Software Quality Management

Software Quality Planning

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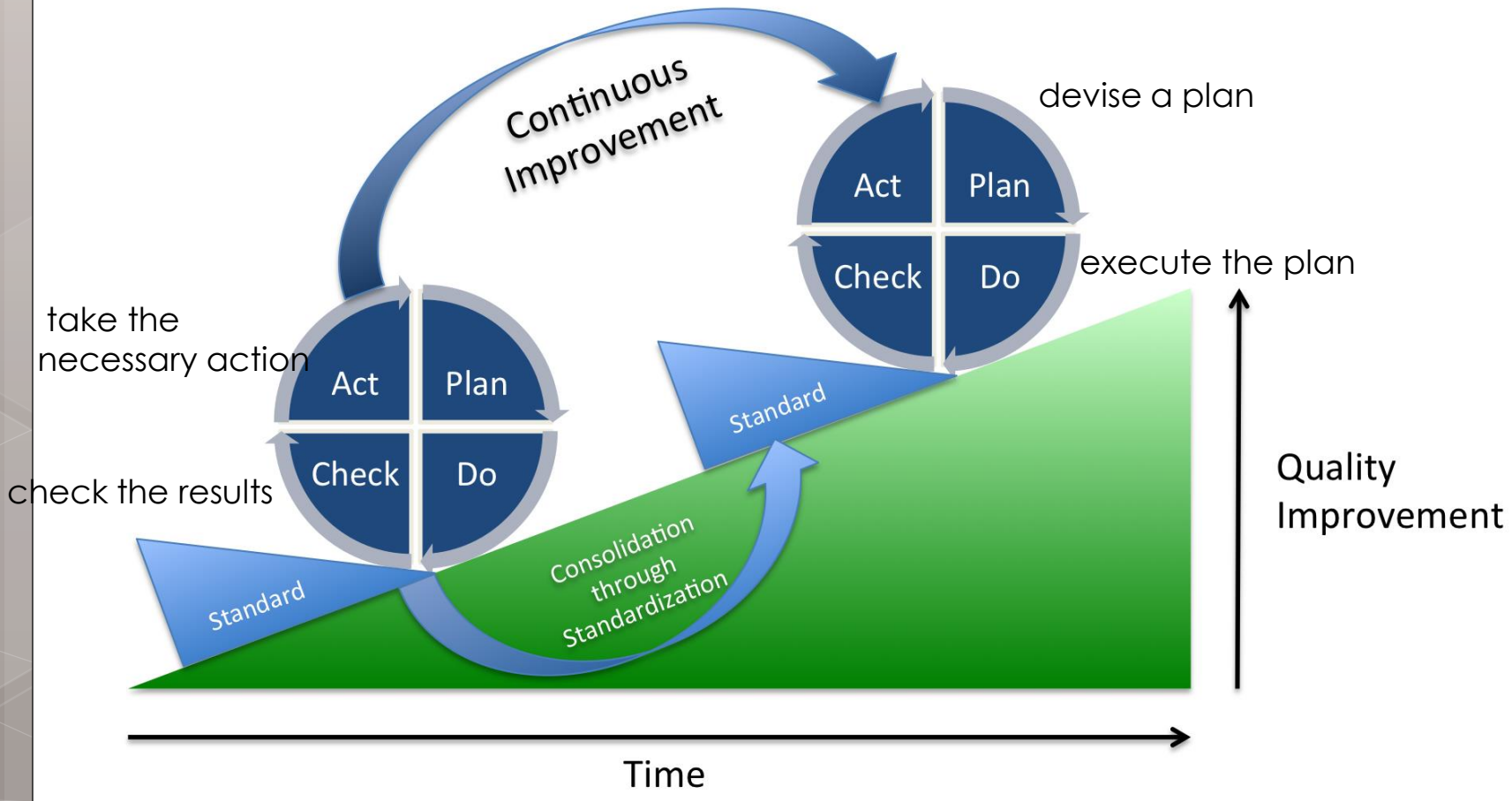
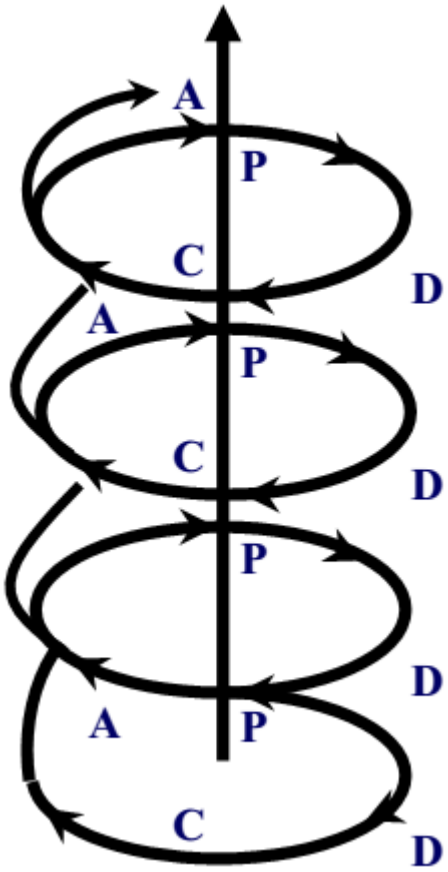
Outline

- Management Cycle
- Planning Cycle
- Integrating Business and Quality Planning
- Prerequisites to Quality Planning
- Planning Process
- Common Activities
- Planning to Mature IT Work Processes

Management Cycle



Management Cycle



Planning Cycle

- is a management responsibility.
  - *The responsibility commences when management establishes a vision for the IT organization, and works through the development of a tactical plan which defines the detailed work activities to be performed.*
- is a decomposition of the IT vision into work activities which will help accomplish that vision.

