ISO JTC1 IEC
INFORMATION TECHNOLOGY STANDARDS

Adaptation of Software Engineering Standards for Very Small Enterprises

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Agenda

- Introduction
- Mandate of ISO SC 7.
- Steps toward creation of a new ISO SC 7 Working Group.
- Report of First Working Group (WG) 24 Meeting
- Next Steps.
- ISO survey for VSE

Introduction

"*Adaptation of Software Engineering Standards* ***by Very Small Enterprises***"

Target :

- VSE = less than 25 employees
- Scope includes also small project or department within a larger organization

Very Small Enterprises (VSE)

➤ 85% of IT companies in Europe have 1-10 employees

Type	% of Enterprises	Number of compagnies	Number of Jobs
SME	99%		81 million
VSE	93%	19 million	

Source: NORMAPME (European Office of Crafts, Trades and Small and Medium-sized Enterprises for Standardisation).

Very Small Enterprises (VSE)

- Example – Greater Montréal Area.

Number of employees	Number of Enterprises	Percentage	Number of Jobs
1 to 25	540	78%	5105
25 to 100	127	18%	6221
Over 100	26	4%	6056

Source: Laporte 2005.

VSEs and Standards : observations

1. International standards were not written for and/or is hard to apply in small projects, small development organizations, or companies that have between 1 and 25 employees.
2. International Life Cycle Standard ISO/IEC 12207 and guide do not explicitly address the needs of VSEs.
3. Compliance with standards is difficult (if not impossible) for VSEs to achieve.
4. VSE's have no or very limited ways to be recognized as an enterprise that produces quality software systems in their domain.
   - VSEs are cut off from some economic activities.
5. Implementation of current standards requires a significant critical mass in terms of number of employees, cost and time.
6. VSEs cannot see a net benefit in establishing a software process as defined by current standards.

IEEE User's Survey

Implementation Difficulties

- Benefits of implementation not clearly understood
- Not enough useful examples
- Cost
- Lack of templates, implementation checklists.
- Compliance determination

Source: Kathy Land, 1997

IEEE User's Survey

Requested Support Items

- User training course
- Examples of deliverables
- Deliverable templates
- CASE tool support for documentation generation
- On-line or phone support
- Software Engineering Standards newsletter
- Software Engineering Standards users group
- Educators resource/support

Source: Kathy Land, 1997.

ISO/IEC JTC 1/SC7- Terms of Reference

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

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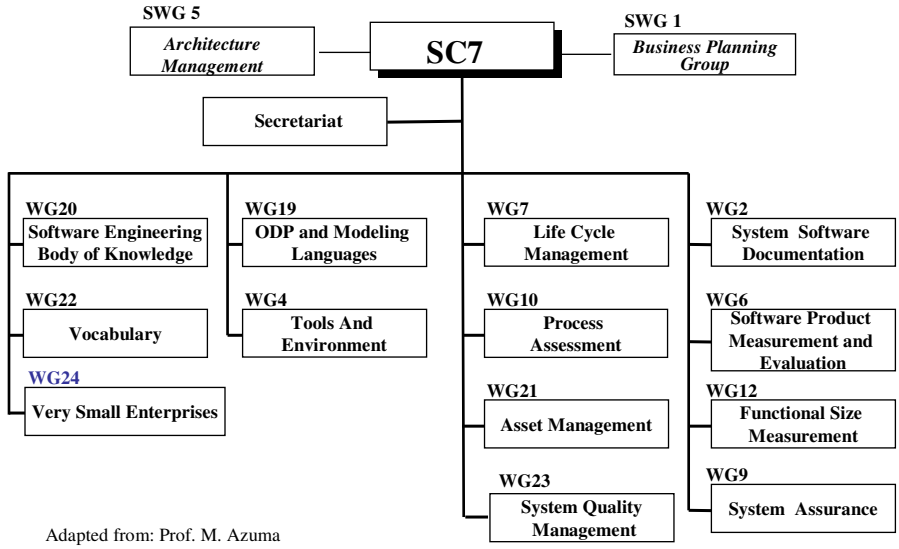
SC7 Structure



Adapted from: Prof. M. Azuma

SC7 Meeting in Brisbane - 2004

- Canada raised the fact that small enterprises require standards adapted to their size and maturity,
- A meeting of interested parties was held with delegates from 5 national bodies (Australia, Canada, Czech Republic, South Africa, and Thailand),

- **Consensus**:
  - Make the current software engineering standards **more accessible to VSEs;**
  - Provide turn key material that require **minimal tailoring and adaptation effort**;
  - **Align, if desirable**, profiles with the notions of maturity levels presented in ISO/IEC 15504.

