

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

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17-June-2004

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

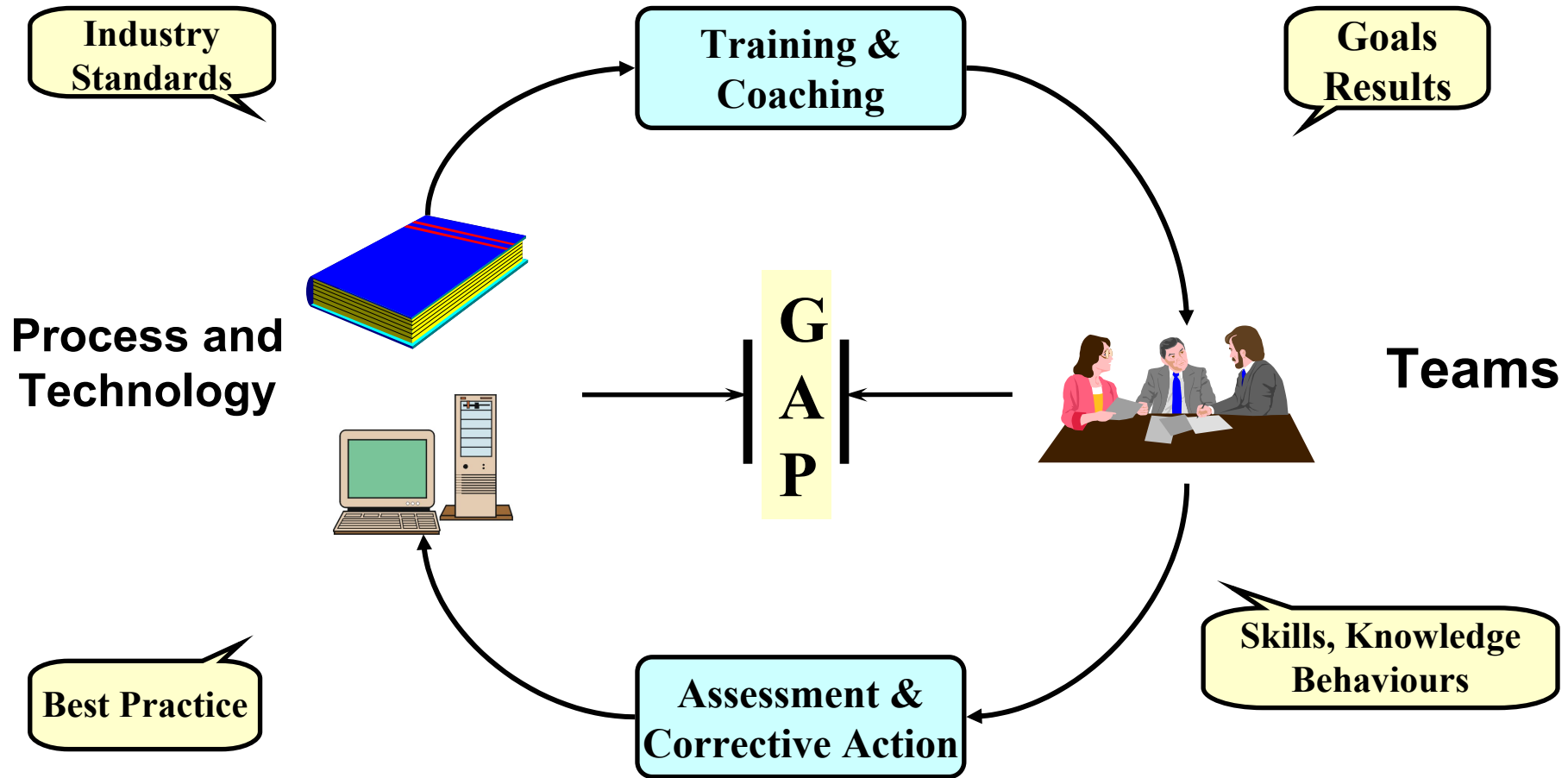
Approach

- ★ **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

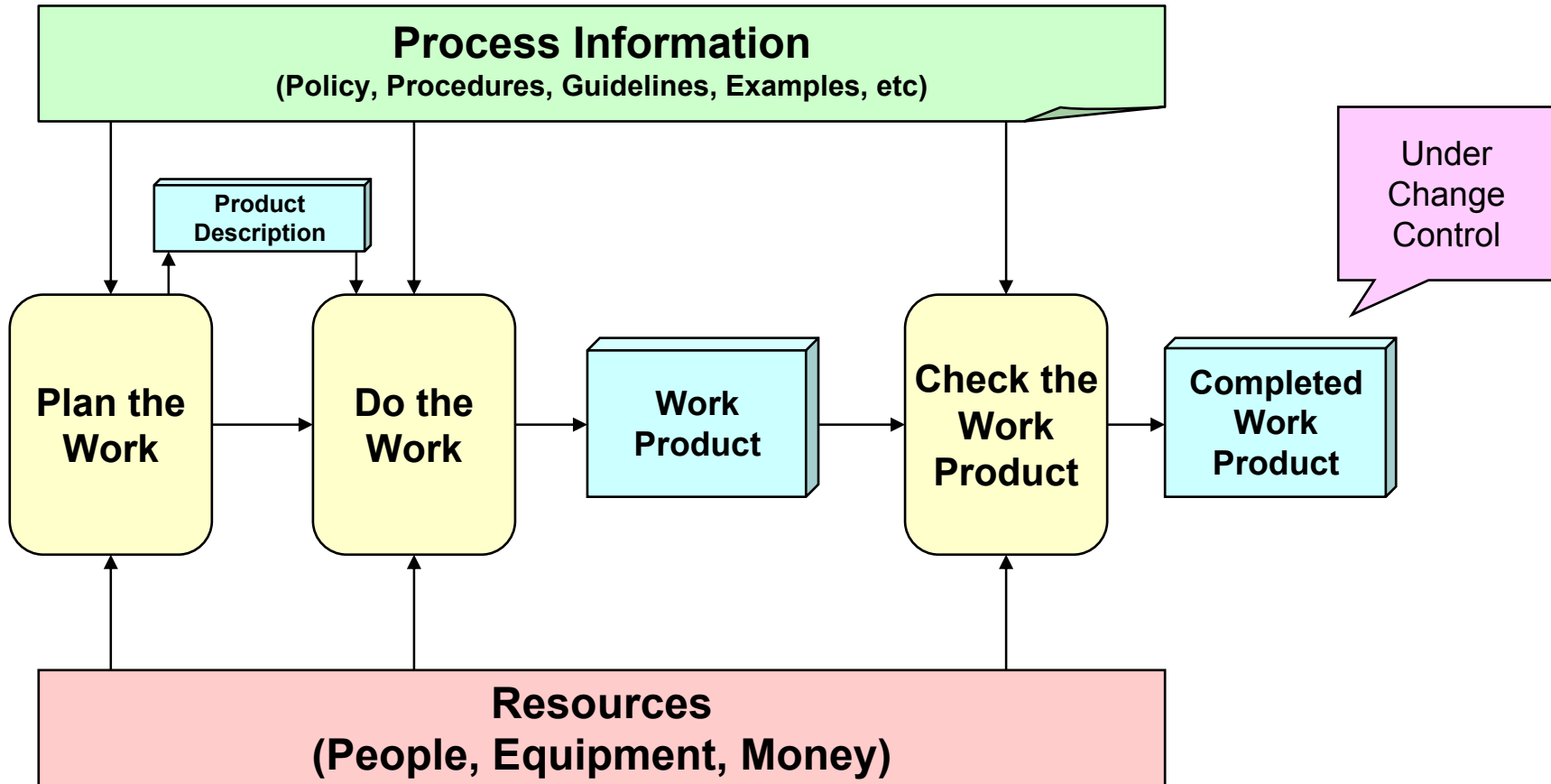
★ Why Teams?

