

New ISO/IEC developments in Process Assessment standards for IT Services



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Agenda

- Overview of SC7 and its standards
- History and architecture of ISO/IEC 15504 – Process Assessment
- Current developments in the process assessment standard
- Brief introduction to ITIL and ISO/IEC 20000 – IT Service Management
- ISO/IEC 15504 applied to IT Service Management processes
- Future developments



A simple true/false test for you – don't be shy !

MANAGING RISK



- SPICE is an International Standard
- ISO/IEC 15504 is about software processes
- Process Models to be used with ISO/IEC 15504 are approved by ISO/IEC

True False

True False

True False

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SPICE is **not** an International Standard

MANAGING RISK



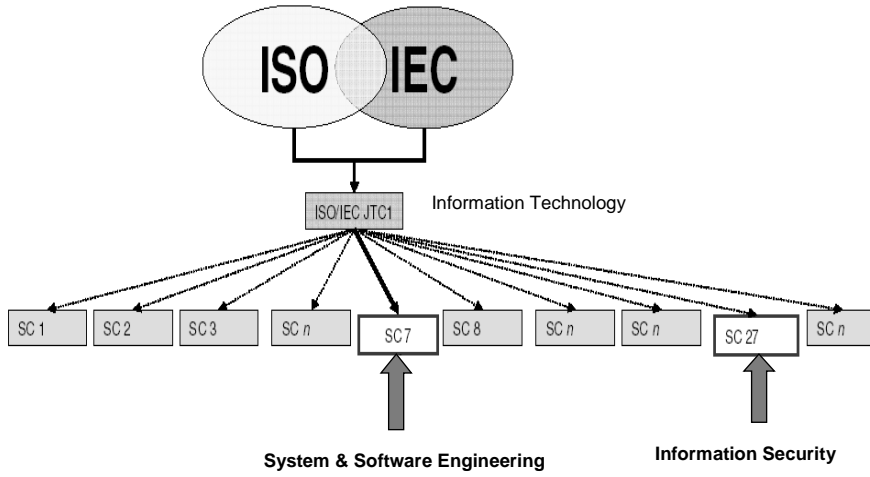
- The standard for process assessment is named **ISO/IEC 15504**
- It is a multipart standard developed by the technical subcommittee ISO/IEC JTC1 SC7 (System & Software Engineering)
- SPICE (Software Process Improvement and Capability dEtermination) is the acronym of a project established with a mandate from JTC1/SC7 to :
 - assist the standardization project in its preparatory stage to **develop initial working drafts** (completed in 1995);
 - **undertake user trials** in order to gain early experience data which formed the basis for revision of the published *Technical Report* prior to review as a full *International Standard*;
 - **create market awareness** and **take-up** of the evolving standard.
- The SPICE project no longer exists – the task of creating market awareness has been taken on by the SPICE User Group since 2003

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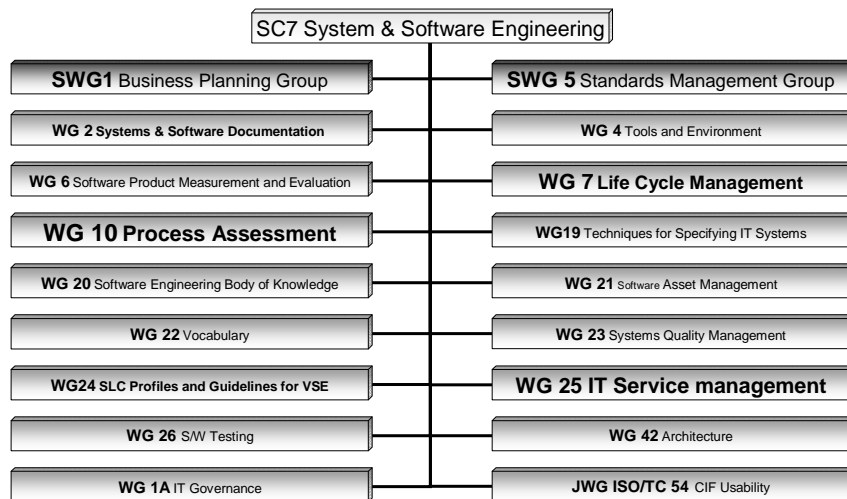
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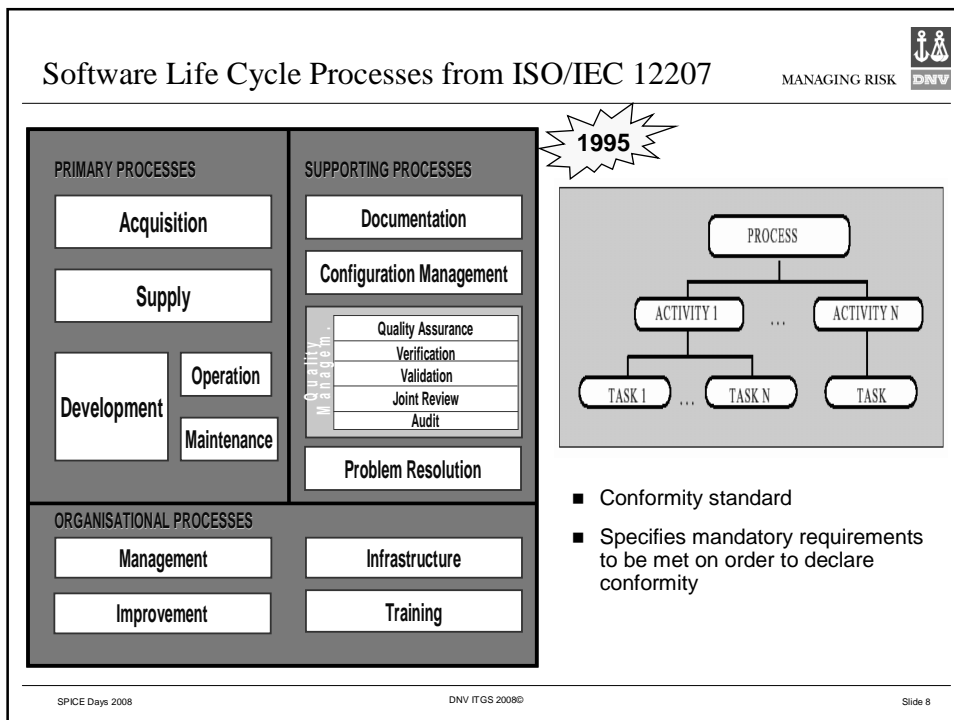
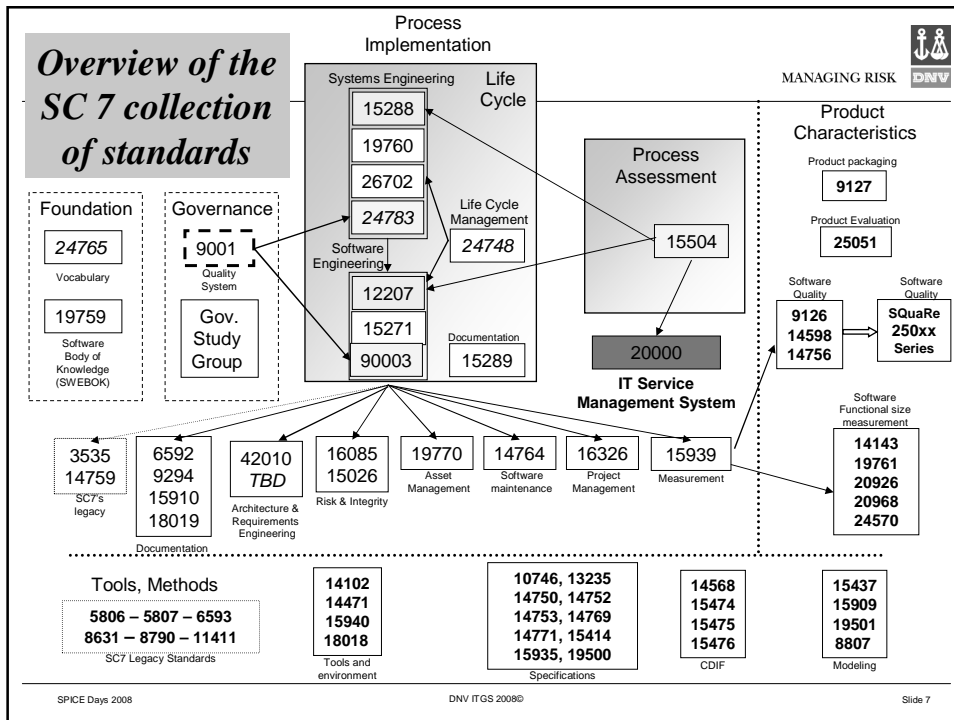
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ISO/IEC JTC1 – Information Technology



