

YIIP1100 PROJECT MANAGEMENT

BASICS, ORGANIZATION, PROCESSES;
PROJECT INITIATION & SELECTION

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BASED ON PMBOK, CHAPTERS 1-4

KNOWLEDGE AREA: PROJECT INTEGRATION MANAGEMENT



THE AIM OF THESE SLIDES

- To give some ideas and recommendations for project initiation, selection, and planning
- In addition, basic terms/concepts and background information are introduced



CONTENTS

- Motivation: problems & solutions
- Some definitions of basic terms
- Project Organization
- The 5 PMI Process Groups, from which Project Initiation (incl. selection) is introduced more thoroughly



EXAMPLE: THE FAMOUS TREE SWING PICTURE



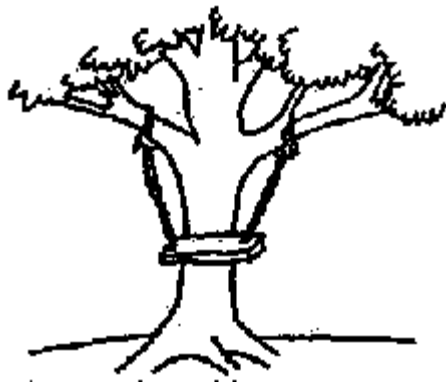
As proposed by the project sponsor.



As specified in the project request.



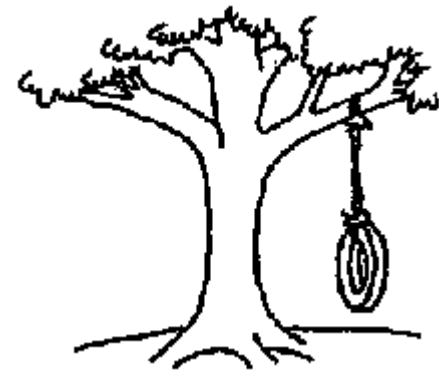
As designed by the senior analyst



As produced by the programmers.



As installed at the user's site.



What the user wanted.

MORE FAILURES

According to Standish Group study in information system projects (1995):

- 31,3 % of projects interrupt or will interrupt
- 52,7% of projects has cost more than 189% compare to estimated
- only 42% of features and functions have been achieved

Source: <http://www.projectsmart.co.uk/docs/chaos-report.pdf>

More reports: <http://www.projectsmart.co.uk/whitepapers.html>



DISCUSSION: WHY DO PROJECTS FAIL (SO OFTEN)?



CAUSES OF PROJECT FAILURE

- The Customer's conditions of satisfaction have not been negotiated
- The project no longer has a high priority
- No one seems to be in charge
- The schedule is too optimistic
- The project plan is not used to manage the project
- Sufficient resources have not been committed
- The project status is not monitored against the plan
- No formal communications plan is in place
- The project has lost sight of its original goals



PROJECT SUCCESS RATES

- The 2001 Standish Group Report Showed *Improvement* in IT Project Success Rates From the 1995
 - Time overruns: decreased to 63% compared to 222%
 - Cost overruns were down to 45% compared to 189%
 - Required features were up to 67% compared to 61%
 - 78,000 U.S. projects were successful vs. to 28,000
 - 28% of IT projects succeeded compared to 16%
- Why the Improvements?
 - Better tools for monitoring and control
 - More skilled PM's
 - More user involvement
 - And “The fact that there are processes is significant in itself.”



WHY DO PROJECTS SUCCEED?

- Executive support
- User involvement
- Experienced project manager
- Clear business objectives
- Minimized scope
- Standard software infrastructure
- Firm basic requirements
- Formal methodology
- Reliable estimates

Do you think that the order has changed during the last 10 years?

Standish Group “CHAOS 2001: A Recipe for Success”

More in http://files.projectplace.com/english/reports/successful_projects.pdf

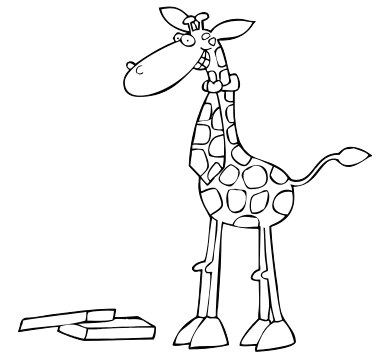


DEFINITIONS OF BASIC TERMS



WHAT IS A PROJECT?

- Lat. projectum < projicere; "to throw something forwards"
- "A project is that senseless are trying to get unwilling people to do impossible things" 😊
- PMI definition (PMBOK 2004, p. 5):
A project is a temporary endeavor undertaken to create a unique product, service, or result



<http://en.wikipedia.org/wiki/Project>



DEFINITION ACCORDING ISO 10006

A project is *unique process*, consisting of a set of *coordinated activities with start and finish dates*, undertaken to *achieve objective* conforming to *specific requirements*, including the constraints of *time, cost and resources*.

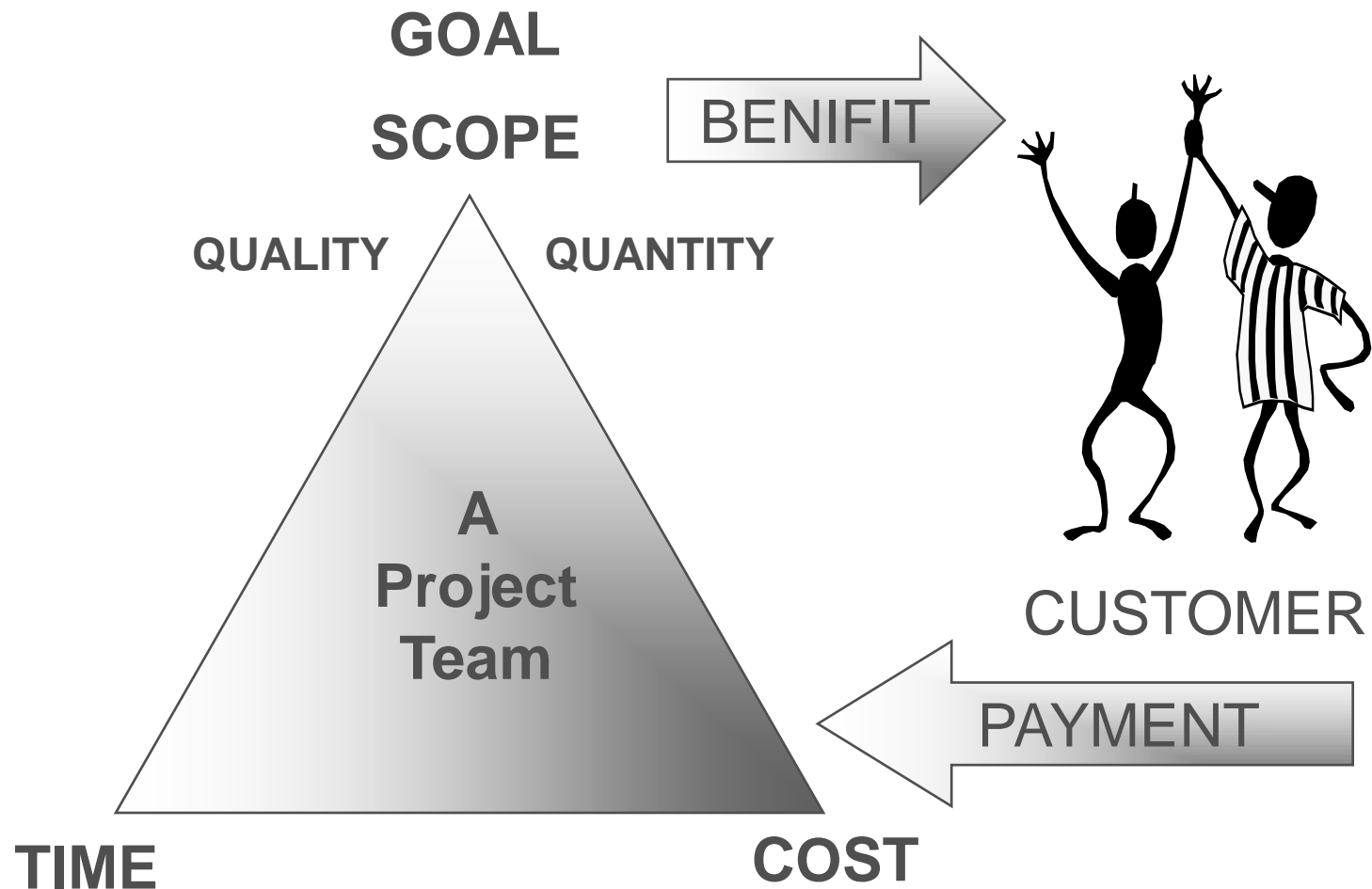
ORGANISATION
INTERNATIONALE DE
NORMALISATION



INTERNATIONAL
ORGANIZATION FOR
STANDARDIZATION



PROJECT GOAL AND CONSTRAINTS



PROJECT MANAGEMENT

- PMI definition (PMBOK 2004, p. 8):
Project management is *the application of knowledge, skills, tools, and techniques to project activities to meet project requirements*
- The phrase “project management” began to emerge in the late 1950s and early 1960s when the size, scope, duration, and resources required for new projects began to deserve more analysis and attention
- According to PMBOK, project management is comprised of five processes: Initiating, Planning, Executing, Monitoring & Controlling, and Closing



PROGRAM MANAGEMENT & PROJECT MANAGEMENT OFFICE

- Program:
 - Group of related projects (PMBOK 2004, p. 16)
 - Longer than projects (definitions vary)
- Project / Program / Portfolio Management Office (PMO)
 - Project Management Office “is an organizational unit to centralize and coordinate the management of projects under its domain” (PMBOK 2004, p. 17)
 - is sometimes referred to as a Project Office, Central Project Office (CPO), Project Support Office (PSO), or Enterprise PMO ([EPMO](#))



DISCUSSION

- Does your organization have a PMO?
- Is so, what kind of support it offers?
 - Sponsorship support from senior management
 - Project management training and mentoring
 - Responsibility for consistent and repeatable processes
 - Reporting and tracking
 - Project and post-project reviews
 - Documenting and archiving lessons learned
 - Others?
- If not, how this support is implemented?



