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Software and Systems Engineering  
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SC7 Chairman Presentation

to the

ISO/IEC JTC 1

PLENARY

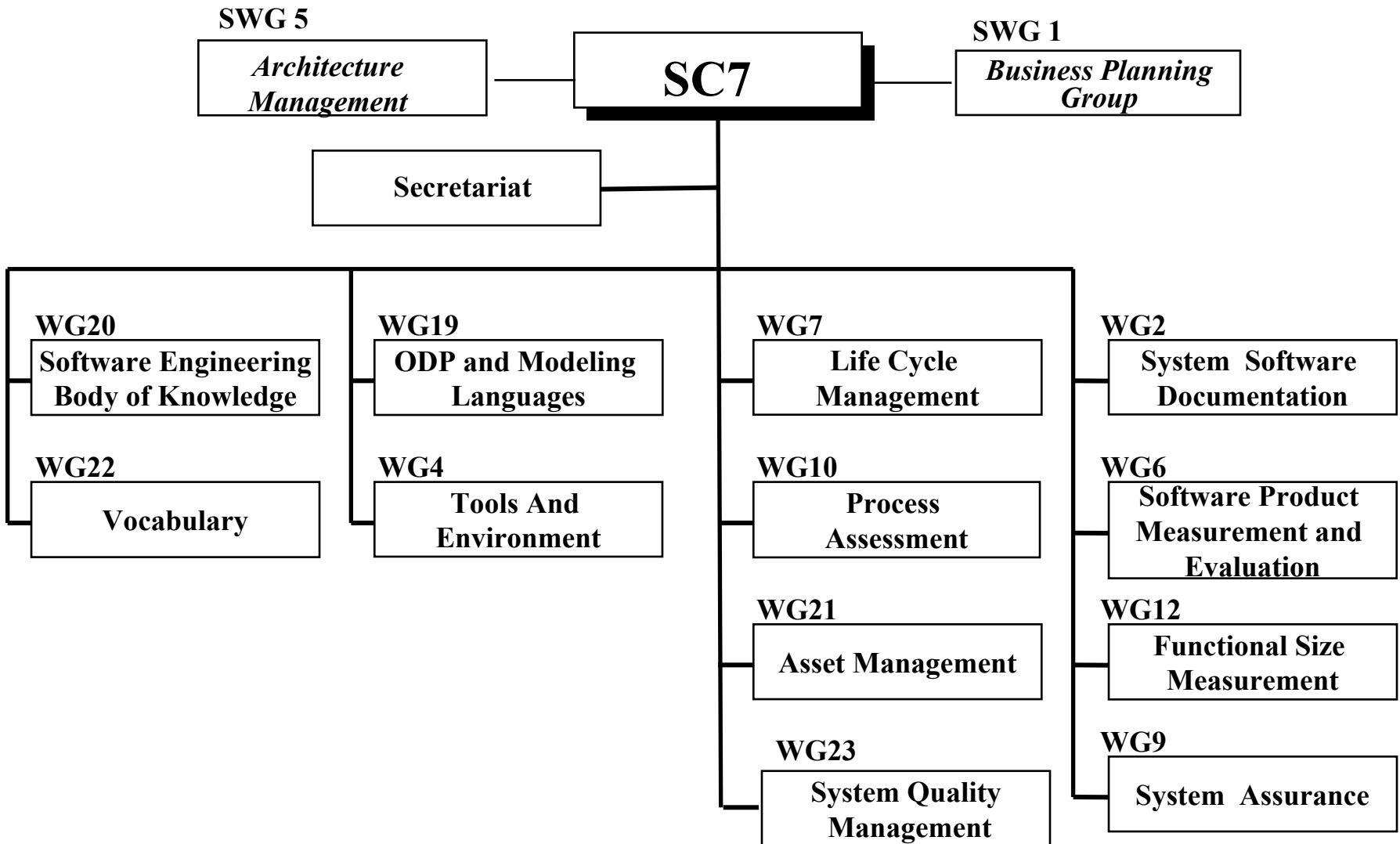
Berlin, 2004-10-25

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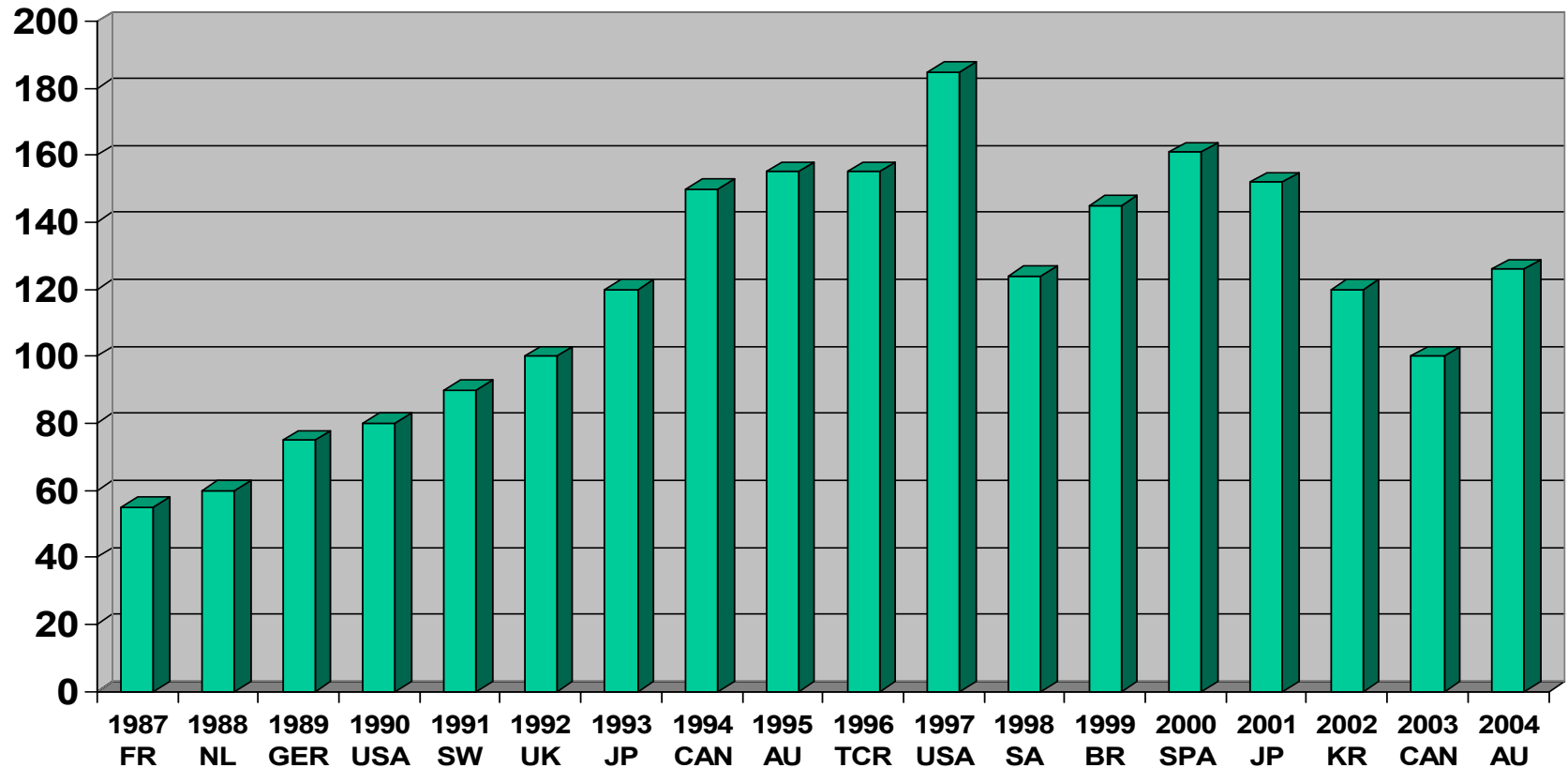
# SC7 TERMS OF REFERENCE

