



BKCASE Newsletter #1

08 September 2014

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What is BKCASE anyway?

BKCASE stands for Body of Knowledge and Curriculum to Advance Systems Engineering. It is the overarching initiative that initially created and currently maintains the SEBoK and GRCSE.

The **SEBoK** is the *Guide to the Systems Engineering Body of Knowledge*. While nothing can be a compendium of all the knowledge of systems engineering, SEBoK provides an overview of topics relevant to systems engineering and points to materials (books, journal papers, presentations, etc.) related to these topics. This is a living, authoritative guide intended to support the systems engineering community in advancing the practice, providing guidance education, conducting research, and addressing workforce development, professional certification, standards, etc.

GRCSE, the *Graduate Reference Curriculum for Systems Engineering*, is a set of recommendation, considerations, and implementation guidance that ties best practices in graduate Systems Engineering education with the topics discussed in the SEBoK; these recommendations are intended to be tailored by universities and other organizations using GRCSE. It does not provide specific course titles or ways to package course materials.



First BKCASE Sponsor

The BKCASE team is proud to announce that the INCOSE Foundation has become the first organization to independently sponsor the BKCASE project. Their support will enable us to continue to evolve and update the SEBoK and GRCSE® and we are extremely grateful!

The INCOSE Foundation is pleased to provide support to the BKCASE project, which the Foundation Board considers an important and vital example that advances the Foundation mission to be a world leader in supporting Systems Engineering scholarship, research, and education. BKCASE has already demonstrated that it has the capacity to reach a large audience and to be the authoritative guide to Systems Engineering resources. With this grant, we demonstrate our support for BKCASE to continue its outreach, and we hope to inspire others within the growing community of users to show their support. BKCASE has brought together three significant partners with INCOSE, the IEEE-CS, and the SERC to implement the vision and broaden the stakeholder base. The INCOSE Foundation is proud to support BKCASE.

- John Snoderly, Chair, The INCOSE Foundation

If your organization is interested in supporting BKCASE, please contact us at bkcase@incose.org.

New BKCASE Editors and Authors

The BKCASE team welcomes the following new members:

- Emma Sparks, Part 5 Editor
- Rick Dove, Part 6 Author (Security)
- Logan Mailloux, Part 6 Author (Security)

Editors have overall responsibility for the evolution of existing SEBoK knowledge areas, the generation of new content for those knowledge areas, and the integration of concepts across the SEBoK. Authors provide materials for specific topics and work with Editors to ensure that the materials fit properly into the SEBoK.

How to get involved in BKCASE?

If you are interested in providing feedback or submitting material to the SEBoK, there are several ways to do this:

- On the bottom of each page of the SEBoK (www.sebokwiki.org), you can provide your comments using DISQUS on each individual page.
- Contact the editor for your areas of interest directly ([view the Editorial Board](#)) or contact the team at bkcase@incose.org.
- Provide feedback using the SEBoK Sandbox (see below).



The Sandbox is an open, collaborative space for the SE community to provide new draft materials, edits to existing SEBoK materials, and recommendations or comments on the SEBoK. These inputs are reviewed by the BKCASE Editors and incorporated into future versions of the SEBoK as appropriate.

