Project Management

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What is a Project?

*A project is a **temporary** endeavor undertaken to accomplish a **unique** product or service with a defined start and **end point** and **specific objectives** that, when attained, signify completion.*

What is a Project Manager?

100% responsible for the processes needed to manage a project to a successful conclusion.

- Managing the overall schedule to ensure work is assigned and completed on time and within budget and in scope.
- Identifying, tracking, managing and resolving project issues
- Identifying, responding to and managing project risk.
- *Proactively* communicating project information to all stakeholders

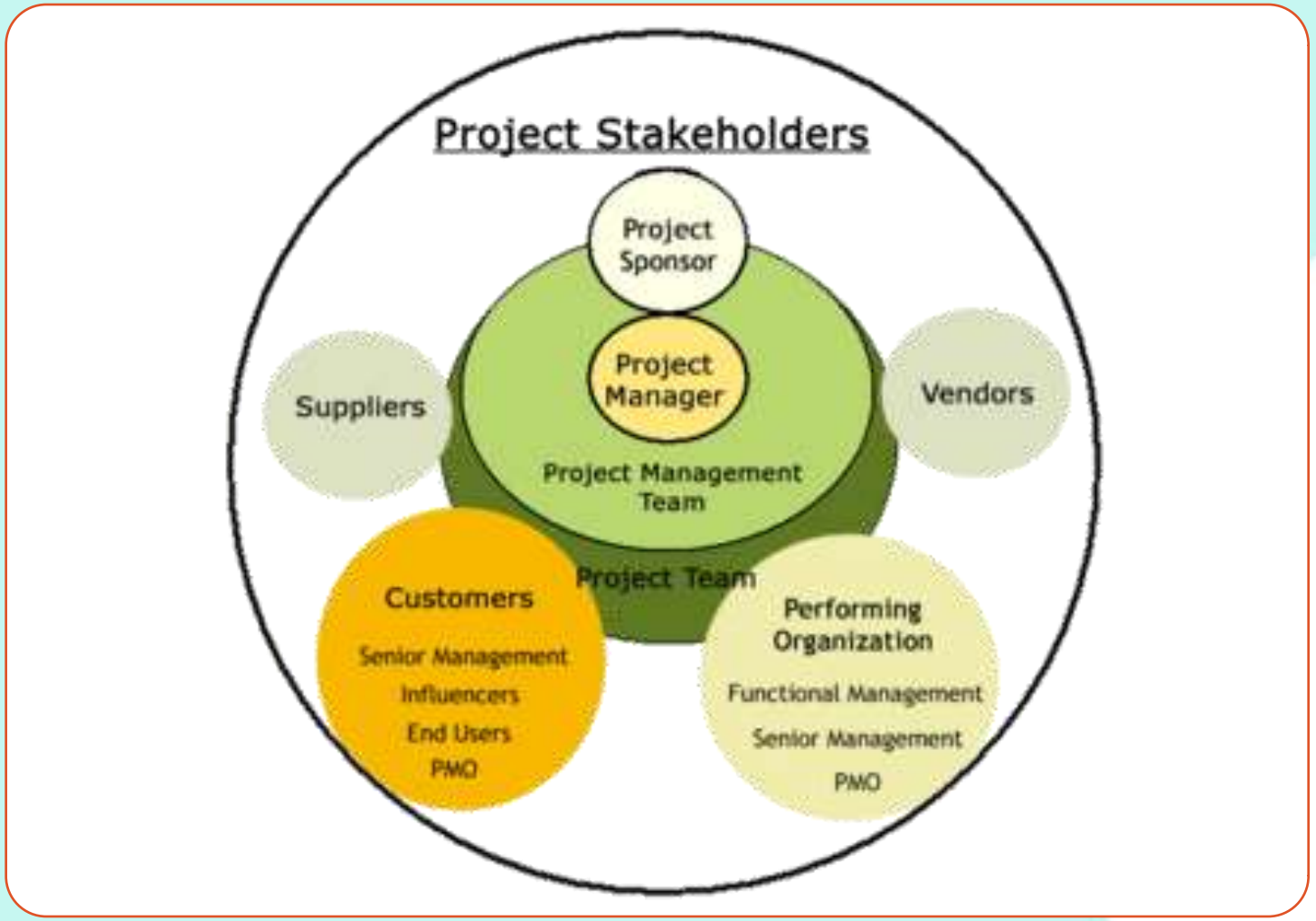
What is a Project Manager?

Process Responsibilities

- Ensuring that the solution is of acceptable quality.
- Proactively managing scope to ensure that only what was agreed to is delivered, unless changes are approved through scope management
- Defining and collecting metrics to give a sense for how the project is progressing and whether the deliverables produced are acceptable.

People Responsibilities

- General management skills needed to establish processes and make sure that people follow them
- Leadership skills to get the team to willingly follow your direction (team building, motivational)
- Sets reasonable, challenging and clear expectations of people (proactive verbal and written communication)
- Hold team members accountable for meeting the expectations (performance feedback)



Who are the Stakeholders?

The major cause of project failure is not the specifics of what went wrong, but rather the lack of procedures, methodology and standards for managing the project.

What can go wrong in a project?

What is Project Management?

Project management is the application of knowledge, skills, tools, and techniques applied to project activities in order to meet or exceed stakeholder needs and expectations from a project.