Planning Cycle

- Impact factors
  - Change the schedule
  - Change the budget
  - Change the number of resources allocated
  - Change how one implemented component of software will affect other
  - components of the software
  - Change in work priorities
  - Addition or deletion of work activities to accommodate the needed changed work activities

Planning Cycle

Planning Activity	PDCA Phase	Example of Planning Activity
Establish IT Vision	P	IT deliverables and service exceed customer satisfaction.
Define Mission	P	We will work with our customer to assure satisfaction.
Set Goals	P	On a scale of five to one -- from very satisfied, satisfied, neither satisfied nor unsatisfied, dissatisfied, very dissatisfied – our goal is 90% of our customers very satisfied or satisfied.
Strategic Planning	P	Involve users in the software development process.
Tactical Planning	P	Conduct reviews at the end of each development phase with users as part of the review team.
Execution	D	For project "x" conduct a requirements phase review on November 18, 20xx.
Monitoring	C	Did the requirements phase produce testable requirements?
Rework	A	Make non-testable requirements testable.

Integrating Business and Quality Planning

- Quality planning should focus on two major activities: process management and quality control.

- Planning Should be a Single IT Activity
  - Both the business staff and the quality staff should be involved in IT planning. Involvement is in both strategic and tactical planning.

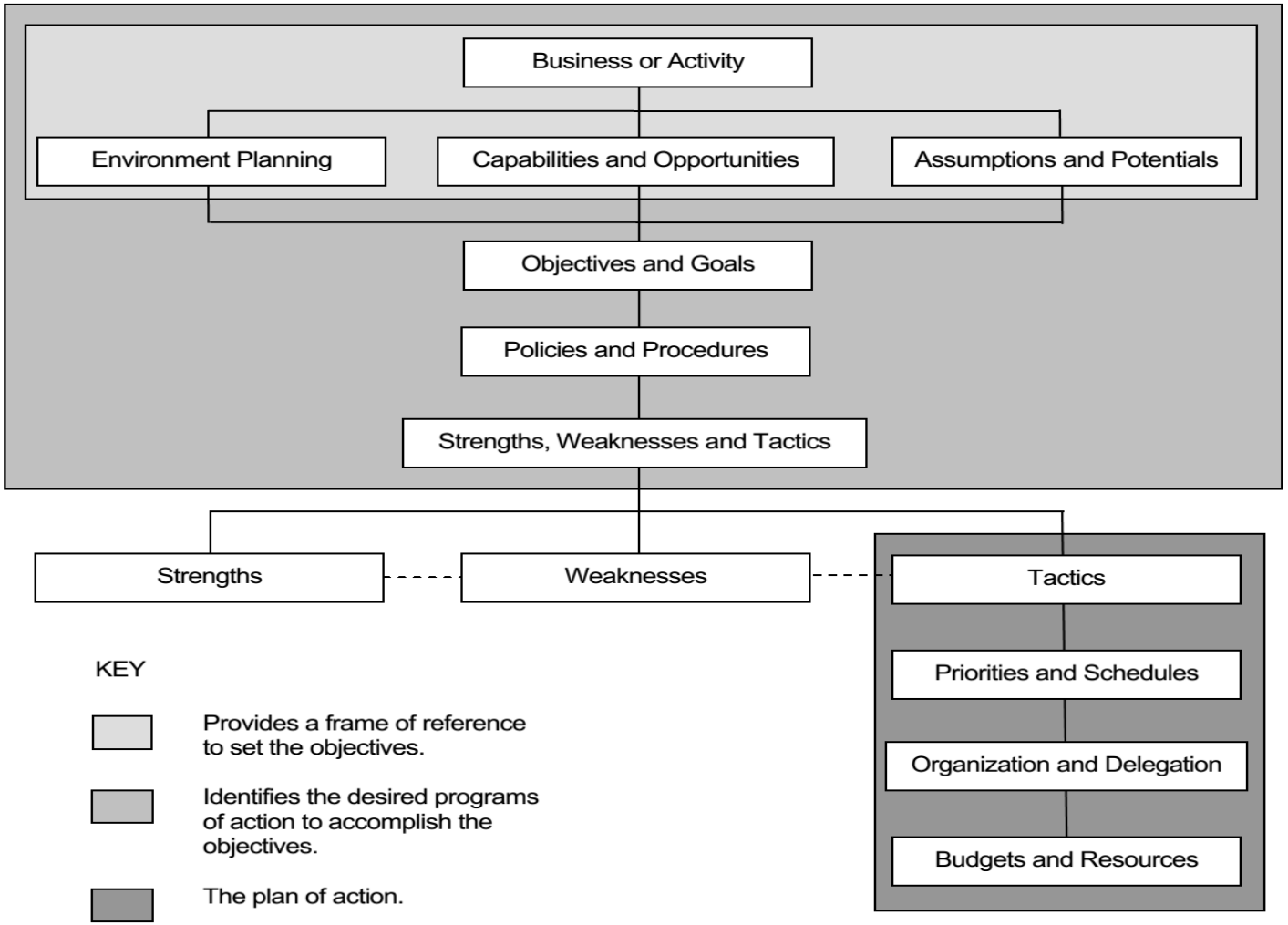
Prerequisites to Quality Planning

- Quality planning should be a defined process indicating who is involved in planning and the specific work procedures and deliverables included within the planning process.
- these prerequisites should be met
  - IT vision, mission and goals documented
  - Defined planning process
  - Management support for planning
  - Planners competent in the planning process
  - Compliance to the plan
  - Maintenance of the planning process
  - Reliable information required