ISO/IEC JTC1 SC7 System & Software Engineering Organizational chart





Example of 12207 conformity requirements

Activity within Development process

5.3.5 Software architectural design. For each software item (or software configuration item, if identified), this activity consists of the following tasks:

5.3.5.1 The developer shall transform the requirements for the software item into an architecture that describes its top-level structure and identifies the software components. It shall be ensured that all the requirements for the software item are allocated to its software components and further refined to facilitate detailed design. The architecture of the software item shall be documented.

5.3.5.2 The developer shall develop and document a top-level design for the interfaces external to the software item and between the software components of the software item.

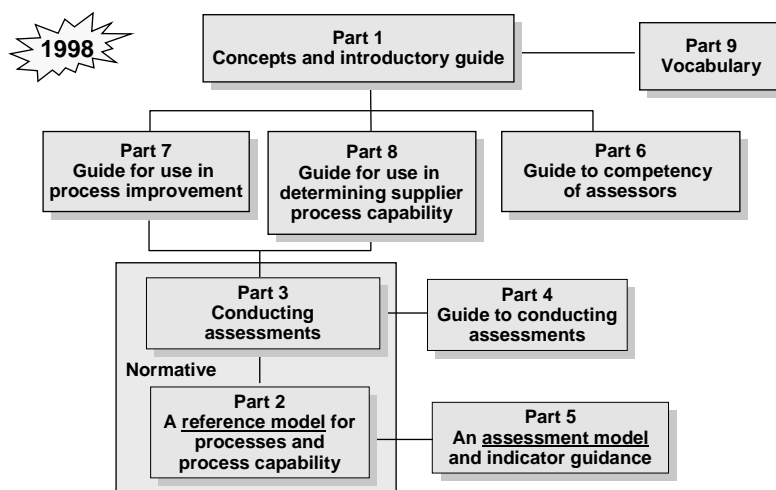
5.3.5.3 The developer shall develop and document a top-level design for the database.

5.3.5.4 The developer should develop and document preliminary versions of user documentation.

5.3.5.5 The developer shall define and document preliminary test requirements and the schedule for Software Integration.

5.3.5.6 The developer shall evaluate the architecture of the software item and the interface and database designs considering the criteria listed below. The results of the evaluations shall be documented.

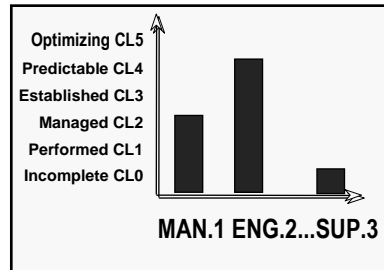
The ISO/IEC 15504 Technical Report



ISO/IEC TR 15504: 1998 – Software Process Assessment

The new standard introduces a 2-dimensional model for processes and process capability

- Process Dimension
 - Process Categories
 - Processes (P1, ..., Pn)
- Capability Dimension
 - Capability Levels (CL1, ..., CL5)
 - Process Attributes (PA1.1, PA2.2 .. PA5.5)

