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LETTER BALLOT

Document SC7 N2898

Title: SC7 Draft Direction Statement 2003-2008.

"P" National Body must return their comments to the JTC 1/SC 7 Secretariat by email at Secretariat@jtc1-sc7.org no later than **2003-10-14.**

* We approve document N2898 as presented

OR

* We approve document N2898 with the attached comments

OR

* We disapprove document N2898 for the attached technical reasons

OR

* We abstain from voting (P-members have an obligation to vote)

National Body: _____

Date: _____

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NOTE: do NOT submit this form when voting by email. Simply type your vote (with comments where applicable) into an email message and send to Secretariat@jtc1-sc7.org.

SC7 Direction Statement 2003-2008

Document history

Date	Version	Author	Modifications / Additions
1997-08-04	1.0	SC7 AG BPG Session at Walnut Creek (USA)	First version sent as a letter ballot. Titled *SC7 Direction Statement 1997* – Document number N1763
1997-12-09	1.1	SC7 BPG	Updated and more comprehensive version. . Titled New *SC7 Strategic Direction* – Document number SC7 BPG – N127
2002-11-05	2.0	SC7 BPG	Revised and updated version prepared for circulation to the BPG. Titled *SC7 Direction Statement 2003* – D
2002-11-07	2.1	SC7 BPG	Revised and updated version
2002-11-08	2.2	SC7 BPG	Revised and updated version
2003-04-11	2.3	SC7 BPG	Revised and updated version – circulated as a draft for review at the 2003 SC7 Plenary in Montréal – 07N2825. Sent for letter Ballot as 07N2898 – 2003-07-14.

Table of Content

1 Introduction

Software has become an integral part of society's infrastructure, and it is growing in importance. Computing is now ubiquitous in industrialized society. It is also a key enabler in many fields of science, to the point that one author wrote that *All science is computer science*[1].

The complexity of software and systems is growing, and the practices to develop these systems have been pressured to kept pace with that growth. The ability to design and implement Information and Communication Technology (ICT) systems and products has greatly improved in the last ten years. A recognized core body of knowledge in Software Engineering now exists and it is now maturing into a recognized profession. The same is occurring in the interdisciplinary system professions. Challenges still abound because of the pressure to build more complex applications and products in ever shorter time-frames (a *Web Year* is 3 months). There is thus an increased need to support the engineering of software and systems through standardization.

In a strategic planning workshop held during the 1997 plenary meeting, SC 7 identified a number of problems which were attributed to the lack of:

- a coherent plan that establishes the products being developed and their user benefits
- an efficient management system for the conduct of business
- control over resources
- user involvement in defining requirements, initiating projects, standards development and measurement of success
- vision, mission and policies.

Five major strategies were identified to provide improvements over the 1997-2002 five-year period:

1. Develop a framework with characteristics that ensure the development of a cohesive and coherent set of standards.
2. Define a management system that introduces necessary improvements in the management processes to meet time to market, co-ordination and resourcing demands.
3. Develop and implement practices which (increase) maximize user involvement.
4. Develop and implement management practices that better utilize scarce volunteer resources.
5. Publish and maintain an SC7 Strategic Direction document to provide a high level focus for the activities of SC7.

As a result of these strategic planning activities, SC7 developed the first version of this Strategic Direction document that is complementary to the Vision of ISO and to the SC 7 Terms of Reference.

At the SC7 Busan Plenary in 2002, it was decided to revise and update this Strategic Direction document because:

- The five year span of the first document was exceeded;
- While some of the original planned activities did occur, others were not carried on;
- Major changes have occurred to SC7 and the SC7 environment that were not foreseen when the 1997 planning exercise was held.

[1] *All Science Is Computer Science* by George Johnson, New York Times, March 25, 2001

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The following major changes had taken place as of the 2002 Busan Plenary since the 1997 Walnut Creek Plenary:

- SC7 collection of standards has grown from 18 to 55, with 26 additional documents nearing completion;
- SC7 terms of reference have been expanded to include *systems*
- SC7 professional influence is now much more important, with active liaisons with key international societies
- De Facto strategic relationships have been developed between SC7 and the following international societies: IEEE-CS, INCOSE and the OMG.
- The pervasiveness of software and software based systems has continued to increase.
- The Software and Systems Engineering disciplines are converging.
- A Guide to the Software Engineering Body of Knowledge (SWEBOK) has been published and is near becoming an international standard (TR)
- The Software Engineering Institute has published an integrated maturity model covering software and systems (CMMI)
- Systems integration is now the most important function for enterprise ICT systems
- Re-use is coming of age with internet and e-commerce applications
- The importance of software and systems quality, reliability and safety has increased dramatically.
- There is a recognized need for SC7 to strive for greater consistency and interoperability among its collection of standards.