Planning Process

- Planning process overview
- Basic planning questions
- Common planning activities

Planning Process – overview



Planning Process – overview

- Ten planning activities
  - Business or Activity Planning
  - Environment Planning
  - Capabilities and Opportunities Planning
  - Assumptions and Potentials Planning
  - Objectives and Goals Planning
  - Policies and Procedures Planning
  - Strengths, Weaknesses and Tactics Planning
  - Priorities and Schedules Planning
  - Organization and Delegation Planning
  - Budgets and Resources Planning

Planning Process – *Six Basic Planning Questions*

- Where are we?
- Where do we want to go?
- How are we going to get there?
- When will it be done?
- Who is responsible for what?
- How much will it cost?

Planning Process – *Six Basic Planning Questions*

Six Basic Questions	Planning Activities	Planning Information Needed
1. **Where are we?** (Historic and current information, present time, and facts)	Business or Activity Planning	Nature of Business-Purpose, Scope, History Management Philosophy Profiles of Business-Revenues, Profits, Products, etc.
	Environment Planning (External to Company)	Organization and IT work environment Economic, Social, Political, Industry Regulations and Laws Identify and Analyze inputon other organizations
	Capabilities and Opportunities Planning	Capabilities (strengths, weaknesses – internal/controllable) Problems (external/partially controllable) Opportunities Analysis by Key Result Areas
2. **Where do we want to go?** (Dealing with the future, cannot be predicted with accuracy)	Assumptions and Potentials Planning	Temporary future estimates of probable developments beyond our control. e.g., populations, interest rates, market potentials, government regulations and impact of competitive actions.
	Objectives and Goals Planning	Temporary estimates of desirable results achieved by our own efforts. Quantified measurable objectives (5- year and fiscal year month-by-month). For example, revenue, products, expenses, profits, productivity objectives.

Planning Process – *Six Basic Planning Questions*

3. **How are we going to get there?**	Policies and Procedures Planning	Current policies/procedures hindering performance Required policies/proceduresto improve performance
	Strengths, Weaknesses, and Tactics Planning	Strategy is a course of action selected from among alternatives as the optimum way to obtain major objectives. Select tactics that maximize strengths and minimize weakness. Define tactics.
4. **When will it be done?**	Priorities and Schedules Planning	Assign order of accomplishment for programs. Identify specific milestonesto measure progress on a month-by-month basis.
5. **Who is responsible for what?**	Organization and Delegation Planning	Specify organizational relationships, organizational charts, and responsibility profiles. Specify who is responsible for the program of action and identify areas of decision-making and the accompanying authority required to accomplish the programs. Plan now for your organization requirement 2-3 years from now so you have the right person, at the right place, doing the right work, in the right way at the right time.
6. **How much will it cost?**	Budget and Resources Planning	The operational budget should place price tags on the tactics. Monthly operating budgets by department. Capital budgets by month and by year List of major resources—dollars, facilities, information

Common Activities – *Business or Activity Planning*

- Vision, mission and goals
- Who are the customers/users
- What are the business needs of the customers/users
- Interfacing software systems
- Profile/description of customer/user activities.

Common Activities – *Environment Planning*

- The environment established by the organization and the IT function that impacts the means by which work is performed
- Laws and regulations affecting the products produced and operated
- Other organizations and systems that are interfaced or impacted by the products being developed and operated (e.g., payroll systems automatically sending tax information to governmental agencies).

Common Activities – *Capabilities and Opportunities Planning*

- Critical success factors
- Strengths and weaknesses of the assigned staff
- IT's ability to meet the project goals (e.g., turnaround time, number of clicks to get information, etc.)

Common Activities – *Assumptions/Potential Planning*

- Assumptions which if not correct will impact the success of the project
- Current opportunities received from implementing the project
- How future opportunities will be identified during the implementation and operation timeframe of the project.

Common Activities – *Objectives/Goals Planning*

- Project objectives and goals expressed in quantitative terms
- Any qualifications for objectives that can impact the sequence of work, or alternative strategies can be determined
- Quality and productivity goals.

Common Activities – *Policies/Procedures Planning*

- Documenting the processes to be used in implementing and operating the project (i.e., policies, standards, procedures and practices)
- Changes needed to processes
- Existing processes or parts of processes, not applicable to this project
- Process variances needed and how those variances will be obtained.

Common Activities – *Strategy/Tactics Planning*

- Select preferred strategy among alternatives
- Select best tactics among alternatives
- Select tactics that maximize strength and minimize weakness
- Document tactics
- Get buy-in from those involved in the project.

Common Activities – *Priorities/Schedules Planning*

- Required and realistic completion date
- Milestones that need to be met to finish by the scheduled completion date
- Sequence in which activities must be performed to determine whether or not the scheduled date can be met.