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

# SC7 structure



# Plenary attendance statistics



# Standards published since the last plenary

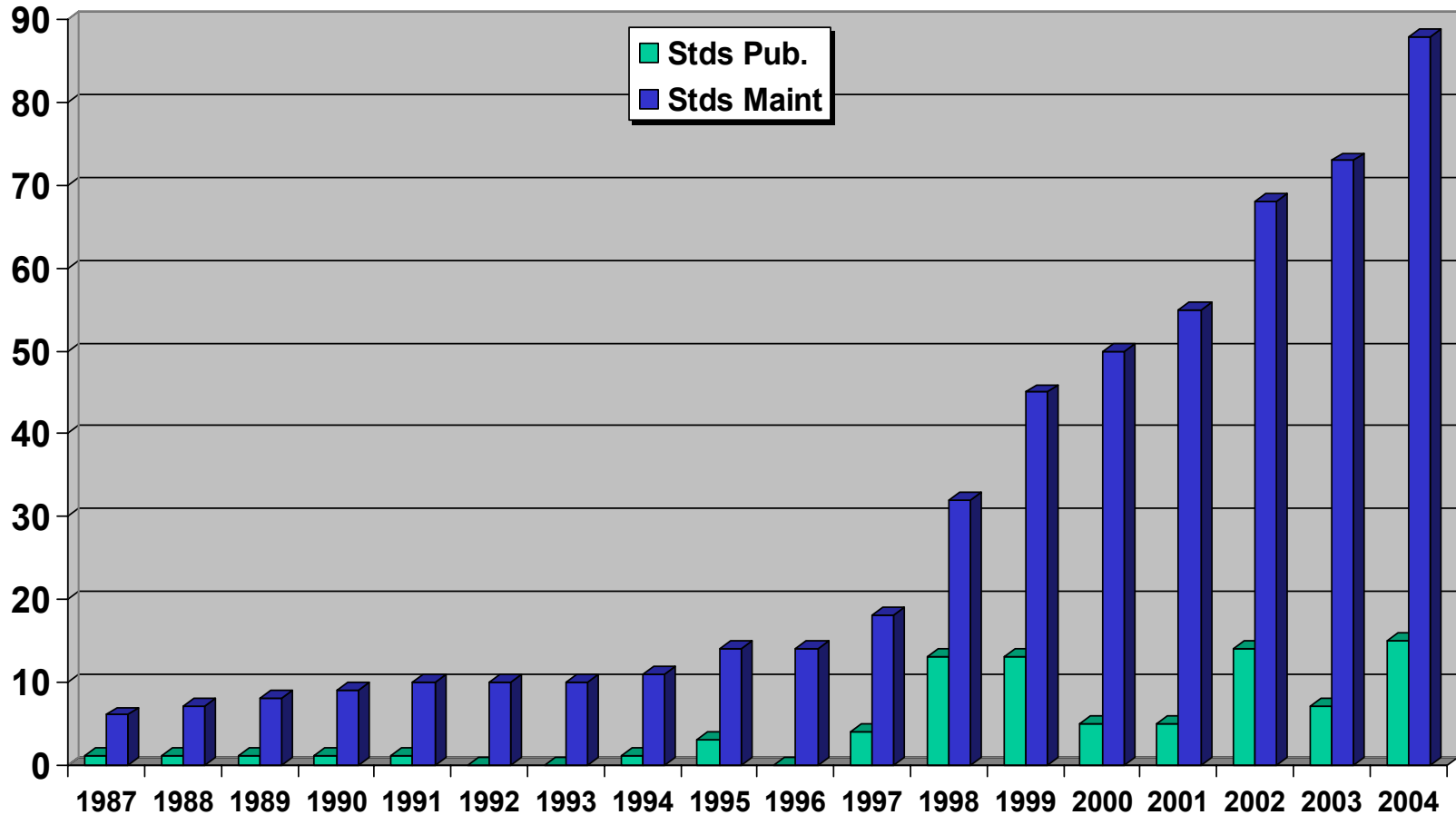
- ISO/IEC TR 9126-4:2004: Software Engineering - Product quality - Part 4: Quality In Use Metrics
- ISO/IEC TR 14143-5:2004: Information technology -- Software measurement -- Functional size measurement -- Part 5: Determination of functional domains for use with functional size measurement
- ISO/IEC 90003:2004 – Software engineering -- Guidelines for the application of ISO 9001:2000 to computer software
- ISO/IEC 15504-2 - Software engineering -- Process assessment -- Part 2: Performing an assessment
- ISO/IEC 15504-3- Information technology -- Process assessment -- Part 3: Guidance on performing an assessment
- ISO/IEC 18019 - Software and system engineering -- Guidelines for the design and preparation of user documentation for application software
- ISO/IEC 16085:2004 Information technology -- Software life cycle processes -- Risk management