PROJECT ORGANIZATION

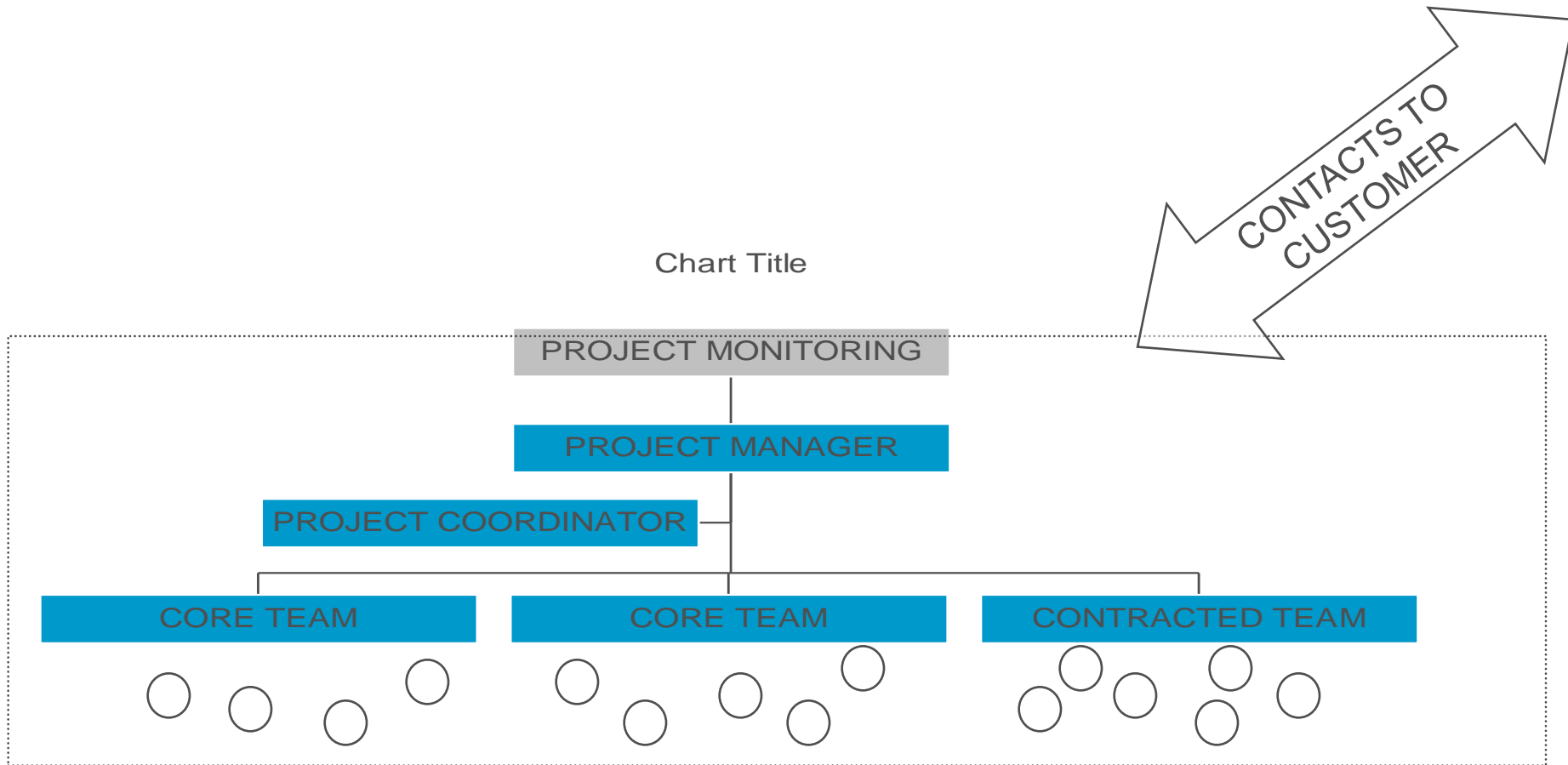


PROJECT STAKEHOLDERS

- Project manager: responsible for managing the project
- Customer: will use the project's product
- Performing organization: enterprise whose employees are most directly involved in doing the work of the project
- Team members
- Project management team
- Sponsor: financial resources
- Other influencers
- PMO



THE PROJECT ORGANIZATION



THE PROJECT MANAGER; JOB FUNCTIONS AND TASKS - PART 1

1. Project Planning (strategic and tactical)

- identifying business problem(s), requirements, and scope
- identifies project results and milestones
- develops project plan
- determine resources needed
- selection of team members
- estimate timelines and phases
-

2. Managing the Project

- continuous reviews project status
- measure progress against plan
- measures the quality of project



THE PROJECT MANAGER; JOB FUNCTIONS AND TASKS - PART 2

3. Lead Project Team

- involves team in planning
- delegates tasks
- be open for staff ideas and concerns
- set performance and development objectives for staff

4. Build Client Partnership

- working jointly with client (goals, changes...)

5. Targeting to the Business

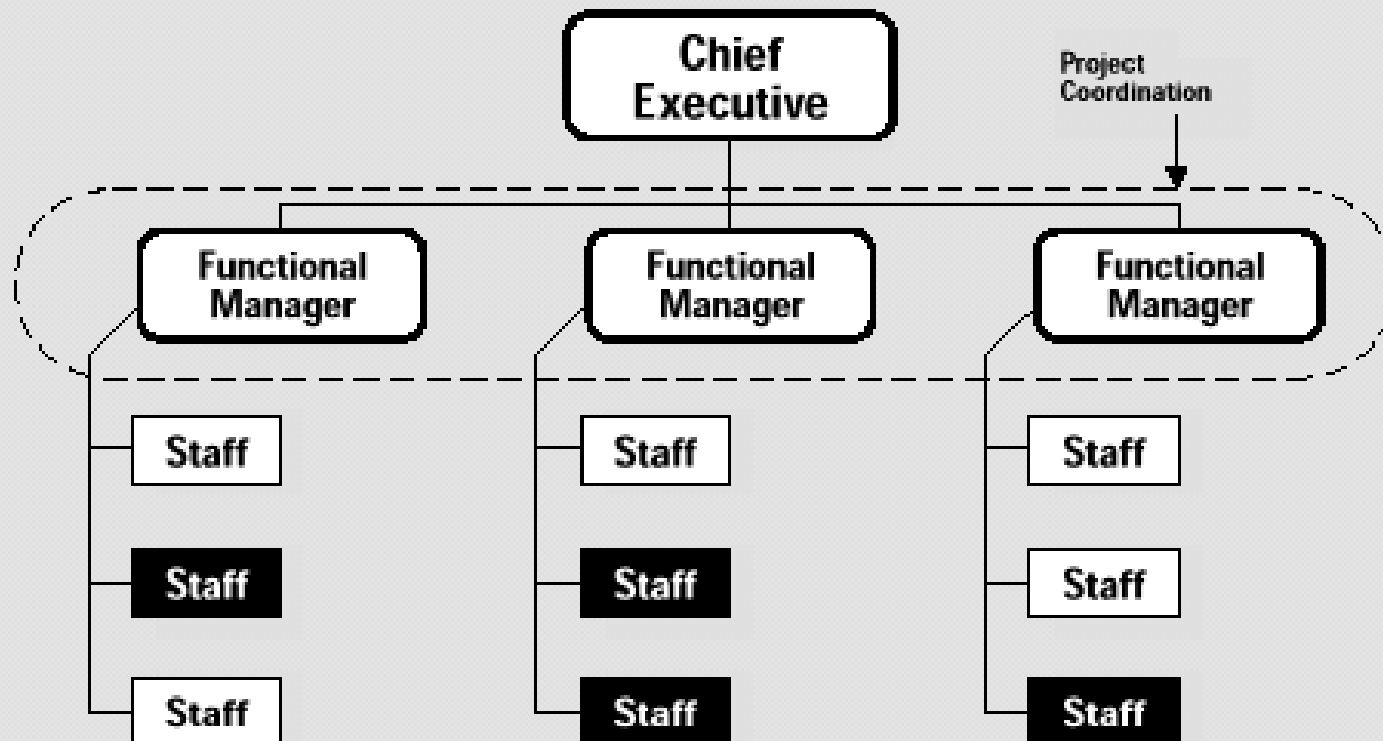


ORGANIZATIONAL STRUCTURES

- Functional
 - Engineering, Marketing, Design, etc.
 - Production & Logistics (P&L) from production
- Project
 - Project A, Project B
 - Income from projects
 - PM has P&L responsibility
- Matrix
 - Functional and Project based
 - Program Mgmt. Model
 - Shorter cycles, need for rapid development process

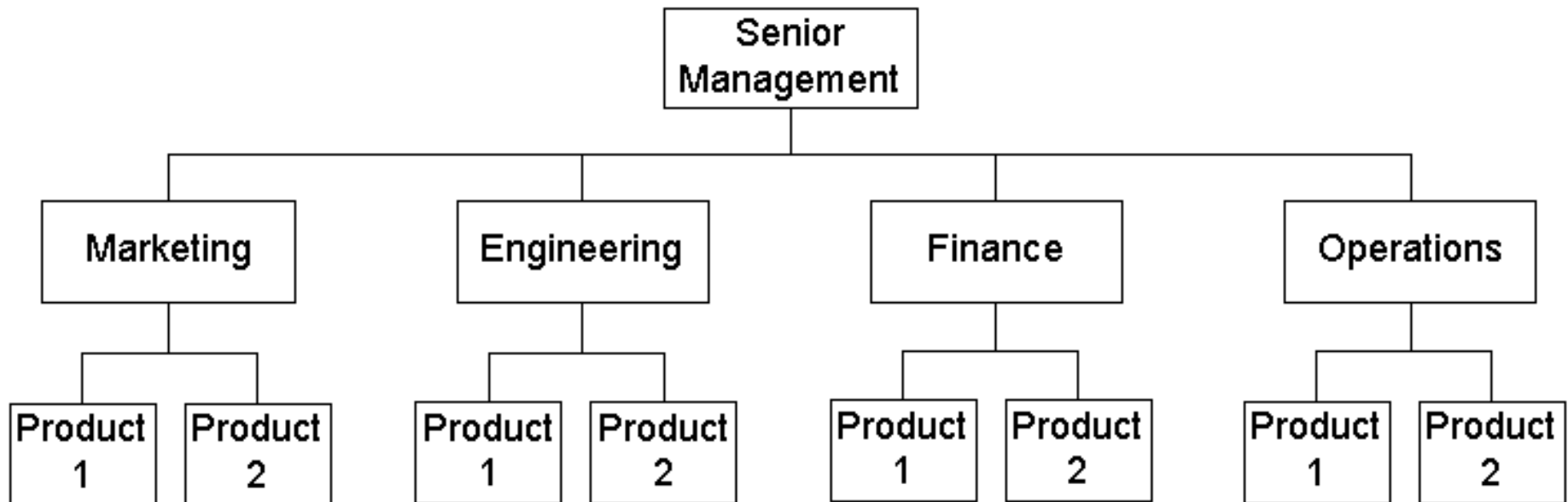


THE FUNCTIONAL ORGANIZATION



(Black boxes represent staff engaged in project activities.)

FUNCTIONAL ORGANIZATION, EXAMPLE



FUNCTIONAL STRUCTURE

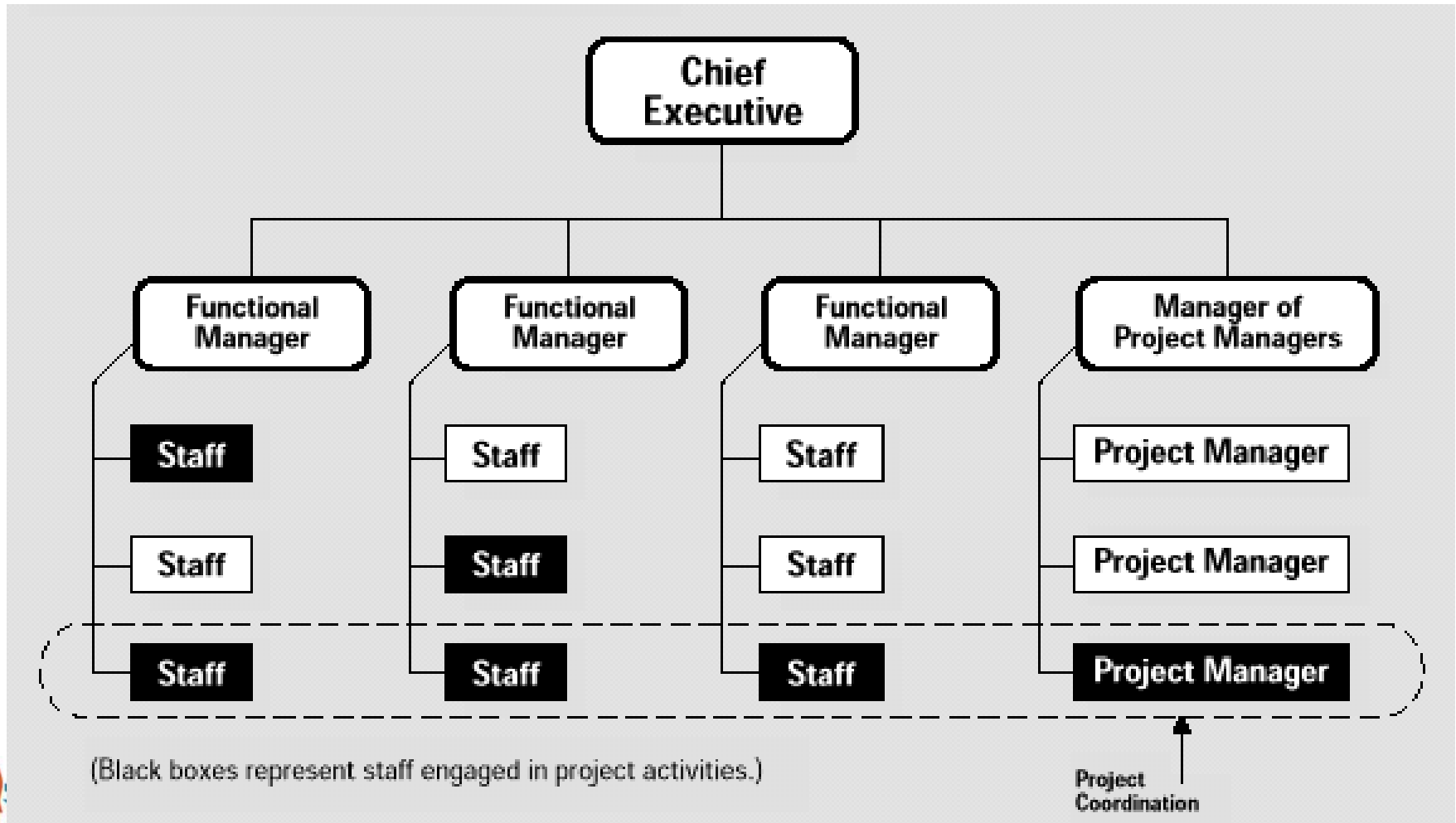
- Advantages
 - Clear definition of authority
 - Eliminates duplication
 - Encourages specialization; everybody understands their task
 - Clear career paths
 - More stable than others
- Disadvantages
 - “Walls”: can lack customer orientation
 - “Silos” create longer decisions cycles (between functions)
 - Conflicts across functional areas
 - Project leaders have little power
 - Poor development opportunities
 - Higher risk of project failure