Common Activities – *Organization/Delegation Planning*

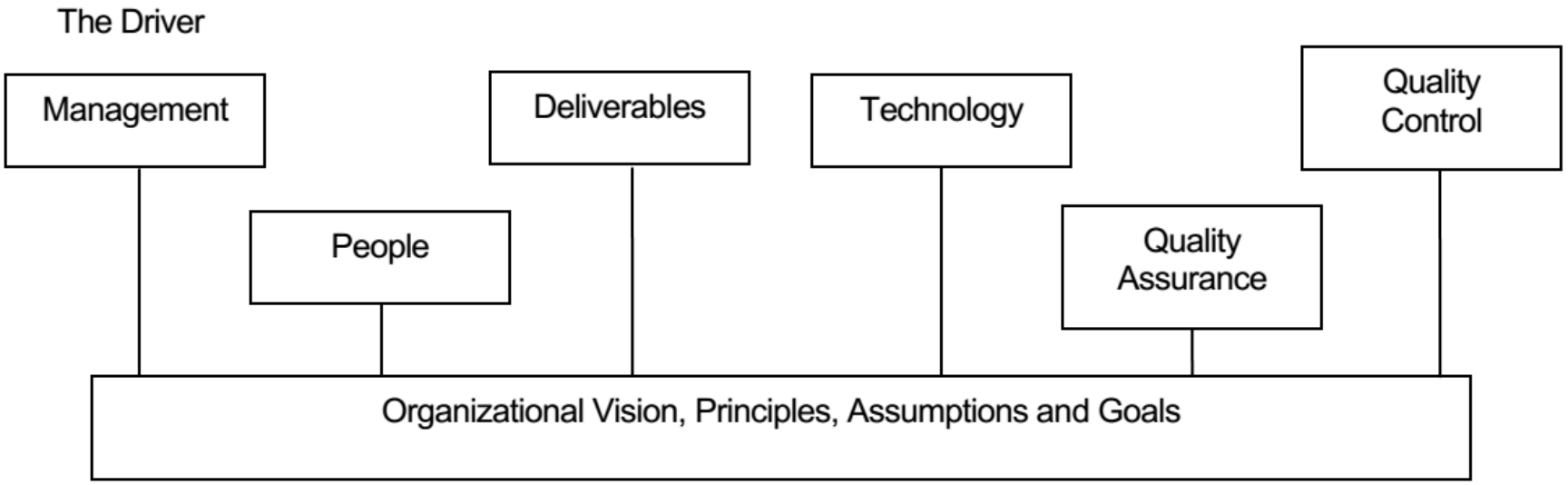
- Responsibilities for each employee assigned to the project
- Responsibilities of support staff/individual
- Agreement by the individual that those responsibilities are adequate and reasonable

Common Activities – *Budget/Resources Planning*

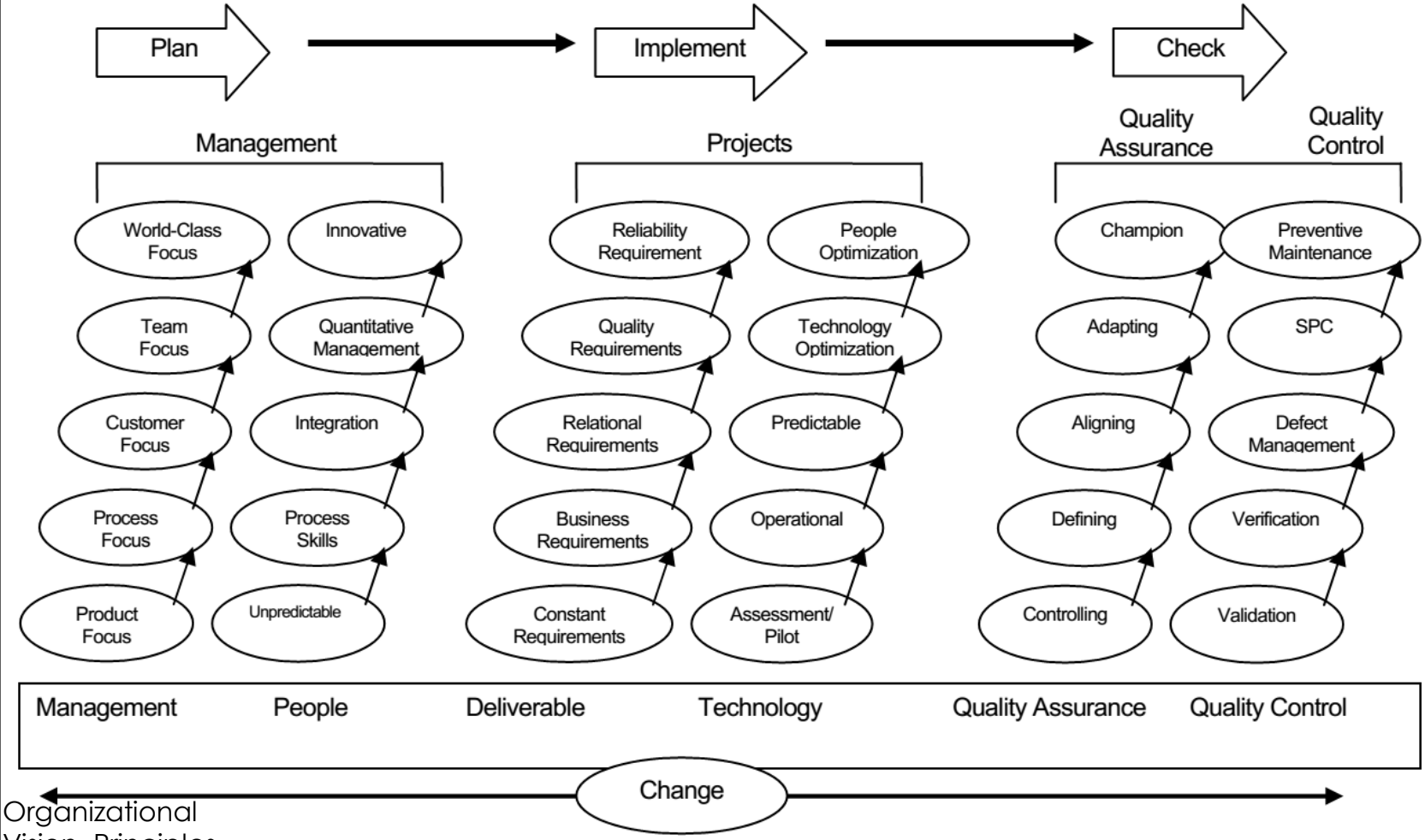
- Monetary resources needed
- Skills/competencies needed
- Hardware/software needed
- Support needed
- Information needed
- Training needed