- 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

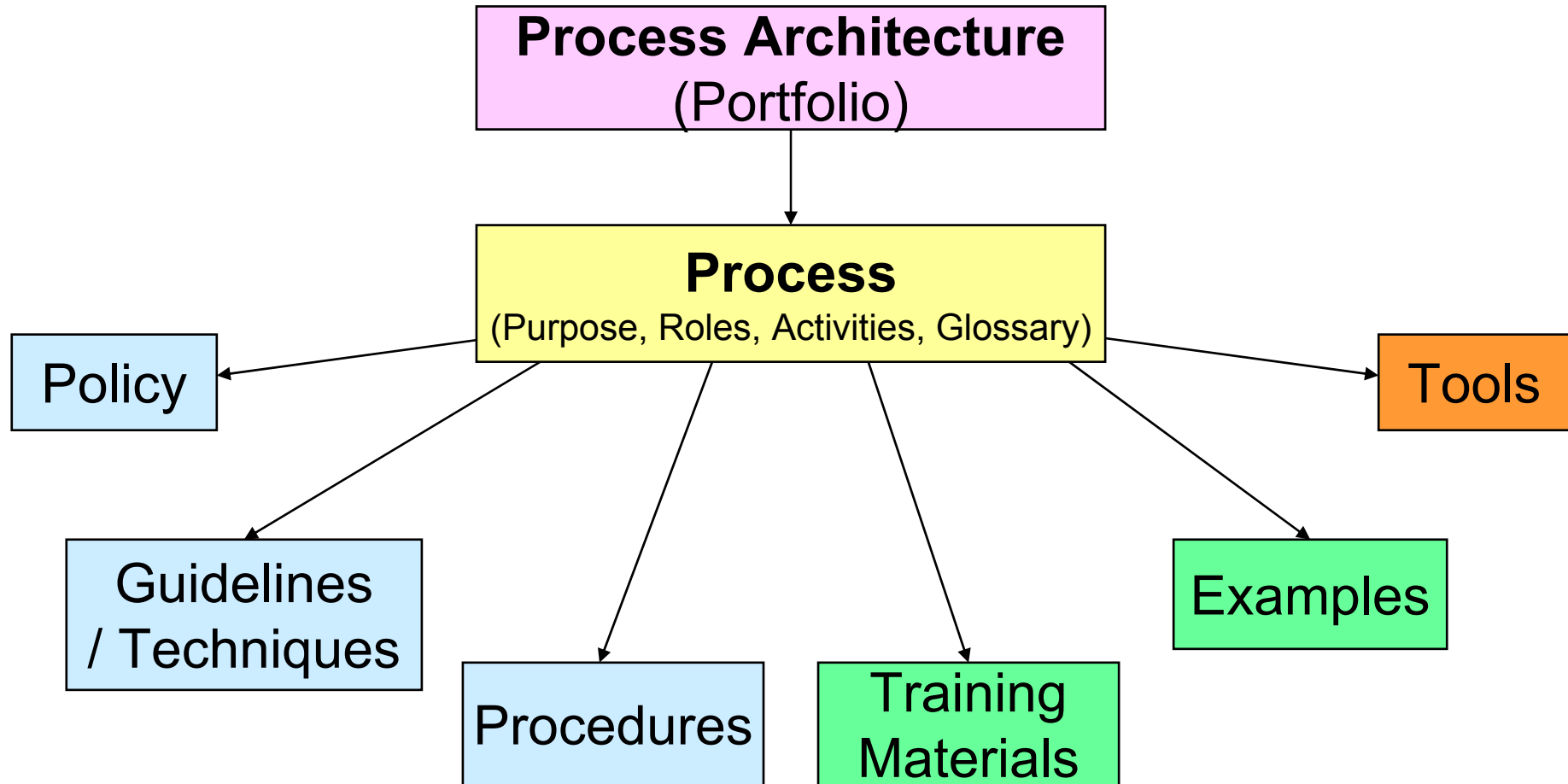
★ Understand Role Needs

