Standards

Why standards?

- Quality
- Shared communication
- Shared understanding
- Influence, from understanding to creation/development
- Profit
- Collaboration
- Reputation
- Regulation (assurance)
- Flexibility

Importance

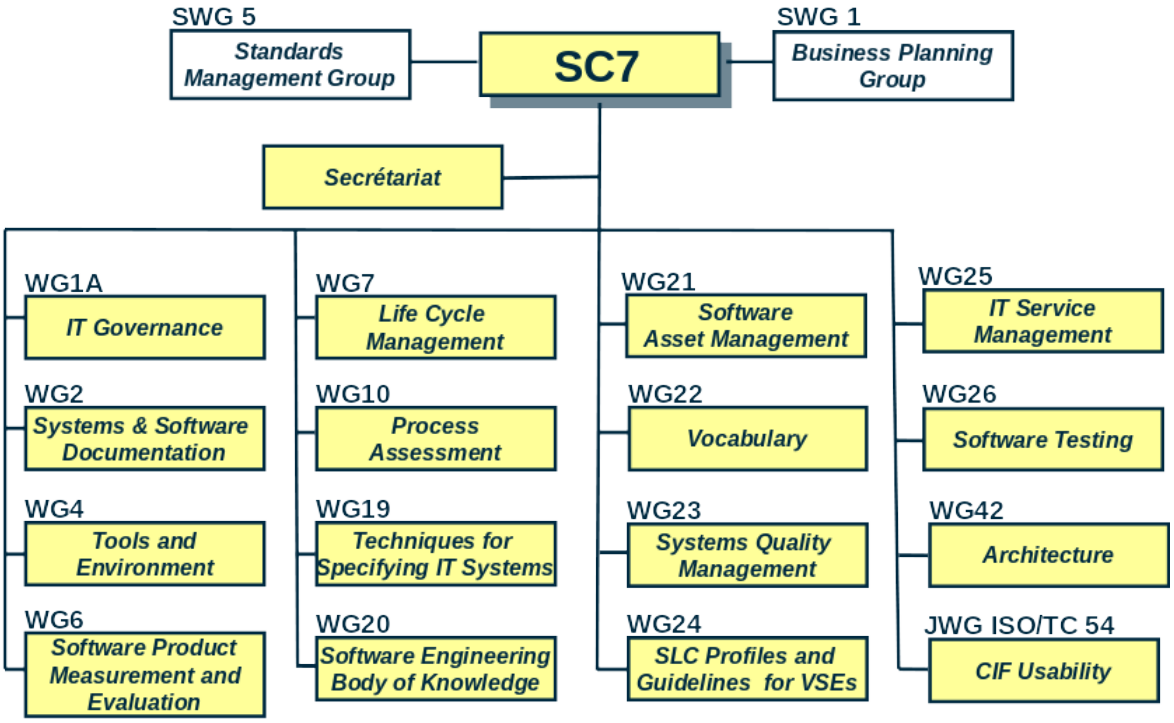
- They encapsulate best practice (normally)
- Framework for QA
- Provide continuity
  - Record of decision making process
  - Organisational memory
  - New staff save time

Issues:

- Standards are considered too large, unwieldy and difficult to adopt for SMEs
- Focus is on large organisations
- Concerns over cost and documentation
- Difficult to justify

