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Mastering Scope Management:
The Heart of Project Management
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#PMIseminars

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Learning Objectives

- Accurately assess the scope of a project and organize it into well-defined and easily controlled elements
- Effectively prepare Project Charters and Project Management Plans primed to ensure visibility, achieve expectations, and deliver results
- Anticipate likely sources of scope change and formulate effective responses through change management

Course Overview

- Day One: Understanding Scope Management
- Day Two: Scope Management through the Project Lifecycle

Welcome/Introduction

- A little about me

Welcome/Introduction

- A little about me

.... and a little about you

Day One: Understanding Scope

- The Basics
- The Not-So-Basics
- Why Scope is Fuzzy—and What to Do About It

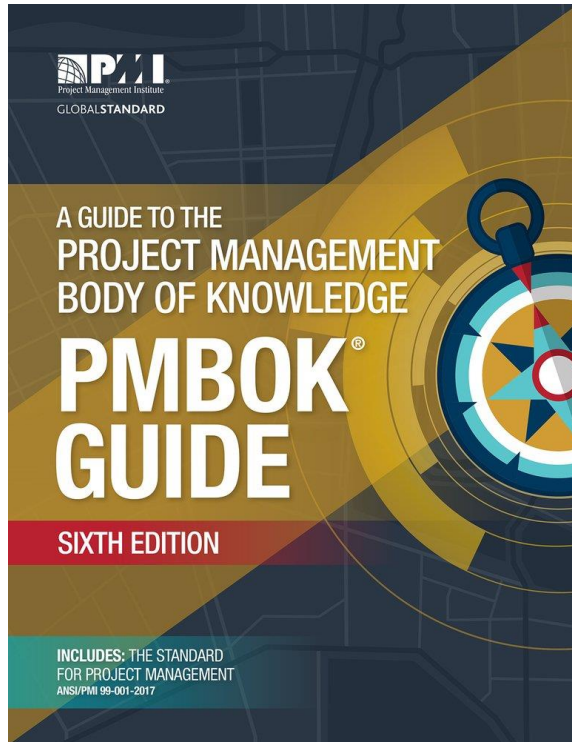
- Exercises

Let's Do a Little Scope Management

- Why are you here?
- What are you expecting to get out of this class?
- How do you expect the class to be run?

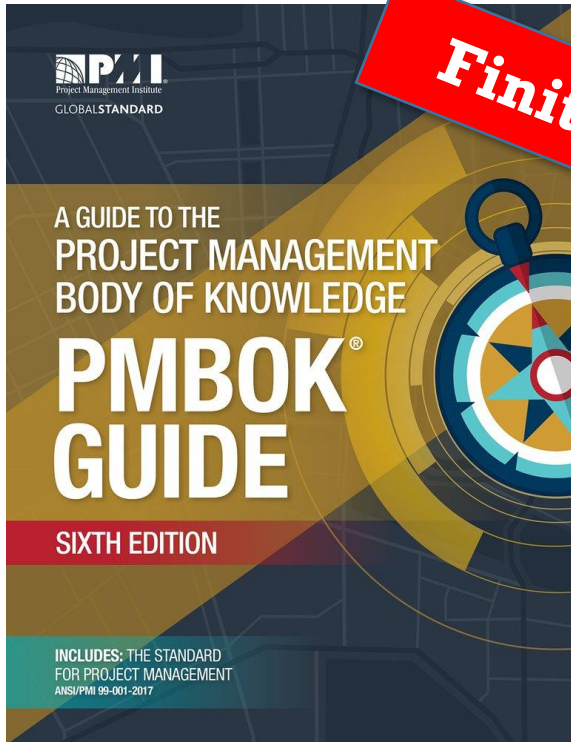
SCOPE MANAGEMENT: THE BASICS

Project Management 101



“A project is a temporary endeavor undertaken to create a unique product, service or result.”

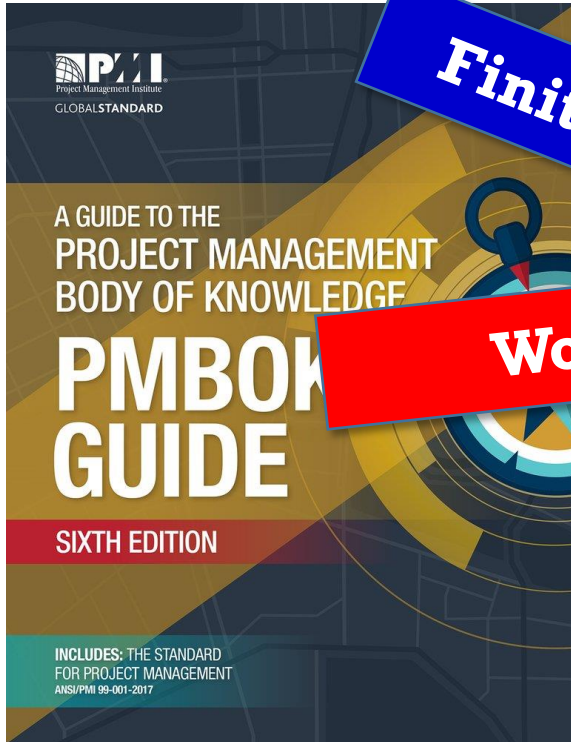
Project Management 101



Finite Time

“A project is a **temporary** endeavor undertaken to create a unique product, service or result.”

