

THE SWEBOK PROJECT: GUIDE TO THE SOFTWARE ENGINEERING BODY OF KNOWLEDGE

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INTRODUCTION

The IEEE Computer Society and the Association for Computing Machinery are working on a joint project to develop a Guide to the Software Engineering Body Of Knowledge (SWEBOK)¹. Articulating a body of knowledge is an essential step toward developing a profession because it represents a broad consensus regarding the contents of the discipline. Without such a consensus, there is no way to validate a licensing examination, set a curriculum to prepare individuals for the examination, or formulate criteria for accrediting the curriculum.

This lecture will present the objectives and audience of the SWEBOK project, provide you with an overview of the structure and contents of the current draft, identify the project contributors, present the development process and prepare you to take part in the third and final review cycle of the Stone Man phase.

OBJECTIVES AND AUDIENCE

The SWEBOK project objectives are:

1. Characterize the contents of the software engineering discipline.
2. Provide topical access to the Software Engineering Body of Knowledge.
3. Promote a consistent view of software engineering worldwide.
4. Clarify the place—and set the boundary—of software engineering with respect to other disciplines such as computer science, project management, computer engineering, and mathematics.
5. Provide a foundation for curriculum development and individual certification material.

The product of the SWEBOK project will not be the Body of Knowledge itself, but rather a guide to it. The knowledge already exists; the goal is to gain consensus on the core subset of knowledge characterizing the software engineering discipline.

¹ All interim and final products of the SWEBOK project are publicly available and can be downloaded without any charge from www.swebok.org. These include this text and the slides of this lecture.

To achieve this goal, the project is oriented toward a variety of audiences. It aims to serve public and private organizations in need of a consistent view of software engineering for defining education and training requirements, classifying jobs, and developing performance evaluation policies. It also aims to serve practicing software engineers and the officials responsible for making public policy regarding licensing and professional guidelines. In addition, professional societies and educators defining the certification rules, accreditation policies for university curricula, and guidelines for professional practice will benefit from SWEBOK, as well as students learning software engineering.

THE GUIDE

The project comprises three phases: Strawman, Stoneman, and Ironman:

- The 1998 Strawman Guide, completed within nine months of project initiation, served as a model for organizing the SWEBOK project.
- Spring 2000 will see the completion of the Stoneman version.
- The Ironman phase will continue for two or three years after the completion of the Stoneman version. Following the principles of the Stoneman phase, Ironman will benefit from more in-depth analyses, a broader review process, and the experience gained from trial usage.

The deliverables of the currently ongoing Stone Man phase of this project will be:

- a list of Knowledge Areas of software engineering;
- a list of topics and relevant reference material for each Knowledge Area;
- a list of disciplines related to Software Engineering, and the Knowledge Areas lying at the junction of Software Engineering and one or more of these Related Disciplines.

In its current draft, the Stoneman version of the Guide identifies 10 Knowledge Areas (see [Table 2](#)) which form the chapters of this Guide. Table 2 also indicates the domain experts who are responsible for writing the chapters. In addition, we're considering seven related disciplines (see [Table 1](#)).

TABLE 1 RELATED DISCIPLINES.

Cognitive sciences and human factors	Mathematics
Computer engineering	Project Management
Computer science	Systems Engineering
Management and management science	

TABLE 2 THE SWEBOK KNOWLEDGE AREAS AND THEIR CORRESPONDING SPECIALISTS.

Knowledge Area	Specialists
Software configuration management	John A. Scott and David Nisse, Lawrence Livermore Laboratory, US
Software construction	Terry Bollinger, The MITRE Corporation, US
Software design	Guy Tremblay, Université du Québec à Montréal, Canada
Software engineering infrastructure	David Carrington, The University of Queensland, Australia
Software engineering management	Stephen G. MacDonell and Andrew R. Gray, University of Otago, New Zealand
Software engineering process	Khaled El Emam, National Research Council, Canada
Software evolution and maintenance	Thomas M. Pigoski, TECHSOFT, US
Software quality analysis	Dolores Wallace and Larry Reeker, National Institute of Standards and Technology, US
Software requirements analysis	Pete Sawyer and Gerald Kotonya, Lancaster University, UK
Software testing	Antonia Bertolino, Consiglio Nazionale delle Ricerche, Italy

HOW TO CONTRIBUTE TO THE PROJECT

The development process of the Stoneman version contains three public review cycles. The first review cycle focused on the soundness and the proposed breakdown of topics within each Knowledge Area. Thirty-four domain experts completed this review cycle in April 1999. The second review cycle was organized around the guidelines given originally to the Knowledge Area specialists. A considerably larger group of professionals took part in this review cycle completed in October 1999.

The focus of the third review cycle review to be conducted on the entire Guide will be on the correctness and utility of the Guide. This review cycle, scheduled to start in January 2000, will be completed by individuals and organizations representing a cross-section of potential interest groups. Hundreds of professionals have already been recruited to review the entire Guide, and we're soliciting more to fulfill our coverage objectives.

Those interested in participating in the third review cycle of the Guide to the Software Engineering Body of Knowledge (Stoneman version) can volunteer by signing up at the project's Web site (www.swebok.org). The transition from Stoneman to Ironman will be based primarily on feedback received from trial applications of the Stoneman guide. Those interested in performing trial applications are invited to contact the Editorial team.

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