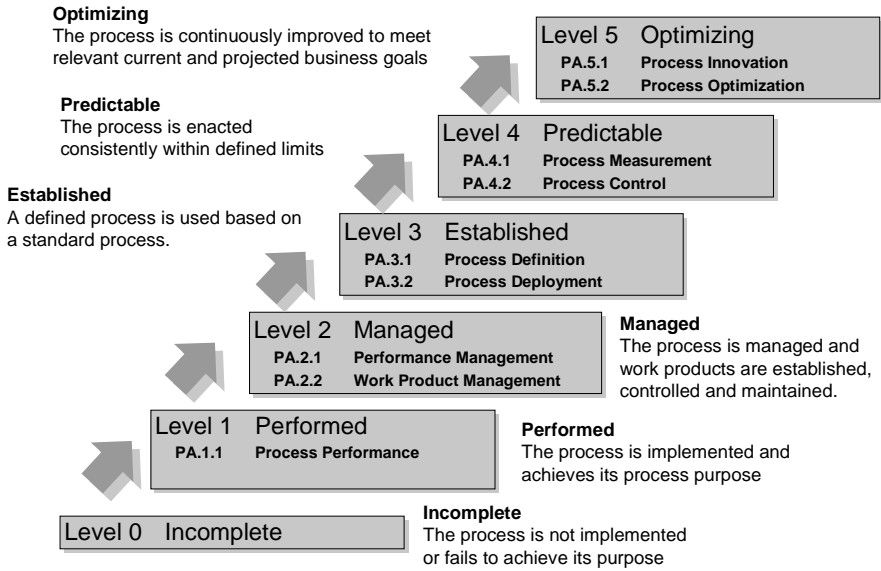


Each process receives a capability level rating

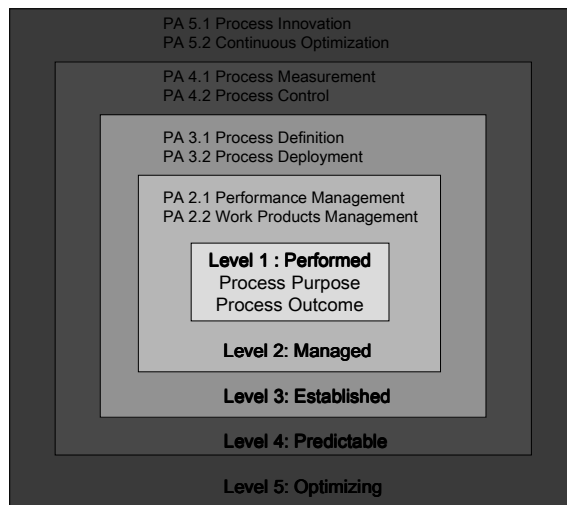
This is referred to as a Continuous Model

- Focus on **process objectives** (what to achieve not how) and **process management** (measured as process capability)
- Capability **Level 1** achievement means (somehow) achieving **purpose and outcomes**
- From **level 2 to level 5** – increasing effectiveness of **process management**
- Recognition of management features (capability levels and attributes) **common to all process**
- **Embedded process reference model** (TR part 2) with definition of “Purpose” and “Outcomes”
- Strongly related to ISO/IEC 12007 processes but with some differences
- ISO/IEC 12207 is a mixture of levels for the different processes
- Exemplar Process Assessment Model (TR part 5) provided **indicators** to determine level of capability during assessment