MATRIX FORMS

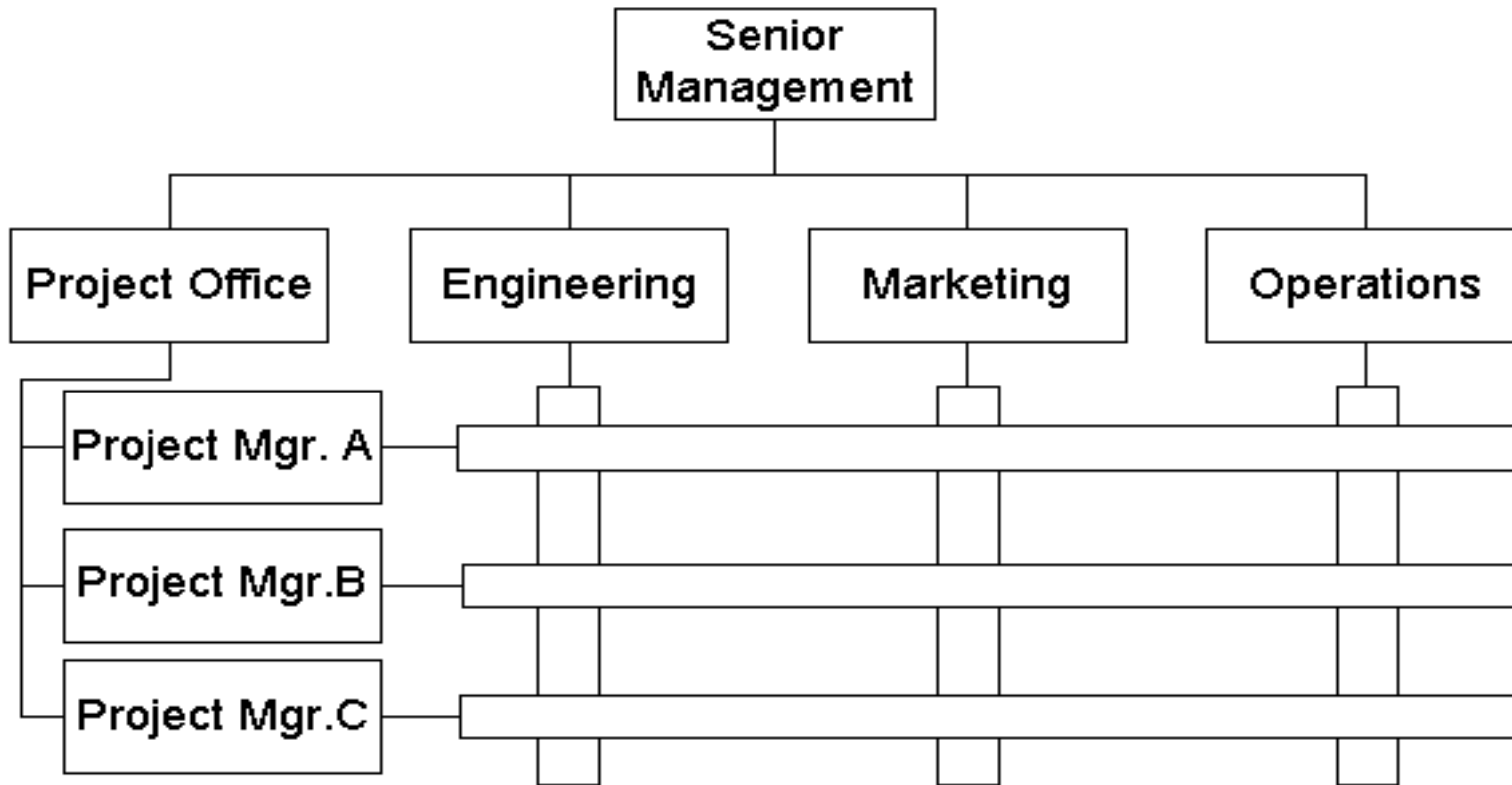
- Weak, Strong, Balanced
- Degree of relative power
- Weak: functional-centric
- Strong: project-centric



THE MATRIX ORGANIZATION



MATRIX ORGANIZATION, EXAMPLE

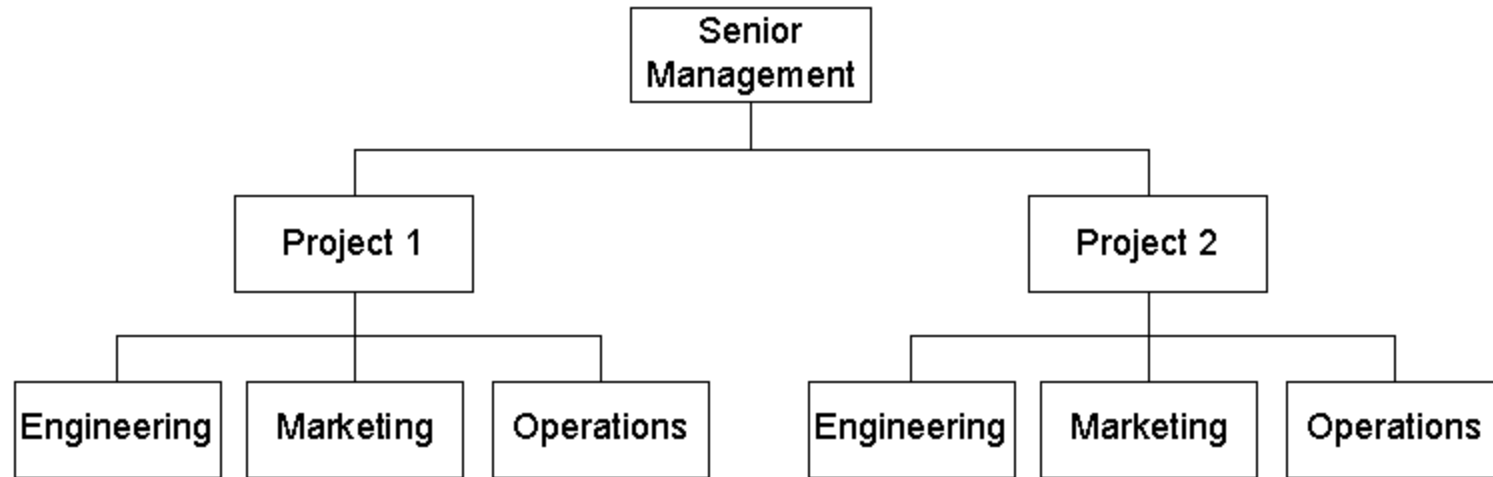


MATRIX STRUCTURES

- Advantages
 - Project integration across functional lines
=> Better utilization of specialized skills
 - Flexible and adaptive to changing environments
 - Retains functional teams
- Disadvantages
 - Project management difficult (no line authority)
 - Greater potential for politics
 - Each project team member has two bosses
=> resource & priority conflicts
 - More complex than other forms



PROJECT ORGANIZATION



- Pros

- Unity of command
- Effective inter-project communication

- Cons

- Duplication of facilities
- Career path

- Examples: defense avionics, construction

ORGANIZATIONAL STRUCTURE INFLUENCES ON PROJECTS

| Organization Type Project Characteristics | Functional | Matrix | | | Projectized |
|---|--|--|-------------------------------------|-------------------------------------|-------------------------------------|
| | | Weak Matrix | Balanced Matrix | Strong Matrix | |
| Project Manager's Authority | Little or None | Limited | Low to Moderate | Moderate To High | High to Almost Total |
| Percent of Performing Organization's Personnel Assigned Full-time to Project Work | Virtually None | 0-25% | 15-60% | 50-95% | 85-100% |
| Project Manager's Role | Part-time | Part-time | Full-time | Full-time | Full-time |
| Common Title for Project Manager's Role | Project Coordinator/ Project Leader | Project Coordinator/ Project Leader | Project Manager/ Project Officer | Project Manager/ Program Manager | Project Manager/ Program Manager |
| Project Management Administrative Staff | Part-time | Part-time | Part-time | Full-time | Full-time |

PMBOK Guide, 2000, p. 19



ORGANIZATIONAL IMPACT

- Form can greatly impact your role
- Determine what skills you'll need from which functions
- The new “Project Office”
 - A) As centralized project management
 - B) As coach and info. office to project teams
- The “Enterprise PMO” (EMPO)



DISCUSSION

- Which kind of organizational structure your company has?
- Should it be more projectized? If so, what shall you do about it?



PMBOK STRUCTURES PM BY

A) KNOWLEDGE AREAS

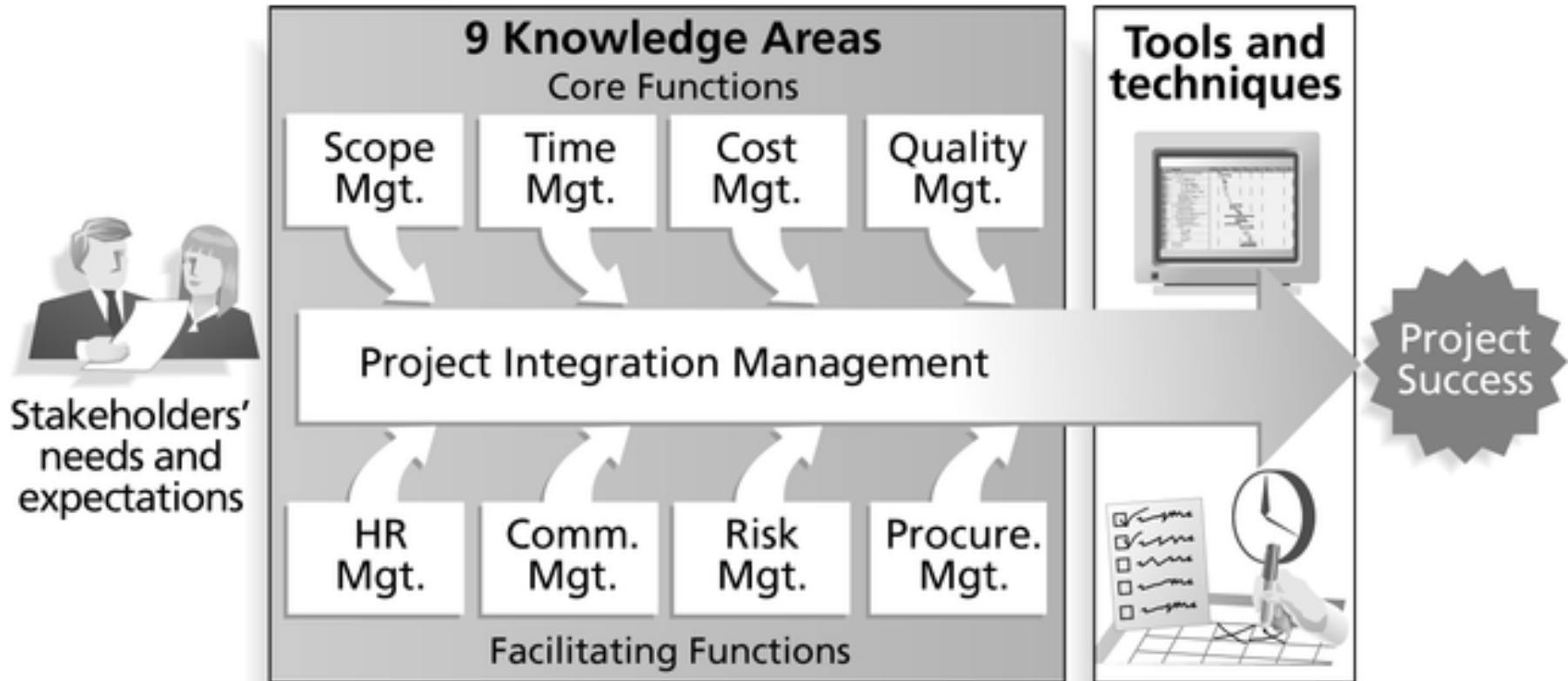
B) PROCESSES

TWO TYPES OF PROCESSES:

1. PM processes: describing and organizing the work of the project
2. Product-oriented processes: specifying and building the project's product



PMI FRAMEWORK



Source: Project Management Institute

FOCUS IN THESE SLIDES

| Knowledge Area | Initiating | Planning | Executing | Controlling | Closing |
|--------------------------------|--|--|---|---|---|
| Project Integration Management | <ul style="list-style-type: none"> • Develop Project Charter • Develop Preliminary Project Scope Statement | <ul style="list-style-type: none"> • Develop Project Management Plan | <ul style="list-style-type: none"> • Direct and Manage Project Execution | <ul style="list-style-type: none"> • Monitor and Control Work • Integrated Change Control | <ul style="list-style-type: none"> • Close Project |
| Project Scope Management | | <ul style="list-style-type: none"> • Scope Planning • Scope Definition • Create WBS | | <ul style="list-style-type: none"> • Scope Verification • Scope Control | |
| Project Time Management | | <ul style="list-style-type: none"> • Activity Definition • Activity Sequencing • Activity Resource Estimating • Activity Duration Estimating • Schedule Development | | <ul style="list-style-type: none"> • Schedule Control | |
| Project Cost Management | | <ul style="list-style-type: none"> • Cost Estimating • Cost Budgeting | | <ul style="list-style-type: none"> • Cost Control | |

PROJECT INTEGRATION MANAGEMENT

- Includes processes to ensure that all the elements of a project are properly coordinated
- Making tradeoffs among competing alternatives and objectives to meet stakeholder needs
- Typically the most important knowledge area for the Project Manager
- Overview: see the Figure 4-1, p. 79 (PMBOK 2004)



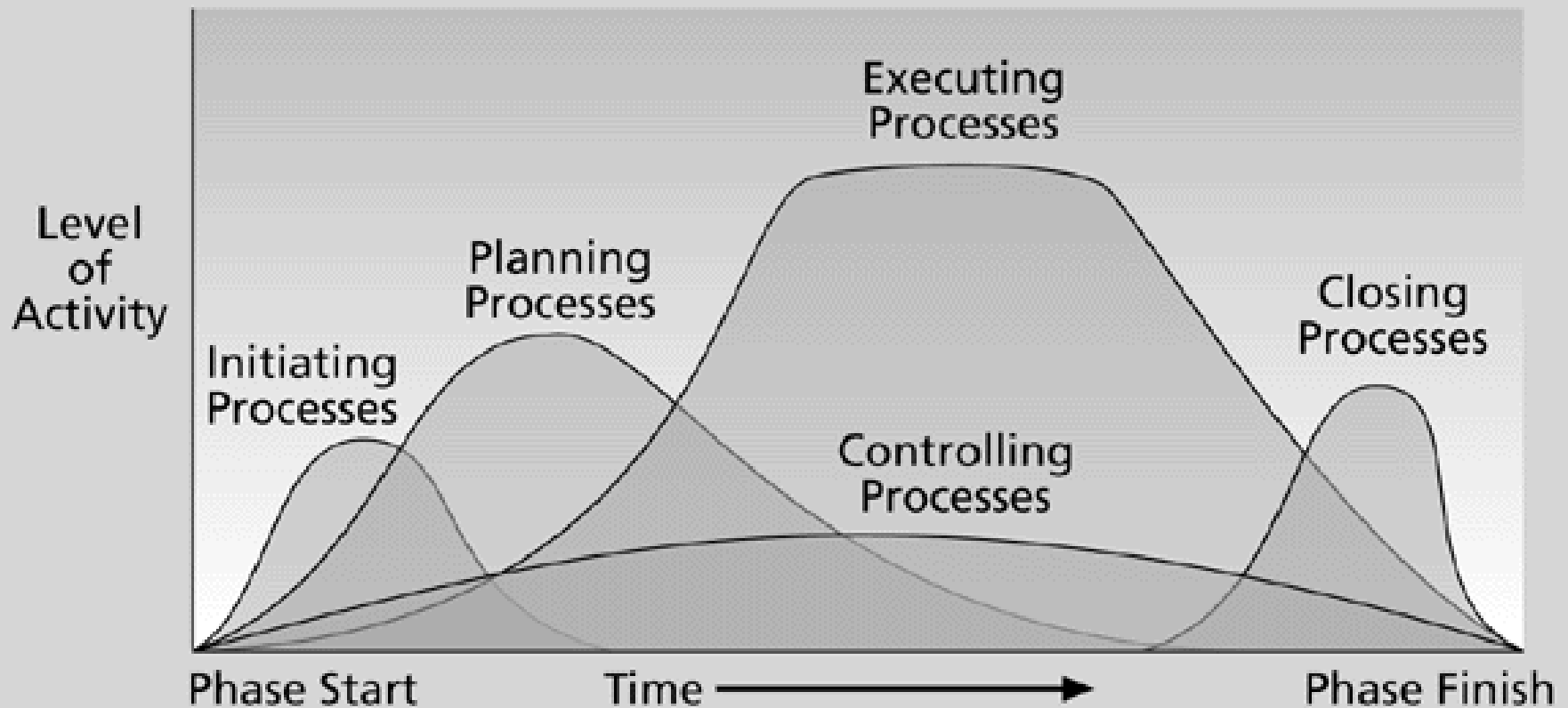
THE 5 PMI PROCESS GROUPS (“STAGES”)



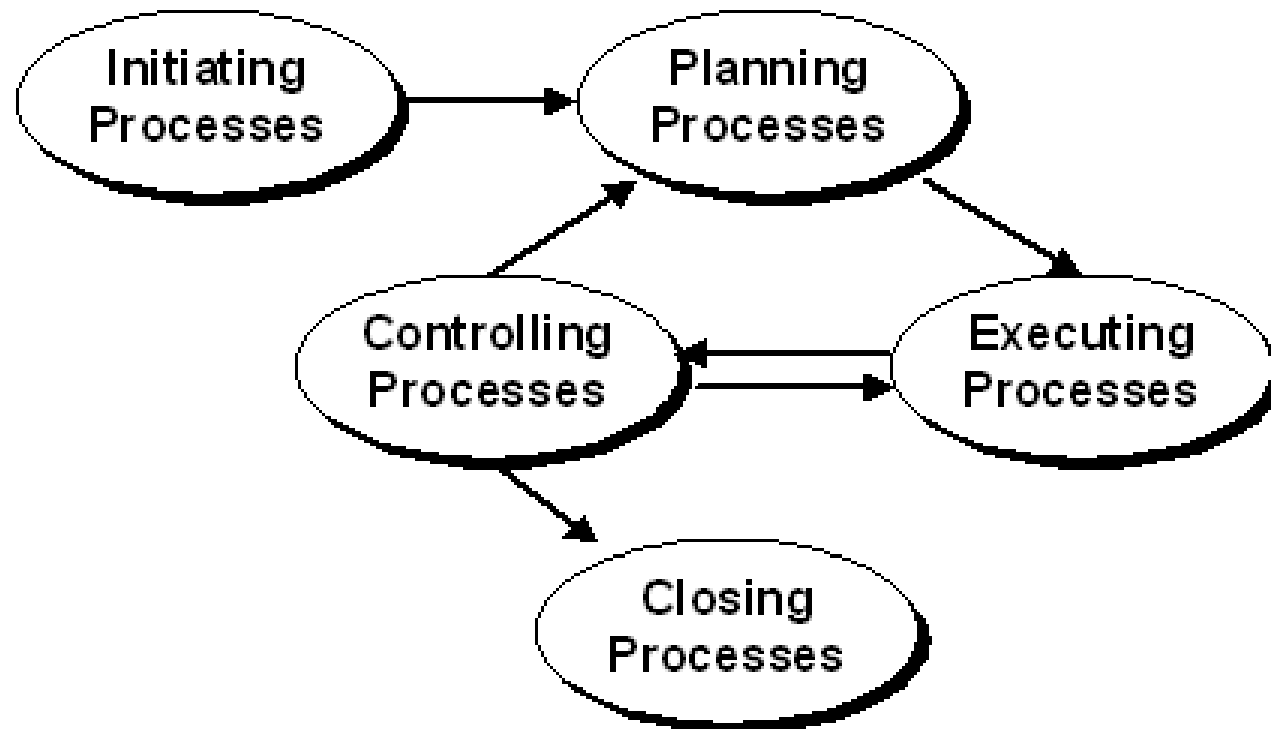
1. Initiating
 2. Planning
 3. Executing
 4. Controlling & Monitoring
 5. Closing
- Note: these can be repeated for each phase
 - Each process is described by:
 - Inputs
 - Tools & Techniques
 - Outputs