Looking forward, it is expected that Moore's Law[2], which can be generalized as the doubling of computing power every 18 months, will hold until at least 2012. This means that the corresponding lowering of prices will continue. Computing will become even more pervasive in our society, thus even more critical. The pervasiveness will increase with the introduction of mobile internet services and wireless technologies.

The challenge of developing ever more complex information systems under short schedule will remain. Additionally, many of these software intensive systems and products will perform critical tasks in our society. All of this will not only continue to drive the formalization of the software and systems engineering disciplines, but also the market for re-usable components.

[2] http://www.webopedia.com/TERM/M/Moores_Law.html

2 SC 7 Terms of Reference

Standardization of processes, supporting tools and supporting technologies for the engineering of software products and systems.

Note: These processes, tools and technologies are within the scope of the JTC1 Terms of Reference and exclude specific tools and technologies that have been assigned by JTC1 to other of its SC's.

3 SC 7's Vision

A unified set of software and systems engineering standards that are widely accepted by the intended class of users.

These standards will be organized in a framework, which establishes the relationships among SC 7 standards and between SC 7 standards and those of other disciplines, e.g. engineering, information technology, and quality management.

4 SC 7 Core Purpose and Values

4.1 SC 7 Core Purpose

SC 7 exists to:

- Provide quality software and systems engineering standards that meet user needs in broad markets.
- Manage the set of standards effectively through a documented framework.
- Promote the use of standards by providing supporting materials and encouraging its technical experts to publish on its standards and perform other types of marketing activities.
- Provide leadership in software and systems engineering standardization through:
    - The development or integration of a comprehensive set of integrated standards with broad international and professional consensus;
    - Initiating cooperative work with international professional and standards producing organizations;
    - A framework that:
        - Facilitates the integration and sub-contracting of standards developed in other standards producing organization;
        - Facilitates cooperative development of joint standards with other international standards producing organizations;
        - Minimises the inconsistencies between major software and systems related standards including those developed by other standards producing organizations.

4.2 SC7 Core Values

Customer Focus

- SC7 shall strive to develop products that meet the needs of its intended users and that are user friendly

Consensus

- At an International level and with regards to software and systems engineering best practice

Full and open deliberation

- Active involvement with related disciplines

Informed participation

- Awareness of the subject
- Awareness of the market
- Awareness of JTC1 procedures
- Awareness of project background

Equality and members/tolerance

- At a minimum to follow JTC1 procedures

Commitment to quality

- Maximize consistency and interoperability within its standards
- Maintain awareness of best practice and user needs
- Commitment of participants to the process
- Recognition of the importance of continuity in standards development
- Recognition that the coherence of its standards is more important than the perfection of individual standards

Professionalism

- Maintaining awareness of software and systems engineering practices

4.3 SC7 Market Place

Software and systems engineering standards must be focused on the needs of the users of those standards. Standards users at whom SC7 currently targets its work to include:

- Professionals in software and systems engineering
- Consumer software developers
- Enterprise information and computing systems professionals, operators and users
- Embedded software systems and product professionals and suppliers
- Methods and tools suppliers
- Software and systems houses and service providers
- Software and systems engineering educators and researchers
- Domain specific systems and software standards makers

5 Key Success Factors

SC7 recognize that it will be successful in its mission if :

- Its standards are widely recognized by the software and system engineering professions
- Its standards are widely used by its intended users
- Its standards collection adequately covers the scope of its terms of reference
- Its standards are delivered to the market in a timely fashion
- Its standards collection is maintained up-to-date with the developments in the areas of software and system engineering, as well as with developments in ICT and other relevant disciplines in engineering and science.

6 SC 7's Major Strategies for the Period 2003-2008

To achieve its objectives, SC7 will follow the following major strategies in the next five years:

- **S1** - Ensure that its standards are as consistent and coherent as possible.
- **S2** – Become more a systems integrator by focusing its development activities on integrations standards and adopting and integrating standards developed by other organizations.
- **S3** - Develop and manage key strategic partnerships with international professional and standardization organizations that operate in its mandated area. In 2002 these were the IEEE-CS, INCOSE and OMG.
- **S4** - Communicate efficiently to its intended customers about its program of work and market its accomplishments.
- **S5** - Proactively assess the relevance of its standards to the state of software and systems engineering technology and markets, and initiate maintenance or new development activities if required.
- **S6** - Increase its market share in the area of systems engineering
- **S7** - Ensure that its standards are as compatible and coherent as possible.

