



Le génie pour l'industrie



SWEBOK
IEEE computer society

Workshop to Review the Software Construction Knowledge Area Description

Pierre Bourque, ing., Ph.D.

École de technologie supérieure, Canada

Coeditor, Guide to the Software Engineering Body of Knowledge

IEEE Computer Society

Universidad Peruana Unión, Peru

October 2011

1

Workshop Objectives

- ◉ Introduce the workshop participants to the contents of the Software Construction Knowledge Area in SWEBOK Guide V3.
- ◉ Conduct in a workshop fashion the review of the latest draft of the Software Construction Knowledge Area Description. We are about to launch the review of this draft on the Web.
- ◉ Initiate the workshop participants to how international standardization is conducted in software engineering.

2

Workshop Agenda

- ⦿ Workshop Presentation
- ⦿ Assignment of Document Sections to Subgroups
- ⦿ Individual Review of Document
- ⦿ Discussion in Subgroups
- ⦿ Plenary Discussion

3

SWEBOK Guide Project Objectives

- ⦿ Characterize the contents of the Software Engineering Body of Knowledge
- ⦿ Provide a topical access to the Software Engineering Body of Knowledge
- ⦿ Promote a consistent view of software engineering worldwide

4

SWEBOK Guide Project Objectives

- ⦿ Clarify the place of, and set the boundary of, software engineering with respect to other disciplines (computer science, project management, computer engineering, mathematics, etc.)
- ⦿ Provide a foundation for curriculum development and individual certification and licensing material

5

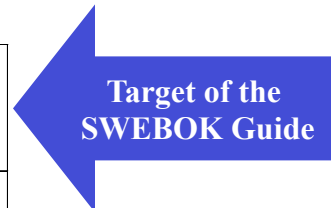
Intended Audience

- ⦿ Public and private organizations
- ⦿ Practicing software engineers
- ⦿ Makers of public policy
- ⦿ Professional societies
- ⦿ Software engineering students
- ⦿ Educators and trainers

6

Categories of Knowledge in the SWEBOK

Specialized	Generally Accepted
	Advanced and Research



Target of the
SWEBOK Guide

«Applicable to most projects,
most of the time, and
widespread consensus about
their value and usefulness»

Project Management
Institute - PMI

- ⊙ North American Bachelor's degree + 4 years of experience

7

Three Underlying Principles of the Project

- ⊙ **Transparency**: the development process is itself published and fully documented
- ⊙ **Consensus-building**: the development process is designed to build, over time, consensus in industry, among professional societies and standards-setting bodies and in academia
- ⊙ Available **free** on the web at least in one format on www.swebok.org

8

Deliverables:

- ⊙ **Consensus** on a list of Knowledge Areas
- ⊙ **Consensus** on a list of **topics and relevant reference materials** for each Knowledge Area
- ⊙ **Consensus** on a list of Related Disciplines

9

Outline of SWEBOK Guide V3 Harmonized with IEEE CS Curriculum and Professional Software Engineering Products

- **Characterizing the Practice of Software Engineering**
 - SW Requirements *
 - SW Design *
 - Add Human-Computer Interface Design
 - SW Construction *
 - SW Testing *
 - Add Human-Computer Interface Testing
 - SW Maintenance *
 - SW CM *
 - SW Eng Management *
 - SW Eng Process *
 - SW Eng Methods (changed name)
 - Distribute tools into other KAs
 - Add material on cross-KA methodologies and their selection
 - SW Quality *
 - SW Eng Professional Practice (Added)
- * Minor additions and changes
- **Required in Educating a Software Engineer**
 - Computer Science Foundations
 - Mathematical Foundations
 - Engineering Foundations
 - Economic Foundations
- **Related Disciplines**
 - Computer Engineering
 - Computer Science (possibly redundant)
 - Mathematics (possibly redundant)
 - Management
 - Project Management
 - Quality Management
 - Software Ergonomics
 - System Engineering

A proposal similar to this will be offered to the SWEBOK consensus process. Of course, that process may result in changes.

Launching very shortly public review of three KAs

- ⦿ Computing Foundations (New)
- ⦿ Mathematics Foundations (New)
- ⦿ Software Construction (Revised)
- ⦿ Others will be launched as soon as they are ready
- ⦿ Watch for developments and how to register as a reviewer on www.swebok.org

11

CRITERIA AND REQUIREMENTS FOR THE BREAKDOWN OF TOPICS WITHIN A KNOWLEDGE AREA

- ⦿ The breakdown of topics is expected to be “reasonable,” not “perfect.”
- ⦿ The breakdown of topics within a Knowledge Area must decompose the subset of the Software Engineering Body of Knowledge that is “generally recognized.”
- ⦿ The breakdown of topics within a Knowledge Area must not presume specific application domains, business needs, sizes of organizations, organizational structures, management philosophies, software life cycle models, software technologies, or software development methods.

12

CRITERIA AND REQUIREMENTS FOR THE BREAKDOWN OF TOPICS WITHIN A KNOWLEDGE AREA

- ⦿ The breakdown of topics must, as much as possible, be compatible with the various schools of thought within software engineering.
- ⦿ The breakdown of topics within a Knowledge Area must be compatible with the breakdown of software engineering generally found in industry and in the software engineering literature and standards.
- ⦿ The breakdown of topics is expected to be as inclusive as possible.

13

CRITERIA AND REQUIREMENTS FOR THE BREAKDOWN OF TOPICS WITHIN A KNOWLEDGE AREA

- ⦿ The SWEBOK Guide adopts the position that even though the following “themes” are common across all Knowledge Areas, they are also an integral part of all Knowledge Areas and therefore must be incorporated into the proposed breakdown of topics of each Knowledge Area. These common themes are measurement, quality (in general), and security.
- ⦿ The breakdown of topics should be at most two or three levels deep. Even though no upper or lower limit is imposed on the number of topics within each Knowledge Area, a reasonable and manageable number of topics is expected to be included in each Knowledge Area. Emphasis should also be put on the selection of the topics themselves rather than on their organization in an appropriate hierarchy.

14

CRITERIA AND REQUIREMENTS FOR THE BREAKDOWN OF TOPICS WITHIN A KNOWLEDGE AREA

- ⦿ Topic names must be significant enough to be meaningful even when cited outside the SWEBOK Guide.
- ⦿ The description of a Knowledge Area will include a chart (in tree form) describing the knowledge breakdown (not updated in the distributed draft version).

15

CRITERIA AND REQUIREMENTS FOR DESCRIBING TOPICS

- ⦿ Topics need only be sufficiently described so the reader can select the appropriate reference material according to his/her needs. Topic descriptions must not be prescriptive.

16

www.swebok.org

17