Planning to Mature IT Work Processes

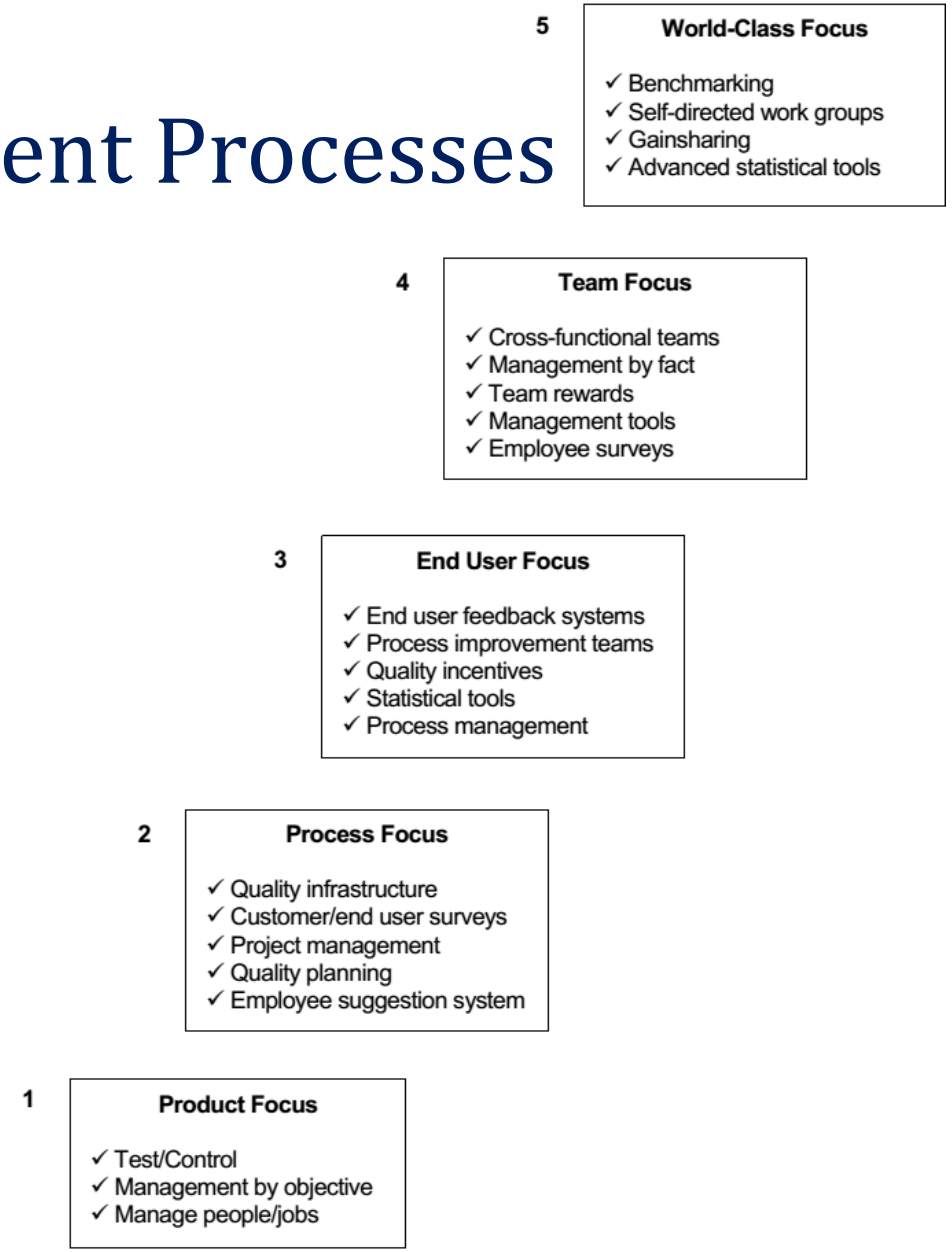
QAI Model and Approach



Six Individual Process Categories



People Management Processes



People Management Processes

5 Innovate

- ✓ People management innovation
- ✓ Continuous people management improvement
- ✓ Coaching
- ✓ Personal competency development

4 Quantitative Management

- ✓ Organizational performance alignment
- ✓ Organizational competency management
- ✓ Quantitative people management
- ✓ Team-based practices
- ✓ Team building
- ✓ Mentoring