Project Management 101

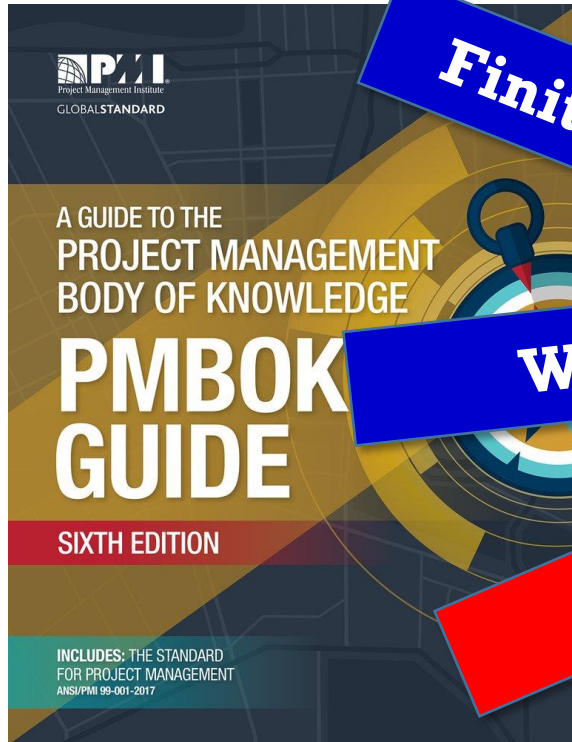


Finite Time

Work

“A project is a **temporary** endeavor undertaken **to create** a unique product, service or result.”

Project Management 101



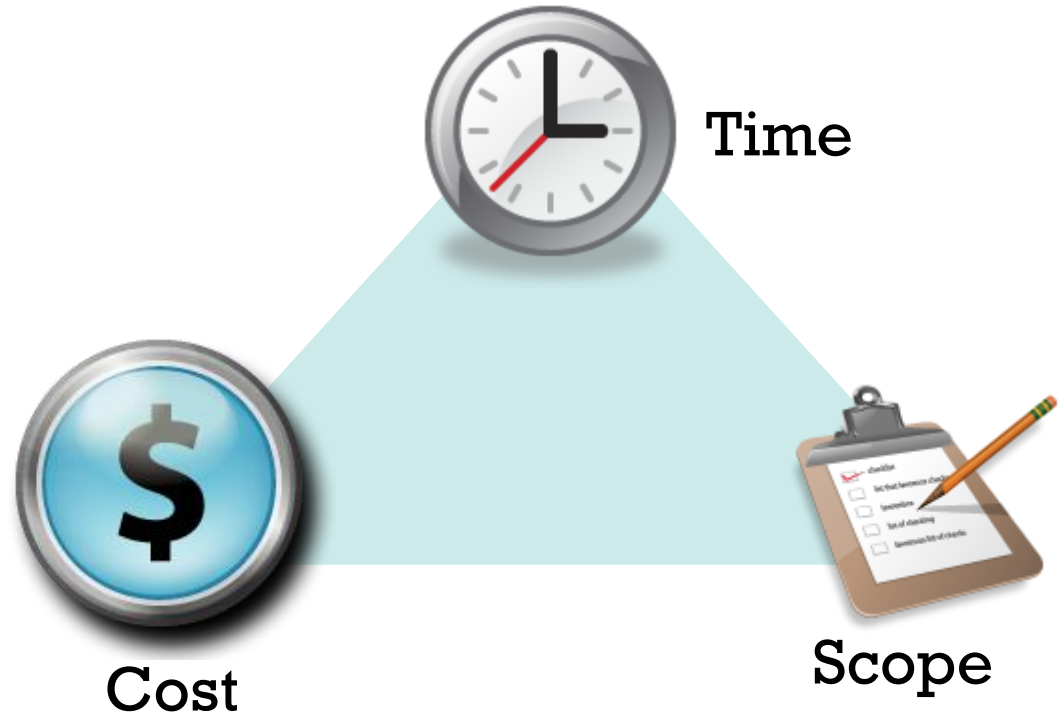
Finite Time

Work

Output

“A project is a **temporary** endeavor undertaken **to create** a **unique product, service or result.**”

“The Iron Triangle”



Or, to Put Another Way ...

Pick any two:

— Better

— Faster

— Cheaper

Definitions

ld-ing (skōl'dīng) *n.* A harsh or sharp reprimand.

-lex (skō'lēks') *n.*, *pl.* **-li-ces** (-lī-sēz'). The knoblike anterior end of a tapeworm, having suckers or hooklike parts that in adult stage serve as organs of attachment to the host on which tapeworm is parasitic. [New Latin, from Greek *skōlēx*, *n.*]

-o-sis (skō'lē-ō'sis, skōl'ē-) *n.* Abnormal lateral curvature of the spine. [Greek *skolios*, crooked + *-OSIS*.] —**scō'li-** (-ōt'ik) *adj.*

-p (skōl'əp) *n.* & *v.* Variant of **scallop**.