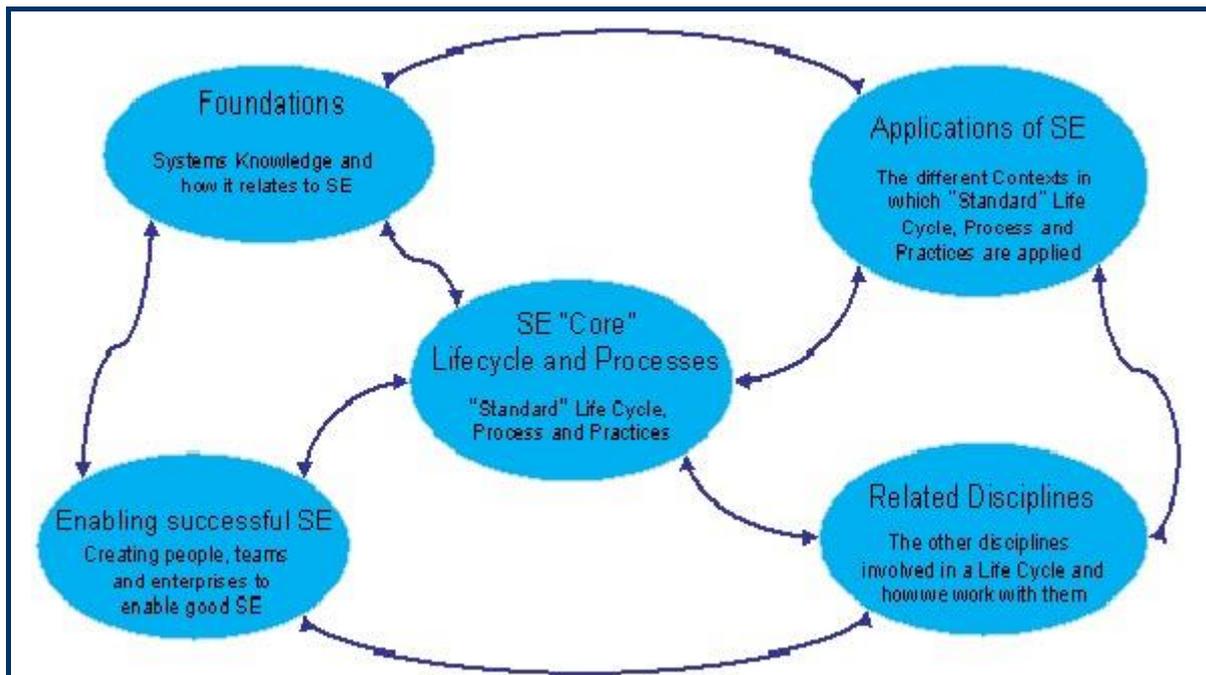
The Sandbox is available at www.sebokwiki.org/sandbox and will be open until **26 September 2014**. After this date, the Sandbox will temporarily close to give the Editors time to incorporate your feedback into SEBoK v. 1.4.

Overview of the SEBoK

by Rick Adcock, BKCASE Editor in Chief

The SEBoK is intended to be an authoritative, community-led guide to both the core knowledge which defines and shapes the practice of SE and the related knowledge needed to position SE and systems engineers as key contributors to the resolution of complex engineering problems. For a full explanation of the aims and intended uses of the SEBoK, see http://sebokwiki.org/wiki/SEBoK_Users_and_Uses.