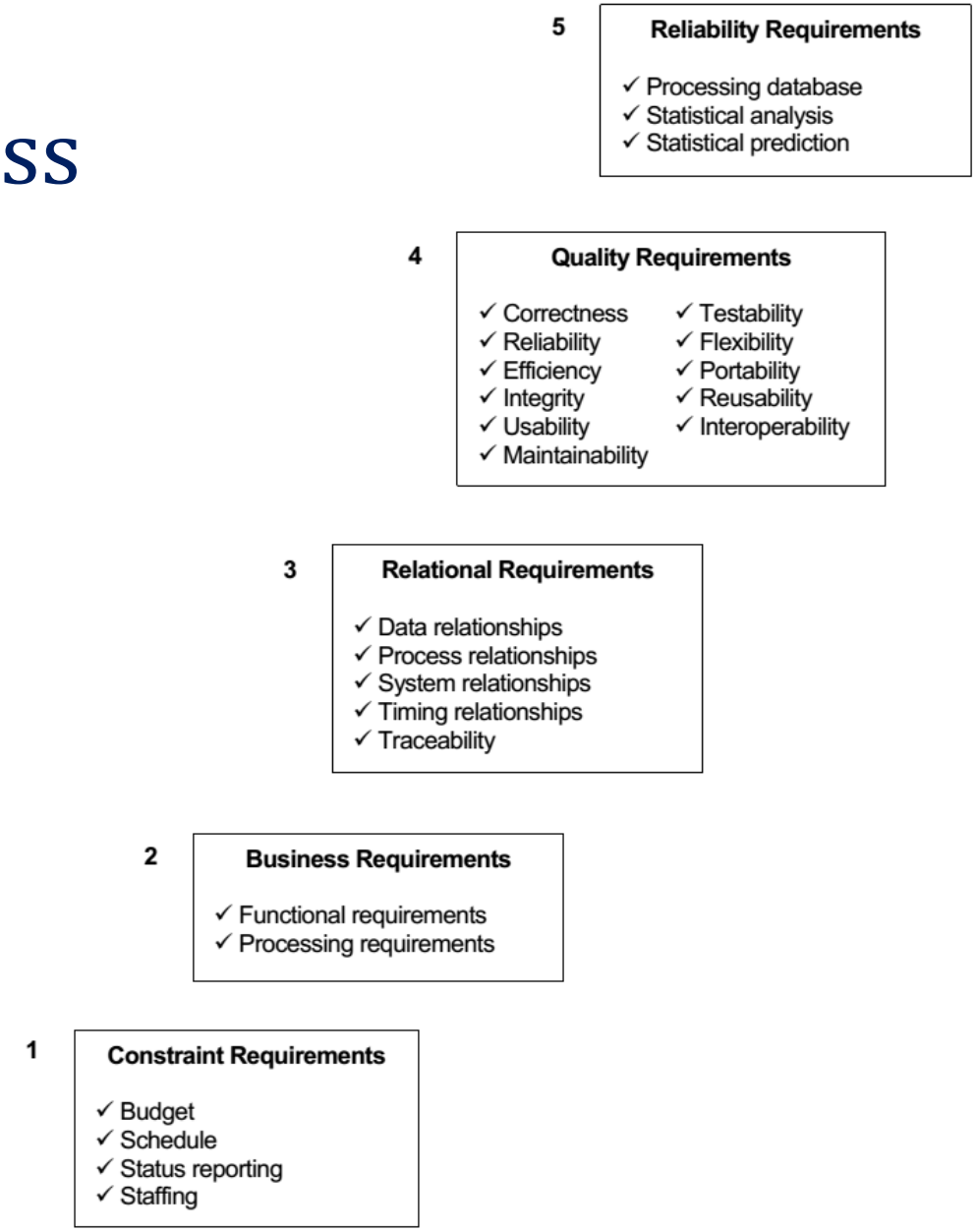
3 Integration

- ✓ Participatory culture
- ✓ Career development
- ✓ Competency-based practices
- ✓ Competency development
- ✓ Staff planning
- ✓ Knowledge of skills analysis