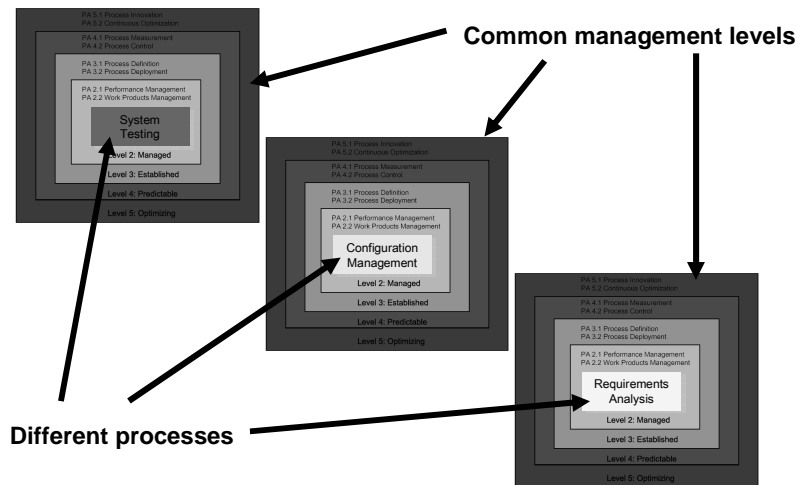
Summary of the Levels and Attributes



Process Capability Levels



Common Management Levels

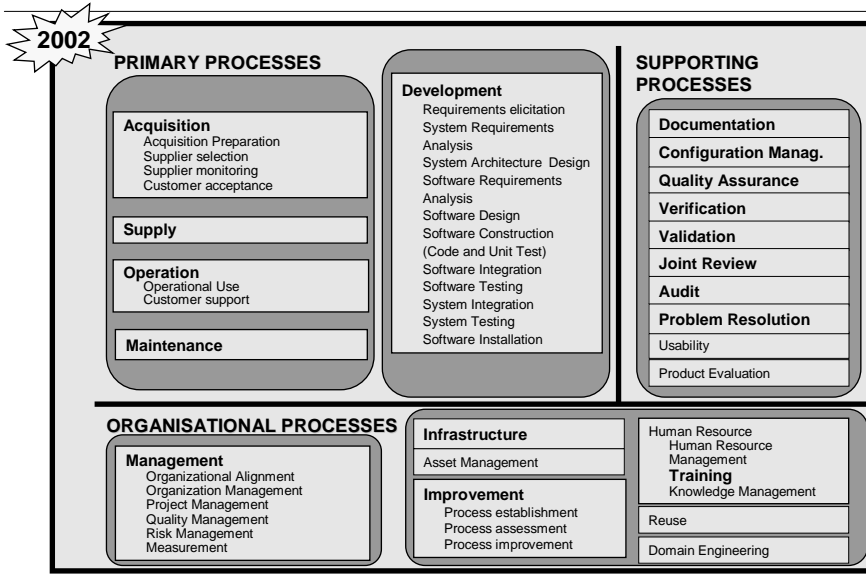


Issues raised from trials

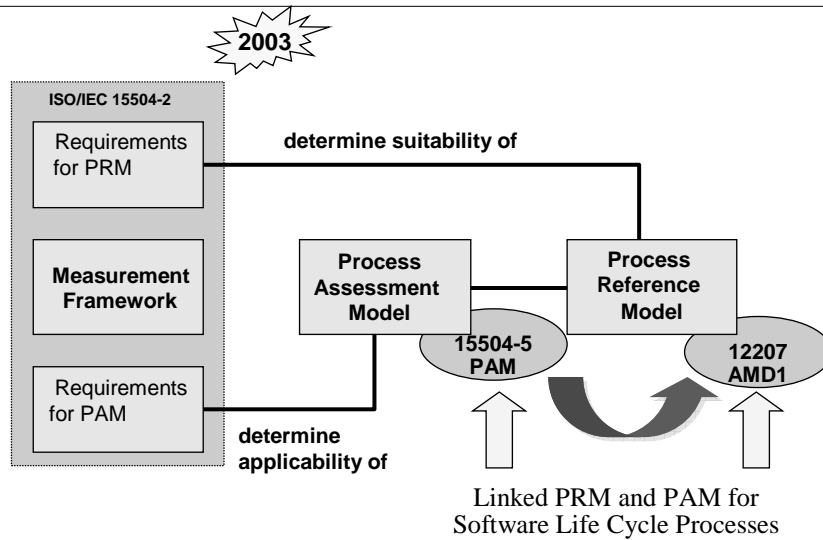


- Standard users confused about different models for software lifecycle processes
- Lack of harmonization between 12207 and 15504
- Decision to revise and publish as IS after 3 years of trials of 15504 TR
- Agreement reached between WG 7 (12207) and WG 10 (15504) on harmonization approach:
 - Amendments (AMD1 and AMD2) to 12207 to include a Process Reference Model (PRM) with "purpose" and "outcomes" suitable for use with 15504
 - 15504-2 to remove embedded PRM and define requirements for "external" PRMs and PAMs
 - 15504-5 to provide an exemplar Process Assessment Model (PAM) based on 12207 PRM (AMD1)
- Debate on who should define/approve PRMs/PAMs:
 - Only ISO/IEC (eg. 12207 AMD) vs open market approach (eg. Automotive SPICE)
 - Decision - OK for open market but need to demonstrate and document consensus by a user community

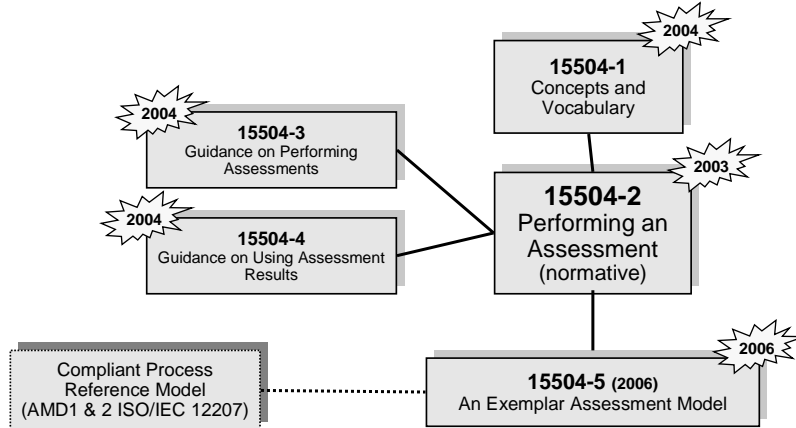
Process Reference Model – 12207 AMD1



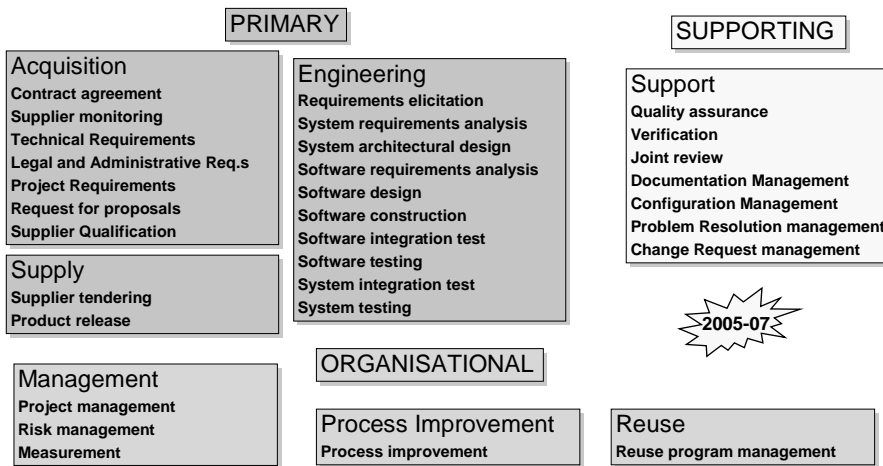
ISO/IEC 15504 International Standard



Structure of ISO/IEC 15504 (IS)



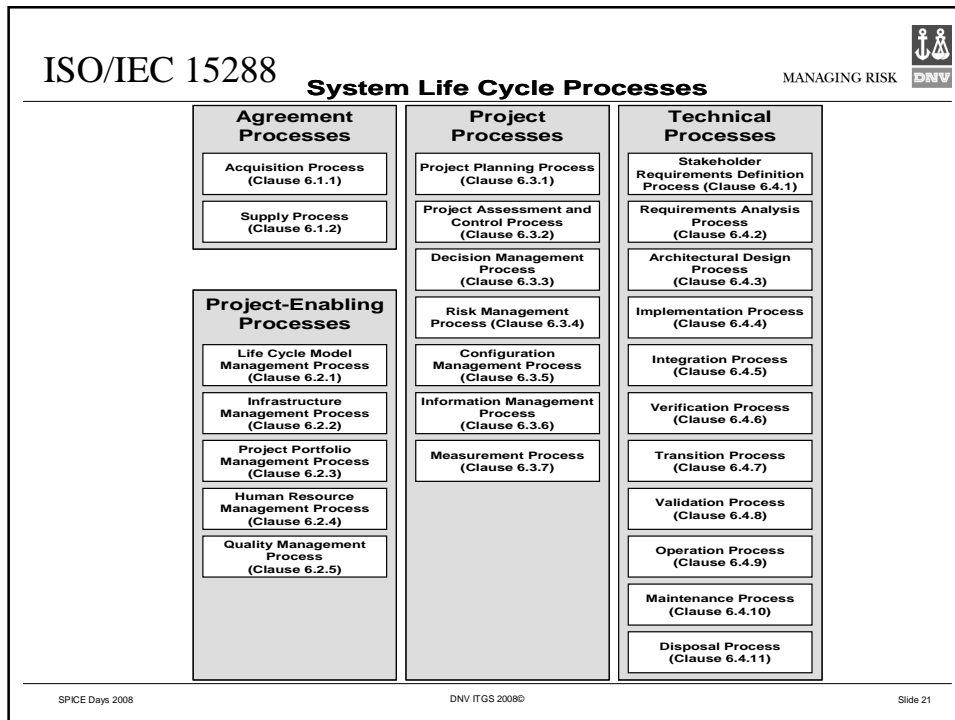
Automotive SPICE - Process Reference Model



Downloadable from <http://www.automotivespice.com/web/download.html>

Automotive SPICE™ Process Assessment Model (PAM) RELEASE v2.3 - 5 May 2007

Automotive SPICE™ Process Reference Model (PRM) RELEASE v4.3 - 5 May 2007



Example process from ISO/IEC 15288



6.2.4 Human Resource Management Process

6.2.4.1 Purpose

The purpose of the Human Resource Management process is to ensure the organization is provided with necessary human resources and to maintain their competencies, consistent with business needs.