-pen-drid (skōl'ə-pēn'drīd) *n.* Any of numerous centipede of the family Scolopendridae, especially the larger ones, *Scolopendra gigas* of the West Indies. [From New Latin *scolopendra*, family name, from Latin *scolopendra*, a kind of centipede, from Greek *skolopendra*, millipede.] —**scō'l'o-pen'-**

-id (skōm'broid') *adj.* Of or belonging to the suborder Scombroidei, which includes marine fishes such as the mackerel. **Scombroid** *n.* A scombroid fish. [New Latin *Scombroideus*, *n.*, from Latin *scomber*, *scombr-*, mackerel, from Latin *scomber*, *n.*]

-ons *n.* A small defensive earthwork or fortification. [German *Schanze*, *n.*]

scoot-er (skōō'tər) *n.* 1. A child's vehicle consisting of a footboard between two small end wheels, controlled by an upper steering handle attached to the front wheel. 2. A motor scooter. 3. *Nautical.* A flat-bottomed sailboat with runners that can slide over water or ice.

scop (shōp) *n.* An Old English poet or bard. [Old English]

scope (skōp) *n.* 1. The range of one's perceptions, thoughts, or actions. 2. Breadth or opportunity to function. See *Synonyms*. 3. The area covered by a given activity or subject. See *Synonyms* at **range**. 4. The length or sweep of a mooring cable. 5. *Informal.* A viewing instrument such as a periscope, microscope, or telescope. —**scope** *tr.v.* **scoped**, **scop-ing**, **scopes** *Slang.* To examine or study carefully and in detail: "[He] *scoped the big picture of Israeli-Arab relations*" (James Wolcott). [Italian *scopo*, aim, purpose, from Greek *skopos*, target, aim. See *spek-* in Appendix.]

-scope *suff.* An instrument for viewing or observing: *brochroscope*. [New Latin *-scopium*, from Greek *-skopion*, from *skopos*, to see. See *spek-* in Appendix.]

Scopes (skōps), **John Thomas**. 1900–1970. American teacher who violated a state law by teaching the theory of evolution in a Tennessee high school. His trial (July 1925) was a highly publicized confrontation between defense attorney Clarence Darrow and the director of the prosecution William Jennings Bryan. Scopes was found guilty and fined a nominal sum, but his conviction was later reversed on technical grounds.

sco-pol-a-mine (skō-pōl'ə-mēn', -mīn) *n.* A thick, syrupy, colorless alkaloid. C₁₇H₂₃N₃O₅. Isolated from plants such as *Aspidosiphon*

chiding woman," may be related to *skāld*, as shown by the senses of some of the Old Icelandic words derived from *skāld*. Old Icelandic *skāldskapr*, for example, meant "poetry" in a good sense but also "a libel in verse," while *skāld-stöng* meant "a pole with imprecations of characters," possibly because of the poets' productions and that this association with poets passed firmly along with the Scandinavian borrowing into English.

score-board (skōr'bōrd) *n.* A large board that records test scores.

score-card (skōr'kɑrd) *n.* A printed program or schedule used to record the progress and record the program used to record one's progress.

score-keep-er (skōr'kēp'ər) *n.* An official who records the progress of a game. —**score/keep-ing** *n.*

score-less (skōr'ləs) *adj.* Without points scored.

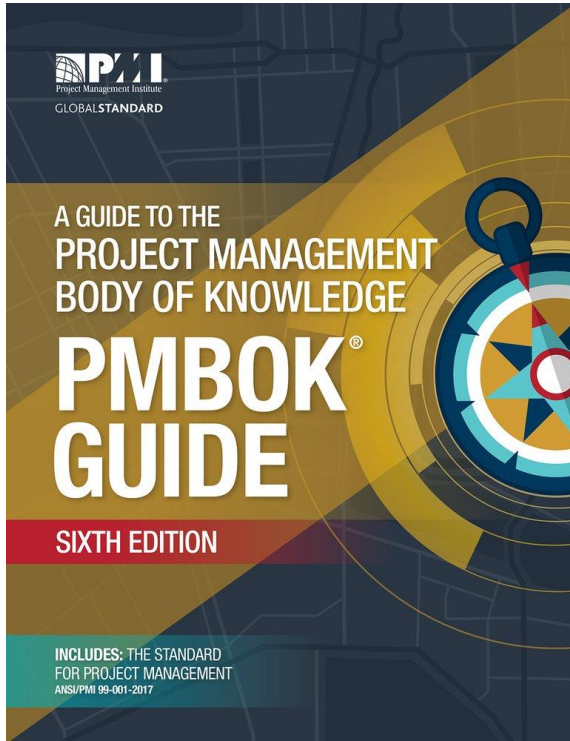
Scores-by Sound *n.* The sound of the gale blowing from the Barents Sea indenting the coast.

sco-ri-a (skōr'ē-ə) *n.* A dark, glassy, porous mass of metal or ore; slag. Also called *cinders*. [From Latin *scōria*, *n.*] See *sker-* 3 in Appendix.

sco-ri-fy (skōr'ē-ə) *v.* To separate (an ore) into slag. **scorification** (-fī-kā'shən) *n.*

scorn (skōrn) *n.* A feeling of contempt or object consideration for such an attitude. **scornful** (-fūl) *adj.*

PMBOK definition: Scope

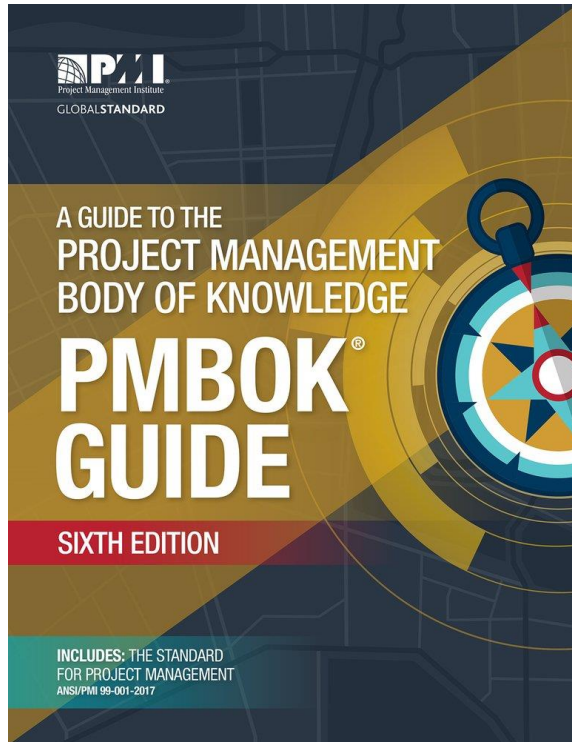


“The sum of the:

- ***Products,***
- ***Services,*** and
- ***Results***

to be provided as a project.”