# Projects near completion

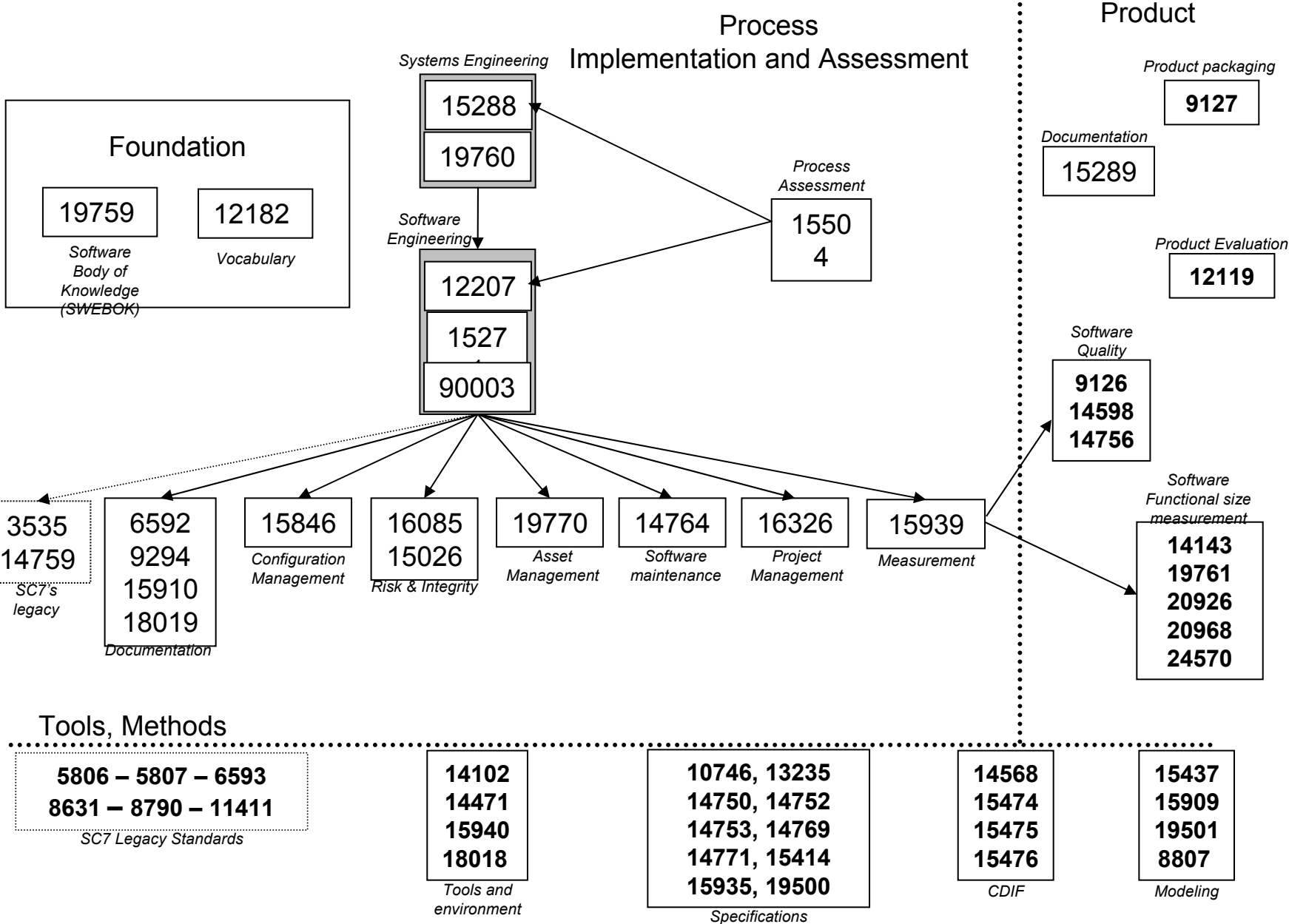
- 15476: Software Engineering - CDIF Semantic Metamodel - Parts 3,4,5
- FDIS15909: Software Engineering - High-level Petri Nets - Concepts, Definitions and Graphical Notation
- DIS 19501-1 – UML PAS
- DTR 19759 – SWEBOK
- DIS 24570 NESMA PAS
- ISO/IEC FCD 9127 Software engineering -- User documentation and cover information for consumer software packages
- ISO/IEC DTR 9294 Information technology -- Guidelines for the management of software documentation
- ISO/IEC FDIS 15504-4 Software Engineering -- Process Assessment -- Part 4: Guidance on use for Process Improvement and Process Capability Determination
- ISO/IEC FCD 15909-1 Software and systems engineering -- High-level Petri Nets -- Part 1: Concepts, Definitions and Graphical Notation
- ISO/IEC FCD 15940 Information Technology -- Software Engineering -- Environment Services

# SC7 Production (est.)

(No new NWI assumed - exclude dependability, include PAS)







# SC7 Direction Statement

Was updated in 2003 to:

- Reflect new directions in Systems Engineering and Enterprise Architecture
- Reflect the evolution of our disciplines and its impact on the global economy and societies
- Document the tactics used in the last five years
- Document and formalise the partnering strategy that evolved in the last four years

# 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.

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

- **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.

