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# The Prospect for International Standards for Software Testing

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# Current Situation: SW Testing Standards

- BSI maintains two well-respected standards for testing:
  - BS 7925-1, SW Testing: Part 1-Vocabulary
  - BS 7925-2, SW Testing: Part 2-SW Component Testing
- IEEE maintains two well-respected standards for testing:
  - IEEE Std 829, Software Test Documentation
  - IEEE Std 1008, Software Unit Testing
- ISO/IEC JTC 1/SC 7 maintains important contextual standards:
  - ISO/IEC 12207, Software Life Cycle Processes
  - ISO/IEC 15289, System and SW LC Process Information Products
  - ISO/IEC TR 19759, Guide to the Software Engineering Body of Knowledge

These three groups of individually excellent standards are *dis*-integrated.

# Proposal in Short

- BSI contributes their two standards.
- IEEE contributes their two standards.
- SC 7, BSI, and IEEE-CS cooperate to develop standards for software testing that are comprehensive and well integrated with the international standards collection.

# Purpose of Proposed Project

- Cover the software testing process throughout the development and maintenance of a software product or system.
- Unify and integrate the relevant standards from three sources: BSI, IEEE, and ISO/IEC JTC 1/SC 7.
- Develop a consistent, unified treatment adopted by all three organizations.
- Provide backward compatibility or a migration path for current users of the base documents.

# Proposed Title and Scope

- Title: *Software Engineering—Software Testing*
- Scope: Produce a set of software testing standards applicable to all types of software products and systems. Four parts are planned:
  - Part 1: Testing concepts
  - Part 2: Testing process
  - Part 3: Test documentation
  - Part 4: Test case design
- The standards will be consistent with the life cycle process and data standards of JTC 1/SC 7.

# Part 1: Testing Concepts

- Overview of testing principles and practices
- Concepts and vocabulary
- Principles useful in understanding the detailed provisions of the other parts
- Principal sources:
  - BS 7925-1
  - Terms and definitions of the two IEEE standards
  - SC 7 vocabulary project
  - TR 19759, SWEBOOK Guide
  - Concepts and definitions from the other parts of the standard

# Part 2: Testing Process

- Quote the relevant normative provisions of 12207:2007
- Provide guidance beyond the minimum requirements of 12207:2007
- Principal sources:
  - ISO/IEC 12207
  - The BSI and IEEE standards



# Part 3: Test Documentation

- Be consistent with the planned revision of the SC 7 Life Cycle Data standard, ISO/IEC 15289:200x
- Build upon the minimal requirements for documentation described in ISO/IEC 15289
- Provide additional recommendations beyond the minimum requirements of 15289
- Principal sources:
  - IEEE Std 829
  - ISO/IEC 15289
  - The other BSI and IEEE standards

# Part 4: Test Case Design

- Expand upon provisions of the other three parts to provide a focused treatment of test case design
- It is not yet clear whether this part will include normative provisions beyond the other parts or will only provide additional guidance.
- Principal sources:
  - BS 7925-2
  - The other BSI and IEEE standards

# Breaking New Ground

- The existing standards provide a solid base, but ...
- The current BSI and IEEE standards deal with *unit* testing. (BSI terms this *component* testing.)  
The new standard would deal with all forms of software testing, including:
  - integration testing
  - system testing
  - qualification testing
  - acceptance testing

# Integration and Compatibility Requirements

- Quote purpose, outcomes, activities and tasks from the revision of ISO/IEC 12207 and provide guidance.
- Be consistent with the concepts and terminology of the Software Testing chapter of ISO/IEC TR 19759, the Guide to the Software Engineering Body of Knowledge.
- Provide backward compatibility or a migration path for current users of the base documents contributed by BSI and IEEE.
- Provide annexes for IEEE users and BSI users describing the relationship of this standard with other IEEE and BSI standards.

# Cooperation Mechanisms

- The project will coordinate with IEEE Computer Society in the manner provided by the standing agreement.
- BSI will participate in the project by providing experts via the UK National Body.
- BSI and IEEE will provide comments and perform balloting using their normal processes.
- Comment disposition will be performed in SC 7.
- In accordance with the usual agreement, IEEE CS will provide an editor.
- It is suggested that the convener should be named by the UK.

# The Way Forward

- BSI and IEEE Computer Society are socializing this proposal at interim meetings and by correspondence.
- BSI and the UK National Body would prepare a New Work Item proposal, circa January 2007, and submit it for letter ballot.
- At the May 2007 plenary, we would hope to form a working group.