PMBOK definition: Product

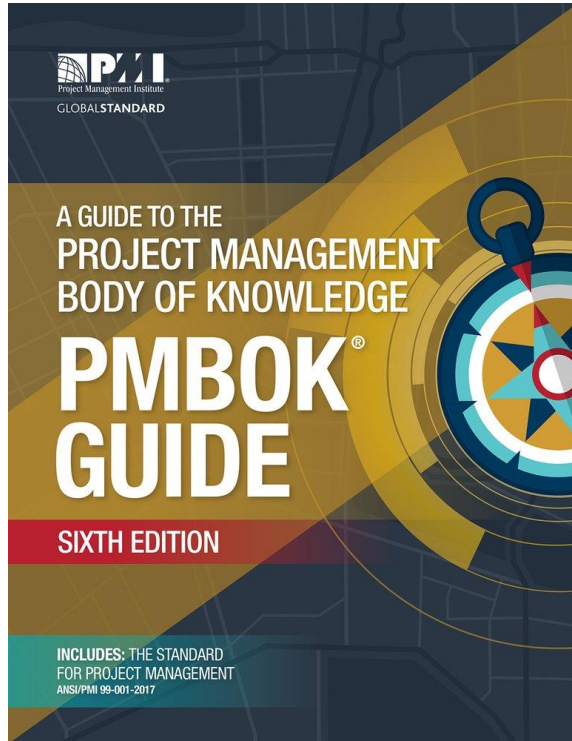


“An artifact that is produced, is quantifiable, and can be either an end item in itself or a component item.

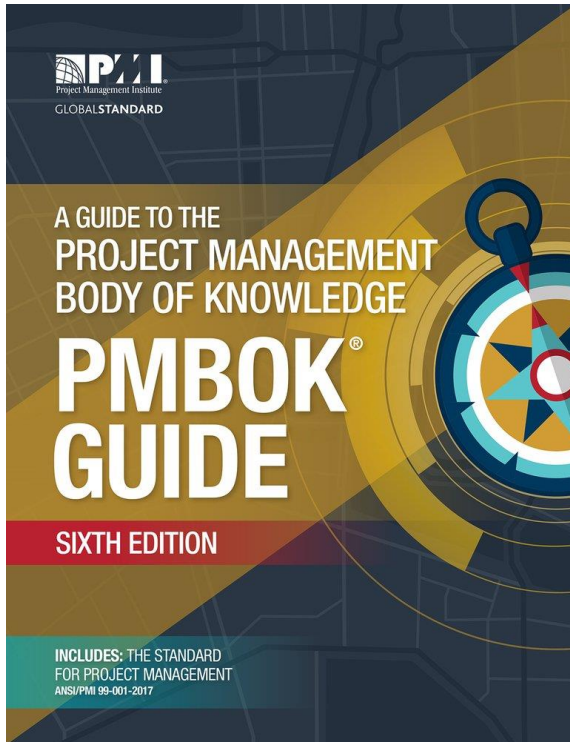
“Additional words for products are materials and goods.

“See also *deliverable*.”

PMBOK definition: Service



PMBOK definition: Result

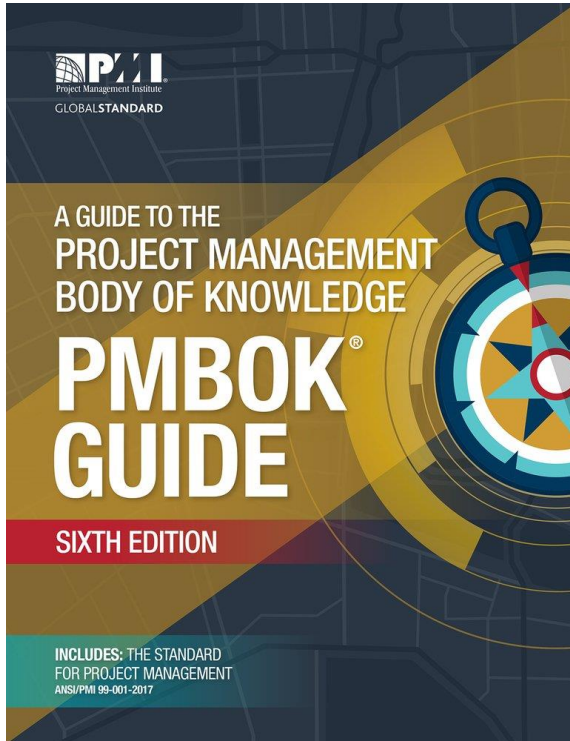


“An output from performing project management processes and activities.

“Results include outcomes (e.g., integrated systems, revised process, restructured organization, tests, trained personnel, etc.) and documents (e.g., policies, plans, studies, procedures, specifications, reports, etc.).