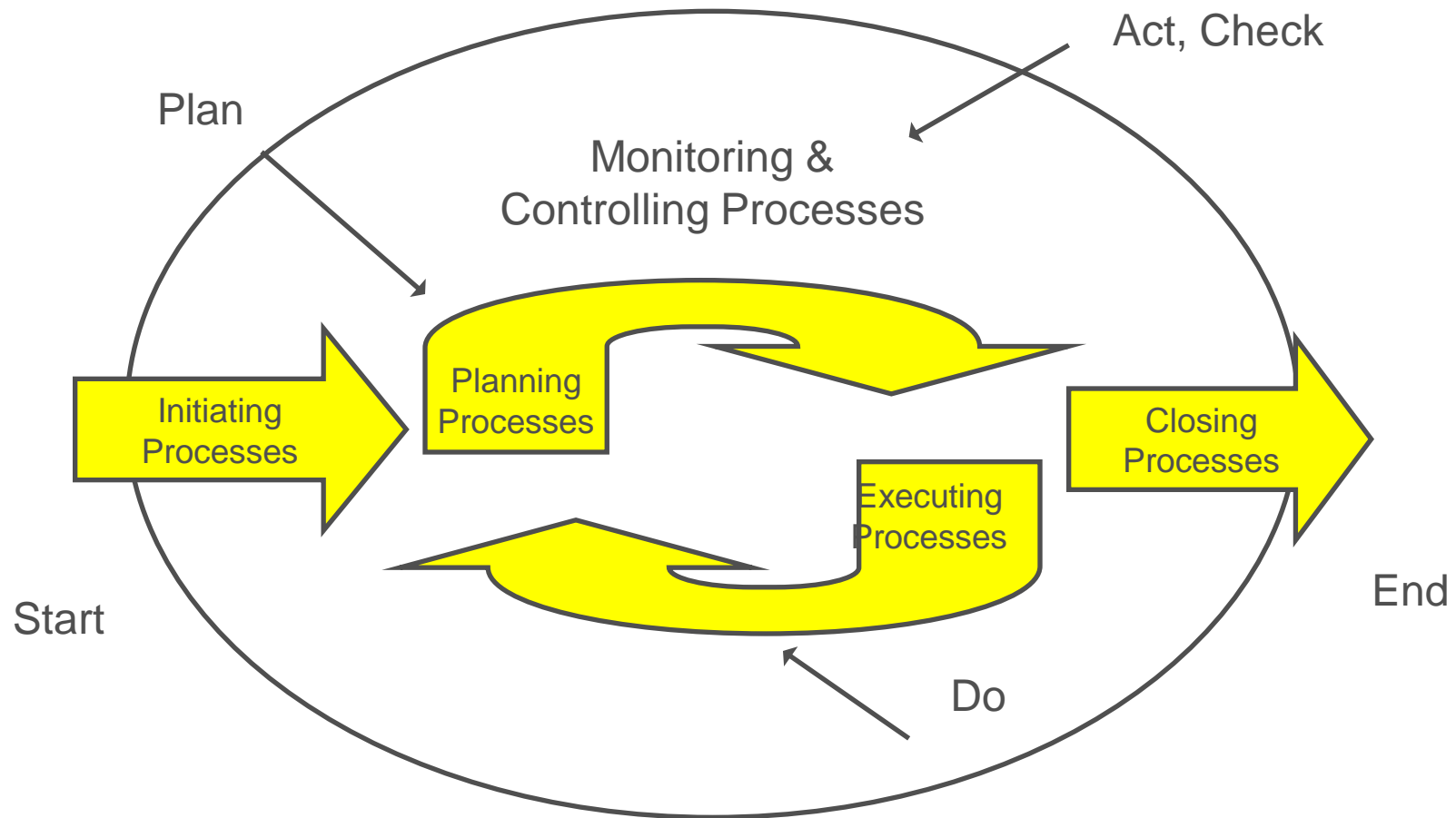
OVERLAP OF PMI PROCESS GROUPS IN A PHASE



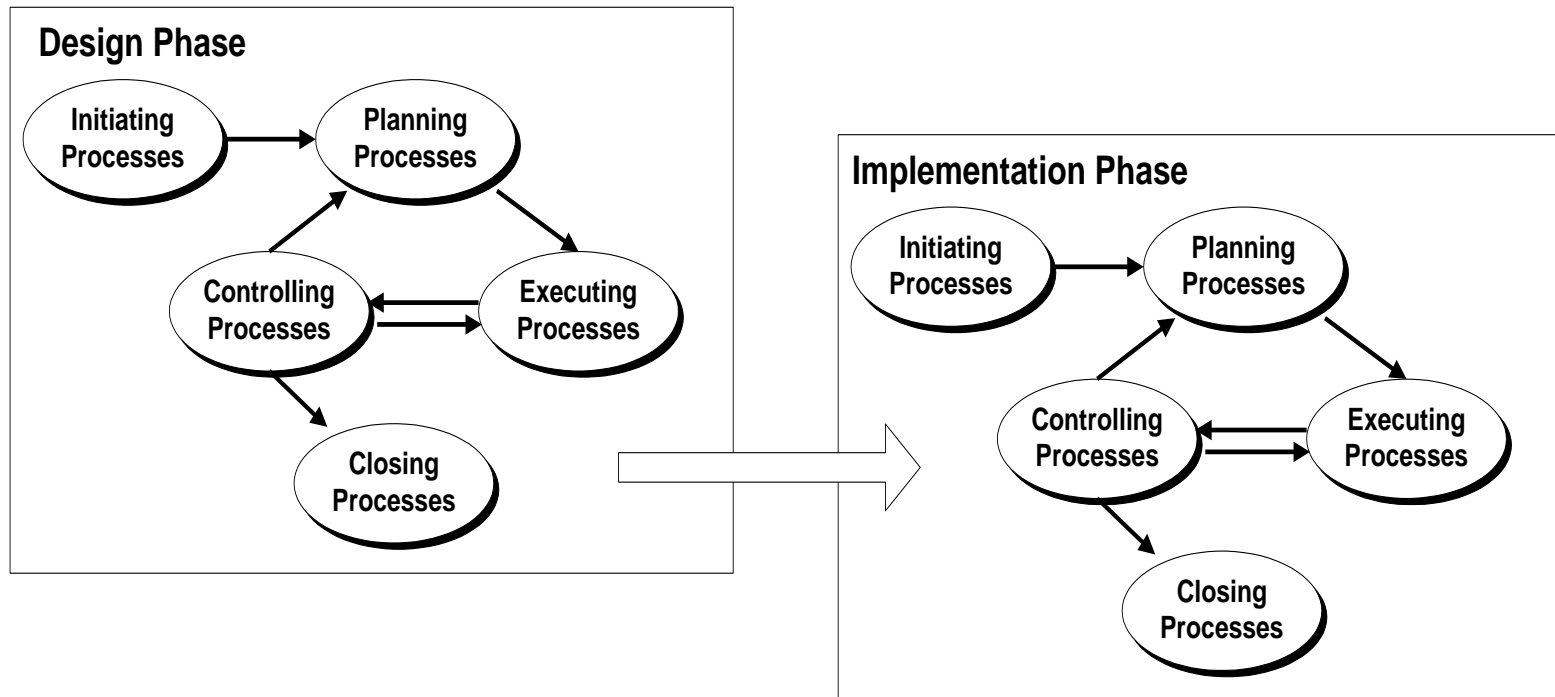
PMI: PROCESS LINKS



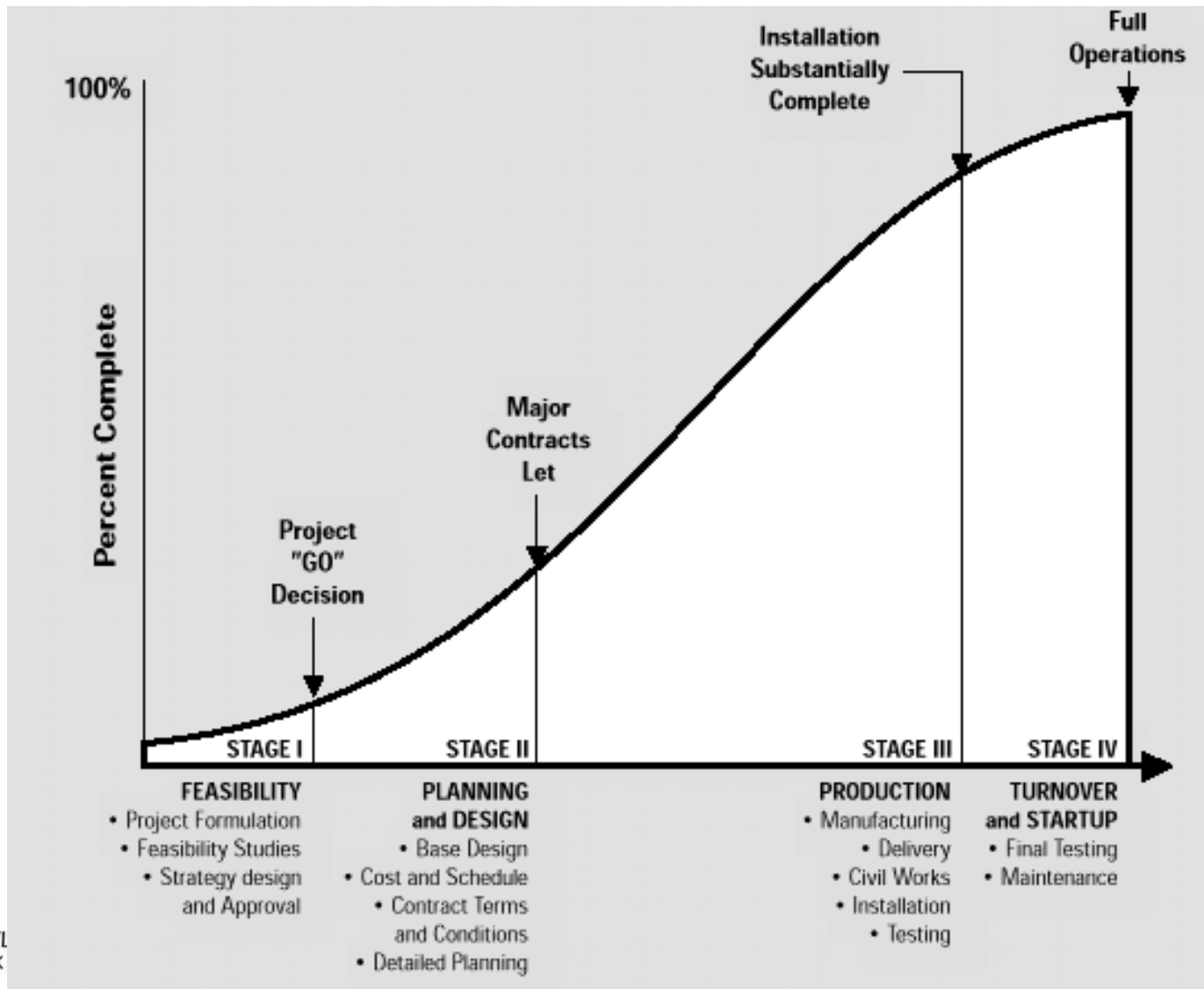
PROJECT MANAGEMENT PROCESSES



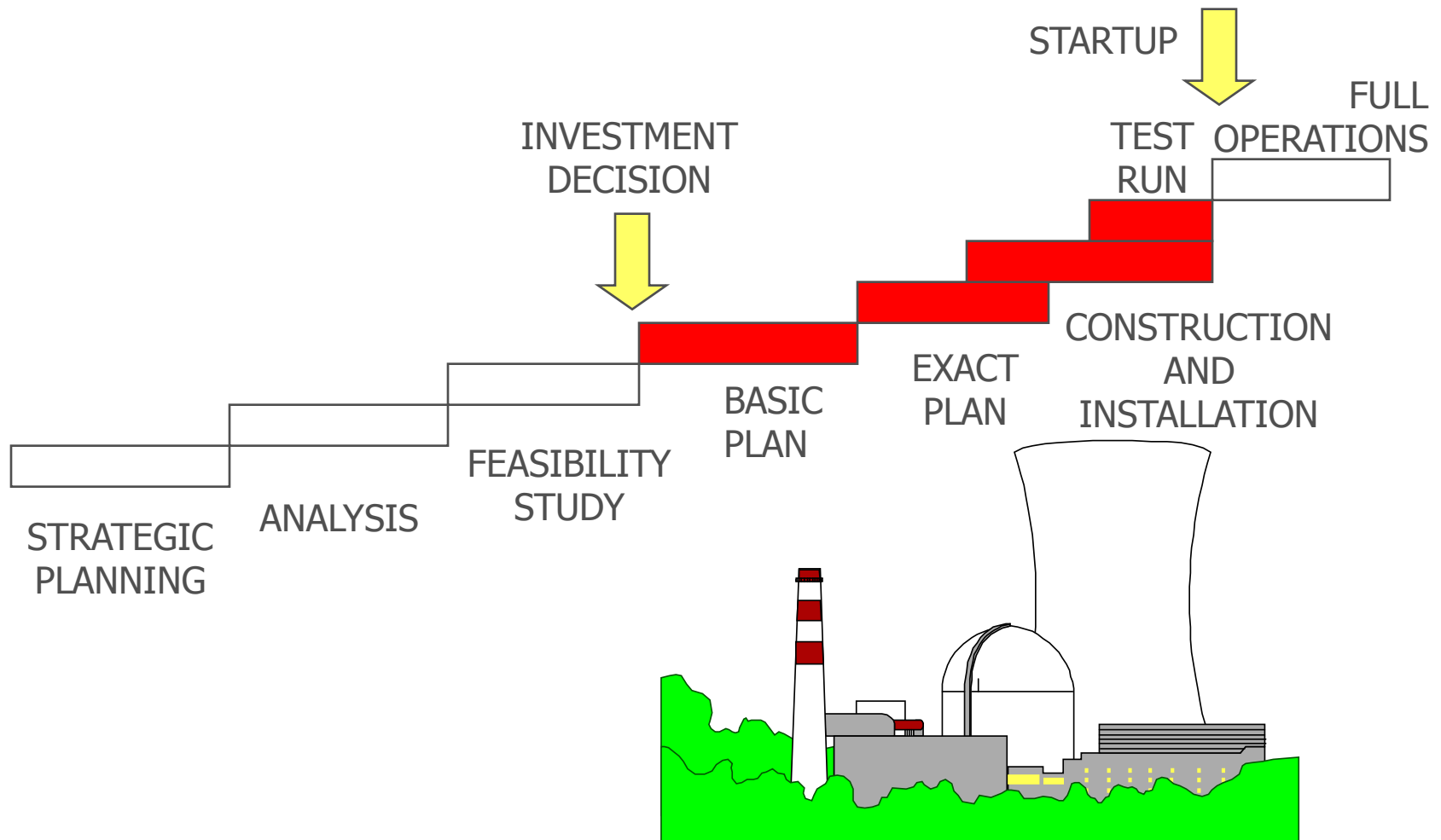
PMI PHASE INTERACTIONS



PERCENT COMPLETE

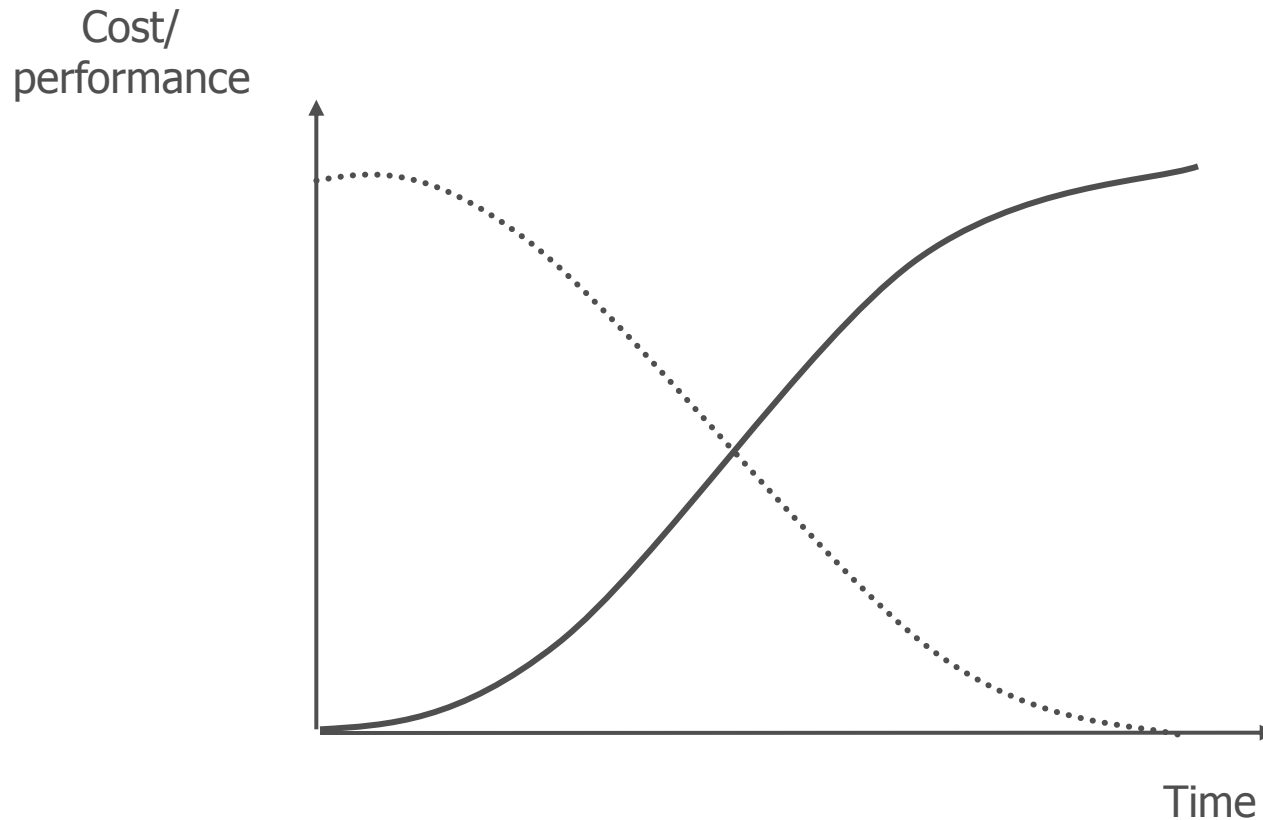


EXAMPLE: A POWER PLANT



THE S-CURVE

=> Possibilities to influence
to the result are best in the
beginning of the project



PMI: INITIATING PROCESS

PMBOK, SECTIONS 3.2.1 AND FROM THE CHAPTER
4 THE BEGINNING + SECTIONS 4.1 & 4.2

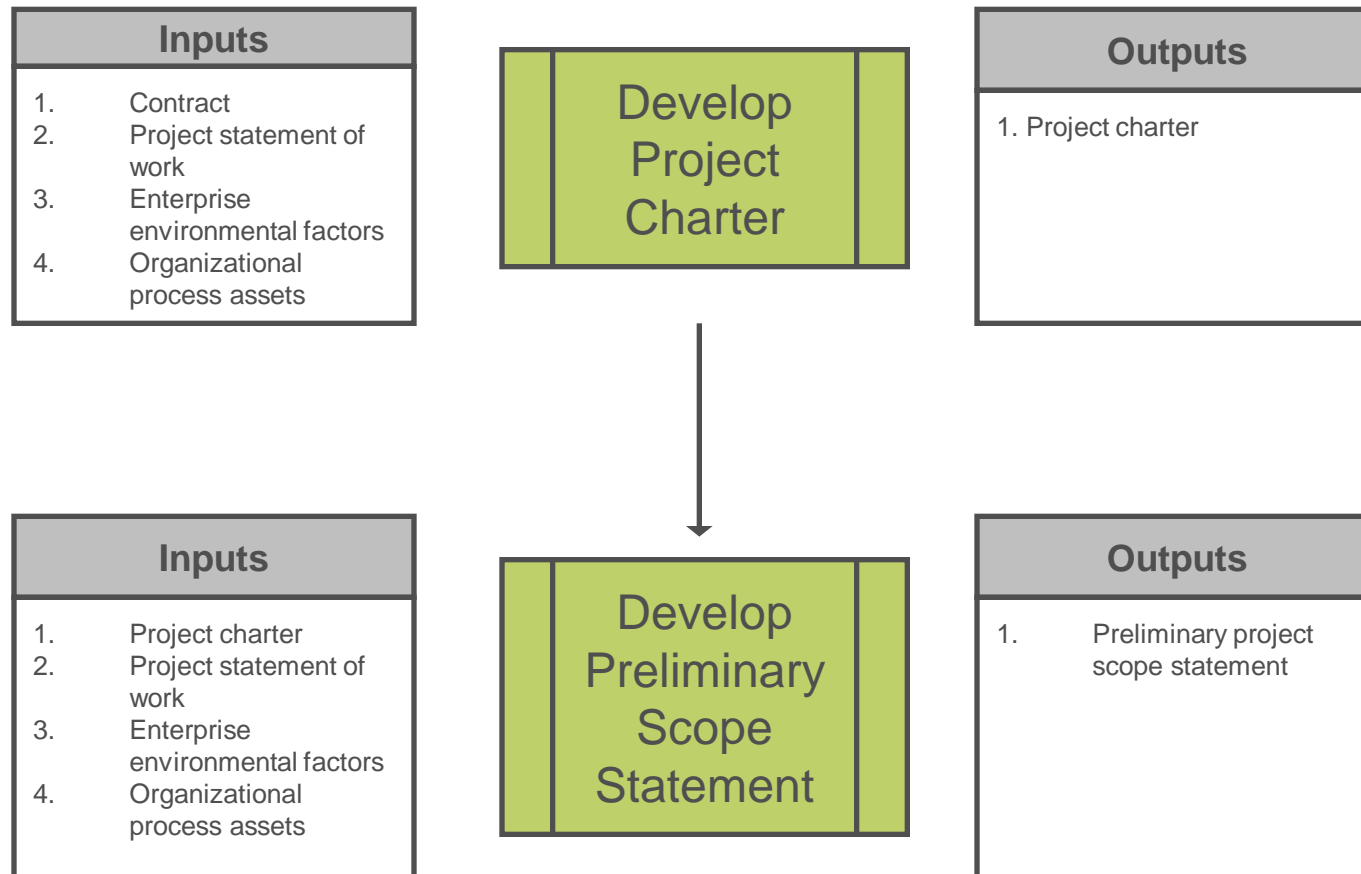


INITIATING PROCESS (GROUP)

- “Processes that facilitate the formal authorization to start a new project or a project phase” (PMBOK 2004, p. 43)
- Main results (when starting a new project):
 - Project Manager assigned
 - Project Charter developed
 - Sometimes called a Project Definition or Project Plan
 - Sometimes a Business Case document is created first
 - See http://www.projectperfect.com.au/info_project_documentation.php for more details
 - Preliminary Project Scope Statement developed



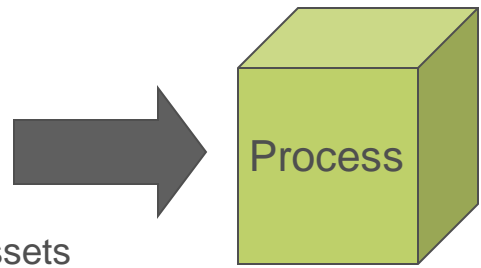
INITIATING PROCESS GROUP (PMBOK PRESENTATION)



ANOTHER WAY TO SHOW INITIATING PROCESS GROUP

INPUTS

- Contract
- Statement of Work (SOW)
- Enterprise Environmental Factors
- Organizational Process Assets



Develop Project Charter



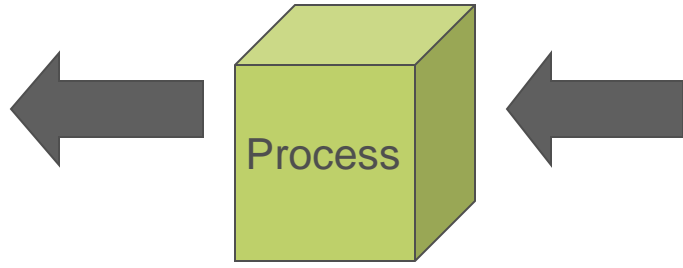
OUTPUTS

- Project Charter



INPUTS

- Project Charter
- Project Statement of Work (SOW)
- Enterprise Environmental Factors
- Organizational Process Assets

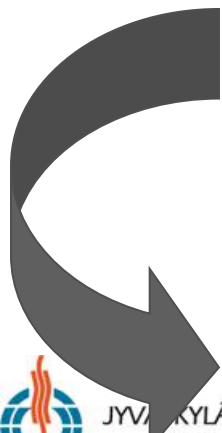


Develop Preliminary Scope Statement



OUTPUTS

- Preliminary Project Scope Statement