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

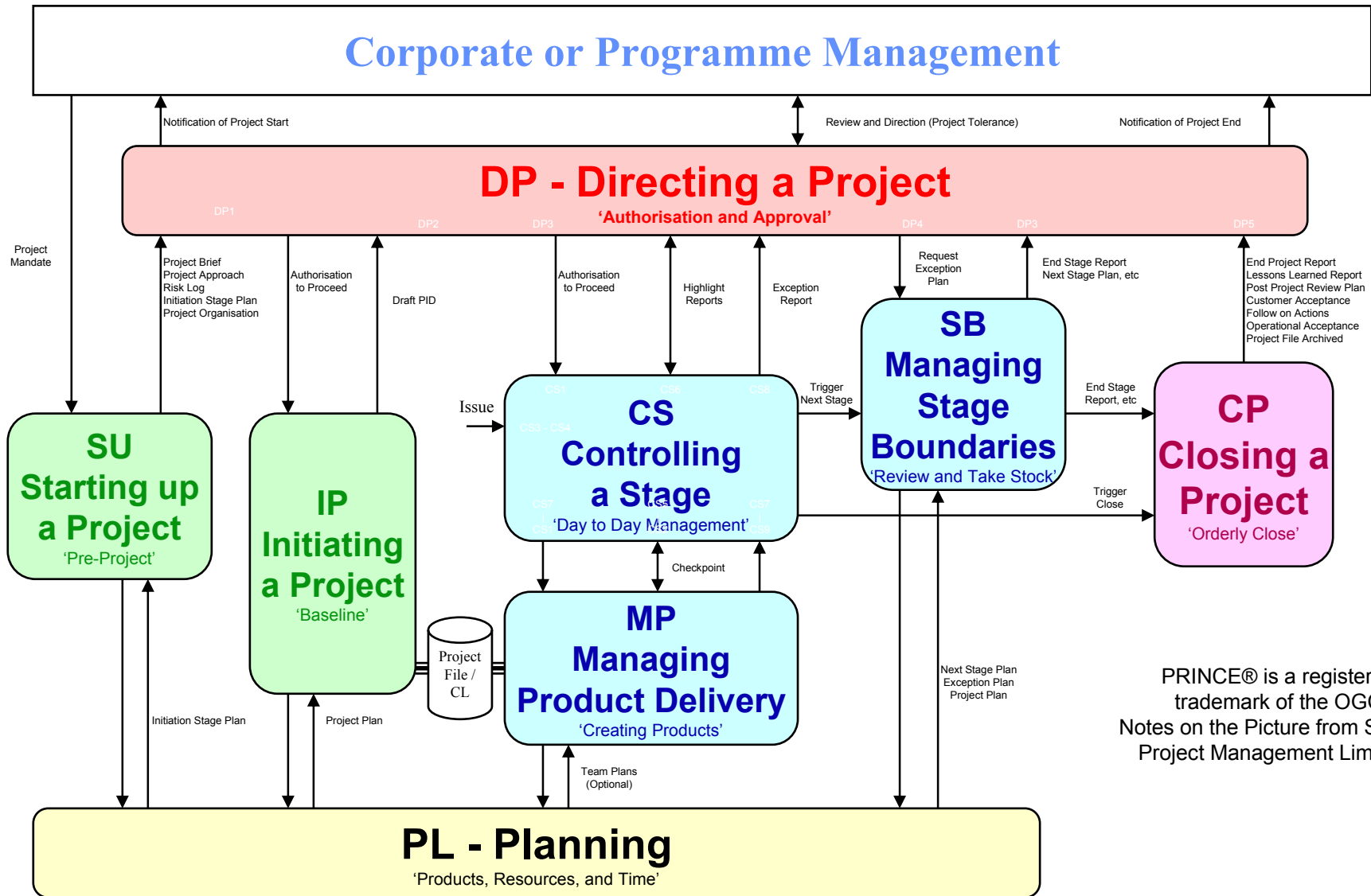
★ Understand the tool requirements

- What tools are available?