Project Management Areas of Responsibility

Establish objectives that can be achieved

Identify the requirements for the project

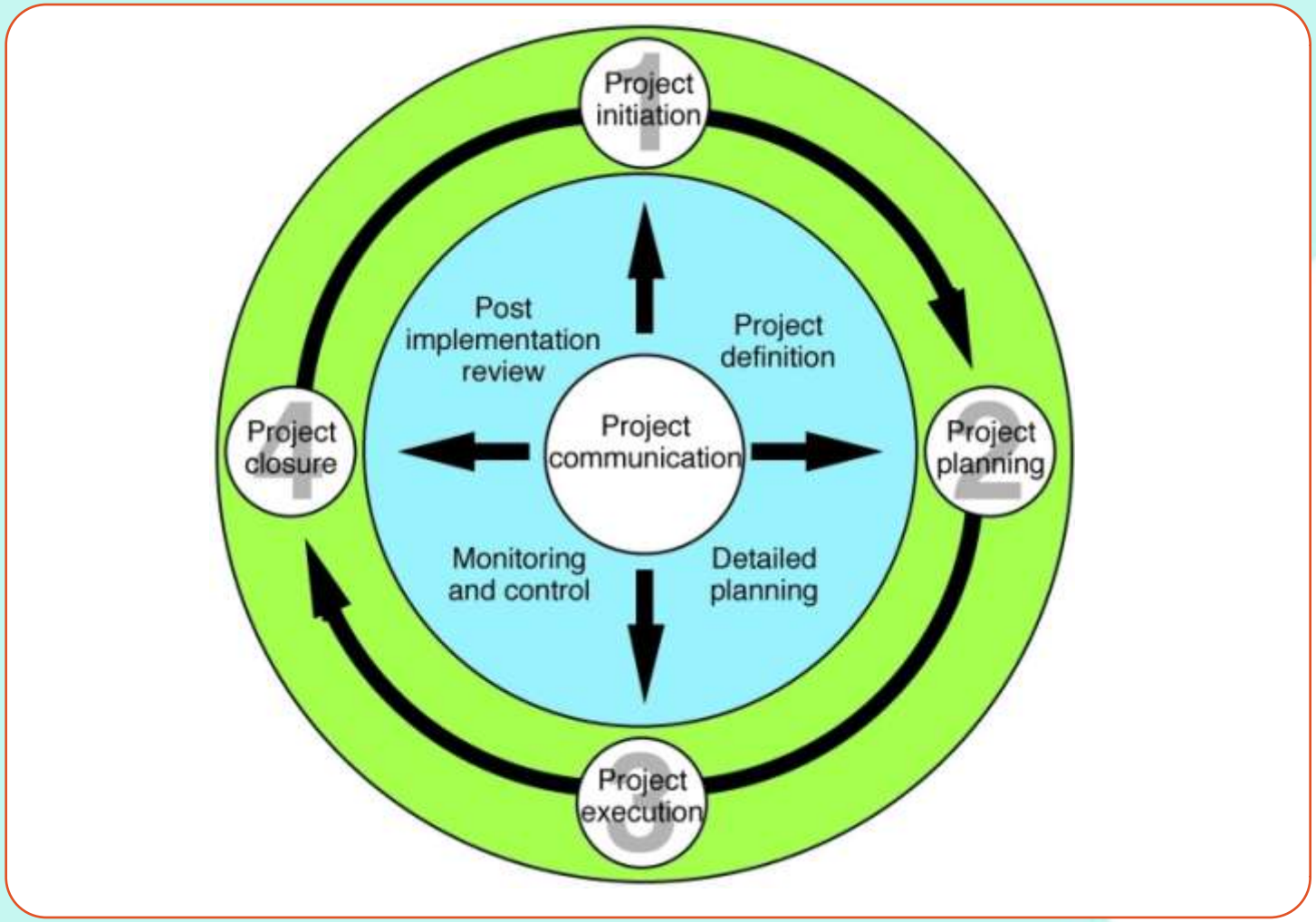
Satisfy everyone's needs

Balance scope, time and cost *(Triple Constraint)*

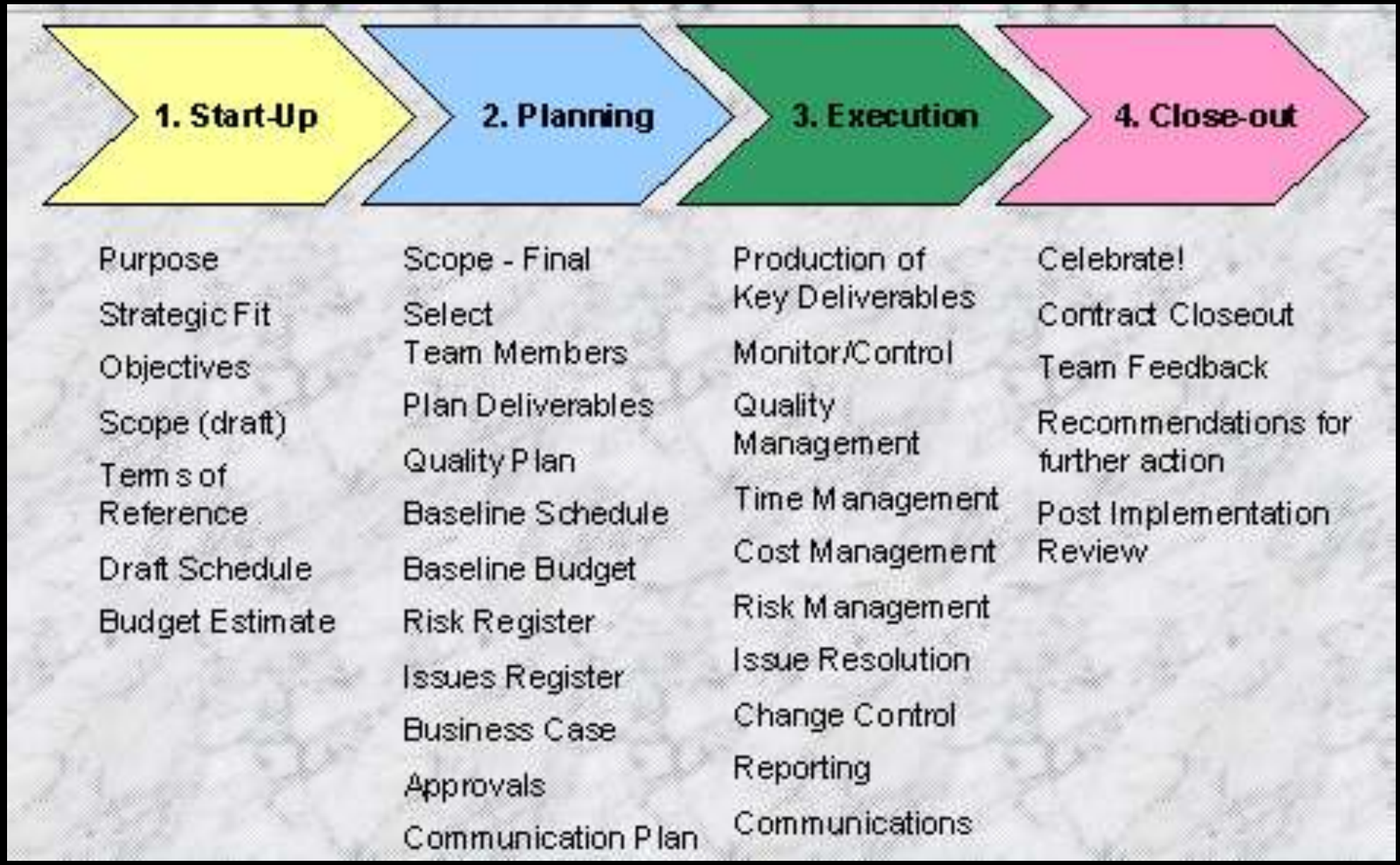
The Triple Constraint

Scope Creep

Add Time	• *delay the project to give you more time to add the functionality* ($)
Add Cost	• *recruit, hire or acquire more people to do the extra work* ($)
Cut Quality	• *trade off some non-essential requirements for the new requirements* ($)



Project Life Cycle

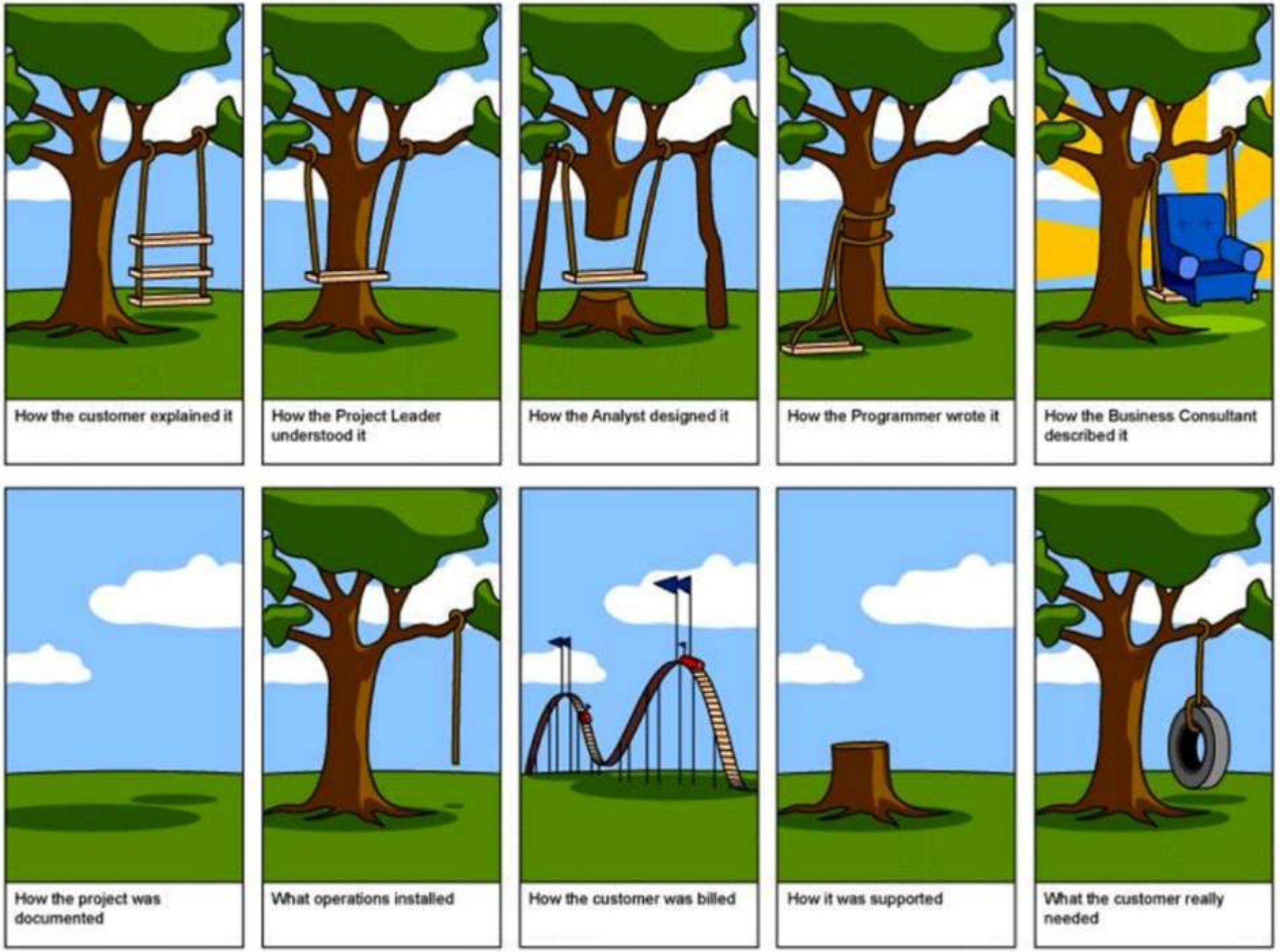

1. Start-Up
2. Planning
3. Execution
4. Close-out
Purpose
Strategic Fit
Objectives
Scope (draft)
Terms of Reference
Draft Schedule
Budget Estimate
Scope - Final
Select Team Members
Plan Deliverables
Quality Plan
Baseline Schedule
Baseline Budget
Risk Register
Issues Register
Business Case
Approvals
Communication Plan
Production of Key Deliverables
Monitor/Control
Quality Management
Time Management
Cost Management
Risk Management
Issue Resolution
Change Control
Reporting
Communications
Celebrate!
Contract Closeout
Team Feedback
Recommendations for further action
Post Implementation Review

1. Project Initiation

Initiating a Project

A business case is created to define the problem or opportunity in detail and identify a preferred solution for implementation.