This process provides a supply of skilled and experienced personnel qualified to perform life cycle processes to achieve organization, project and customer objectives.

6.2.4.2 Outcomes

As a result of the successful implementation of the Human Resource Management Process:

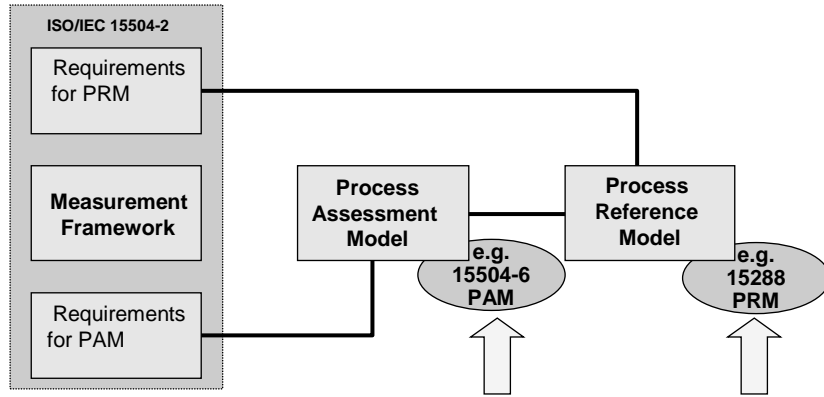
- Skills required by projects are identified.
- Necessary human resources are provided to projects.
- Skills of personnel are developed, maintained or enhanced.
- Conflicts in multi-project resource demands are resolved.
- Individual knowledge, information and skills are collected, shared, reused and improved throughout the organization.

6.2.4.3 Activities and Tasks

The organization shall implement the following activities and tasks in accordance with applicable organization policies and procedures with respect to the Human Resource Management Process:

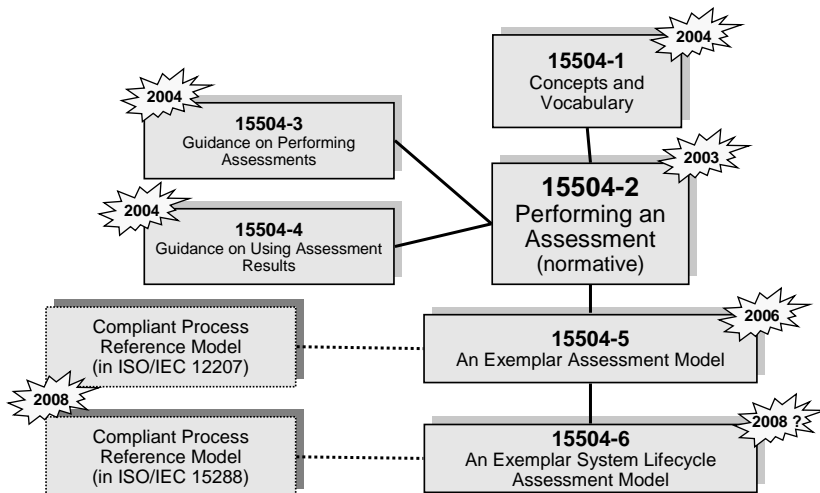
- Identify Skills.** This activity consists of the following tasks:
 - Identify skill needs based on current and expected projects.
 - Identify and record skills of personnel.

ISO/IEC 15504 applied on 15288



Linked PRM and PAM for **System Life Cycle Processes**

Structure of ISO/IEC 15504 (in 2008)





2008

PRM
Process
Reference
Model

■ **Process purpose**

- The purpose of the process is stated in a paragraph that describes at a high level the overall goal for performing the process

■ **Outcomes**

- An outcome is an observable result of the successful achievement of the purpose of the process.

**Conformity
Requirements**

■ **Activities**

- The Activities attribute is used to provide a structural decomposition of a process for implementation purposes

Sector / Domain Based
Process Reference and Assessment Models



Component Based Development

OOSPICE

SPACE



SPICE 4 SPACE
European Space Agency

AUTOMOTIVE



AUTOMOTIVE SPICE
Procurement Forum / SPICE UG

BANKING 



BANKING SPICE
CRP Henri Tudor / SPICE UG

MEDICAL DEVICE 



MEDISPICE
SPICE User Group

ENTERPRISE 



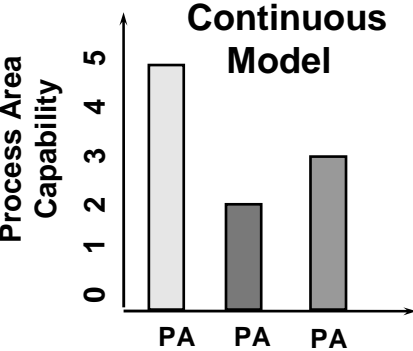
ENTERPRISE SPICE
Federal Aviation Administration (FAA)
SPICE UG

