

# Designing an Organization's Standard Software Process to meet Multiple Standards

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# Challenges for the SEPG

- ★ **What standards should we meet?**
  - Too many external standards
  - Customer Requirements?
- ★ **How much documentation do we need?**
  - Potential for over documentation
- ★ **What terminology do we use?**
  - Multiple sets of documentation?
- ★ **How do we ensure we add value to the business?**
  - Is the investment justifiable?

# My Journey

## ★ Started with a Business Problem

- Implemented good Project Management, and Software Development practices
- Implemented good Management Practices

## ★ Significant business improvement

- Controlled growth
- Predictable plans

## ★ .... Then asked to meet ISO 9001 and look at the CMM requirements

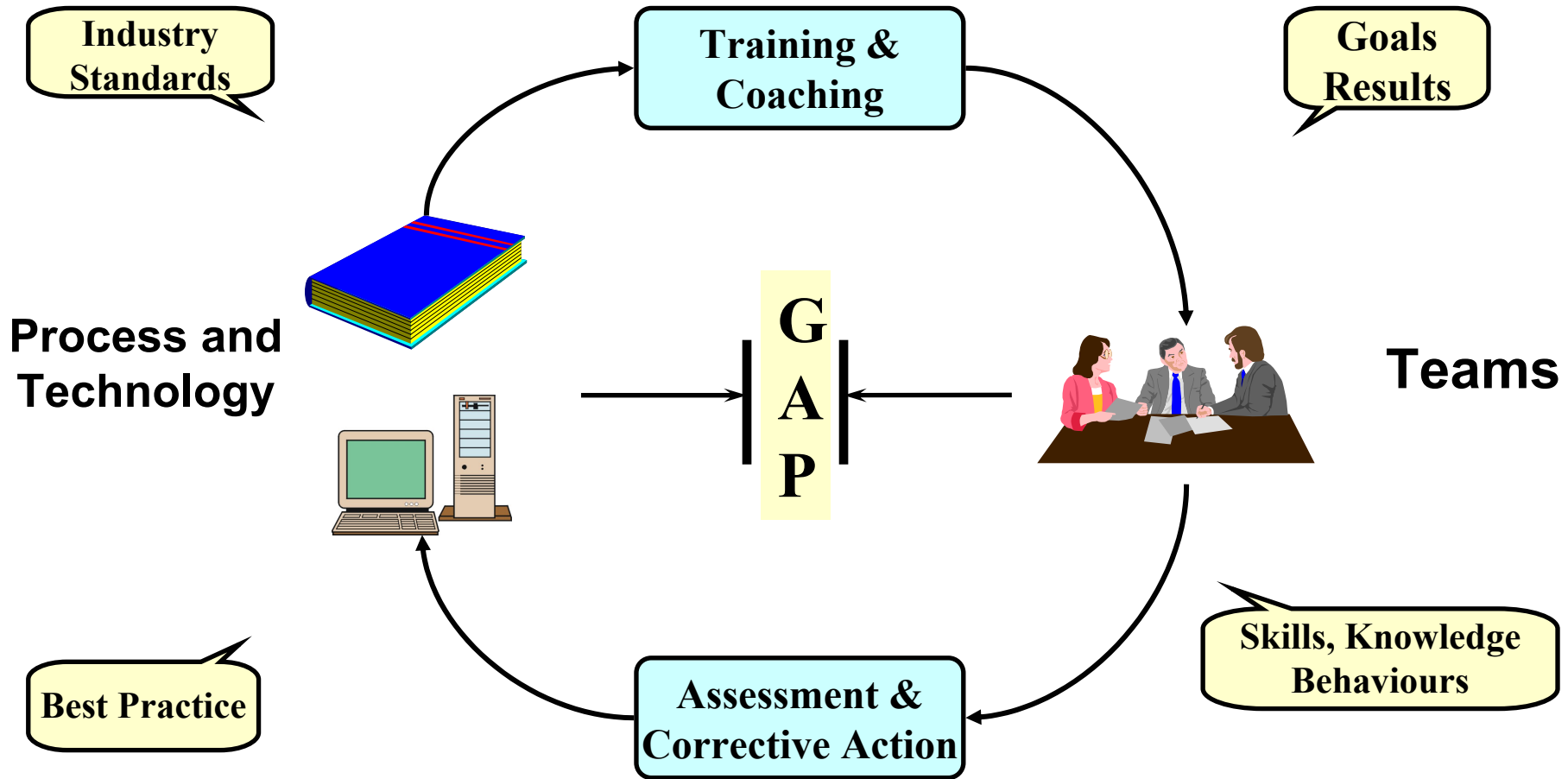
# Approach

- ★ **Begin with the end in mind (S. Covey)**
- ★ **Understand the business and users needs**
- ★ **Draw on Software Engineering principles to design and implement the set of business processes to meet these needs.**
- ★ **Ensure these processes meet any external requirements**