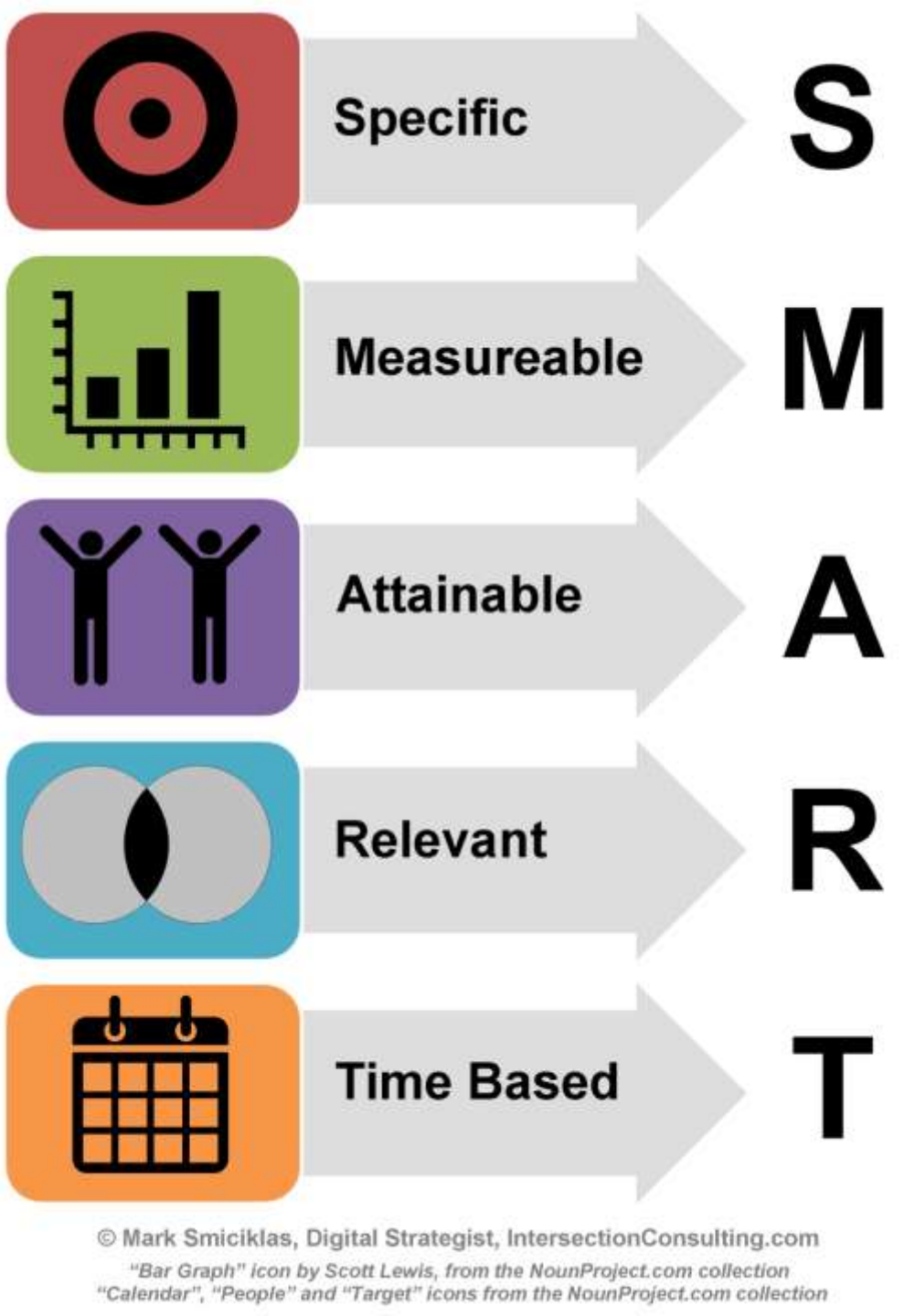
- A detailed description of the problem or opportunity
- A list of alternative solutions available
- An analysis of the business benefits, costs, risks and issues
- A description of the preferred solution
- A summarized plan for implementation


How the customer explained it
How the Project Leader understood it
How the Analyst designed it
How the Programmer wrote it
How the Business Consultant described it
How the project was documented
What operations installed
How the customer was billed
How it was supported
What the customer really needed

Define the Project Objectives

Establish clear and realistic objectives

- Good objectives are “clearly stated” and contain a “measure” of how to assess whether they have been achieved.
- To be realistic, objectives must be “determined jointly” by managers and those who perform the work.



Example : "upgrade the helpdesk telephone system by December 31, 2012 to achieve average client wait times of no more than two minutes".

2. Project Planning

Project Planning

- Scope Planning; Specifies the Requirements for the project
- Preparing the Work Breakdown Structure
- Project Schedule Development
- Resource, Budget, Procurement, Quality and Communication plans are created

>> Project Requirements

Requirements answer the following questions regarding the AS IS and TO BE states of the business (who, what, where, when, how much, how does a business process work)