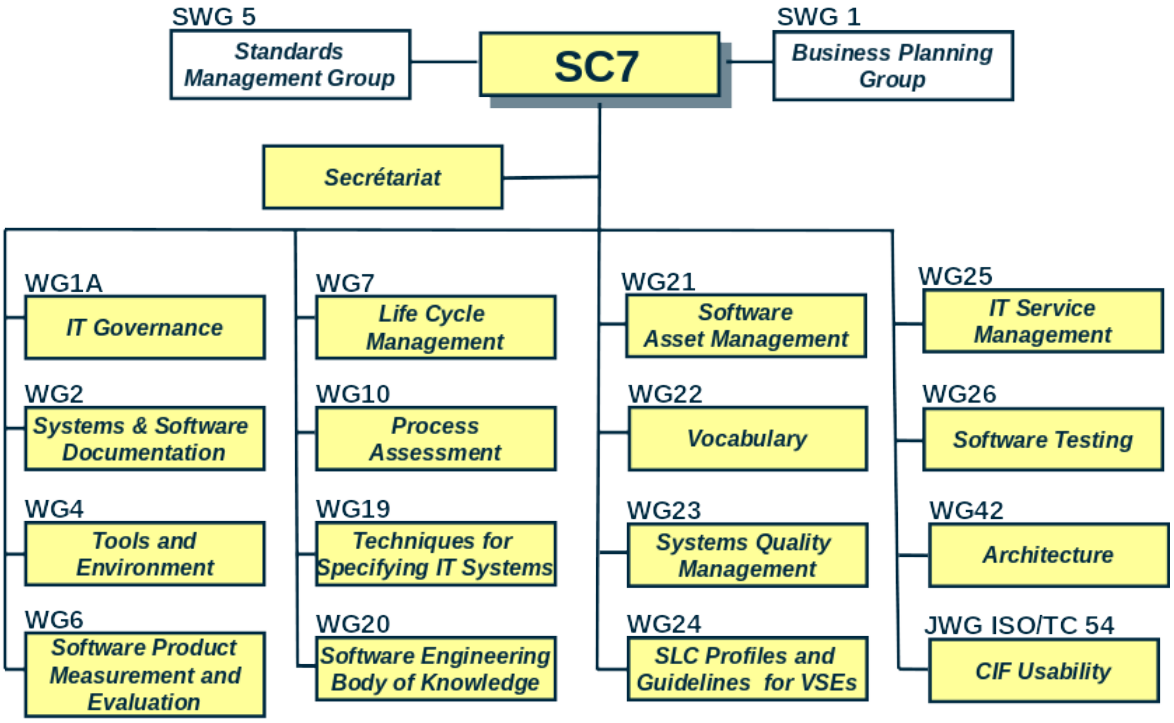
1 ISO SC7

1.1 Structure



‡ Adapted from Prof. M. Azuma

1.2 Domains



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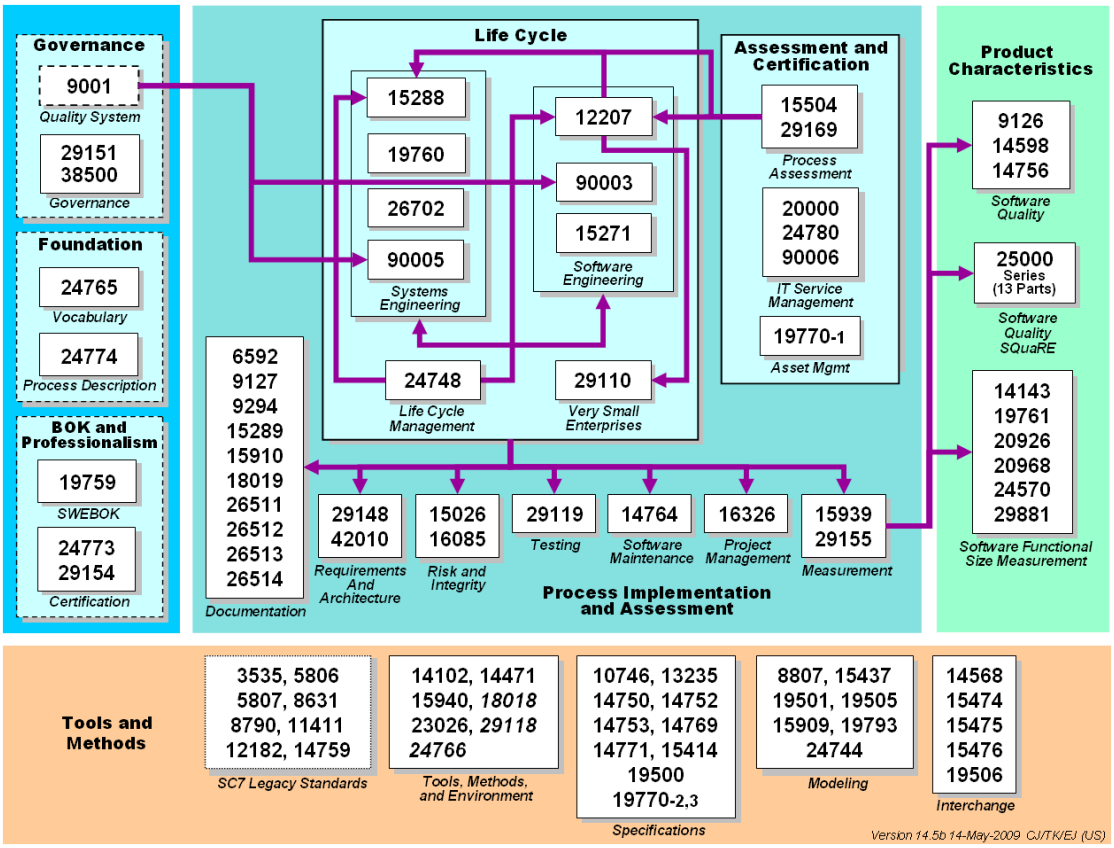
1.3 Standards