# Institutionalisation

What you say you do

What you actually do



# Role and Team Based

## ★ Why Roles?

- Independent of Job Descriptions
- Multiple hats
- Skill development at a wider level

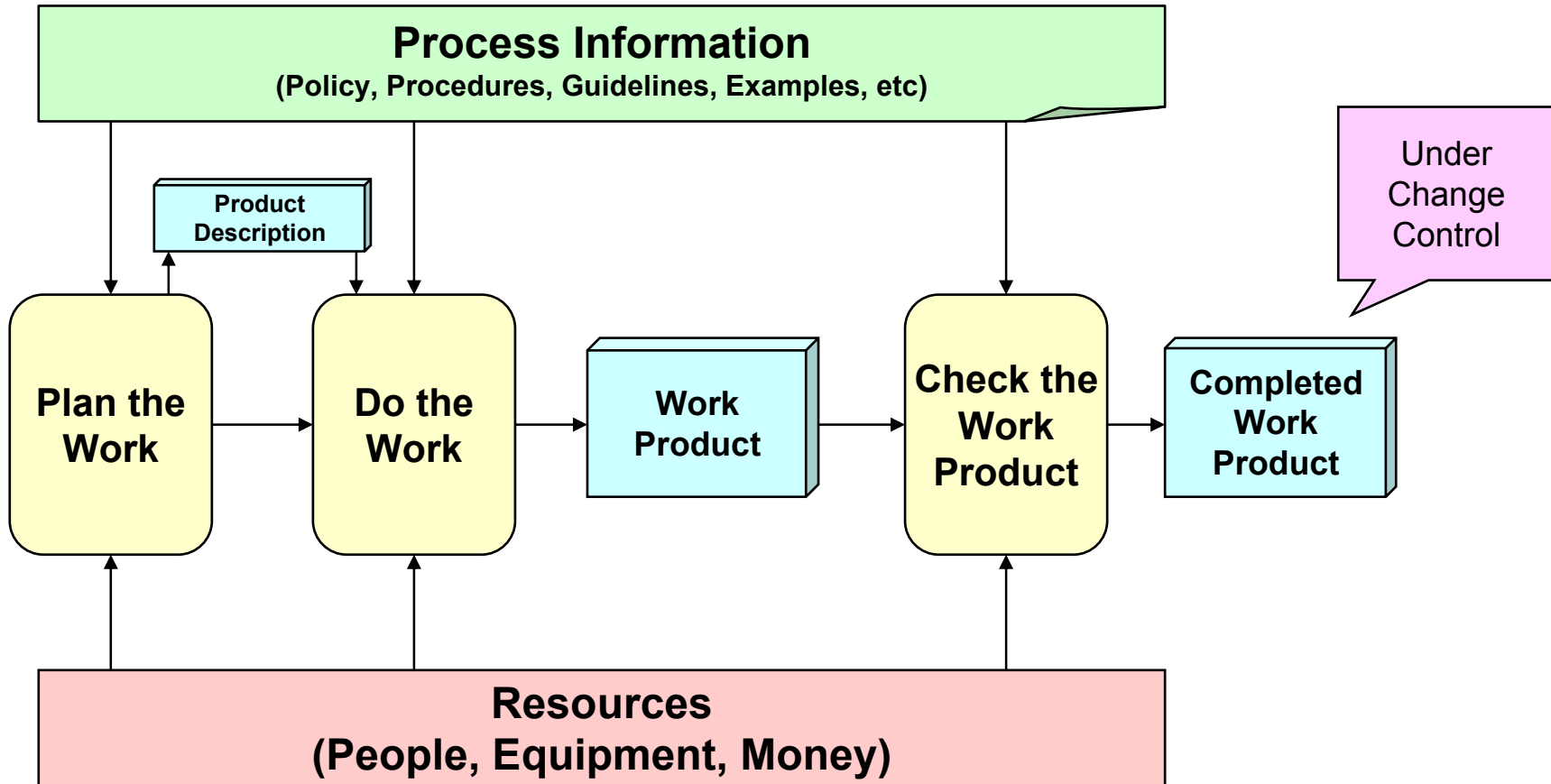
## ★ Why Teams?

