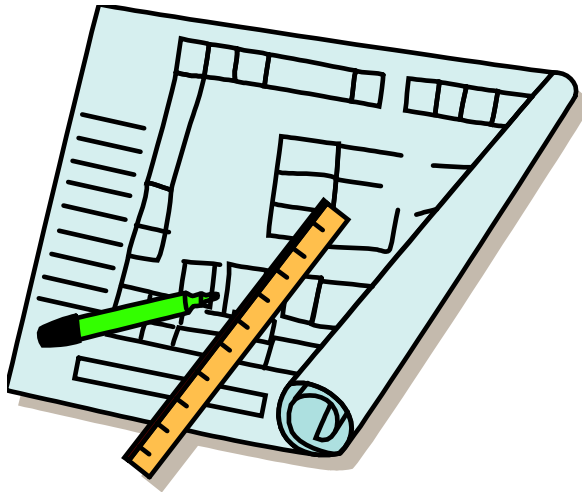


Configuration Management

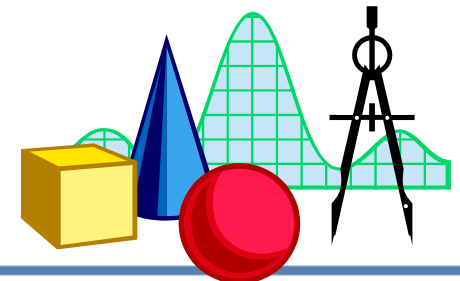


Introductory Presentation

October 2010

Introduction

- **The Aerospace Standards (e.g. 9100:2009) call for the implementation of Configuration Management and documents control throughout the entire life cycle of product realization.**
- **Configuration Management establishes a language of understanding between the customer and the supplier both in predefined relationship (such as Built to Print) and those in which the supplier is given some freedom (such as Built to Spec).**



Introduction (cont'd)

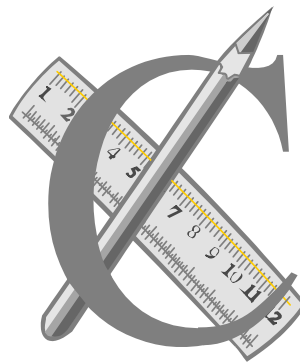
- **When Configuration Management principles are applied using effective practices, return on investment is maximized, product life cycle costs are reduced and the small investment in resources necessary for effective Configuration Management is returned many fold in cost avoidance.**
- **This presentation will introduce the basic ideas on the industry needs, benefits to the implementing organization and describe Configuration Management functions, processes and principles.**

Table of Contents:

- 1. What is “Configuration”**
- 2. Configuration Management**
- 3. CM Functions and Principles**
- 4. Program Life Cycle Configuration Progress**
- 5. CM Building Blocks**
- 6. CM tools**
- 7. Summary**

What is "Configuration"

Functional and physical characteristics of existing or planned hardware, firmware, software or a combination thereof as set forth in technical documentation and ultimately achieved in a product



Configuration Management

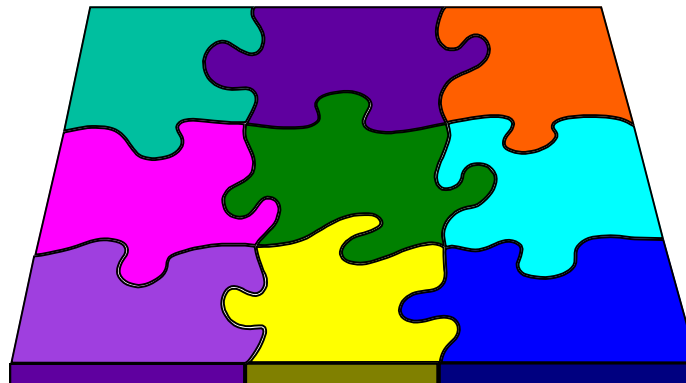
- **Applies appropriate processes and tools to establish and maintain consistency between the product and the product requirements and attributes defined in product configuration information.**
- **Ensures that products conform to their requirements and are identified and documented in sufficient detail to support the product life cycle.**
- **Assures accurate product configuration information and enables product interchangeability and safe product operation and maintenance to be achieved.**