Recent developments in ISO/IEC 15504

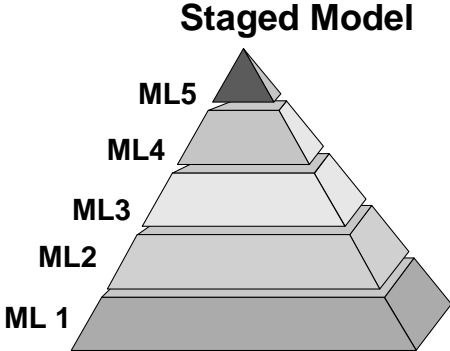


Organizational Maturityet cetera

Process Assessment Models in CMMI

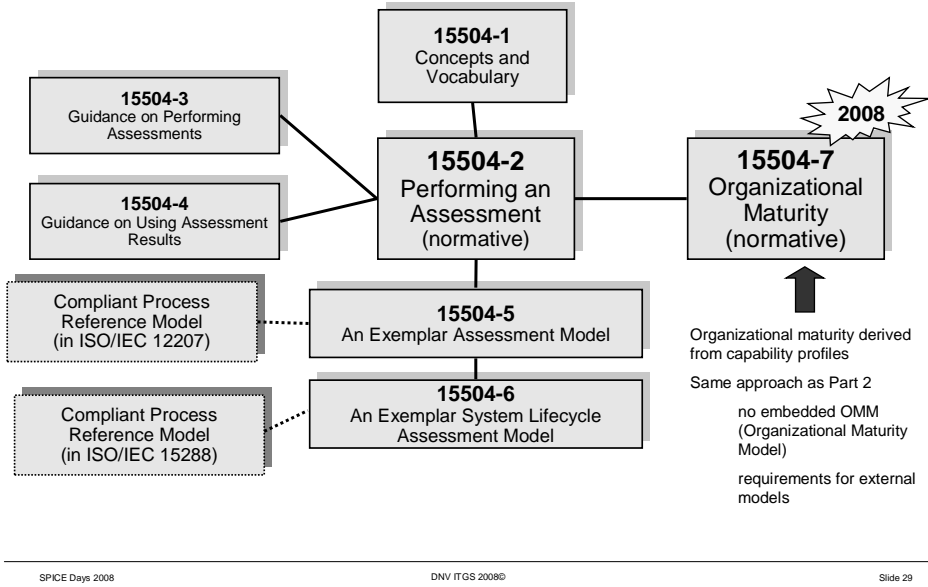


...for a single process or Process area



...for an established set of process areas across an organization

Organizational Maturity in ISO/IEC 15504



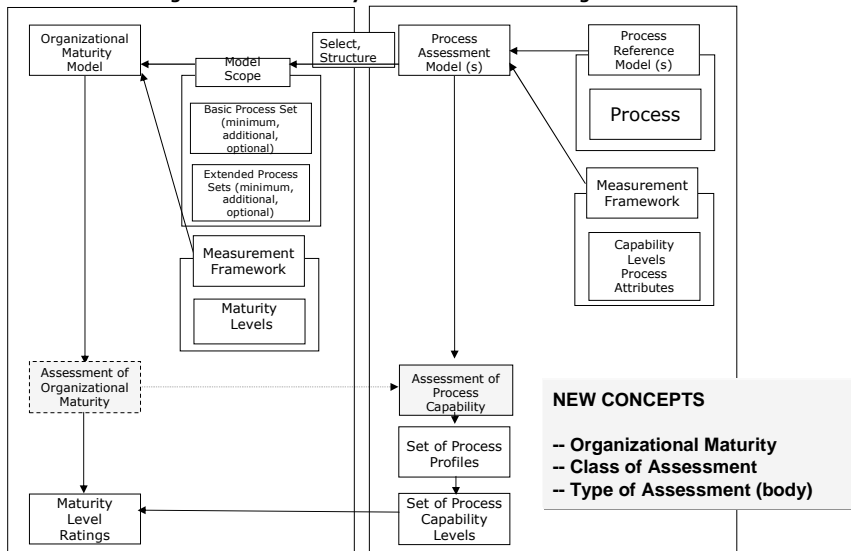
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Assessment of Organizational Maturity

Part 7 Assessment of Organizational Maturity Part 2 Performing an Assessment

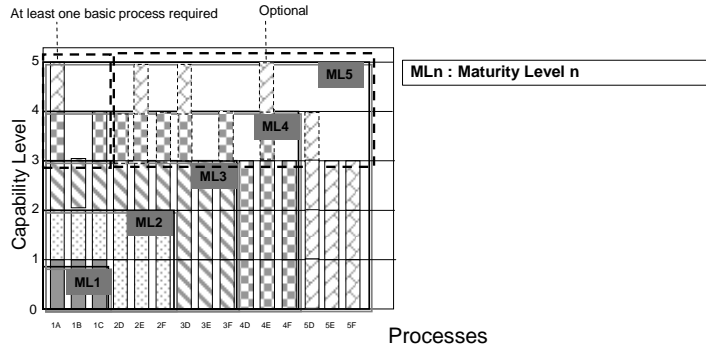


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Deriving Maturity Levels from Capability Levels

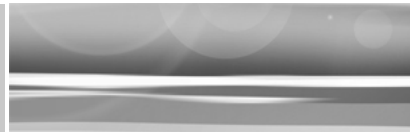


Process Categories

Basic Process set	
1A :	Level 1 Maturity minimum set of processes
1B :	Level 1 Maturity Additional processes that are required
1C :	Level 1 Maturity Additional processes that are optional
Extended Process sets	
nD :	Level n Maturity minimum set of processes
nE :	Level n Maturity Additional processes that are required
nF :	Level n Maturity Additional processes that are optional

Staged Model

Brief overview of IT Service Management models & standards



From ITIL to ISO/IEC 20000

ITIL – Brief History

- ITIL = Information Technology Infrastructure Library
- UK Government initiative launched in 1989
- A set of publications documenting best practices in IT Service Management
- itSMF – Service Management Forum
 - International organization formed in 1991
 - Supports the development and promotes the use of ITIL
 - 46 national chapters
 - Over 6.000 member companies and 70.000 individual members
- Qualification schema for personnel managed by accredited training organizations and examination bodies

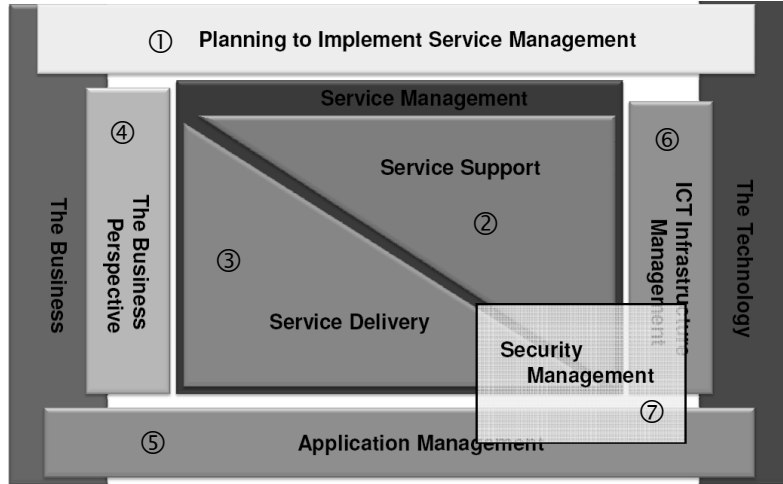
The ITIL V.2 Books

1. Planning to Implement Service Management
2. Service Support
3. Service Delivery
4. The Business Perspective
5. Application management
6. ICT Infrastructure Management
7. Security Management
8. (Software Asset Management)