- Uncouple from the organization
- Ensure clear responsibilities
- Cross organizational boundaries

## ★ Identify Role Models

- Practitioners and managers
- Focal point for process improvement

# Focus on the Work



# Why Focus on the Work?

## ★ Make the 'easy' work 'easy'!!

- Share knowledge and best practice
- Allow more time for difficult areas

## ★ Understand Role Needs

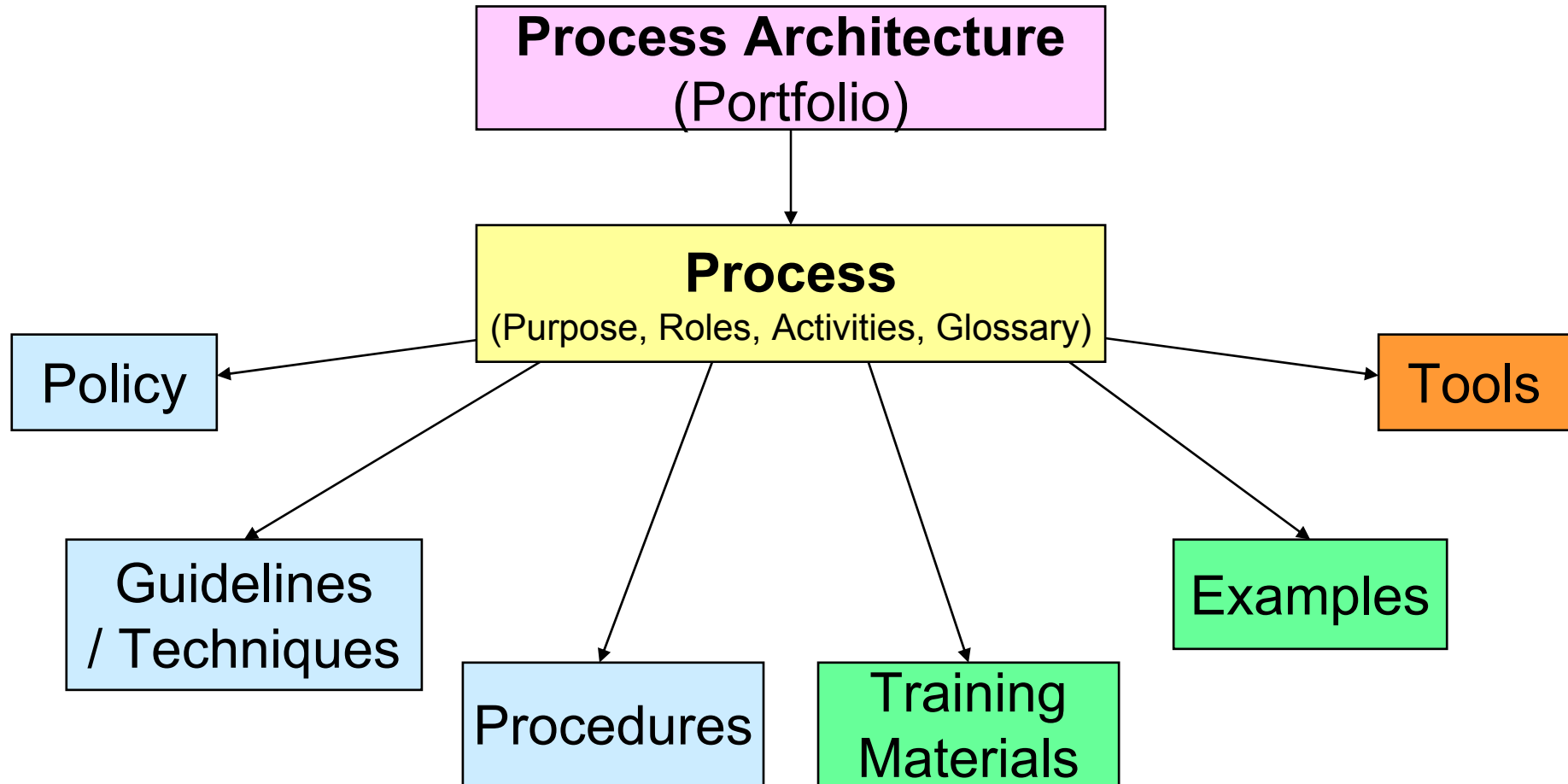
- Terminology recognized by the people
- Training and skill requirements
- Some good examples