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

- **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.

# SC7 Major Implementation Activities for the Period 2003-2008

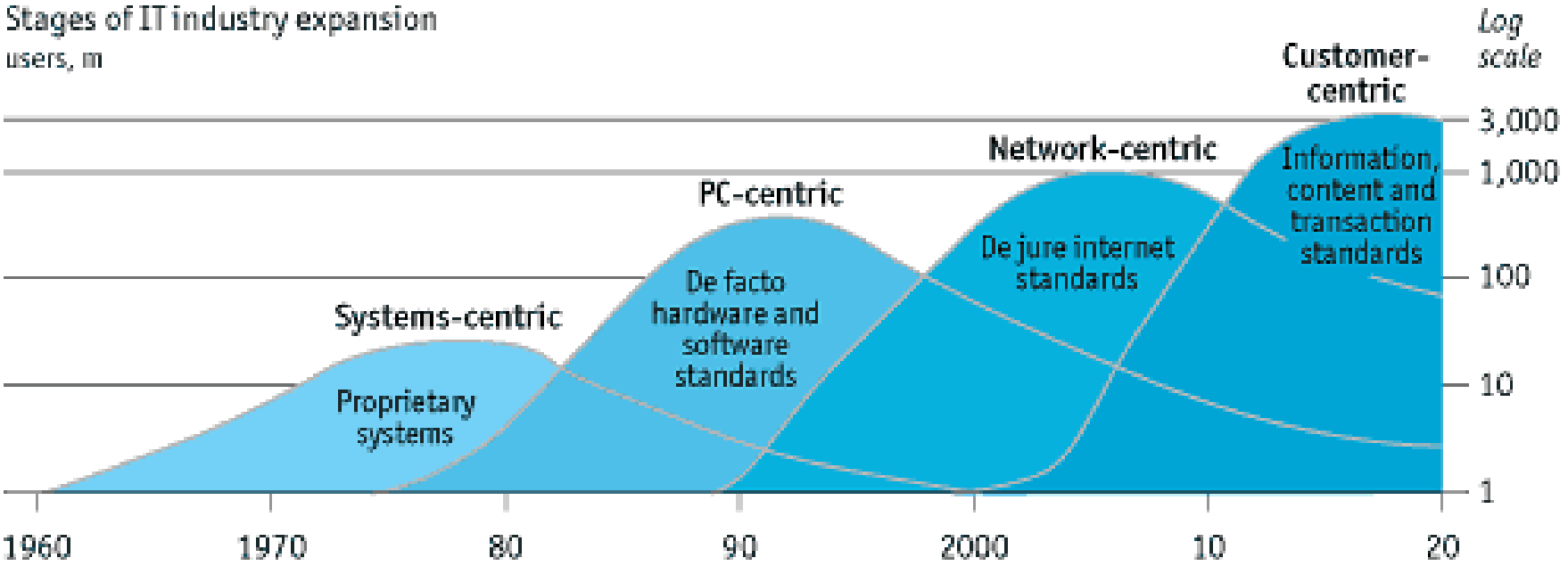
- **A1** – Operationalize a Business Planning function by putting in place a SWG on Business Planning
- **A2** – Operationalize architecture planning and management function by putting in place a SWG on Architecture Management
- **A3** – Negotiate cooperation agreements with key partners.

# **SC7 Major Implementation Activities for the Period 2003-2008**

- **A4** – Initiate study groups to explore new areas or assess market coverage
- **A5** – Use all the tools available to reduce the time to market of standards development and adoption projects.
- **A6** – Initiate Study Groups to address harmonization and consistency issues
- **A7** – Redesign the SC7 Web site to make it a marketing tool

# What next?

Stages of IT industry expansion  
users, m



Source: David Moschella

From: *The fortune of the commons*. In *Coming of Age - A Survey of the IT Industry*.  
The Economist, May 8th 2003



# How much information ?

Table 1.2: Worldwide production of original information, if stored digitally, in terabytes circa 2002. Upper estimates assume information is digitally scanned, lower estimates assume digital content has been compressed.