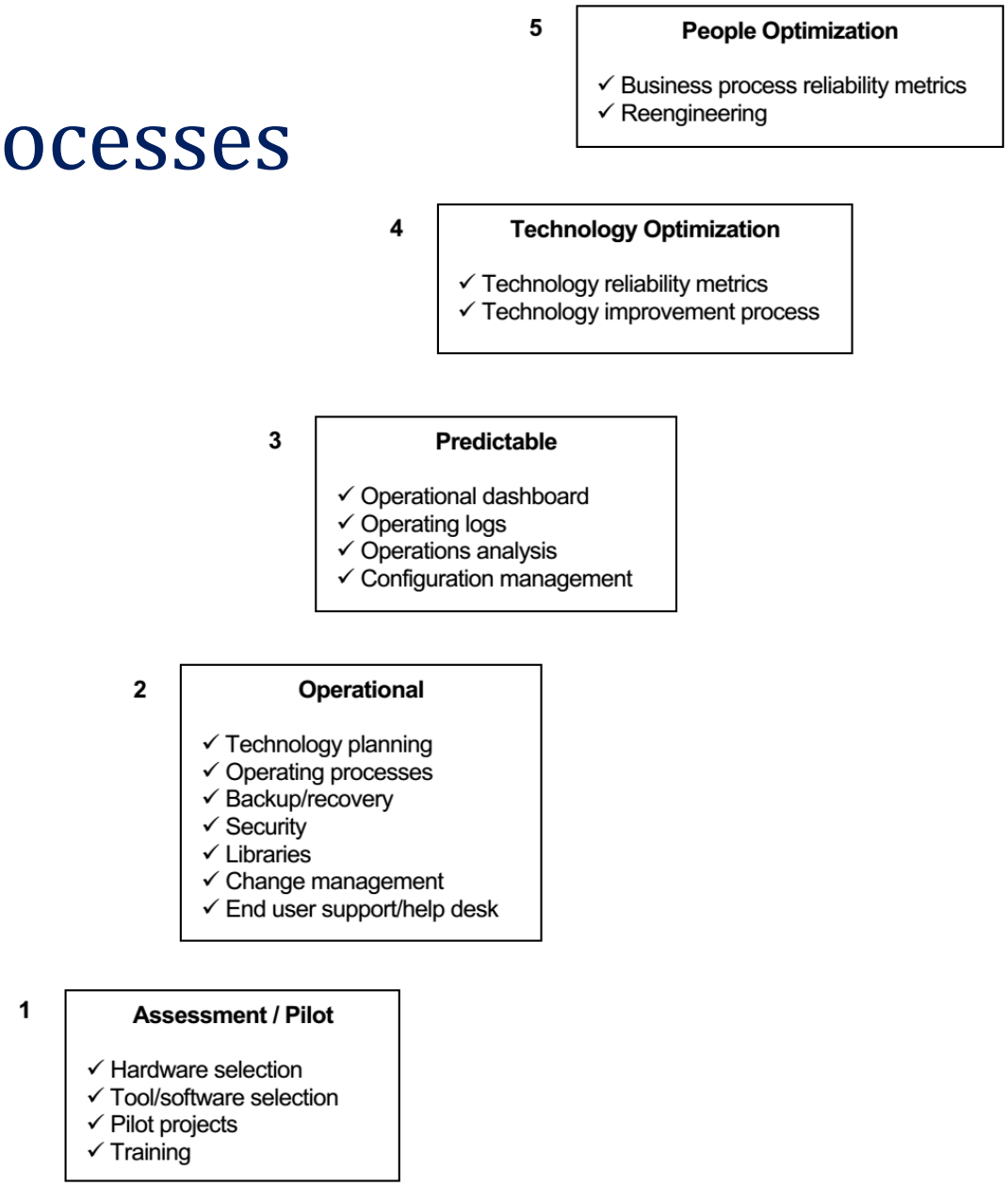
2 Process Skills

- ✓ Compensation
- ✓ Training
- ✓ Performance management
- ✓ Staffing
- ✓ Work environment