## ★ Understand the tool requirements

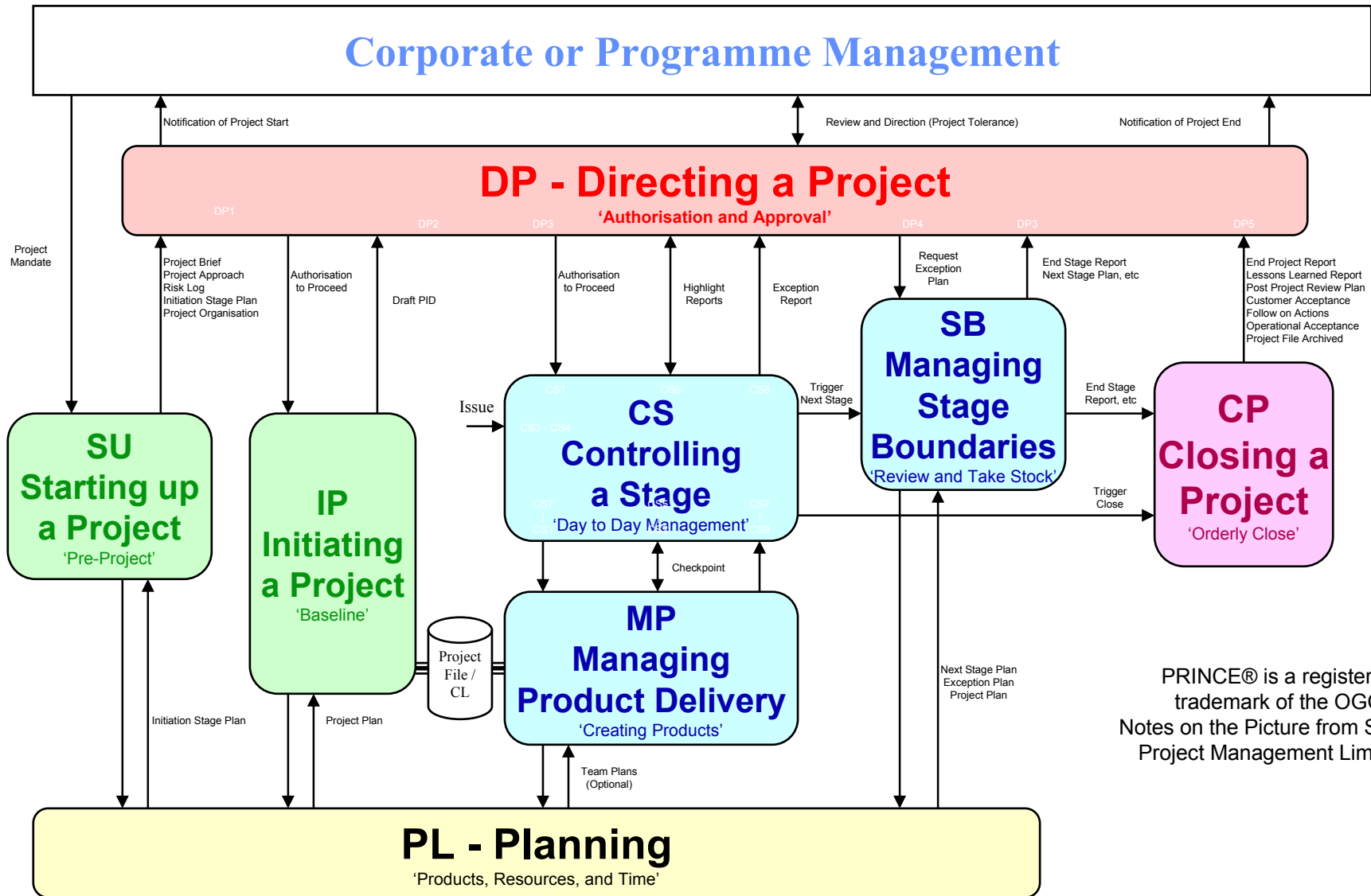
- What tools are available?