7 SC7 Major Implementation Activities for the Period 2003-2008

To execute the strategies described previously, the following activities will be performed by SC7:

A1 – Operationalize a Business Planning function by putting in place a SWG on Business Planning to:

- Support the Chair in the elaborations of directions and policies.
- Assist the chair in the prompt resolution of issues.
- Propose updates to the JTC1/SC7 business plans and procedures.
- Propose updates to the JTC1/SC7 communications function.
- Prepare procedures and define organization responsibilities to ensure integrated strategy planning, business planning, and management systems for JTC1/SC7.

The SWG on Business Planning should be under the direction of the JTC1/SC7 Chair. Members will be nominated by the Chair and confirmed at each Plenary meeting.

Criteria for membership should be:

1. At least 5 years of JTC1/SC7 active participation.
2. Availability to participate to BPG meetings, in and outside of the Plenary.
3. Membership in the JTC1/SC7 AG.
4. No more than one representative per country.
5. The Chair and Secretariat are permanent members.

The SWG on Business Planning should report to the AG.

A2 – Operationalize architecture planning and management function by putting in place a SWG on Architecture Management to:

- Elaborate and Maintain JTC1/SC7 Architecture standing documents
- Provide counsel to JTC1/SC7 Conveners and editors on standards architecture and vocabulary consistency issues
- Recommend to JTC1/SC7 standard maintenance strategies
- Report on its activities to the JTC1/SC7 BPG and AG

Criteria for membership should be:

1. At least 5 years of JTC1/SC7 active participation
2. Not a member of SWG 1 – BPG
3. Not a WG convener
4. Availability for meetings and assignments
5. Membership, excluding the Chair and the conveners, is limited to 7
6. Recognized JTC1/SC7 expertise in one or more of the following areas:
    - Software & Systems Engineering
    - Software & Systems Process
    - Software & Systems Product
    - Measurements and Metrics
    - Tools, Methodologies & Modeling Languages
    - Software & Systems Engineering Work-products

The JTC1/SC7 Special Working Group on Architecture Management should be chaired by the JTC1/SC7 Chair and have a Convener appointed by the Member Bodies

A3 – Negotiate cooperation agreements with key partners.

Negotiate cooperation agreements with at least the following key partners:

- IEEE-CS
- OMG
- INCOSE

The partnership with each of the above organizations should be implemented in various ways appropriate to these organizations. Such partnership/cooperation agreements should include, if pertinent:

- A vision statement on how the relationship should operate and what could be done
- A protocol or procedure for liaison and cooperative work

A4 – Initiate study groups to explore new areas or assess market coverage

As required, initiate Study Groups to explore new areas of standardization for SC7 or assess how the existing SC7 collection covers the needs of a particular market or area.

A5 – Use all the tools available to reduce the time to market of standards development and adoption projects.

International standards can come into being through different processes:

- as a proposal that is then developed in working groups through the 'standard' six stage process (3-5 years from initiation to publication);
- as a proposal with a base document which can be internally *fast-tracked,* e.g. processed through a compressed schedule (about 2 years);
- as a proposal with a complete document that can be fast-tracked by JTC 1 (one four months ballot) (< 1 year);
- as a proposal with a complete document that can be proposed by external (but recognised) organisations and fast-tracked as a 4 month ballot - known as the Publicly Available Standard (PAS) process (1-2 years).

SC7 will strive to use the optimal approach to deliver standards to the market and into its collection.

A6 – Initiate Study Groups to address harmonization and consistency issues

As required, initiate Study Groups to address harmonization and consistency issues in the SC7 standards portfolio or between the SC7 portfolio and standards issued by other organizations.

A7 – Redesign the SC7 Web site to make it a marketing tool

Redesign the SC7 Web site so that it moves from being principally an internal document exchange tool to become a marketing tool.

8 Measurements

M1 – Web presence instances of SC7 standards

M2 – Number of professional publications on SC7 standards

M3 – Influence of SC7 standards on professional curriculums

M4 – Sales volumes of SC7 standards