews from specific organizations, some of whom we may not have authors from, such as AFCEA
3. Publish articles, news items, etc. about SEBoK on their newsletters, websites, etc.
4. Holding workshops at their conferences, including conferences from domains outside our “traditional” supporters
5. Figure out how to interact with organizations with whom we may have “turf” issues such as INFORMS.
6. Hold NSF summer adoption workshops as we get close to version 1.0
7. Hold joint special event with INCOSE/IEEE/DoD as our primary sponsors
8. Maintain record of contacts with external organizations
9. Identify key advocates/champions for SE to get them to be advocates/champions for SEBoK
10. Get ASEE to care about SEBoK

Early GRCSE Technical Questions

1. What is the scope of SE to be included in GRCSE?
2. What type of graduate degrees will GRCSE address?
3. Which types of universities will GRCSE address?
4. How prescriptive should GRCSE be?
5. How should domain-specific knowledge be handled?
6. What is the architecture of GRCSE; e.g., is the structure used for GSwE2009 appropriate or is something else needed?
7. How should the evolving nature of the discipline be accommodated?
8. How do we expect GRCSE to be used by the community?

Early GRCSE Program Questions

1. How will the author team be divided into groups and new authors added to groups?
2. How will decisions be made and recorded?
3. How will we conduct internal reviews?
4. How will we conduct external reviews?
5. How do we ensure consistency and integrate group efforts?
6. What collaboration environment is required for the authors to work?
7. What are the key milestones for the project?
8. How much work is actually required to deliver GRCSE?
9. What will we consider success to be?
10. How do we interact with external organizations?