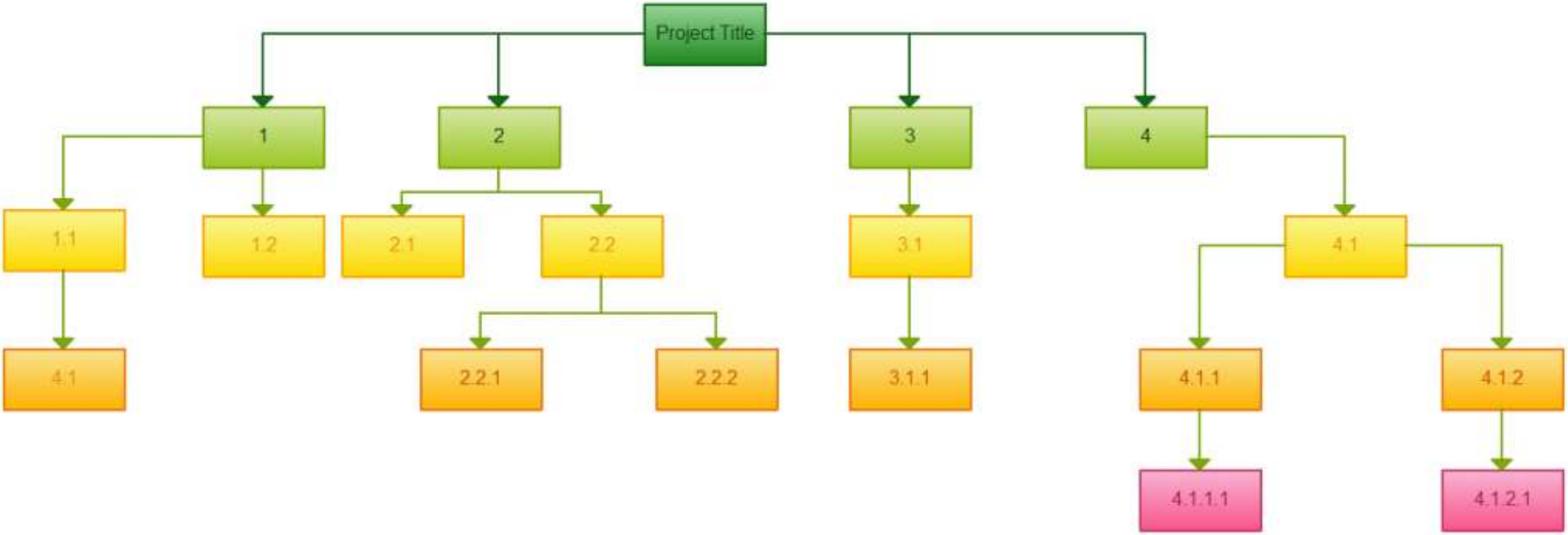
Types of Requirements

- Regulatory : Internal and external; usually non negotiable
- Business : needs of the sponsoring organization; always from a management perspective
- User : What the users need to do with the system or product
- Functional and Non Functional : What the system needs to be able to do to satisfy the business and user needs in terms of function and functionality
- Technical : How the system needs to be designed and implemented to provide required functionality and fulfill required operational characteristics.

>> Work Breakdown Structure (WBS)

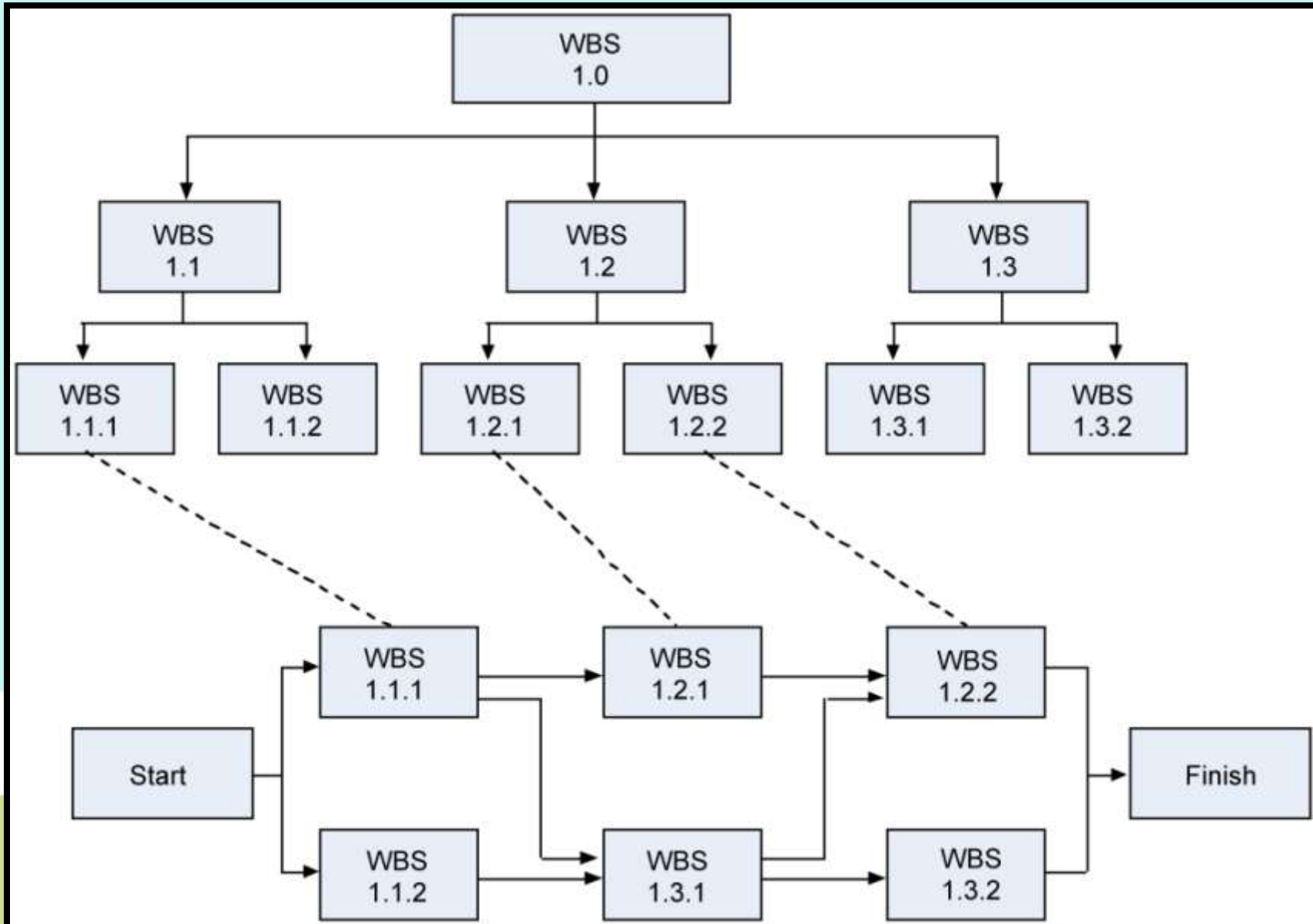
- Provides a framework for organizing and managing the approved project scope
- Helps ensure you have defined all the work that makes up the project
- Provides a framework for planning and controlling costs and schedule information