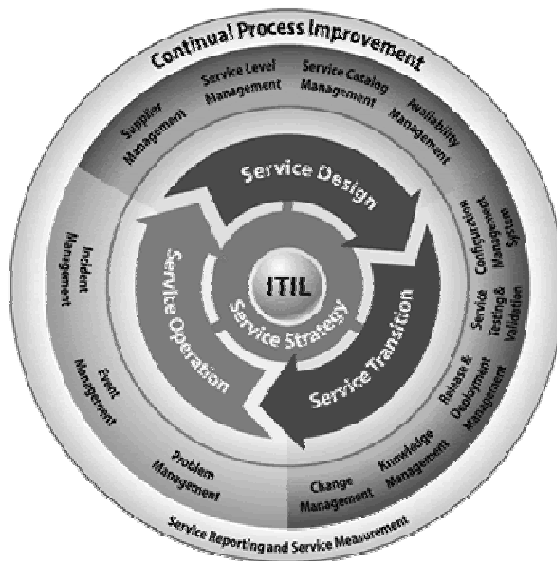
Service Management Processes



ITIL V.2



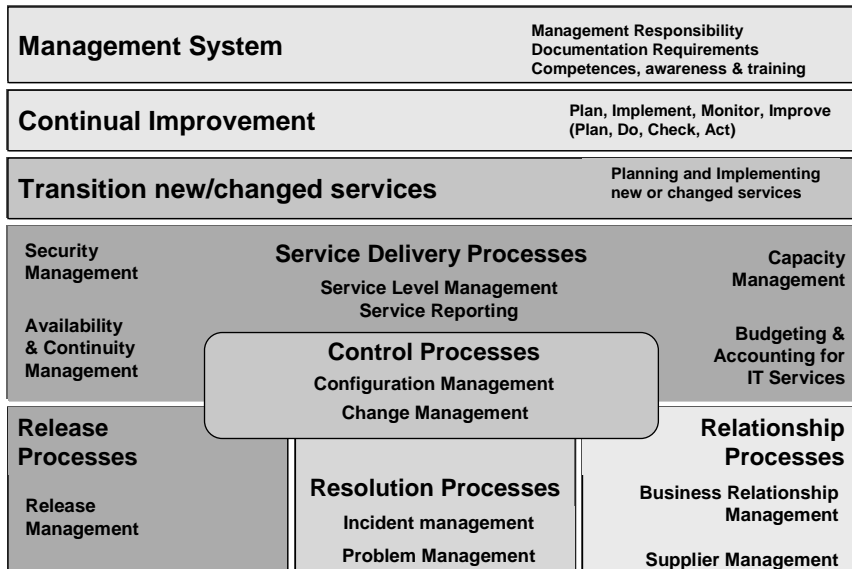
ITIL V.3 – released in 2007



From BS 15000 to ISO/IEC 20000

- itSMF requested BSI to develop a standard based on ITIL
- BS 15000 was first published in 2000 as a specification
- BS 15000 revised in 2002 as a Service Management System with two parts:
 - BS 15000-1:2002 – Specification for Service Management.
 - BS 15000-2:2003 – Code of practice for Service Management
- Well accepted even outside UK - BSI requested ISO to fast track BS15000 into an International Standard
- BS 15000 becomes ISO/IEC 20000 (2005) - standard assigned to SC7 WG25
- Certification schema for ISO/IEC 20000 managed by itSMF as an accreditation body (<http://www.isoiec20000certification.com/>)
- Fast tracked version maintained same structure of BS 15000 with only minor changes:
 - ISO/IEC 20000-1:2005 Information technology - Service management - Part 1: Specification
 - ISO/IEC 20000-2:2005 Information Technology - Service management - Part 2: Code of practice

ISO/IEC 20000-1 – Structure & Content



Current developments of ISO/IEC 20000

- 2006 - New SC7 project initiated in to revise ISO/IEC 20000 for:
 - Further alignment with other management system standards (ISO 9001, ISO/IEC 27001)
 - Harmonization with other SC7 standards and vocabulary
 - Addition of new part on scope and applicability (starting from an itSMF base document)
- 2007 - Strong debate on how to achieve harmonization with other SC7 standards:
 - Rewrite of process definitions in part 1 to create a Process Reference Model (like 12207 and 15288) – believed to be too radical
 - Necessity to maintain it as a Management System Standard not a Service processes standard
 - Agreement on the creation of a Service Process Reference Model as an additional document (part 4)
 - Agreement with WG 10 to create a Process Assessment Model as an additional part of ISO/IEC 15504 (part 8)

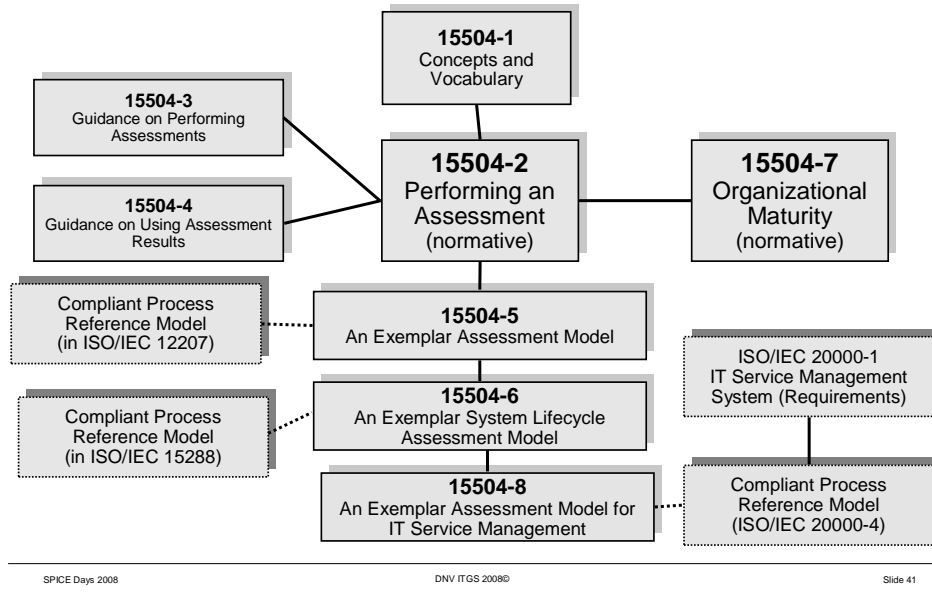
Assessing IT Service Management Processes