To Planning Process Group!



STATEMENT OF WORK (SOW)

- A.k.a. Work packages: a description of the work required for the project (work content, work objectives, work results, responsible person, dates and duration, resources, presumptions and costs)
- Input for project charter (or PID, project initiation document)
- Sets the “boundary conditions”
- SOW vs. CSOW (Contract SOW): Latter uses legal language as part of a competitive bidding scenario
- Can be used in the final contract – be careful, be specific, be clear



SOW TEMPLATE (EXAMPLE)

- I. **Scope of Work:** Describe the work to be done to detail. Specify the hardware and software involved and the exact nature of the work.
- II. **Location of Work:** Describe where the work must be performed. Specify the location of hardware and software and where the people must perform the work
- III. **Period of Performance:** Specify when the work is expected to start and end, working hours, number of hours that can be billed per week, where the work must be performed, and related schedule information. Optional “Compensation” section.
- IV. **Deliverables Schedule:** List specific deliverables, describe them in detail, and specify when they are due.
- V. **Applicable Standards:** Specify any company or industry-specific standards that are relevant to performing the work. Often an Assumptions section as well.
- VI. **Acceptance Criteria:** Describe how the buyer organization will determine if the work is acceptable.
- VII. **Special Requirements:** Specify any special requirements such as hardware or software certifications, minimum degree or experience level of personnel, travel requirements, documentation, testing, support, and so on.