Work Breakdown Structure



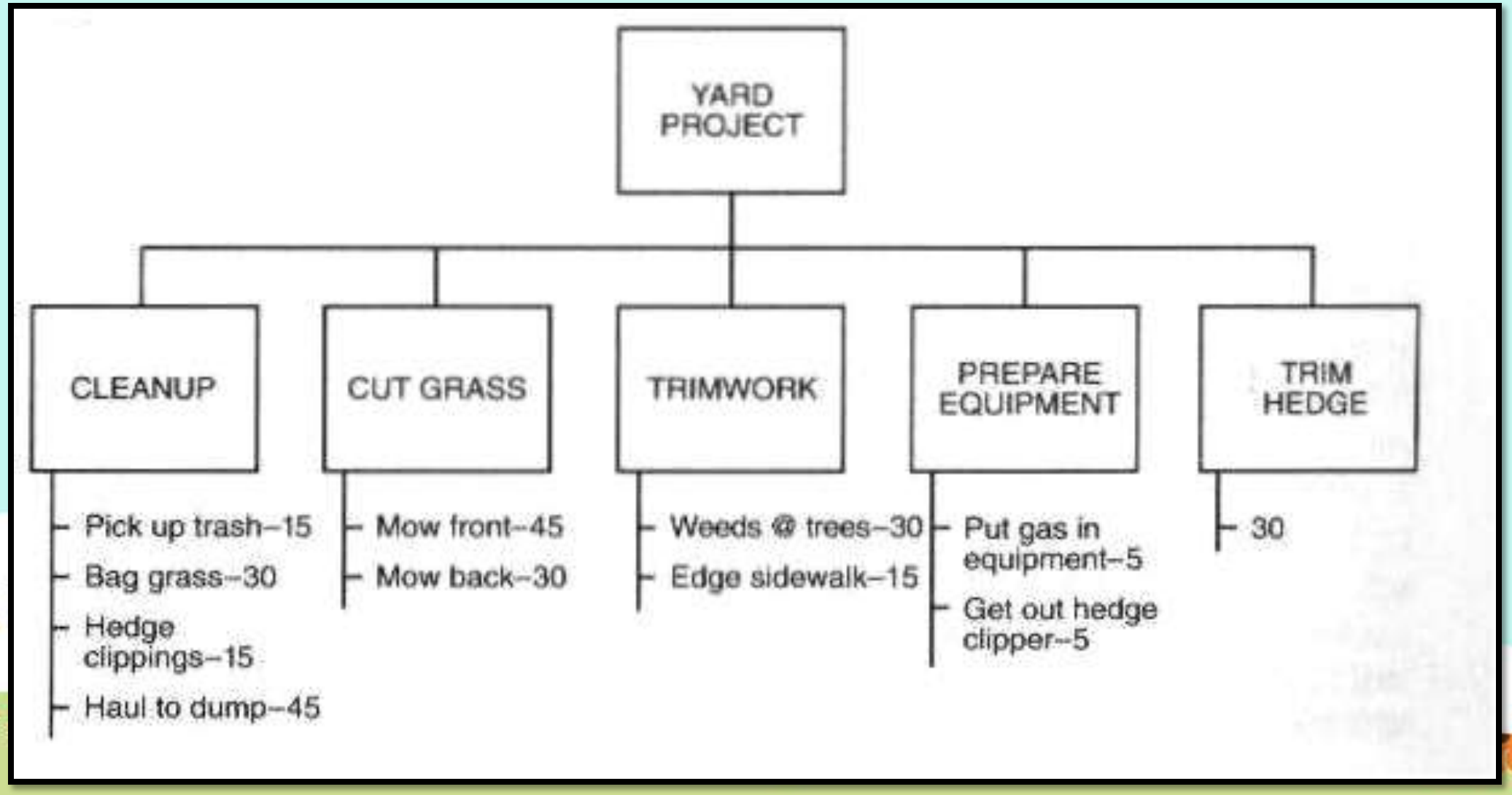
>> Convert WBS to Network Diagram

- One Start and One End
- Collection of any set of related tasks is a path.
- All tasks have at least one predecessor (except the beginning)
- All tasks at have at least one successor (except the end)