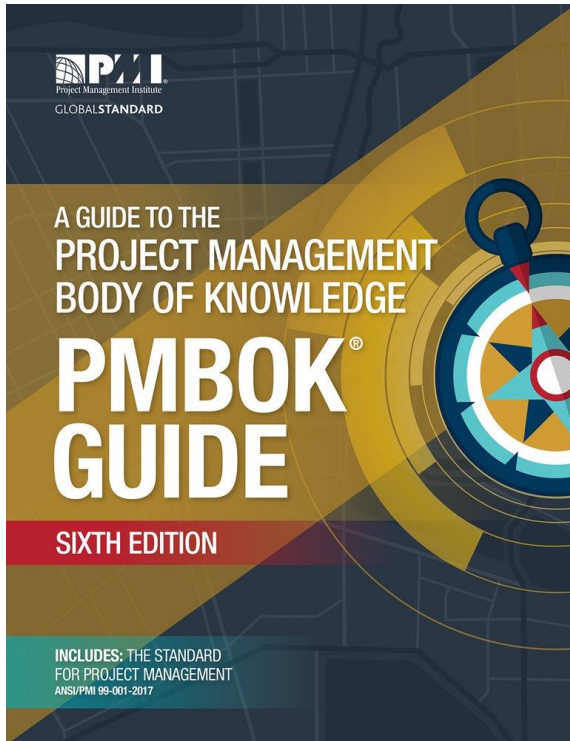
“See also *deliverable*.”

PMBOK definition: Deliverable



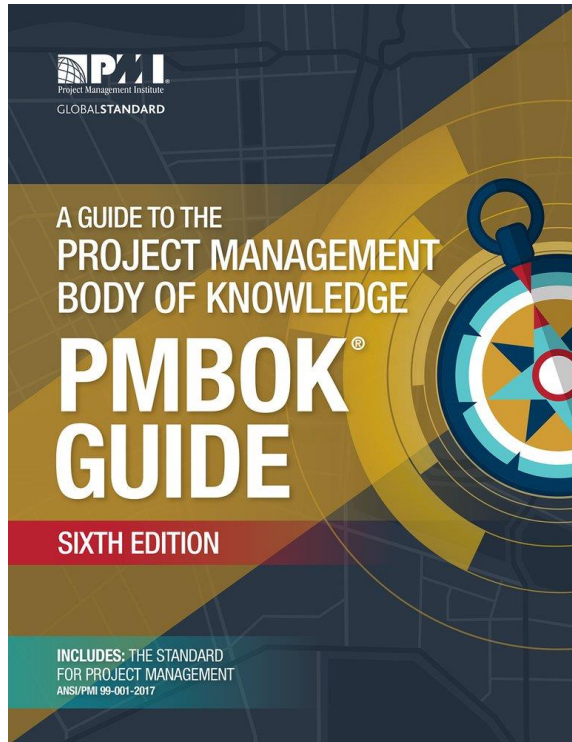
“Any unique and verifiable *product*, result, or capability to perform a service that is required to be produced to complete a process, phase, or project.”

PMBOK definition: Scope Management



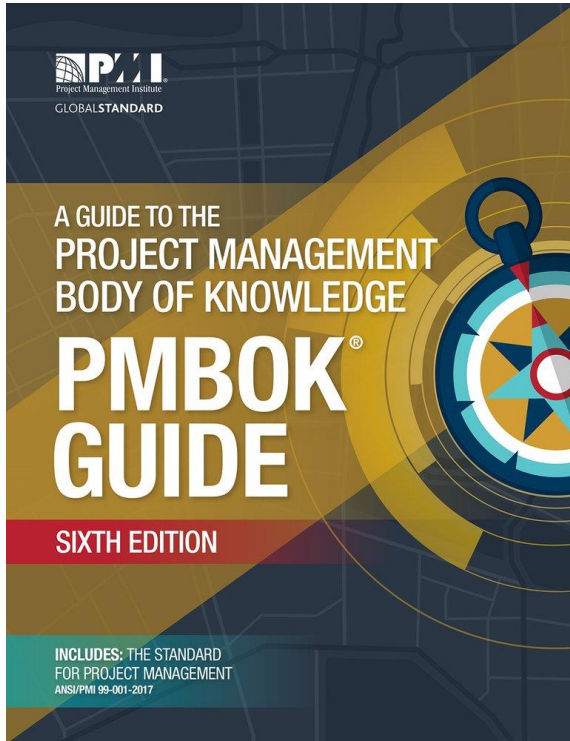
“The processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.”

PMBOK definition: Scope Management



“The processes required to ensure that the project includes **all the work** required, and **only the work** required, to **complete the project successfully.**”

Key Concepts



“Scope can refer to:

Product scope

The features and functions that characterize a product, service, or result

Project scope

The work performed to deliver a product, service, or result.”