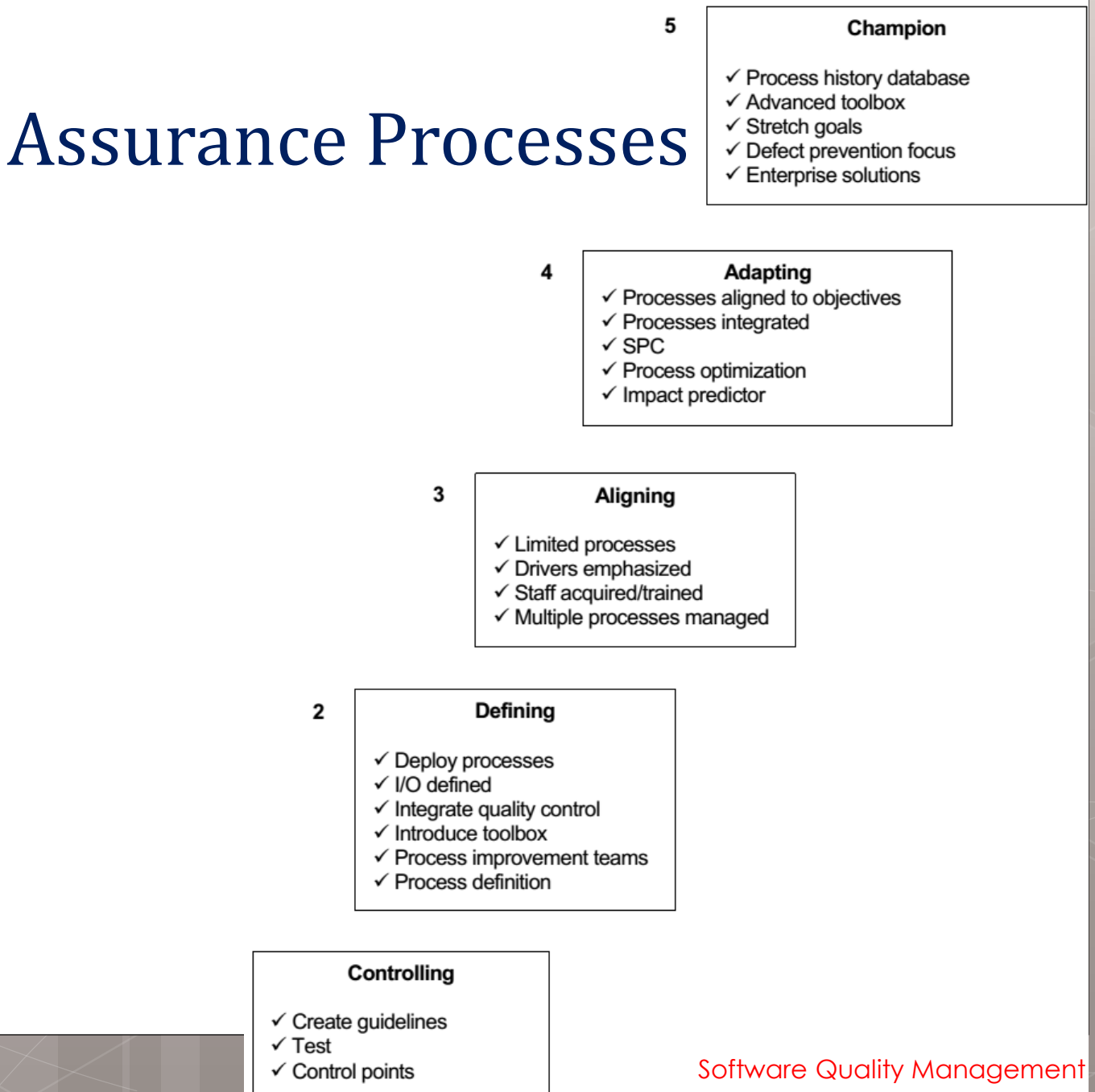
Deliveries Process



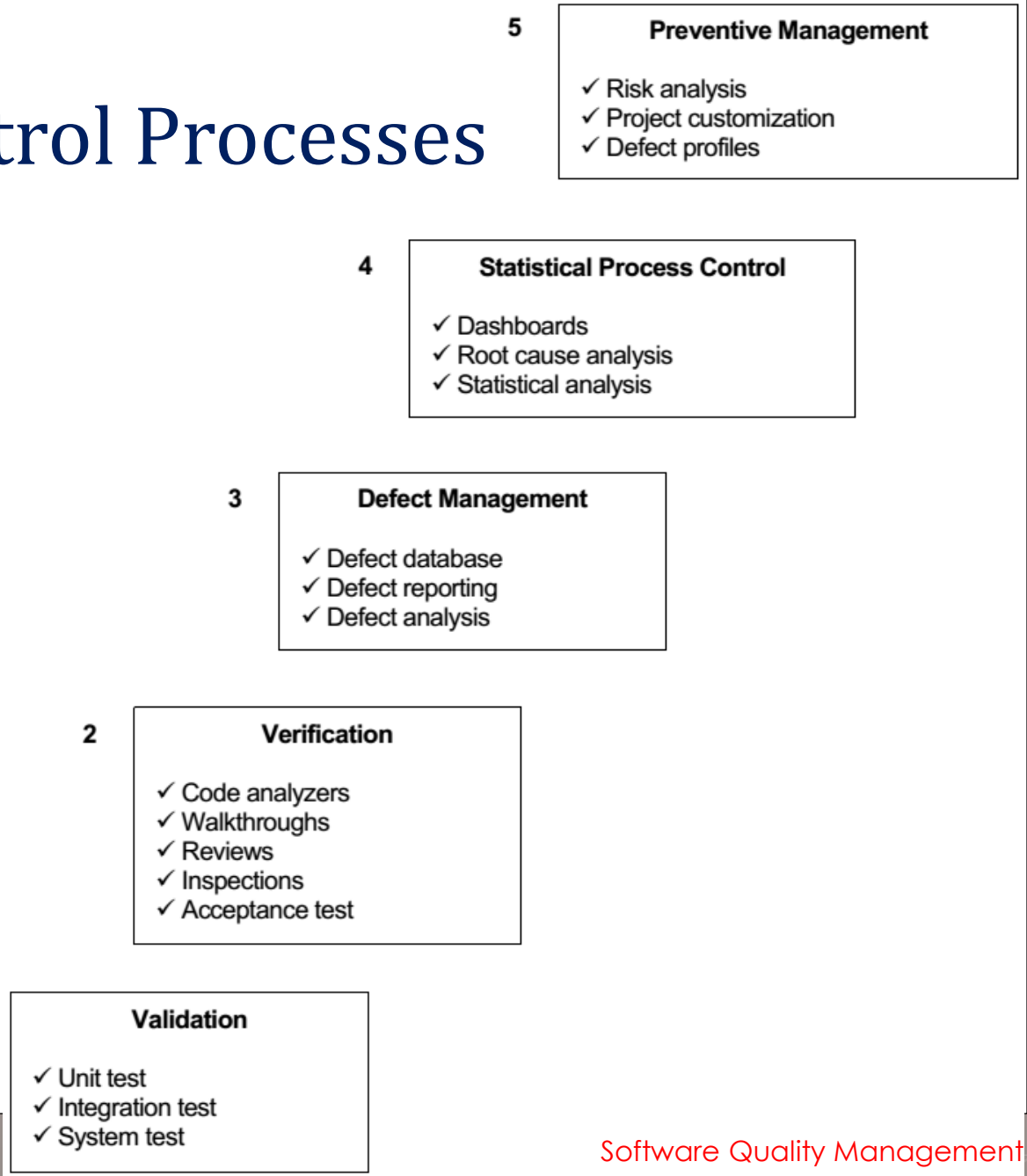
Technology Processes



Quality Assurance Processes



Quality Control Processes



Implementing Process Maturity

- Factors
  - People skills and process definitions
  - Do and check procedures
  - Individuals' assessment of how they are evaluated to work performed
  - What management relies on for success
  - Maturity level to cost to do work
  - Process maturity to defect rates
  - Process maturity and cycle time
  - Process maturity and end user satisfaction
  - Process maturity and staff job satisfaction
  - Process maturity to an organization's willingness to embrace change
  - Tools to process maturity
  - Control/test process category and quick paybacks

Q/A ?!