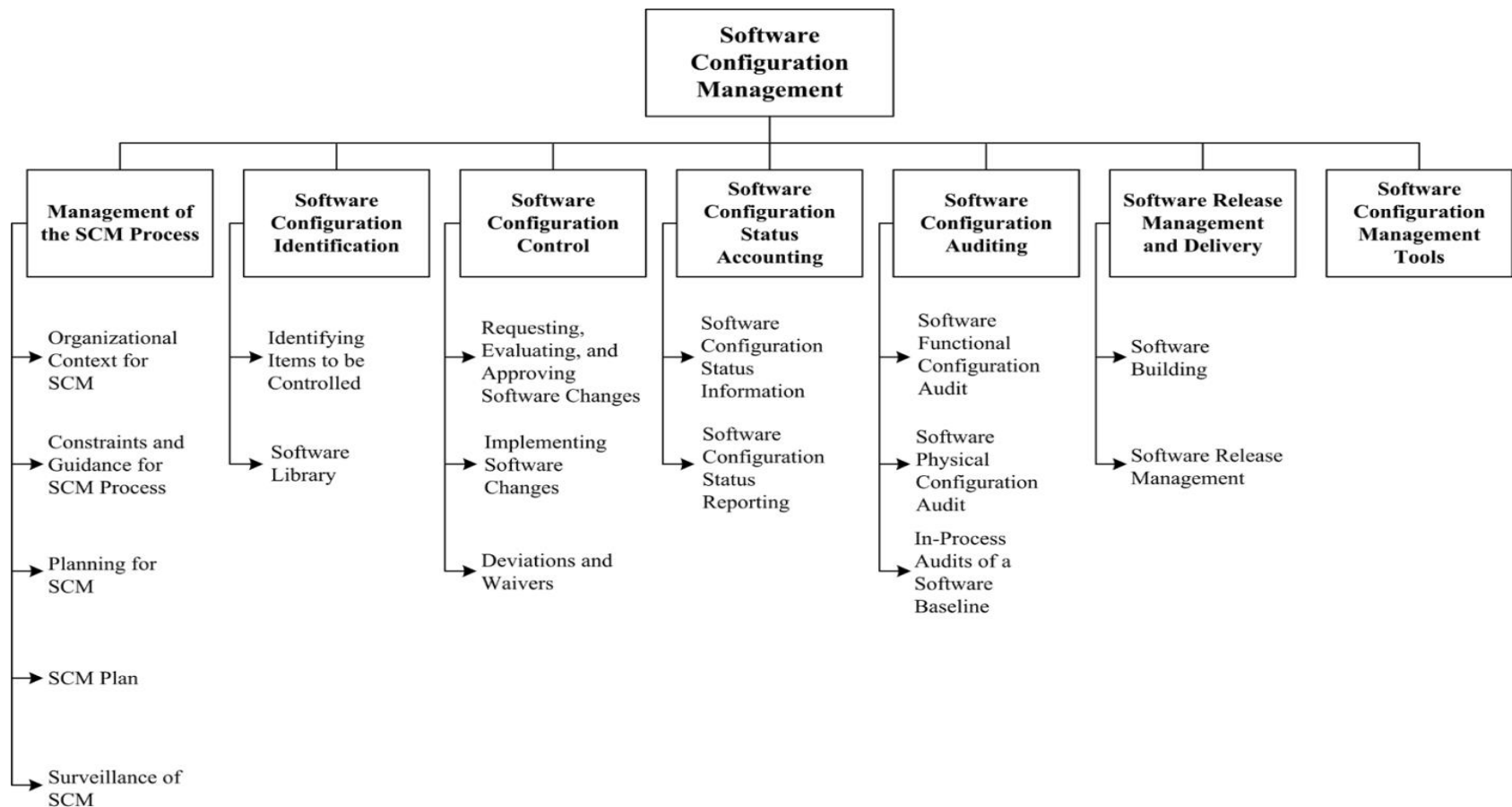


# SOFTWARE PROJECT & CONFIGURATION MANAGEMENT MANP 1433

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# SCM Activities

- There are 7 activities based on SWEBOK V3:



# Course Contents

- Software configuration auditing
- Software release management and delivery
- Creating usage model using configuration management tool

# Software configuration auditing

- Authorized procedures to ensure the product's accuracy.
- It helps to make sure the software product is as specified by the system requirement.
- Verify and validate (formal reviews/inspections) all sources files and documents.

# Software configuration auditing

- Independent examination of a work product/set of work products to assess compliance with
  - Specifications
  - Standards
  - Contractual agreements, etc
- Audits follow a well-defined process consisting of various auditors roles & responsibilities.
- An audit may need a few people to perform a variety of tasks over a short period of time.

# Software configuration auditing

- Use of tools helps to support planning & conduct of an audit.
- Software configuration auditing determines the extent to which an item satisfies the required functional and physical characteristics.
- 2 types of formal audits might be required by the governing contract.
- Successful completion of the audits can be prerequisite for the establishment of the product baseline.

# Software configuration auditing

- Functional Configuration Audit (FCA)
  - Check that the configuration of the CSCI is compliant with all the requirements of its development baseline
- Physical Configuration Audit (PCA)
  - Check that the configuration of the CSCI is compliant with the documentation defining it and that the latter is complete and consistent
- In-Process Audits of a Software Baseline
  - Check to ensure performance is consistent with specifications or the evolving documents are consistent with the developing baseline item.