EXAMPLE

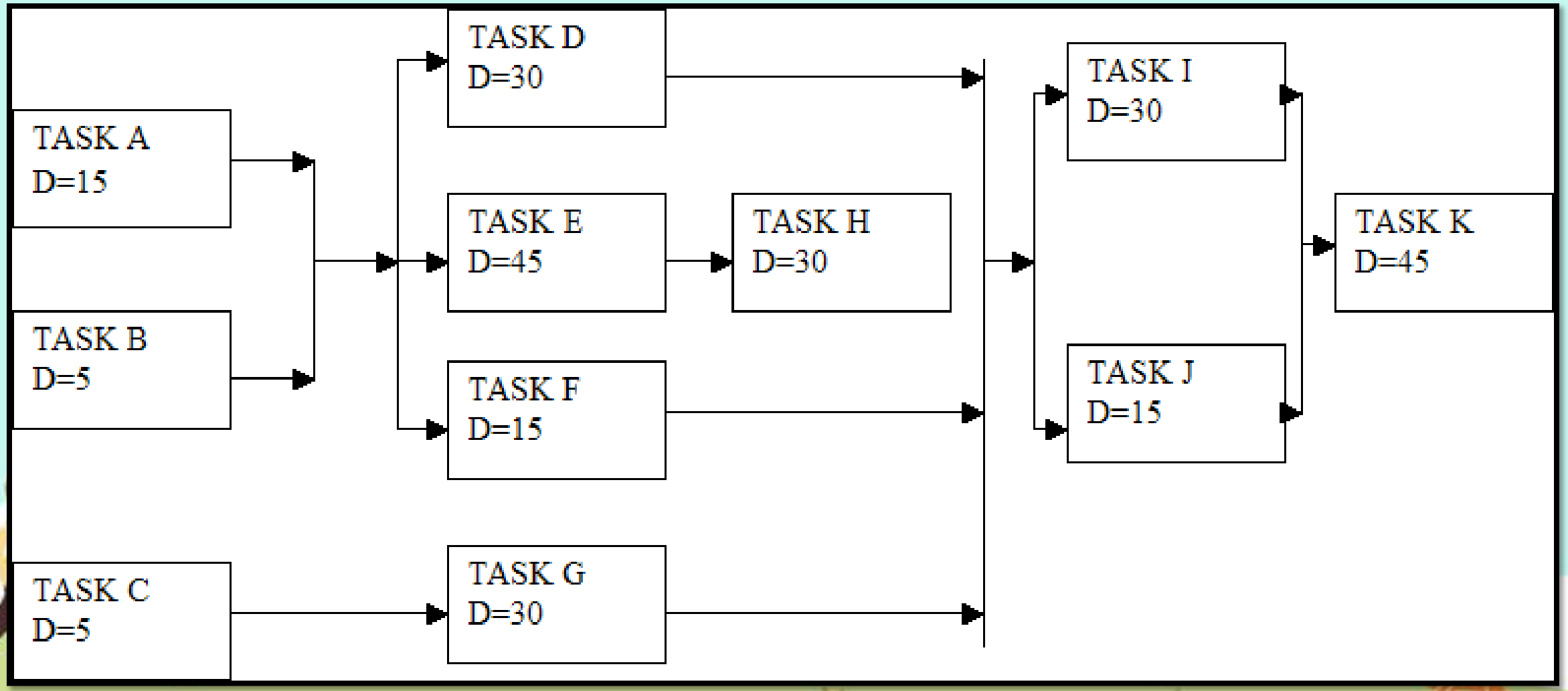
Work Breakdown Structure



WBS Table

TASK	DESCRIPTION	PRECEDING EVENT	DURATION
A	Pick up trash	None	15
B	Put gas in mower	None	5
C	Get hedge clippers	None	5
D	Trim weeds	A and B	45
E	Mow front yard	A and B	12
F	Edge sidewalk	A and B	15
G	Trim hedge	C	30
H	Mow backyard	E	30
I	Bag grass	D, H, F and G	30
J	Bundle Trash	D, H, F and G	15
K	Haul Trash	I and J	45

Network/ Precedence Diagram



>> Assign Resources

- Assign specific resources if known
- Assign generic resource roles
  - “programmer 1”, “technical writer 1”
- Check for resource over-allocation or under allocation

>> Estimate Duration

- Factor in productive hours per day
- Factor in available workdays
- Determine how many resources on each activity
- Take into account any part-time resources
- Calculate delays and lag times

>> Estimate the Duration

Bottom Up Estimating	· Break down the work → Estimate all work at the detailed level → Add up the estimates for all detailed activities → Apply estimating techniques at the activity level
Expert Opinion	· Individual who has done it many times; Internal or External to the organization; Industry expert; Utilize for new technology or unfamiliar with the subject
Published Estimating Data	· Articles, Books, Journals
Previous history	· Actual hours tracked
Analogy (similar, not exact)	· Look for similar projects from the past; Example: Chicago project is 500 hours. Atlanta is similar size
Ratio	· Projects are similar but different scale; The main factors that drive the effort are similar; Example : Chicago project is 500 hours. Orlando is half as big. New York is twice as big

>> Estimate the Effort

Parametric Modeling

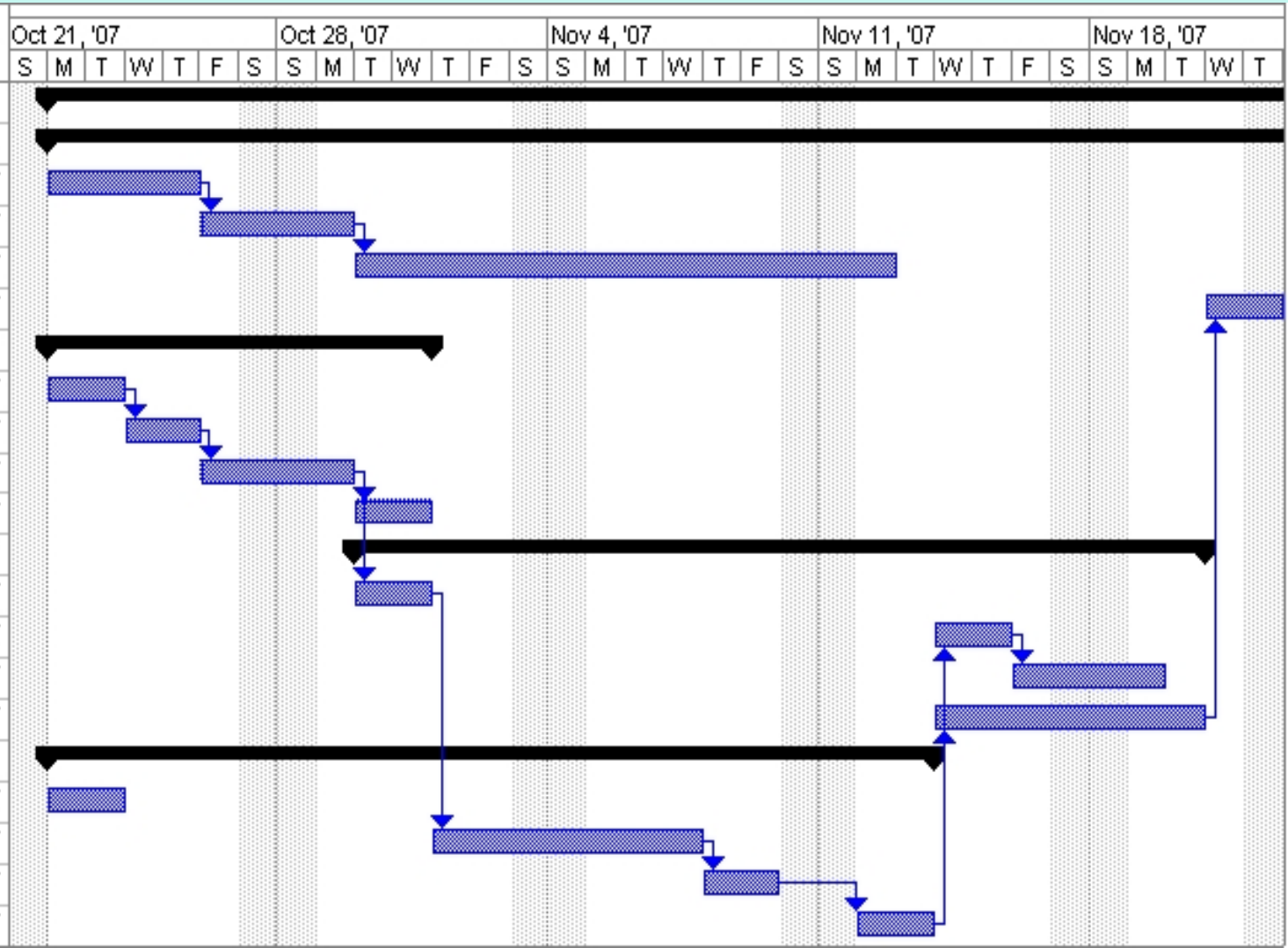
- Characteristics of project allows use of a model
- Use statistics, formulae, spreadsheets
- Example :
  - Highway is $1 million per lane per mile.
  - How much for 10 miles of four lane highway?