Storage Medium	2002 Terabytes Upper Estimate	2002 Terabytes Lower Estimate	1999- 2000 Upper Estimate	1999- 2000 Lower Estimate	% Change Upper Estimates
Paper	1,634	327	1,200	240	36%
Film	420,254	76,69	431,690	58,209	-3%
Magnetic	4,999,230	3,416,230	2,779,760	2,073,760	80%
Optical	103	51	81	29	28%
<b>TOTAL:</b>	<b>5,421,221</b>	<b>3,416,281</b>	<b>3,212,731</b>	<b>2,132,238</b>	<b>69%</b>

Source: *How much information 2003*

<http://www.sims.berkeley.edu/research/projects/how-much-info-2003/execsum.htm#summary>

# Software Systems Engineering Globalisation – ‘Offshoring’

<b>LEADER</b>	<b>India</b>
<b>CHALLENGERS</b>	<b>Canada, China, Czech Republic, Hungary, Ireland, Israel, Mexico, Northern Ireland, Philippines, Poland, Russia, South Africa</b>
<b>UP-AND-COMERS</b>	<b>Belarus, Brazil, Caribbean, Egypt, Estonia, Latvia, Lithuania, New Zealand, Singapore, Ukraine, Venezuela</b>
<b>BEGINNERS</b>	<b>Bangladesh, Cuba, Ghana, Korea, Malaysia, Mauritius, Nepal, Senegal, Sri Lanka, Taiwan, Thailand, Vietnam</b>

The offshore IT race. *SOURCE: CARTNER INC as quoted by the Globe and Mail in IT jobs contracted from far and wide , North American companies are saving money by 'offshoring', John Saunders, The Globe and Mail, 2003-10-14, <http://www.theglobeandmail.com/servlet/story/RTGAM.20031014.gtrjobs14/BNStory/einsider>*

# Markets Size (10<sup>9</sup> US \$)

## ICT Vendor 2002

**Reference: R.Fulton, COM-15-1667, Predicts 2002 – What’s Ahead for the IT Industry, Gartner Research, Research Note, 2002-01-08**  
[http://www.adabasnatural4ever.com/industry\\_news/media/predicts\\_2002\\_whats\\_ahead\\_for\\_the\\_it\\_industry.pdf](http://www.adabasnatural4ever.com/industry_news/media/predicts_2002_whats_ahead_for_the_it_industry.pdf)

Telecommunications equipment	380
Computer Systems Hardware	240
Software Licenses	70
Project Oriented IT Services	250
Semiconductors	150
Support/Management IT Services	350
<b>TOTAL</b>	<b>1 440</b>

# SC7 Standards Strengths

- Represent broad international consensus
- Documents recognized as ‘Good Practices’

# SC7 Standards Coverage

## STRENGTHS

- Life-Cycle Processes
- Product Metrics
- Process Metrics
- Formalisms
- Software Engineering Body of Knowledge
- Tools environment

## OPPORTUNITIES

- Systems Engineering
- Software and Systems Assurance
- Systems Architecting
- IT Operations and Services
- Re-use
- Agile Processes
- Open Source Software (OSS)
- Curricula and Certification
- Application Domains Acceptance
- Data ?

# Outputs from the Brisbane Plenary

## ISSUE

- Systems Engineering
- Software and Systems Assurance
- Systems Architecting
- IT Operations and Services
- Re-use
- Agile Processes
- Open Source Software (OSS)
- Curricula and Certification
- Application Domains Acceptance
- Data ?

## OUTPUTS

- NWI and Fast Track
- Study Group
- Study Group
- Fast Tracking of BS 15000
- Study Group
- Study Group
- Study Group
- NWI

# Actives SC7 Study Groups

- Study Group on user documentation Standards
- Study Group on System Life Cycle Process Assessment Model
- Study Group on the revision of ITU-T Rec. X.901-4|ISO/IEC 10746 Reference Model of Open Distributed Processing
- Study Group on Revision of ANSI NCITS 354-2001
- Study Group on Non-Developed Components
- Study Group on Architectures
- Study Group on Certification.
- Study group on Software Assurance Requirements.

# Some Marketing

- SC7 seminars, May 2004, Brisbane, Australia
- François Coallier, *International Standardization in Software and Systems Engineering*, Townsville, Australia
- François Coallier, *International Standardization in Software and Systems Engineering*, Auckland and Wellington, New Zealand



# Issue

IEC TC62A / ISO/TC 210 CD 62304.2 Medical  
device software – Software life-cycle  
processes

- » Horizontal committee status of JTC 1/SC7