Configuration Management (cont'd)

- **Requires a balanced and consistent implementation of CM functions, principles and practices throughout the product life cycle.**
- **Facilitates orderly identification of product attributes and provides control of product information and product changes used to improve capabilities; correct deficiencies; improve performance, reliability, or maintainability; extend product life; or reduce cost, risk or liability.**

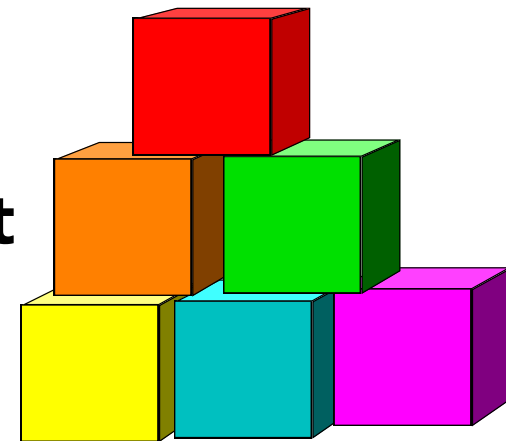
CM Functions and Principles

- **The CM process is comprised of five (5) CM functions and their CM principles that together provide a flexible implementation structure.**
- **The CM process is used to provide consistency between product requirements, product configuration information and product attributes.**



CM Functions and Principles (cont'd)

- **The five CM functions are:**
 - **Configuration Management Planning and Management**
 - **Configuration Identification**
 - **Configuration Change Management**
 - **Configuration Status Accounting,**
 - **Configuration Verification & Audit**



CM Functions and Principles (cont'd)

Configuration Management is a management process assuring that:

- Products conform to the design and documentation governing their development and production**
- Documentation is controlled and reflects the latest, approved version**
- End users will have the capability to maintain and repro cure delivered products**

Configuration Management is like a Cookbook

-

You “must” know the recipe to be repetitive!