>> Critical Path

- ✓ Provides a graphical view of the project
- ✓ Predicts the time required to complete the project
- ✓ Shows which activities are critical to maintaining the schedule and which are not.
- ✓ Demonstrates the longest path of the project
- ✓ Drives the project completion date
- ✓ Any delay will cause the entire project to be delayed
- ✓ Calculating Critical Path :
  - ✓ Calculated automatically by project management tool, eg. Microsoft Project
  - ✓ Can calculate manually by understanding early start, early finish, late start and late finish

Gantt Chart

ID	Task Name	Duration	Start	Finish
1	**Swimming Pool**	**32 days**	**Mon 10/22/07**	**Thu 12/6/07**
2	**Landscape**	**32 days**	**Mon 10/22/07**	**Thu 12/6/07**
3	design	4 days	Mon 10/22/07	Thu 10/25/07
4	Order/Receive Plant:	2 days	Fri 10/26/07	Mon 10/29/07
5	Plant Plants	10 days	Tue 10/30/07	Mon 11/12/07
6	Build Wood Deck	10 days	Wed 11/21/07	Thu 12/6/07
7	**Dirt Work**	**8 days**	**Mon 10/22/07**	**Wed 10/31/07**
8	Excavate Hole	2 days	Mon 10/22/07	Tue 10/23/07
9	Remove Dirt	2 days	Wed 10/24/07	Thu 10/25/07
10	Build up Contours	2 days	Fri 10/26/07	Mon 10/29/07
11	Bring in Topsoil	2 days	Tue 10/30/07	Wed 10/31/07
12	**Concrete**	**16 days**	**Tue 10/30/07**	**Tue 11/20/07**
13	Build Forms	2 days	Tue 10/30/07	Wed 10/31/07
14	Concrete Pour/Dry	2 days	Wed 11/14/07	Thu 11/15/07
15	Remove Forms	2 days	Fri 11/16/07	Mon 11/19/07
16	Paint & Tile	5 days	Wed 11/14/07	Tue 11/20/07
17	**Plumbing**	**17 days**	**Mon 10/22/07**	**Tue 11/13/07**
18	Build Pump Hose	2 days	Mon 10/22/07	Tue 10/23/07
19	Install Plumbing	5 days	Thu 11/1/07	Wed 11/7/07
20	Install Pump	2 days	Thu 11/8/07	Fri 11/9/07
21	Install Cleaning Equip	2 days	Mon 11/12/07	Tue 11/13/07



>> Estimate Cost

- Determine the cost of labor, internal and external
- Include all non-labor costs including:
  - Hardware and software
  - Travel expenses
  - Training
  - Team building
  - Facilities
  - Maintenance/support costs

3. Project Execution

4. Project Closure

Project Charter

OPPORTUNITY

Currently, the system in Archbishop Library at Dominican University of California presents much delay with the labeling system of books and textbooks. By implementing a new eBook technology in the library, it will decrease cost in purchasing paper books, reduce time in locating the actual books and expand the selection of books students have access to.

GOAL

Improve access to high education book through library eBook technology.

OBJECTIVES

- Increase the ease of locating books through digital copies of hardcover books
- Reduce paper waste
- Increase accessibility of time when libraries are closed
- Increase a university's quality of education with better books for research papers and class instruction

IN SCOPE

Currently is difficult to access or locate books. Changing accessibility and variety of options in library database (eBooks).

BUSINESS CASE

Has ability to make additional profit after hours to borrow books online for convenience. For the user no late fees to borrow books except only pay borrowing fee.

CONSTRAINTS

- Not all books may be available so might have to manual scan
- Funding may not be wide

ASSUMPTIONS

- We assume the use of books will expand.
- We assume Universities will fund it.

DELIVERABLES

- Database offers the wide range of eBooks available to students
- Librarian is there to help refine book searches
- Just have an account to borrow book online at student's own convenience.

CORE TEAM MEMBERS

Name	Role
Angelina	Project Manager
Andrea	SME
	Bus Analyst
	IT Bus Analyst

STAKEHOLDERS

Name	Role
DUofC Library	Library Manager
Students	Sponser
	CFO
	CMO

SUMMARY PROJECT STATUS

Project Start Date:	09/01/12
Estimated Completion:	12/04/12
Process Impacted:	Traditional Library Book Check-Out
Potential Financial Impact:	xx/xx/xx

MILESTONES	Status	DUE	DONE
Project Concept Developed Mind Map	●	08/30/12	08/30/12
Current Business Process Analysis	●	09/04/12	09/04/12
Charter Presentation Approval	○	10/16/12	10/16/12
Future Business Process Analysis	●		
Performance Dimension Analysis (P.C)	○		
Submit Final Paper	●	12/04/12	

SPONSOR APPROVAL	DATE
Elizabeth Donahey	xx/xx/xx

○ Not Started ● Completed ● On Schedule ● At Risk ● Off Track

Project Close

- ✓ Gain final approvals
- ✓ Close the project
- ✓ Final performance reviews
- ✓ Gather final project metrics
- ✓ End of Project meeting
- ✓ Reallocate project staff
- ✓ Turnover deliverables to support/operations
- ✓ Close all contracts

At project closeout, the project should be evaluated, and all lessons learned formally documented


systems
Industrial
Engineers
Engineering
Business
processes
operations
design
control
planning
knowledge
engineering
production
manufacturing
analyze
program
scheduling
system
skills
quality
allows
individual
complex
Offered
pursue
large
college
flexibility
disciplines
inventory
particular
equipment
mathematics
management
facilities
Entrepreneuership
interpersonal
communication
simulation
resource
group
problem
methods
degrees
customize
allocation
information
perspective
ability
number
broad
tailor
choose
material
flexible
easily
includes
option
degree
credits
add
rooms
assurance
interest
goals
manage
systematic
improve
integrations
field
need
career
computer
study
science
analysis
restricted
etc
statistical
realm
personnel
safety
infrastructures
elective
solving
meet
work
well
variety
people
buildings
Minor
wide
workplaces
integrators
handling
apply
one
assignment


KEEP
CALM
YOU'RE AN
INDUSTRIAL
ENGINEER