SC7 Meeting in Brisbane - 2004

- **Establishment of a Special Interest Group to develop**:
  - A statement of requirements ;

First Special Working Group Meeting
Thailand – March 2005

- Hosted by the Thailand Industrial Standard Institute (TISI) and the Thai Software Industry Promotion Agency (SIPA),
- **Representatives of 11 NB**
  - Australia, Belgium, Brazil, Canada, Czechoslovakia, Finland, South Africa, South Korea, USA and Thailand.
- **Outputs**
  - Project vision and strategy;
  - Draft New Work Item (ISO SC 7, Document N3288)
    - Project Schedule;
    - Product Plan;
  - Initial requirements document;

สำนักงานส่งเสริมอุตสาหกรรมซอฟต์แวร์แห่งชาติ (องค์การมหาชน)
Software Industry Promotion Agency (Public Organization)

Examples of Issues and Proposed Solutions by Thailand about ISO/IEC 12207

SMEs are not ready to implement the whole 12207 standard.	⇨	Standard should be broken down in to stages or levels in order to fit all sizes of SMEs.
Not all 12207 activities are suitable for SMEs' operations.	⇨	Need to modify activities to suit SMEs' operation – product and project based type of business.
There is no assessment model.	⇨	A set of checklist was developed for use by assessors.
Most software developers are not document-oriented.	⇨	Provide packaged templates and examples for rapid documenting

Source: Thai Software Industry Promotion Agency

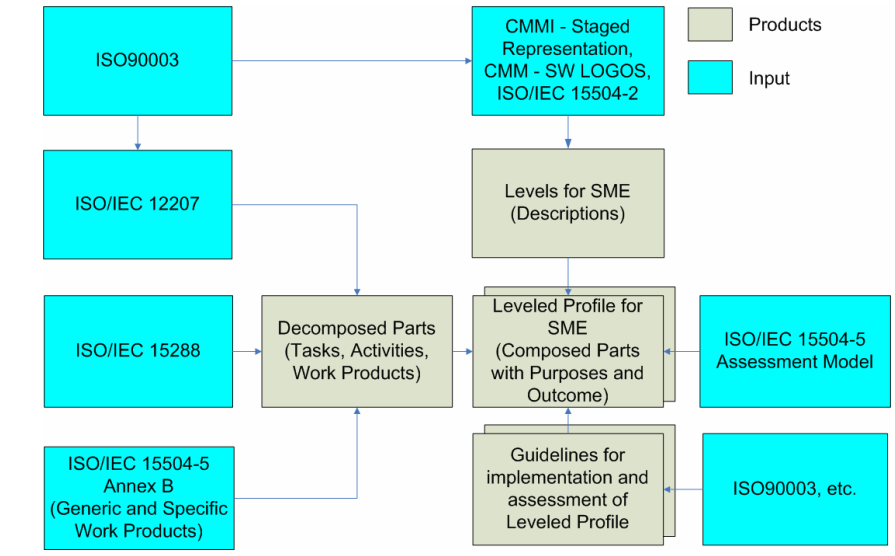
Requirements for a new standard

- Help VSEs
  - Focus on lower levels of maturity
  - Produce documents easy to understand
  - Produce guidelines applicable to small teams or projects
  - Address VSE market needs
  - Provide examples
  - Develop scalable profiles and guides