Process Structure

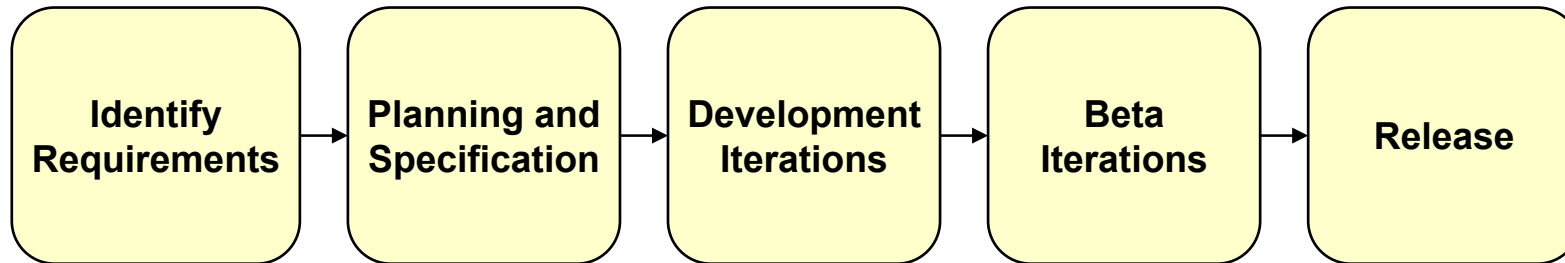


Project Management Process



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

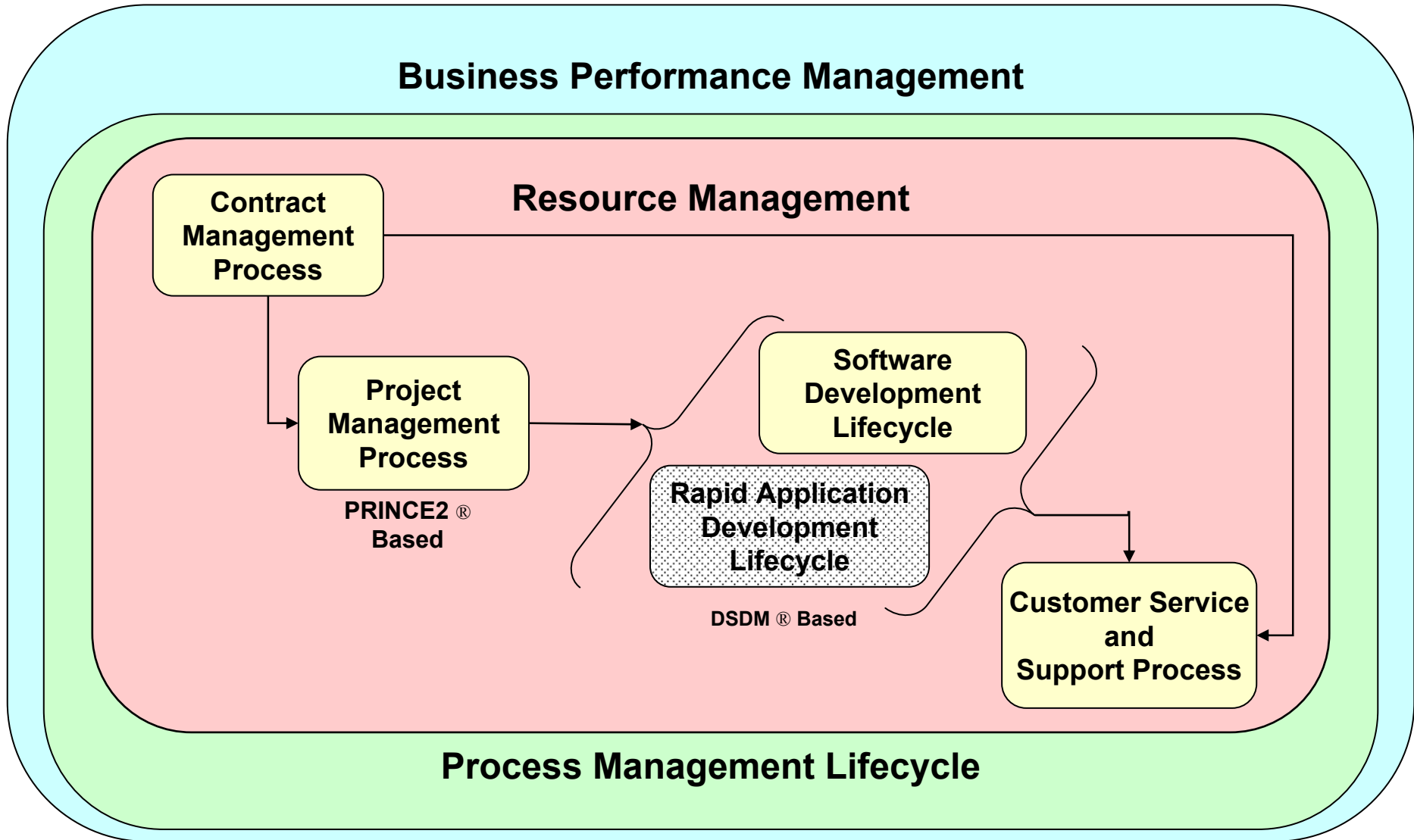
★ Cover all relevant work in the organization