PROJECT CHARTER

- A high-level project description of the business needs, product (or service or result), requirements, and assumptions
- Primarily concerned with authorizing the project or project phase
- Links the project to the ongoing work of the organization
- Often 2-4 pages (can be longer)



PROJECT CHARTER

- Typical outline:
 - Overview
 - Business need
 - Objectives
 - Method or approach
 - General scope of work
 - Rough schedule & budget
 - Roles & responsibilities
 - Assumptions

| Project Overview | Project Name | Project No. | Project Manager |
|----------------------------|--------------|-------------|-----------------|
| Proplem/Opportunity | | | |
| Goal | | | |
| Objectives | | | |
| Succes Criteria | | | |
| Assumption, Risk, Obstades | | | |
| Prepared by | Date | Approved by | Date |
| | | | |



| | | | |
|---|--|------------------------|----------------------------------|
| Project Overview | Project Name R&D work for automatic window assembly machine | Project No. kks.002 | Project Manager Juha Hautanen |
| <p>Problem/Opportunity</p> <p>In the markets the assembly work by hand is too expensive. The working costs are increasing and material cost has to drop out. For the machine delivery company they're excising the opportunity.</p> | | | |
| <p>Goal</p> <p>Have the plans for device and numbers for decision making.</p> | | | |
| <p>Objectives</p> <p>To make marketing research. Find the idea of automatic assembly. Define the customers and competitors. Design the machine. Make the production cost calculations.</p> | | | |
| <p>Success Criteria</p> <p>The design is ready April 26. Numbers are ready May 13. Production and marketing can starts July 23.</p> | | | |
| <p>Assumption, Risk, Obstacles</p> <p>Some other company get same idea. Marketing research numbers are not reliable. Technical problems cause delay</p> | | | |
| Prepared by JH | Date 23.04.00 | Approved by M A-T | Date 1.05.00 |

PROJECT CHARTER TOOLS & TECHNIQUES

- Project selection methods
- Project management methodology (defined set of project management processes)
- PM Information Systems (PMIS)
 - Standardized set of automated tools available
 - Keeps the PM informed of the status of all project tasks
- Expert judgment
 - Applied to any technical and management details in the process
 - Individuals/organizations have specialized knowledge or training
 - Can be internal, consultants, stakeholders, professional associations, industry groups etc.



PROJECT SELECTION

- The go/no-go project decisions are decided during a Project Selection phase of projects, a.k.a. Business Definition
- This phase shapes the overall direction of the business unit from the project's perspective
- It is during this phase that the organization's project management processes are initiated



METHODS FOR SELECTING PROJECTS

- There are usually (always?) more projects than available time and resources to implement them
- => It is important to follow a logical process for selecting projects
- Methods include
 - Focusing on broad needs
 - Categorizing projects (in a review meeting or similar)
 - Financial methods
 - Weighted scoring models
 - Mathematical models



DEVELOP PRELIMINARY PROJECT SCOPE STATEMENT

- High level definition of the project (what needs to be done) using the project charter with other inputs (e.g. SOW)
- Addresses and documents (PMBOK 2004, p. 86) e.g.:
 - specifications and the scope (project and product objectives, requirements, deliverables, boundaries, etc.)
 - Acceptance criteria
 - High level scope control
 - Initial WBS
- Validates or refines the scope of each phase in multi-phase projects

THE CUSTOMER'S CONDITIONS OF SATISFACTION

What are the customer needs?

What the customer wants?

What the customer tells he/she wants?

How the customer is understood?

What the customer gets?

Minimized shaft



HOMework ASSIGNMENT

- Write a **Project Charter (topic proposal)** for your project (thesis)
- Combines elements of a SOW
- 1-3 pages
- Use format of your choice except if you write thesis topic proposal (see links and templates on class site & learning environment + JAMK's web site)
- Graded on content, not format



ASSIGNMENT DETAILS

- Include:
 - Overview (2-4 paragraphs)
 - What the goal is (=> summary)
 - Who will use it (=> stakeholders)
 - What problem is it solving (=> objectives)
 - Scope of Work (outline format or text)
 - Deliverables: what the outcome is (details)
 - Rough time estimate (2 months or 2 yrs?)
 - Out of scope items
 - Assumptions

CHARTER EXAMPLES: PRIMARY STAKEHOLDERS

(following examples are not of one set)

- Sponsor: VP of Marketing
- Sponsor: Five Star Brokerage Consortium
- Sponsor: Bill Smith, CEO
- Users: Call center operators
- Users: Our partner banks
- Customers: Attorneys from small-to-mid size law firms
- Customers: Males 30-45 earning \$75K or more



SMART CHARACTERISTICS OF ON OBJECTIVE STATEMENT



| | |
|----------------------|--|
| S pecific | <i>Be specific in targeting an objective.</i> |
| M easurable | <i>Establish a measurable indicator.</i> |
| A ssignable | <i>Make the objective assignable to one.</i> |
| R ealistic | <i>State what can realistically be done.</i> |
| T ime-related | <i>State when the objective can be achieved.</i> |

8 Strategies for Achieving SMART Goals:

<http://www.projectsart.co.uk/8-strategies-for-achieving-smart-goals.html>

CHARTER EXAMPLES: DELIVERABLES

- Retail Web Site
 - Full catalog
 - Shopping-cart system
 - Search engine
 - User registration system
- Trading System
 - Equities order entry system
 - Portfolio management
 - Order execution engine
 - Integration with X legacy systems
 - Security infrastructure



CHARTER EXAMPLES: ASSUMPTIONS

- We will reuse the architecture from the previous ordering system
- The system will be built using an ASP model
- Customer will provide necessary business experts as needed during development
- System will run on existing networking and computer resources
- Customer will sign-off on interim deliverables within one week of each delivery
- All import data will be available in XML format
- This will be a web-based application
- Our in-house development team will do the work
- The rendering engine will be licensed from a third party
- We will partner with an overseas development firm to create the security systems



CHARTER EXAMPLES: OUT OF SCOPE / SCHEDULE

- Out of Scope
 - News feeds
 - Jazzy color picker
 - Auction engine
 - Legacy integration
 - Help system
- Schedule
 - We anticipate an overall 12-14 month development timeframe
 - The project is expected to start in Q1 2008 and complete in Q3 2008
 - The initial release is expect within 10 months with the follow-on delivery within 4-6 months



HOMEWORK READING

- PMBOK 2004, from beginning to page 102, especially “Project Integration Management” 4.1 – 4.3 (p. 77-90)
- Review construx.com and other PM links with templates
- Hint: [webinars](#) in Construx Software web site can be included in Advanced technology course



QUESTIONS?



THE WORK BREAKDOWN STRUCTURE (WBS)

THIS INFO IS NEEDED FOR CREATING THE
INITIAL WBS



THE WORK BREAKDOWN STRUCTURE (WBS)

- WBS is result of scope planning where project team and customer identify both project objectives and major deliverables
- Decompose project to into chunks of work
- Proceeding from the major chunk of work to smaller chunks of work to the final level that meets the planning and scheduling needs => more manageable components

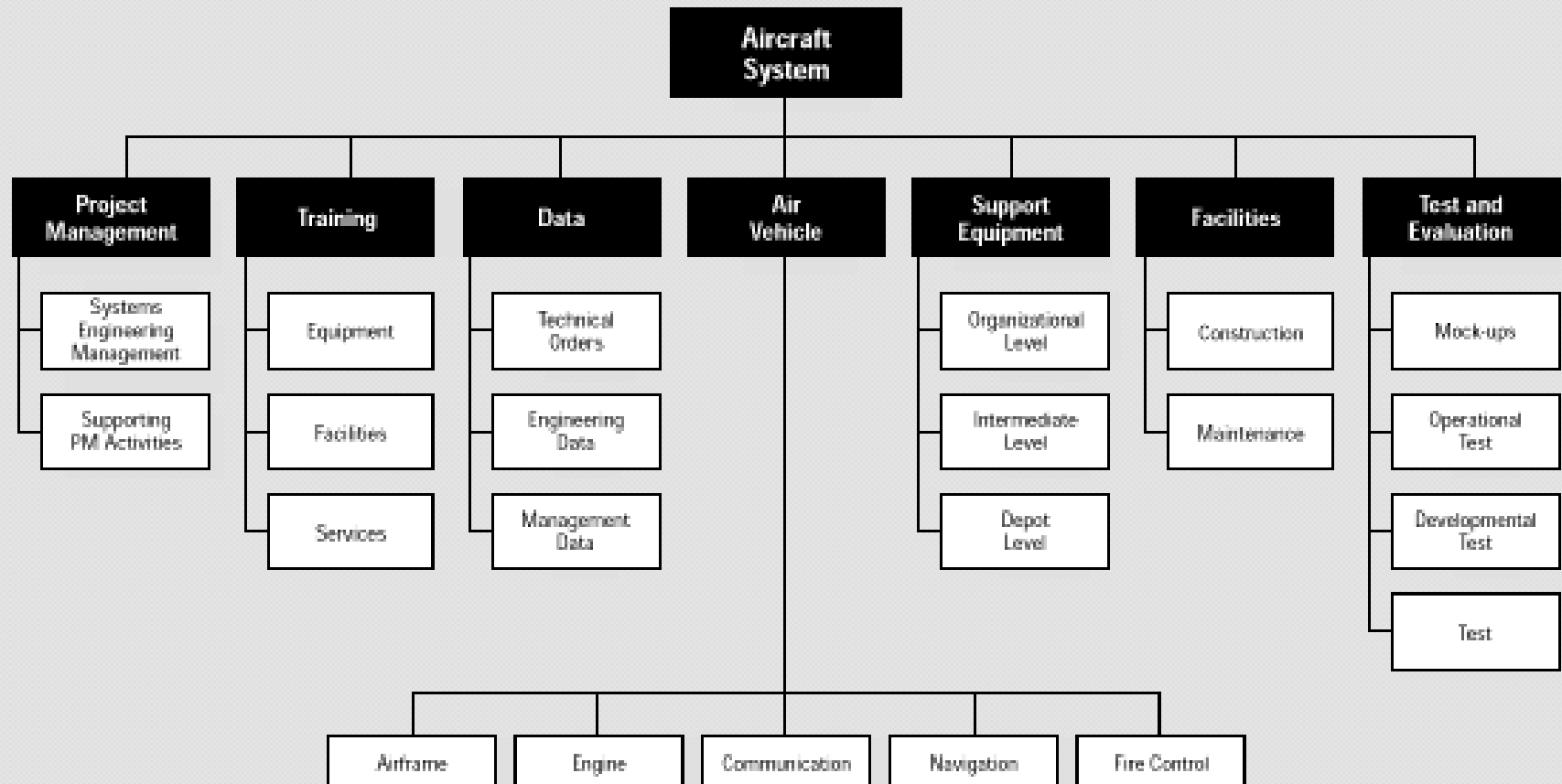


WBS

- The idea is same than outline of report or book but has to be done before writing
- WBS is both a planning tool and a reporting tool
- Templates are useful (former projects etc.)