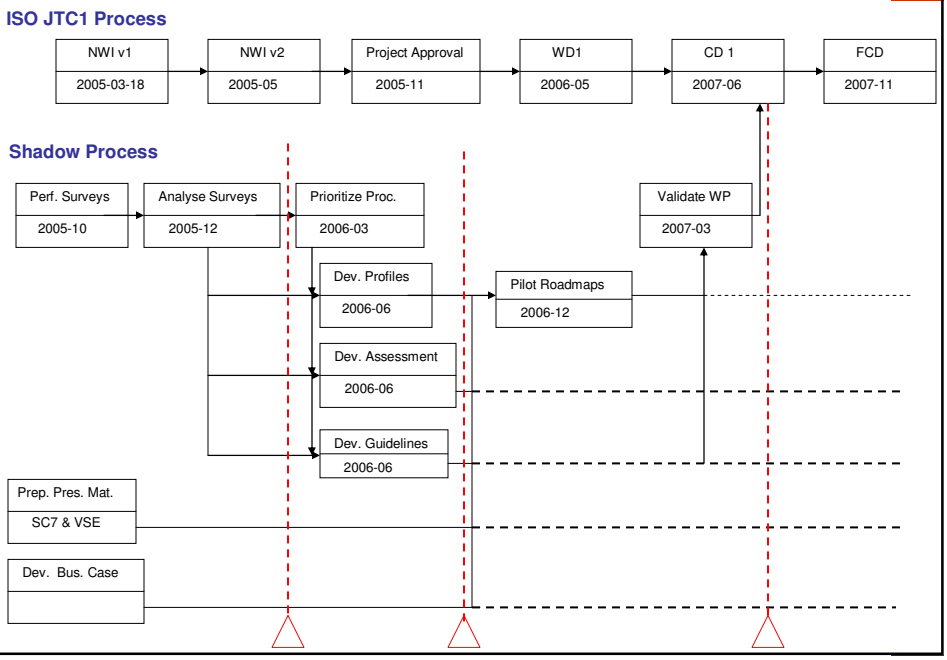
Potential Benefits for VSEs

- The use of the documents should contribute to the reduction of risk
  - Business, cost, schedule and quality
- The use of the documents should facilitate alignment of the IT strategy to the business objectives.
- The documents should help understand and appreciate the value added (short and long term).
- The documents should offer guidance on quantifying the benefits of standards implementation.

VSE Proposed Model



Estimated Schedule of Activities



SC7 Meeting in Finland – May 2005

- Proposal developed in Thailand was reviewed
  - Recommendation: To establish a new Working Group
- Resolution was approved to ballot the New Work Item Proposal
  - *Software Life Cycle Profiles and Guidelines for use in Very Small Enterprises (VSE)*
- Working Group 24
  - Mr. Tanin Uthayanaka (Thailand) was appointed Convener.
  - Mr. Jean Bérubé (Canada) was appointed Secretary.
  - Mr. Claude Y. Laporte (IEEE CS) was appointed Project Editor

Second Special Working Group Meeting
Thailand – September 2005

- Hosted by the Thailand Industrial Standard Institute and the Thai Software Industry Promotion Agency
- **Representatives of 9 NB**
  - Australia, Belgium, Canada, Finland, Japan, Luxembourg, South Africa, USA and Thailand.
- **Outputs**
  - Proposition to use International Standardised Profiles (ISPs) as a framework to develop documents (e.g. guides)
  - Proposed business models to help classify VSEs
  - Proposed **survey on VSEs exposure and needs** for software development lifecycles;

First SC7 Working Group 24 Meeting
Italy – October 2005

- **12 Countries committed to participate to Working Group 24**
  - Belgium, Canada, Czech Republic, Ireland, Italy, Japan, Korea, Luxemburg, South Africa, Thailand, UK, USA.
- **Outputs**
  - New Work Item – comments received during balloting,
  - Project Requirements,
  - Business Models,
    - Custom on contract, Custom in-house, Commercial products, Mass-market software, Firmware.
  - Strategy to create profiles.
  - Users' Survey,
  - Strategic Plan,
  - Web site for public review of documents produced.
- **To be done**
  - Perform Users' Survey.

Next Step : SC7 Plenary Meeting 2006
Thailand – Mai 2006

- **Next Step**
  - Analyze Users' Survey (First results available).
- Next WG 24 Meeting - May 2006, Thailand.
  - WD1 (?)

Survey on the use of ISO/IEC Standards by VSEs

- **http://www.jtc1-sc7.org/**
  - Login : isosurvey
  - PW : vse
- March-May 2006
  - 278 compagnies
  - 23 countries
- Almost the end, **please distribute and contribute** !

Survey on the use of ISO/IEC Standards by VSEs

- 65% of VSE are certified
- 60% of non certified VSE are not using any standard
  - Not required
  - Lack of resources
  - Too time-consuming
  - Standards are (considered):
    - Too difficult and bureaucratic
    - Not enough guidance is available
    - Incompatible with existing management system

Survey on the use of ISO/IEC Standards by VSEs

- **VSE context is different**
- It is possible to make it KISS and work
- IT industry is demanding (in some countries) and ready to invest

- Please let's not forget VSE

Thank you to contribute to our survey : **http://www.jtc1-sc7.org/**

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- **Working Group 24 Public site**
  - **http://www.sc7-wg24.net/**
  - **http://www.jtc1-sc7.org/**

Resources

- ISO/IEC TR 19559, Software Engineering Body of Knowledge (SWEBOK) (Free copy of TR)
  - http://isotc.iso.org/livelink/livelink/fetch/2000/2489/Ittf_Home/PubliclyAvailableStandards.htm
- National Computing Centre – Toward Software Excellence
  - http://www.software-excellence.org/

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