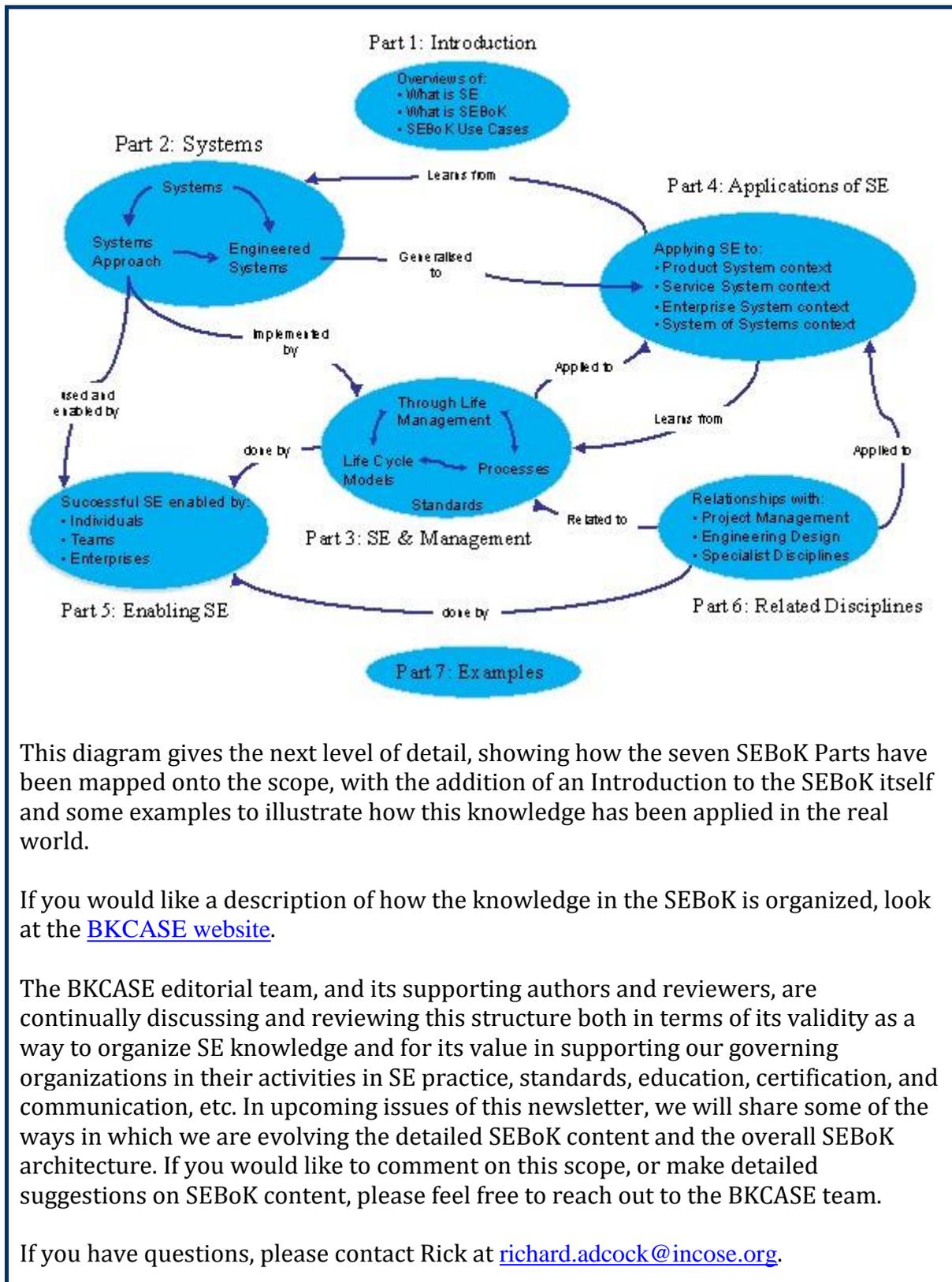
In order to create an authoritative guide, the BKCASE team needed to understand both the scope of this knowledge and the best way to organize and present it to fulfil the SEBoK aims. After a couple of iterations and review, the following SEBoK scope was created. The lines on this diagram represent a simple two-way "related to" and "informed by" association.



At the center of this are the "core" SE knowledge related to SE management, life cycle, and technical processes. Related to this knowledge are the systems foundations of SE, how to enable successful SE in the enterprise, and the relationships between SE and other disciplines and specializations. The final type of knowledge included considers the different ways in which our general SE toolkits can be applied to real world situations.

In some ways, this structure reflects the scope of current SE knowledge sources such as the INCOSE *Systems Engineering Handbook* or SE Standards. In others, such as the inclusion of foundational systems knowledge and the separation of generic process from application, it draws from SE education practices. Overall, it was our intention to cover as broad a scope of knowledge related to SE as possible. Since one of our key aims was to support the GRCSE master's curriculum, one way to view this scoping is to ask, "What would we expect a well-rounded SE master's graduate to know?" This scope continues to be reviewed and updated by the BKCASE editorial team.

From this initial scoping we developed a set of SEBoK Parts and Knowledge Areas. As with any architectural approach to a complex set of information, we wanted to partition it into loosely coupled collections of information while keeping closely related elements together. We also wanted to identify the key relationships between our top-level partitions to help maintain coherence of the SEBoK as a whole, as shown below.



This diagram gives the next level of detail, showing how the seven SEBoK Parts have been mapped onto the scope, with the addition of an Introduction to the SEBoK itself and some examples to illustrate how this knowledge has been applied in the real world.

If you would like a description of how the knowledge in the SEBoK is organized, look at the [BKCASE website](http://www.bkcase.org).

The BKCASE editorial team, and its supporting authors and reviewers, are continually discussing and reviewing this structure both in terms of its validity as a way to organize SE knowledge and for its value in supporting our governing organizations in their activities in SE practice, standards, education, certification, and communication, etc. In upcoming issues of this newsletter, we will share some of the ways in which we are evolving the detailed SEBoK content and the overall SEBoK architecture. If you would like to comment on this scope, or make detailed suggestions on SEBoK content, please feel free to reach out to the BKCASE team.

If you have questions, please contact Rick at richard.adcock@incose.org.