**CM PLANNING &
MANAGEMENT**

***Selection,
tailoring,
guidance,
oversight***

**CONFIGURATION
IDENTIFICATION**

***Attributes,
identifiers,
baselines***

***CM
information
& status***

**CONFIGURATION
STATUS ACCOUNTING**

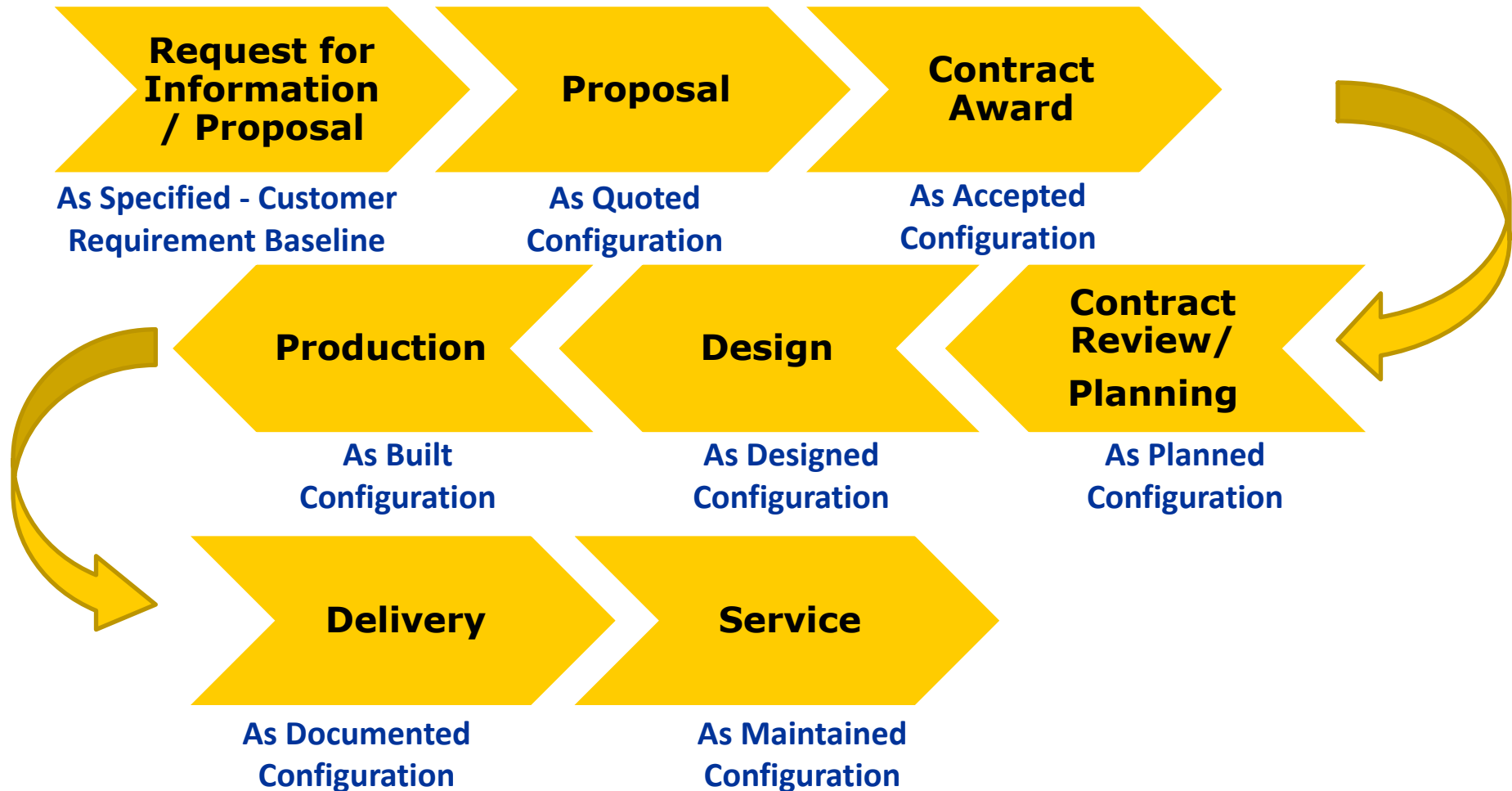
**CONFIGURATION
CHANGE
MANAGEMENT**

***Manage
changes***

***Verify
performance
& consistency***

**CONFIGURATION
VERIFICATION
/AUDIT**

Program Life Cycle Configuration Progress

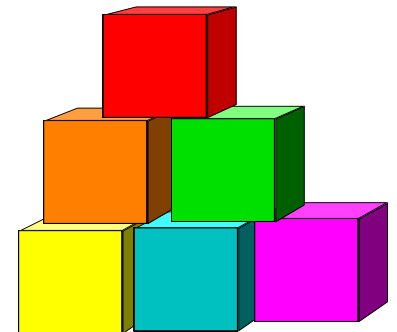


*All that said . . . what, in layman's terms, does a QMS need for **Configuration Management**.*

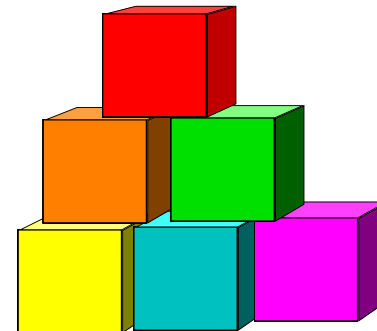
*What are the '**Building Blocks**' of CM ?*

As appropriate and/or required, they are:

- **Design and Development controls, including change control**
- **Document and Data Control, including change control**
- **Manufacturing and Assembly controls, including change controls**



- **Determination of Change incorporation/effectivity**
- **Product Identification and Traceability (including that for components and constituent parts)**
- **Material Identification and Traceability**
- **1st Production Article inspection (“FAI”)**
- **Quality Records Control**

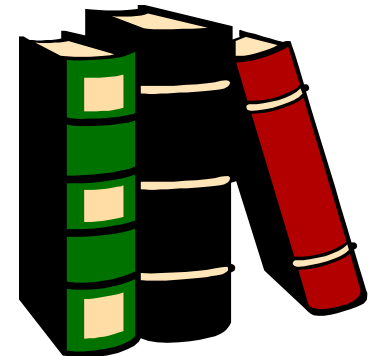


*All that said . . . what, in layman's terms, does a QMS need for **Configuration Management**.*