# Process Structure



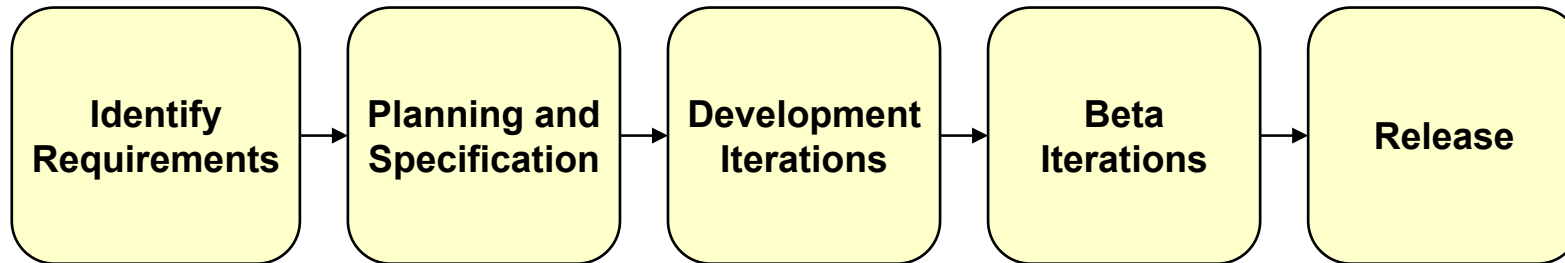
# Project Management Process



PRINCE® is a registered trademark of the OGC  
Notes on the Picture from SPOCE  
Project Management Limited..

# Software Development Life Cycle

## Product Development Life Cycle



The Dynamic Systems Development Method (DSDM) can also be used as the basis for a Software Development Life Cycle.

# Process Design - Principles

- ★ **Minimize Coupling and Maximize Strength**
  - Life Cycles translate requirements to release
  - Project Management uses any life cycle to deliver results
- ★ **Focus terminology on the work**
  - not the organization
  - not the external standard
- ★ **Separate 'What' from 'How'**
- ★ **Separate 'Training materials' from the process**
- ★ **Integrate 'Natural' metrics into the processes**

# Process Architecture

## ★ A Collection of Processes

- With a uniform process structure
- Used in an organization

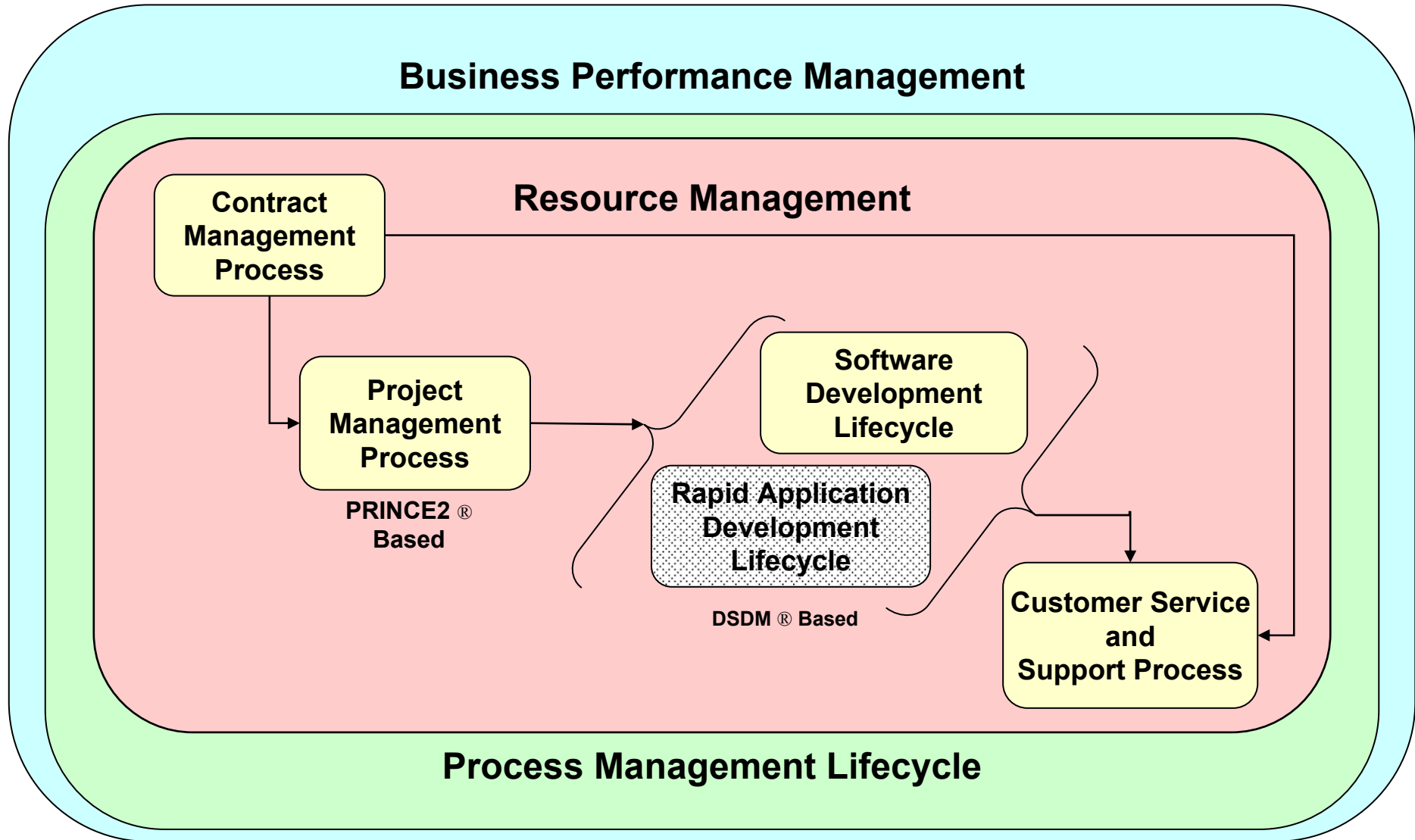
## ★ Cover all relevant work in the organization