# Software Release Management & Delivery

- Software Building
- Software Release Management



# Software Building

- Combining the correct versions of CI using appropriate data into executable program for delivery to customer.  
e.g. testing
- Build instructions to ensure proper build steps are executed in the right sequence.
- On top of building software for new releases, SCM must be able to reproduce previous releases for recovery, testing, maintenance or additional release purposes.

# Software Building

- The build process and products are subject to software quality verification.
- Output of build process might be needed for further reference and may become quality assurance records.

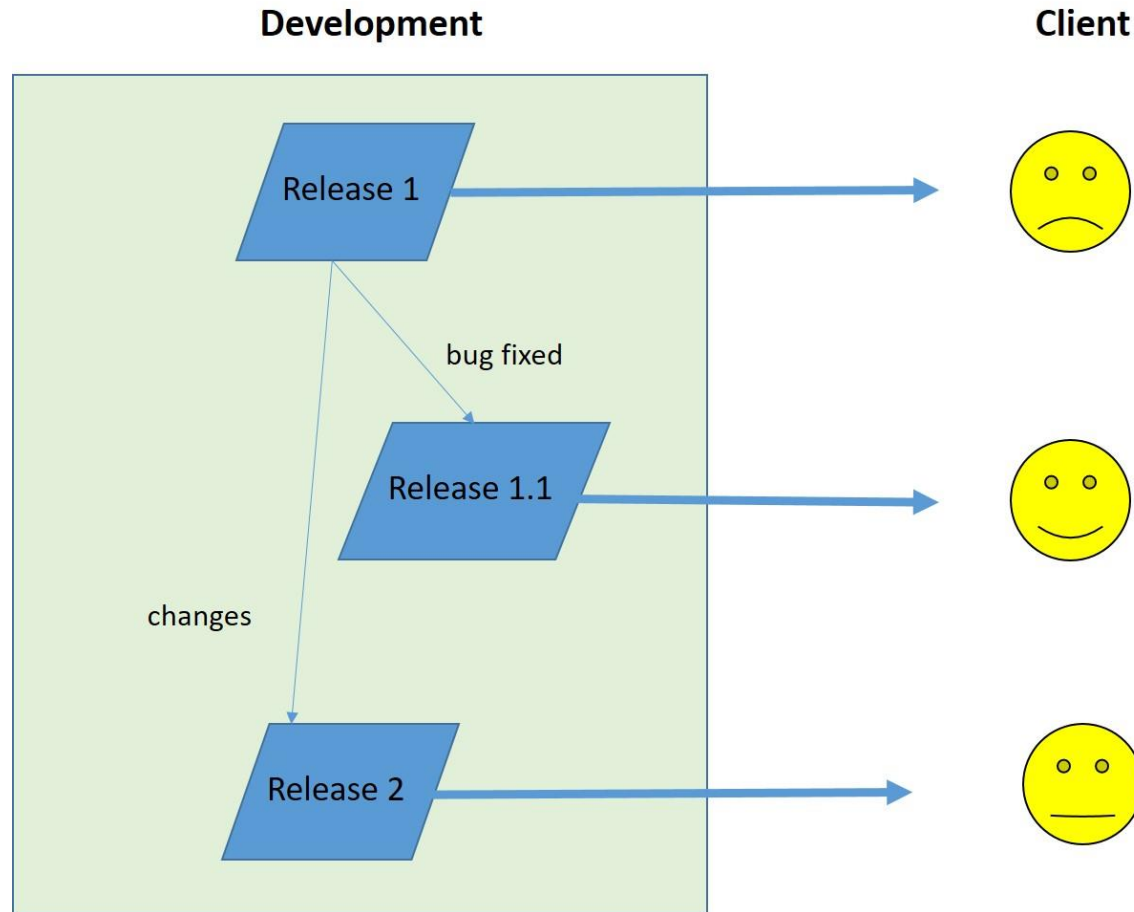
# Software Release Management

- Encompasses the identification, packaging and delivery of the elements of a product. e.g. executable program, documentation, release notes and configuration data.
- The process through which software is made available to and obtained by its users.
- When to issue release?

# Software Release Management

- Version Description Document
  - The information documenting the physical contents of a release.
  - The release notes describe new capabilities, known problems & platform requirements necessary for proper product operation.

# Software Release Management



# Software Configuration Management Tools

- 3 Classes of SCM Tools
  - Individual Support Tools
  - Project Related Support Tools
  - Companywide-process support tools

# Individual Support Tools

- Suitable for small organizations or development without variants in the software product:
  - Version control tools
    - Track, document and store individual CI e.g. source code & external document.
  - Build handling tools
    - To compile & link an executable software version.
  - Change control tools
    - Support the control of change requests and events notification e.g. change request status changes.

# Project-related Support Tools

- To support workspace management for development teams and integrators.
- Suitable for medium to large organizations with variants of their software products.
- Parallel development but no certification requirements



# Companywide-process Support Tools

- Able to automate portions of a companywide process.
- Provide support for workflow managements, roles and responsibilities.
- Can handle many items, data and life cycles.
- Support a more formal development process, including certification requirements.

# Conclusion

- Software configuration management is a strategic practice oriented to products, projects and organization in order to reduce chaos.
- Do not under estimate its importance
- It allows the improvement of product quality, understanding and knowing how it should be implemented in projects.
- Only use tools if proper training is available, policies are well defined and metrics are fully established.