Standards of particular interest

- ISO 9000, family of standards for quality management systems
- ISO 12207, defines the software engineering process, activity, and tasks that are associated with a software life cycle process from conception through retirement
- ISO 15504, also known as SPICE (Software Process Improvement and Capability Determination), is a framework for the assessment of processes

2 ISO 9000

QSM:

- ISO9001 – QSM for Quality Assurance in design, development, production, installation and service
- ISO9002 – QSM for Quality Assurance in production, installation, and servicing
- ISO9003 – QSM for Quality Assurance in final inspection and test

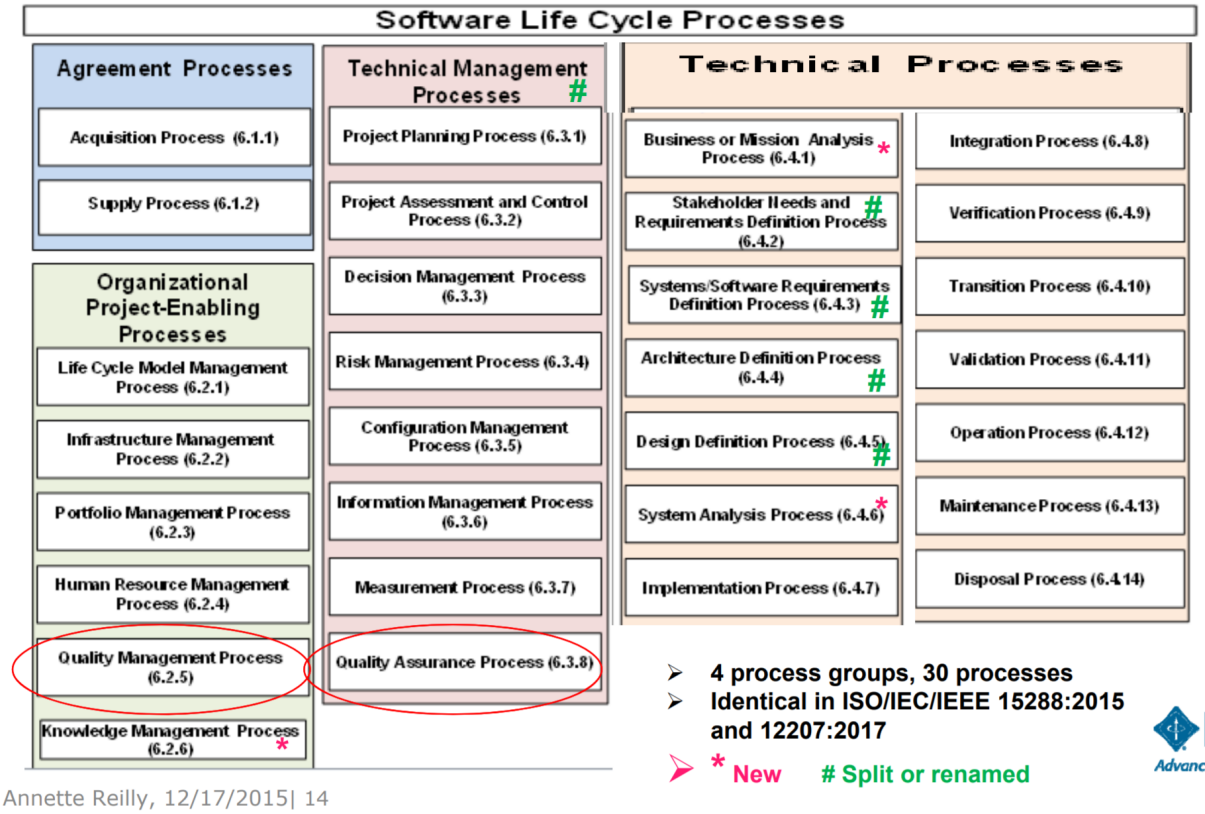
Quality: refers to all features of a product (such as software) which are required by a customer