- for all identified roles
- for all identified teams

## ★ Highlights interdependencies

- Just like a software architecture
- Businesses are real time...

# Process Architecture



# Architecture - Principles

## ★ Big Picture - Single Page

- Understand the interfaces
- Understand the layers

## ★ Understand the information flows

- Each document, report, or record is a flow of information
- Integrate 'natural' metrics collection into the flows

## ★ Each person must be able to identify which processes they use.

# Process Requirements

Industry Standards

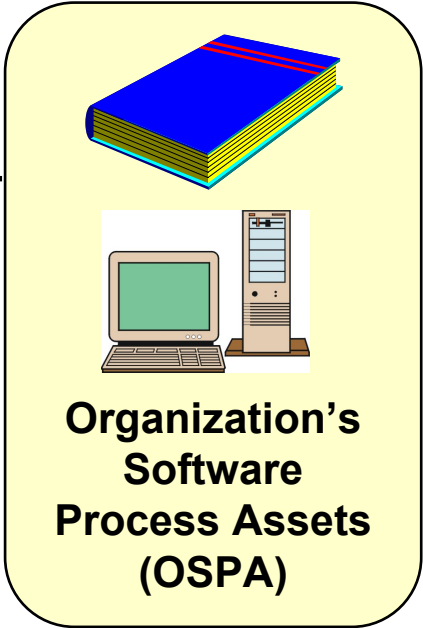
- ISO 9001:2000  
TickIT (ISO 12207)
- SEI SW-CMM®  
/ CMMi®
- People CMM®
- Business Excellence Model
- PRINCE2®  
/ PMBOK®
- DSDM®, Extreme Programming,  
TSP / PSP

Best Practice

What you say you do

Process and Technology

G  
A  
P



Organization's Software Process Assets (OSPA)



# External Requirements

## ★ Assessment Models

→ Check Process Coverage and Implementation

→ Examples

- ◆ ISO 9001:2000®, ISO 12207, ISO 15504, TL9000
- ◆ SW-CMM® CMMi ®
- ◆ People CMM ®
- ◆ Business Excellence Model

## ★ Implementation Models

→ Focus on best practice and starting point for process design and implementation

→ Examples

- ◆ PMI PMBOK®, PRINCE2®
- ◆ DSDM, Extreme Programming, TSP / PSP
- ◆ ITIL
- ◆ Six Sigma