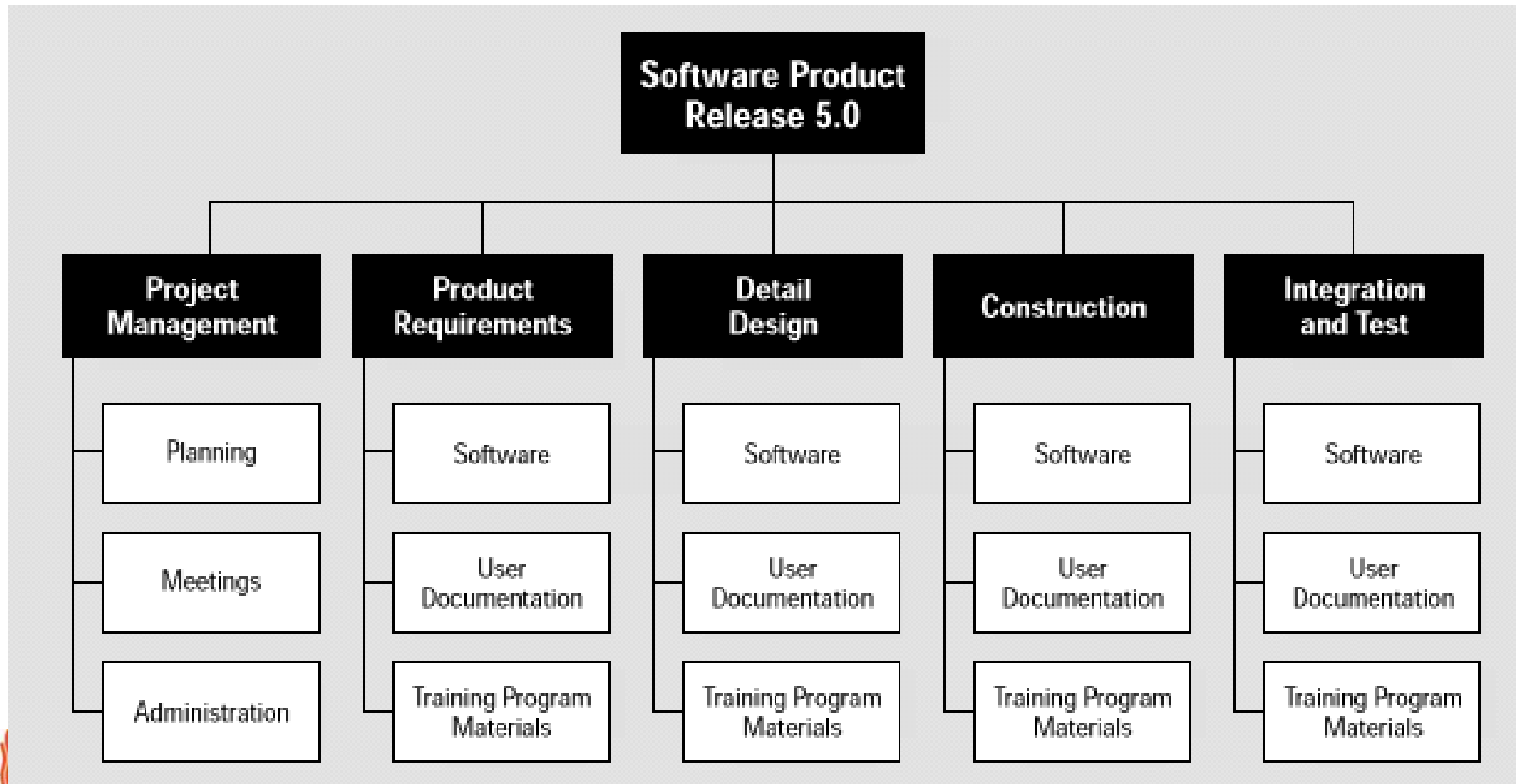
WBS MADE BY MATERIAL ITEMS (NOUN-TYPE)



This WBS is illustrative only. It is not intended to represent the full project scope of any specific project, nor to imply that this is the only way to organize a WBS on this type of project.

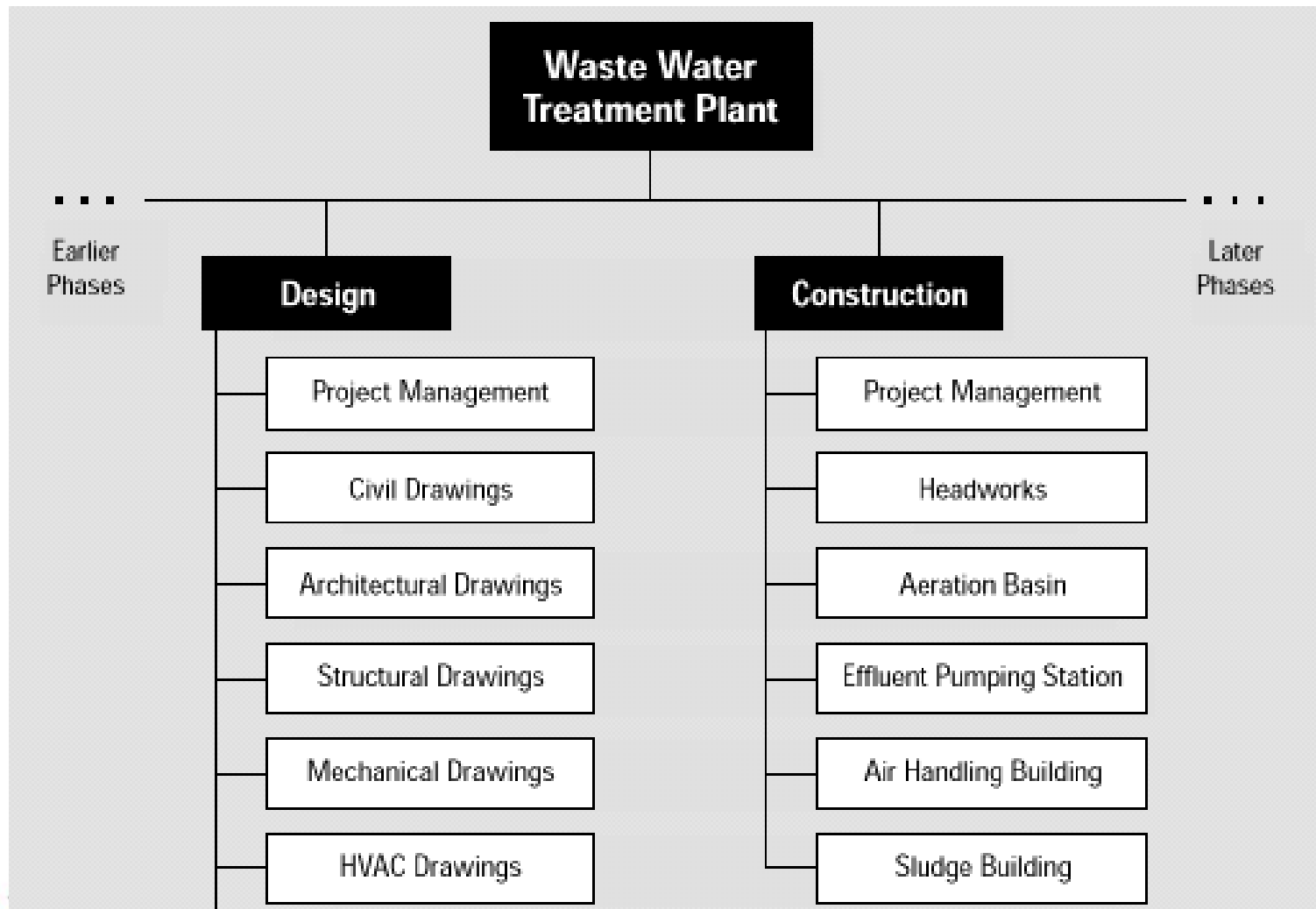


WBS MADE BY PHASE

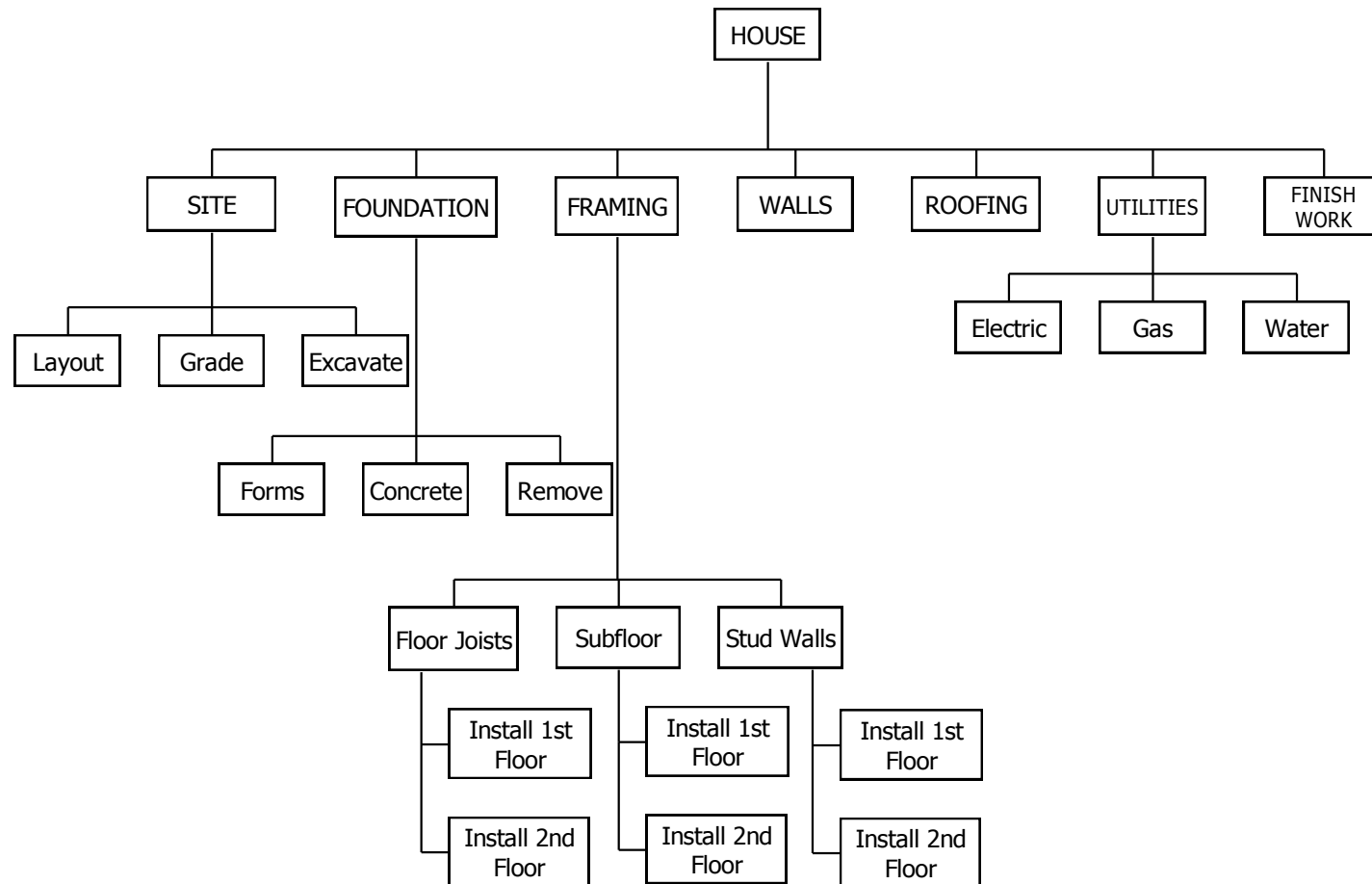


WBS MADE BY WORK

(VERB-TYPE)



WBS OF A HOUSE



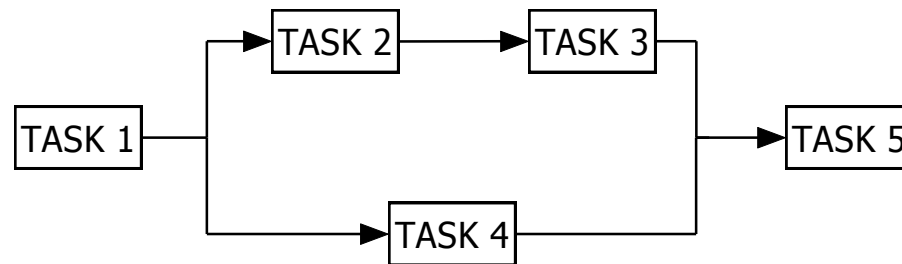
THE BENEFITS OF WBS

- Makes PM possible parallel rather than in sequence
⇒ shorter duration
- Better control possibilities
- Detailed representation of the project
- List of completed activities
- By estimating the elapsed time, effort, and resource requirements of activities, WBS gives
 - schedule when work and project will be completed
 - estimate for deliverable dates



THE BENEFITS OF WBS

- As work is completed when activities will be completed



- Completion of lower level activities causes higher-level activities to complete
- Makes possibility to give right kind reports to right kind persons in organization

WBS COMPLETION TEST

- Status/completion are measurable
- Clearly defined start/end events
- Activity has a deliverable
- Time/cost easily estimated
- Activity duration within acceptable limits
- Work assignments are independent.