Quality management: covers the organisations approach to ensuring that it produces quality products and complies with the appropriate regulations

3 ISO 12207

- Created to supply a common structure so that the buyers, suppliers, developers, maintainers, operators, managers and technicians involved with the software development use a common language
- It is the standard that defines all the tasks required for developing and maintaining software
- Created in '95, last updated in '17 (ISO 12207:2017)
- Covers the process in the life cycle of software:
  - High level process architecture
  - Activities and tasks
  - Tailored for any organization or project (inc. SME et al)
  - An 'inventory' of processes from which to choose
- This standard does not create a standardised way to create a product
- It is not prescriptive
- Nor does it advocate or enforce a standardised methodology

3.1 ISO 12207:17



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4 Process Implementation

- Define or select software life cycle model appropriate to the scope, magnitude, and complexity of the project;
- Select, tailor, and use standards, methods, tools, and programming languages (if not stipulated in contract);
- Develop plans for conducting the activities of the Development process.

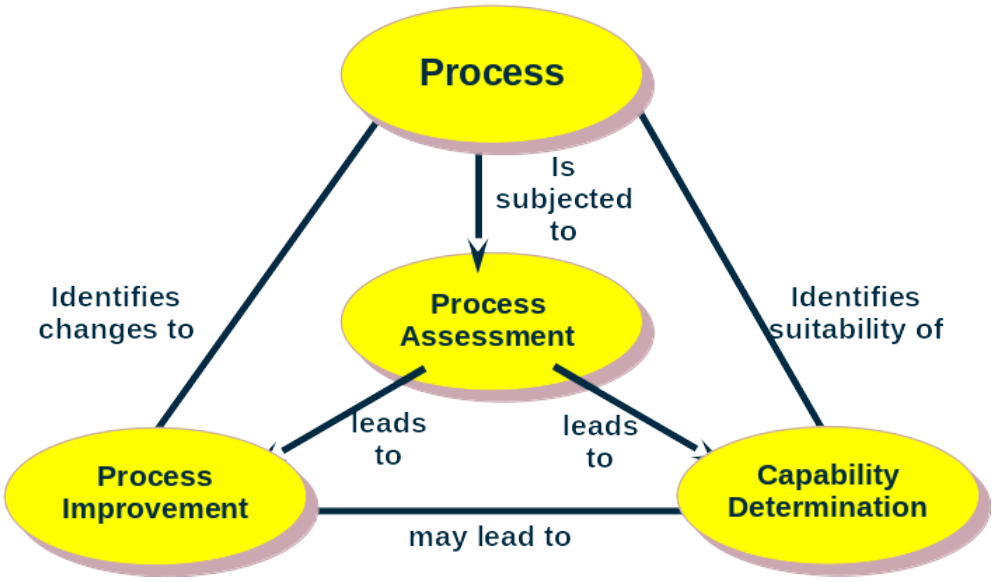
5 ISO 15504

Process assessment: What is it?

- A disciplined examination of the processes by an organisation against a set of criteria to determine capability of those processes to perform within quality, cost and schedule goals
- Focus here is on continual, self-improvement

Why bother?

- Identify strengths and weaknesses in current utilisation of processes
- Ongoing development of systems, maturity and growth
- Feeds into the future


Process
Is subjected to
Identifies changes to
Process Assessment
Identifies suitability of
leads to
leads to
Process Improvement
Capability Determination
may lead to