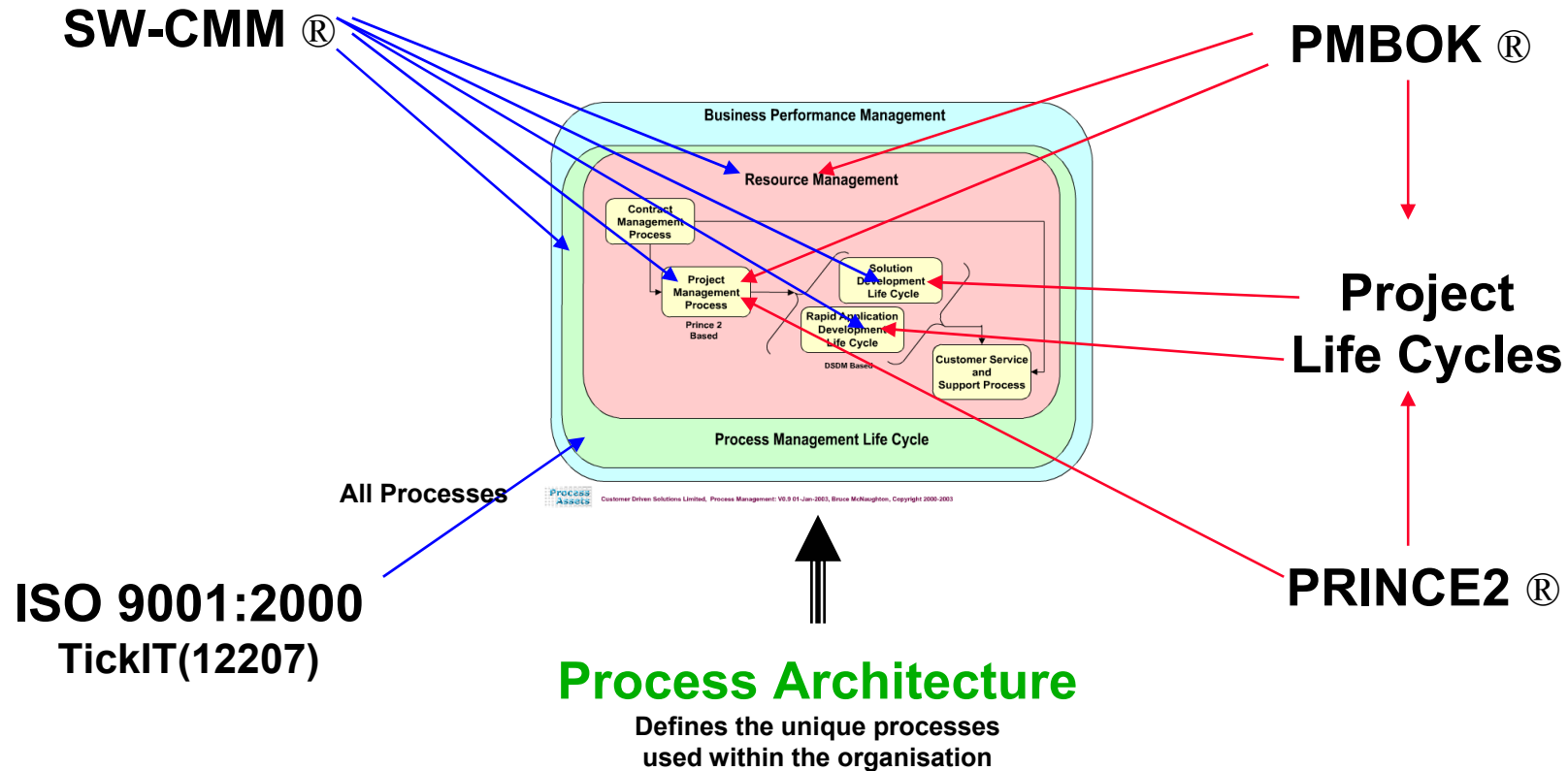
# Assessment vs Implementation Models

## Assessment Models

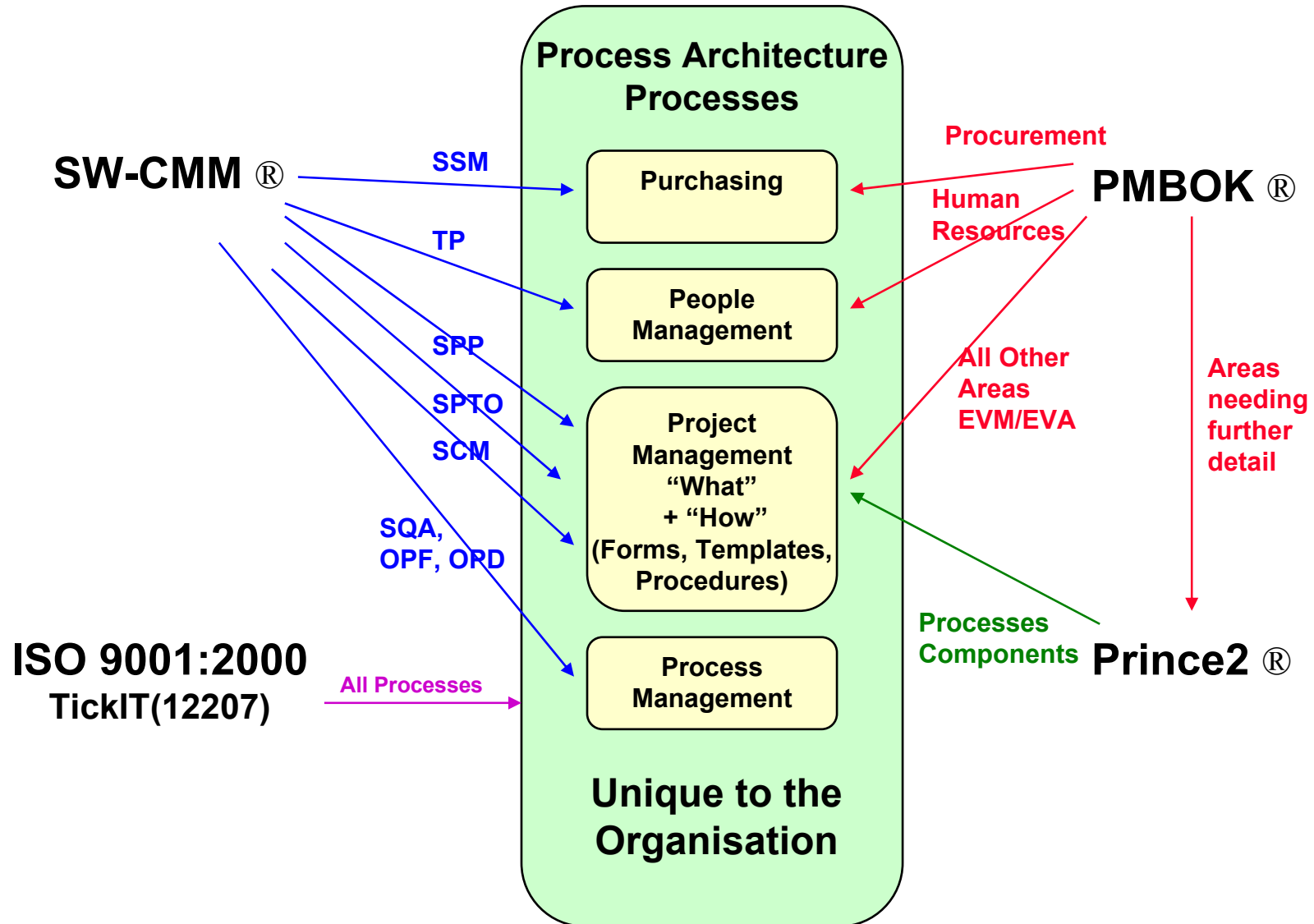
(Check Process Coverage and Implementation)

## Implementation Models

(Starting Point for process design and Implementation)



# Project Management Processes



# Requirements Principles

- ★ **Map Requirements to your business processes**
  - Helps you build a robust business process
  - Identify gaps and actions from this mapping
- ★ **Build a Shell around the processes**
  - Help for the assessors
  - Maps the terminology
- ★ **Look for synergy**
  - Process reuse?

# Conclusion

## ★ **Begin with the end in mind** (S. Covey)

- Understand Institutionalization
- Balance and integrate People, Process, Technology, and the Business
- Make this simple

## ★ **Understand the business and users needs**

- Be focused on the people and their work
- Add value to the business and support the users

## ★ **Understand the principles behind Process Design**

- Separate 'What' from 'How'
- Minimum coupling maximum strength

## ★ **Map external requirements to your processes**

- Identify gaps and actions to improve your processes.
- Build a 'shell' for the assessors.

# References

## ★ Assessment Model Information

- “The Capability Maturity Model”, “People Capability Maturity Model”, Carnegie Mellon University, Software Engineering Institute.
- “The TickIT Guide, Issue 5.0”, Disc TickIT Office. (Includes ISO 9001:2000 and mapping to ISO 12207).
- ISO 15504 Series, International Standards Organization.

## ★ Implementation Model Information

- “Managing Successful Projects with PRINCE2”, “Managing Successful Programmes”, “Management of Risk, Guidance for Practitioners”, “ITIL Managing IT Services Series”, The Office of Government Commerce, UK.
- “A Guide to the ‘Project Management Body of Knowledge’”, PMBOK® Guide, 2000 Edition
- “Dynamic Systems Development Method”, DSDM Consortium
- “Introduction to the Personal Software Process”, “Introduction to the Team Software Process”, Watts S. Humphrey
- “Extreme Programming explained”, Kent Beck.

## ★ Other Useful References

- “The Seven Habits of Highly Successful People”, S. Covey
- “The Fifth Discipline”, Peter Senge
- “Business Process Improvement”, H. James Harrington

## ★ For process examples, and related information [www.processassets.com](http://www.processassets.com)