- 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

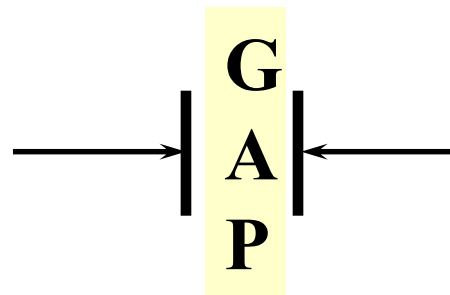
Industry Standards

- 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



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

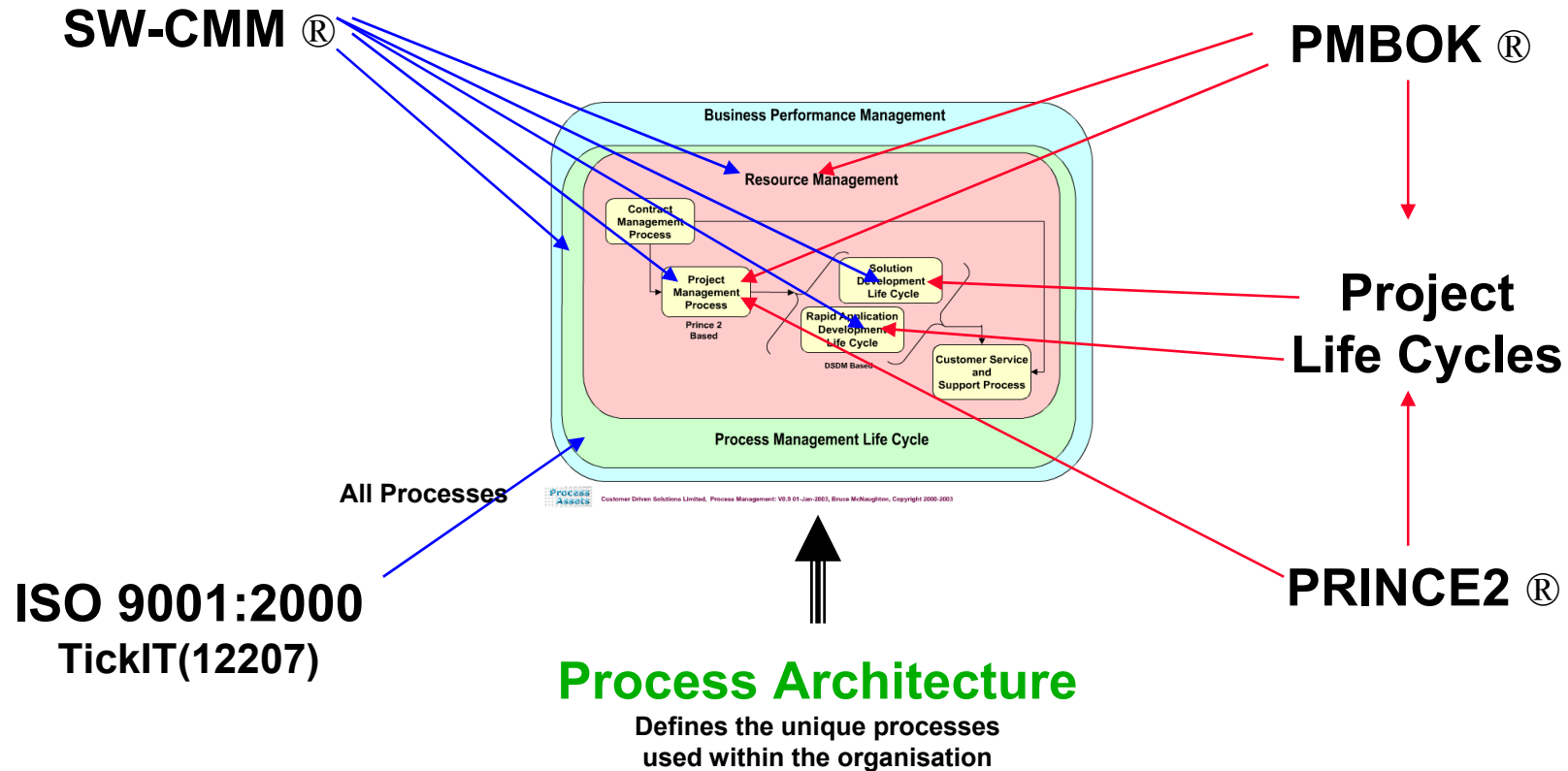
Assessment vs Implementation Models

Assessment Models

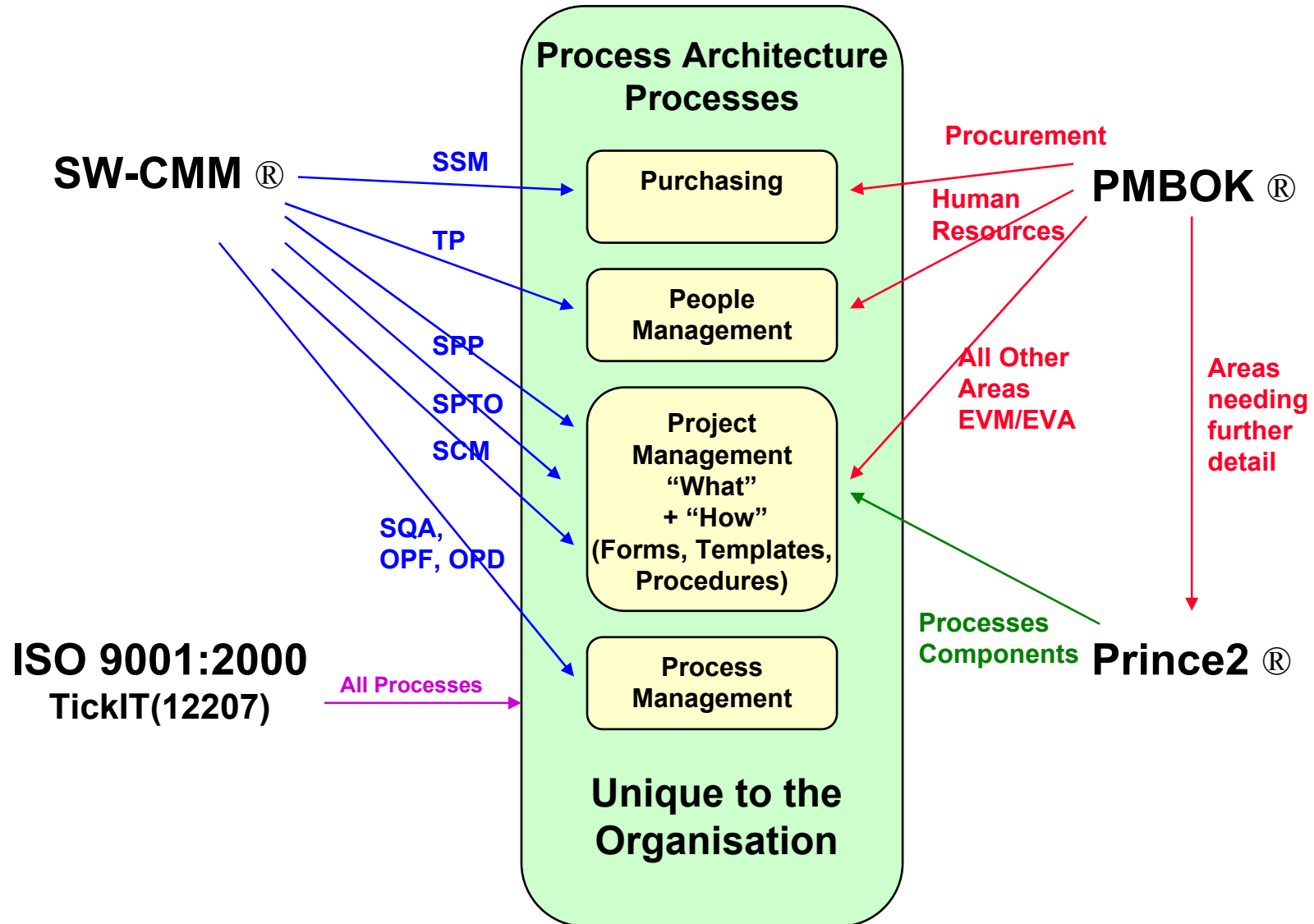
(Check Process Coverage and Implementation)

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