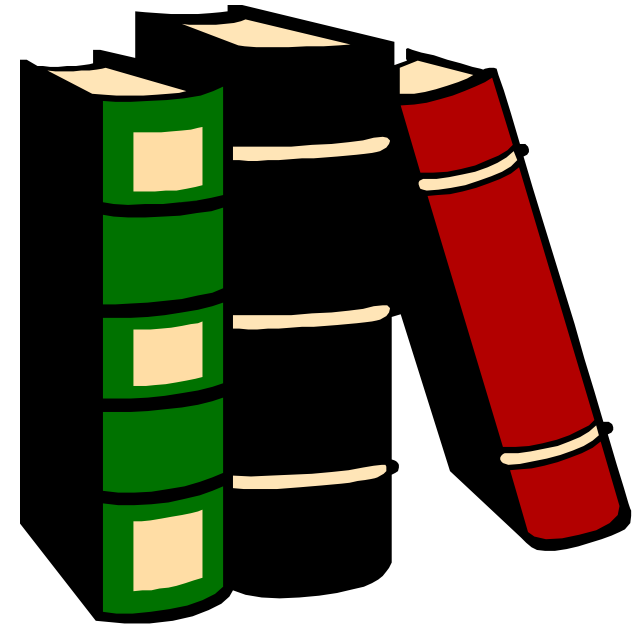
*What are the '**tools**' of CM ?*

As appropriate and/or required, they are:

- **Drawings, specifications**
- **Routers, travellers, work orders**
- **Bills of Material, Where-Used listings**
- **Inspection and 1st Article reports/records**
- **CM process description and written procedures**