Putting ISO/IEC 15504 & ISO/IEC 20000 together

ISO/IEC 15504 for IT Service Management

MANAGING RISK



Contribution from National Bodies and private industries

MANAGING RISK



Several Process Reference Models and Process Assessment Models developed worldwide were offered as contribution to the development of the new standards PRM/PAM for IT Services

- Austria-Germany (Nehfort IT-Consulting KEG)
- Finland (FISMA)
- Germany-Italy (DNV ITGS)
- Luxembourg (Centre Henri Tudor)
- South Africa (National Body)
- USA (IBM PRM-IT)

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ISO/IEC 20000-4 - Process Reference Model

PRIMARY processes

Service Delivery Group
SDE.1 Service Level Management
SDE.2 Service Reporting
SDE.3.1 Service Continuity Management
SDE.3.2 Service Availability Management
SDE.4 Budgeting and Accounting of IT services
SDE.5 Capacity Management
SDE.6 Information Security Management

Control Group
CON.1 Configuration Management
CON.2 Change Management

Resolution Group
RES.1 Incident Management
RES.2 Problem Management

Relationship Group
REL.1 Business Relationship Management
REL.2 Supplier Management

Release Group
RLS.1 Release Management

**Berlin agreement
May 2008**

MANAGEMENT SYSTEM Processes

Management Group
MAN.1 Management System Establishment and Maintenance
MAN.2 Management System Improvement
MAN.3 Audit
MAN.4 Human Resource Management
MAN.5 Risk Management
MAN.6 Documentation Management

**Planning and Implementing New or
Changed Services**
PLA.1 Planning and Implementing New or Changed Services

Service & Process Improvement Group
PIM.1 Process Improvement
PIM.2 Service Improvement

ISO/IEC 20000 - revision

Information Technology – Service Management

- Part 1: Specification/Requirements (normative)
- Part 2: Guidelines for implementation (of part 1)
- Part 3: Guidance for the scoping and applicability of ISO/IEC 20000-1
- Part 4: Process Reference Model (*)
- Part 5: Incremental conformity based on ISO/IEC 20000-1

Plans for publications

- Part 1 - Currently WD 4
 - going for CD registration and ballot in second semester 2008
 - Estimated time for publication 2010
- Part 2 – Currently WD 1
 - Delayed until part 1 becomes more stable
- Part 3 (TR) – Currently passed first CD ballot
 - based on ISO/IEC 20000-1:2005
 - will go for a DTR by end of the year
 - publication expected 2009
- Part 4 (TR) – Currently WD 1
 - **TR - based on ISO/IEC 20000-1:2005**
 - Will circulate for PDTR ballot in second semester 2008
 - Publication expected late 2009
 - Revision within 3 years to align with revised part 1

- ISO/IEC 15504-8 (PAM) will follow soon after (2010 ?)

The future of the standard ISO/IEC 15504

- Part 1 - Concepts and Vocabulary
- Part 2 - Performing an Assessment
- Part 3 - Guidance on performing an assessment
- Part 4 - Guidance on use for process improvement and process capability determination
- Part 5 - An exemplar Process Assessment Model (*for sw life cycle*)
- Part 6 - An exemplar System Life Cycle Process Assessment Model
- Part 7 - Assessment of Organizational Maturity
- Part 8 – An Exemplar Assessment Model for IT Service Management (WD)
- Part 9 – Target process profile (WD)
- *NWIP (new work item proposal – plenary 2008) – “The application of conformity assessment methodology to process capability and organizational maturity”*

Conclusions



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The acronym remains the same

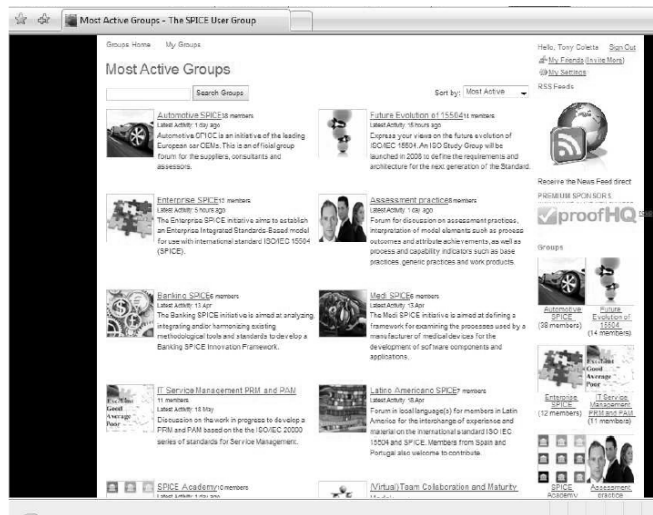
SPICE = Software Process Improvement and Capability dEtermination

SPICE = System Process Improvement and Capability dEtermination

SPICE = Service Process Improvement and Capability dEtermination

www.spiceusergroup.org

Free membership
Social networking
Latest news
Forum
Groups
Information



The SPICE Academy

- Modeled on the French and Swedish Academies.
- A body of learned persons whose established opinion is widely accepted as authoritative in the field.
- The Academy's overall objectives are to:
 - Promote the consistent implementation of the standard
 - Co-ordinate industry trials and/or benchmarking of the standard.
 - Promote the technology transfer of process assessment to the industry
 - Support an environment which encourages worldwide recognition of conformity assessment results
 - Provide model interpretations of process outcomes and indicators
 - Initiate and support sector and regional initiatives
 - Encourage, acknowledge and recognize advocates in the field
 - Establish various prizes and awards for (lifelong) achievement in the field
 - Define assessor competencies and maintain assessor training syllabi as the basis for use by assessor competency schemes

SPICE Academy



Academy



Chair



President



Collaboration Infrastructure



Members



Advocates



Initiatives



Regions

Thank you