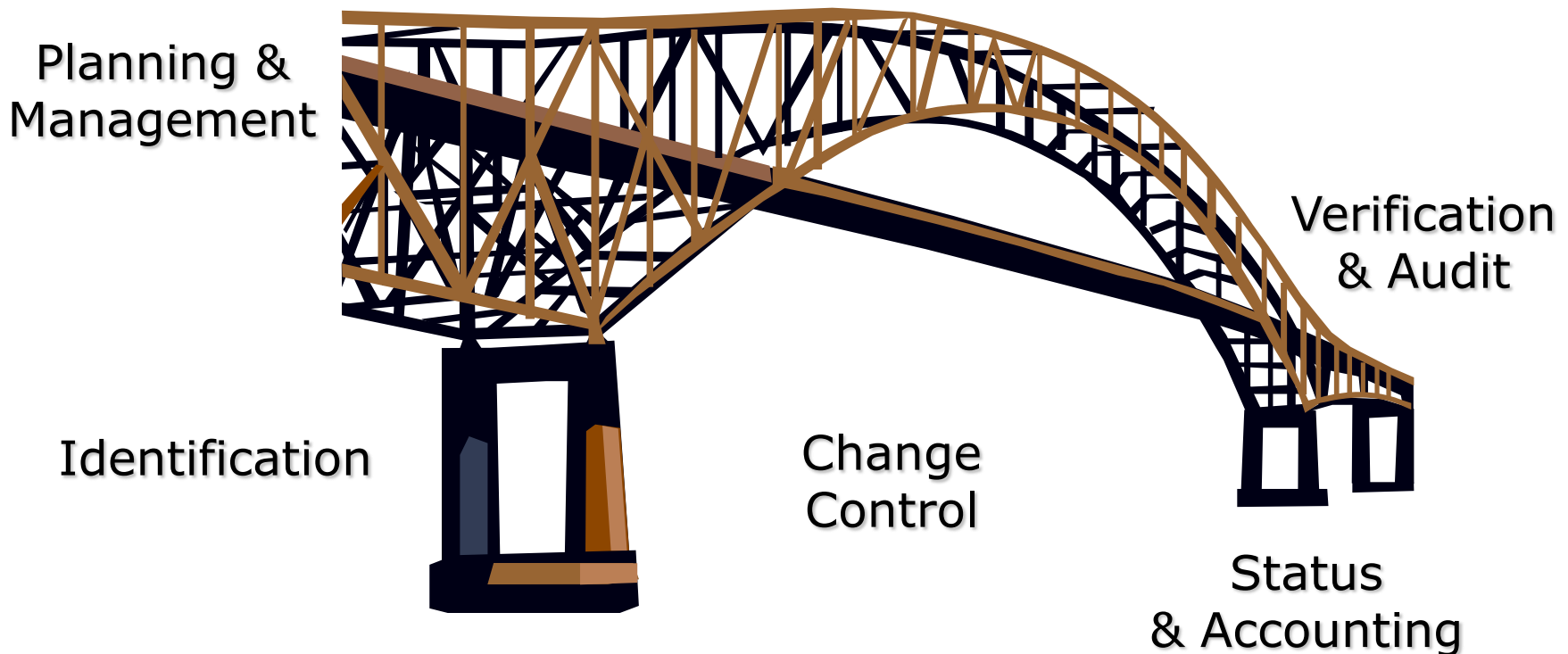


- **Manufacturing, Assembly and Inspection plans**
- **Nonconforming product documents (including concessions, waivers)**
- **Design, Product and Process change requests / notices**
- **Document and Data change requests / notices**



Summary

The Bridge Work is Complete, When All the Functions are Included



Summary (cont'd)

What does CM do for the Provider?

- **Prevents technical anarchy**
- **Avoids trial and error engineering and program management**
- **Avoids embarrassment of customer dissatisfaction and complaint**
- **Captures information needed to make later decisions**
- **Avoids cost and catastrophe!**

Summary (cont'd)

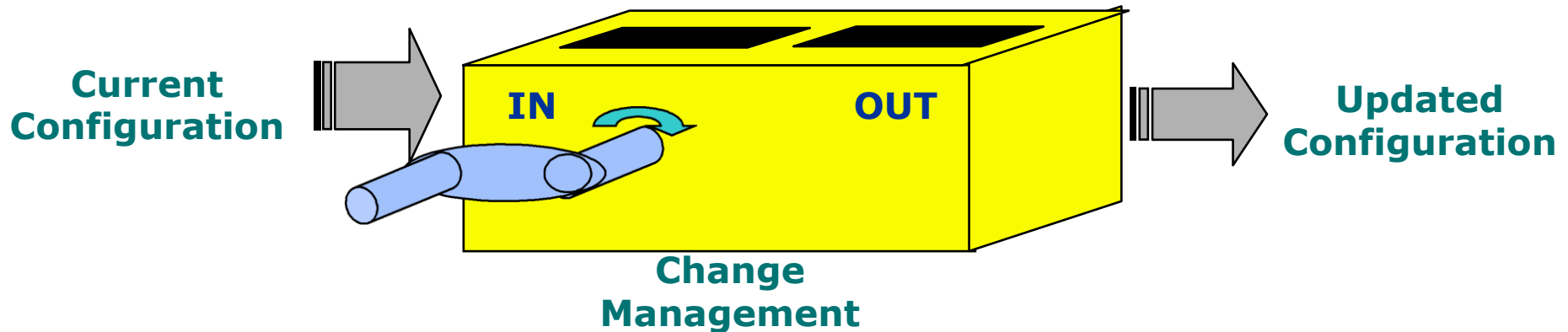
What does CM do for the user?

- **Provides customer choice on changes affecting customer interests**
- **Guarantees continued support of a product, or at least notice of obsolescence**
- **Assures consistency between the product and the information about the product**
- **Enables user and service person to distinguish between product versions and correlate to related instructions**

Summary (cont'd)

Change Requests:

- Improve design
- Increase reliability
- Enhance Maintainability
- Reduce Cost
- Etc.



Controlling changes from idea inception to incorporation in all affected items

- **For detailed Guidelines consult:**

SCMH Chapter 11.3.2

- **Additional reading material:**

- EIA-649-A

- “National Consensus Standard for Configuration Management”

- ISO 10007

- “Quality Management Guidelines for Configuration Management”

- ECSS-M-ST-40

- “Space Project Management – Configuration Management”

- MIL – HDBK-61A

- “Configuration Management Guidance”