Classic Scope Definition Elements

- Work Breakdown Structure (WBS)
- Product Breakdown Structure (PBS)

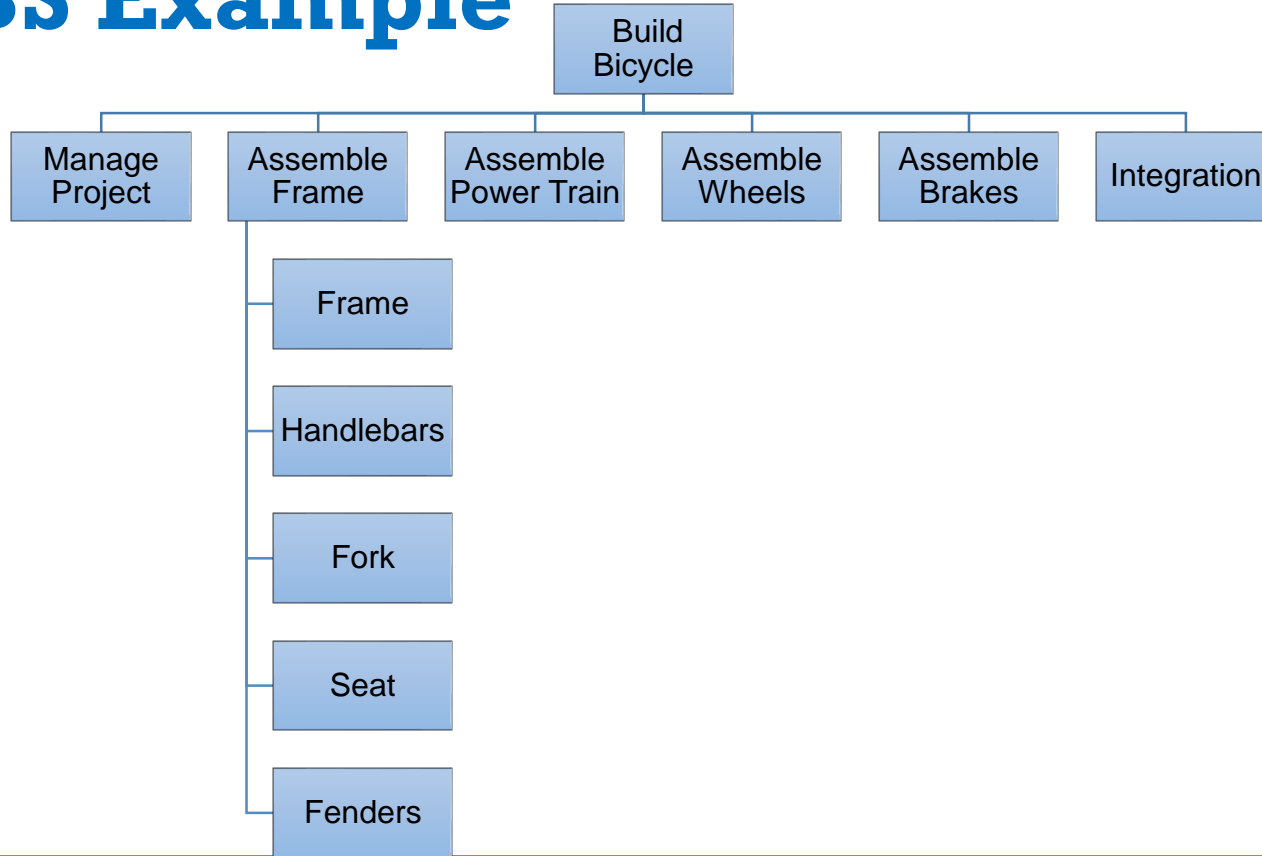
Work Breakdown Structure (WBS)

“A hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables.”

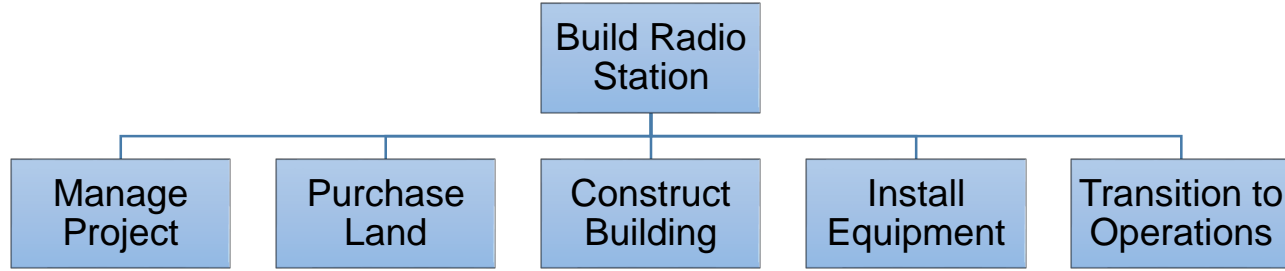
In Other Words:

*The WBS describes **HOW** the Project will deliver its outputs*

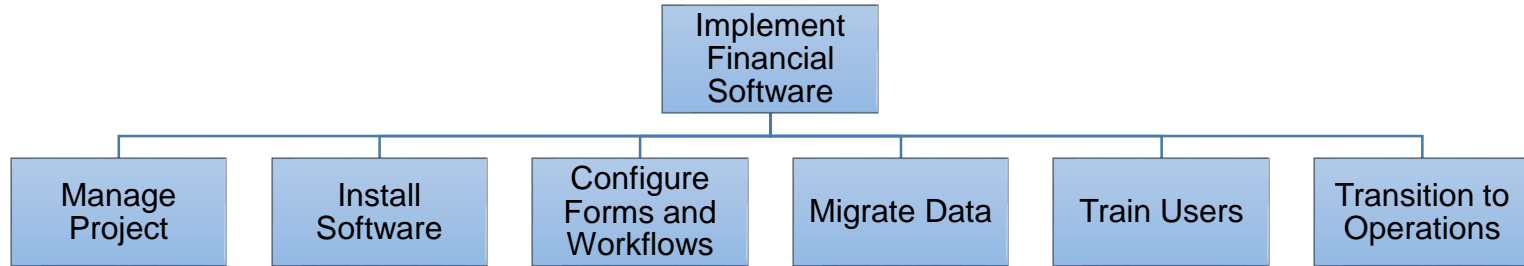
WBS Example



WBS Example



WBS Example



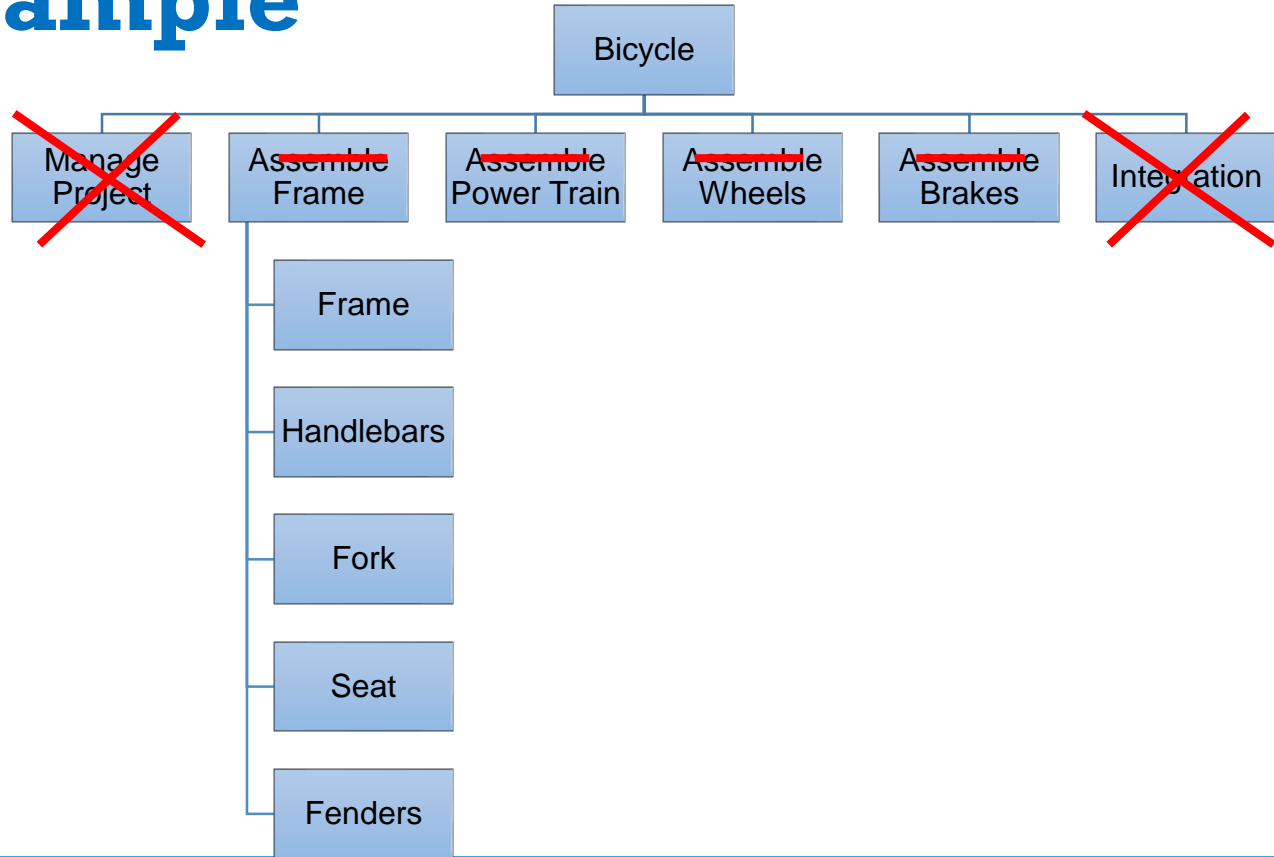
Product Breakdown Structure (PBS)

- A hierarchical decomposition of all the products to be produced by a project.

In Other Words:

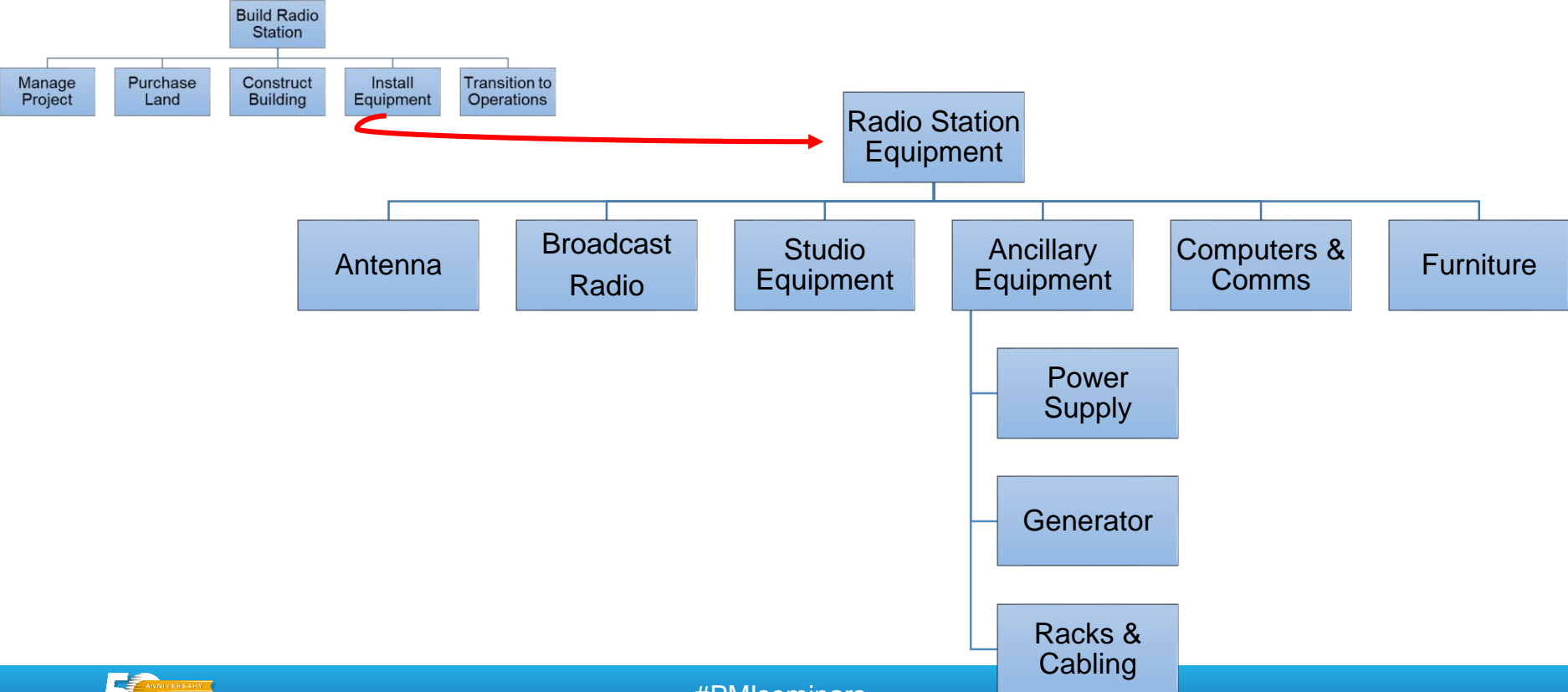
The PBS describes **WHAT** outputs the Project will deliver

PBS Example

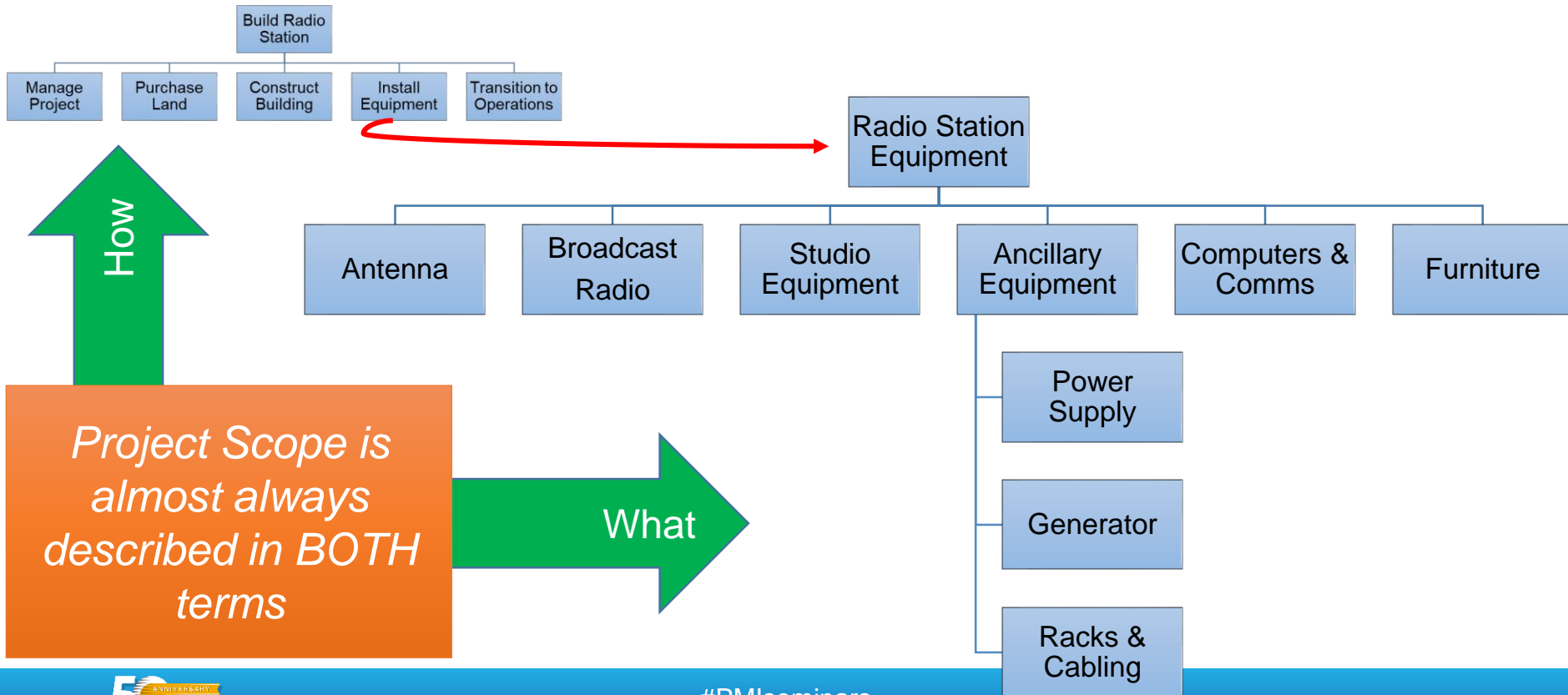


This illustrates the common problem of merging PBS and WBS

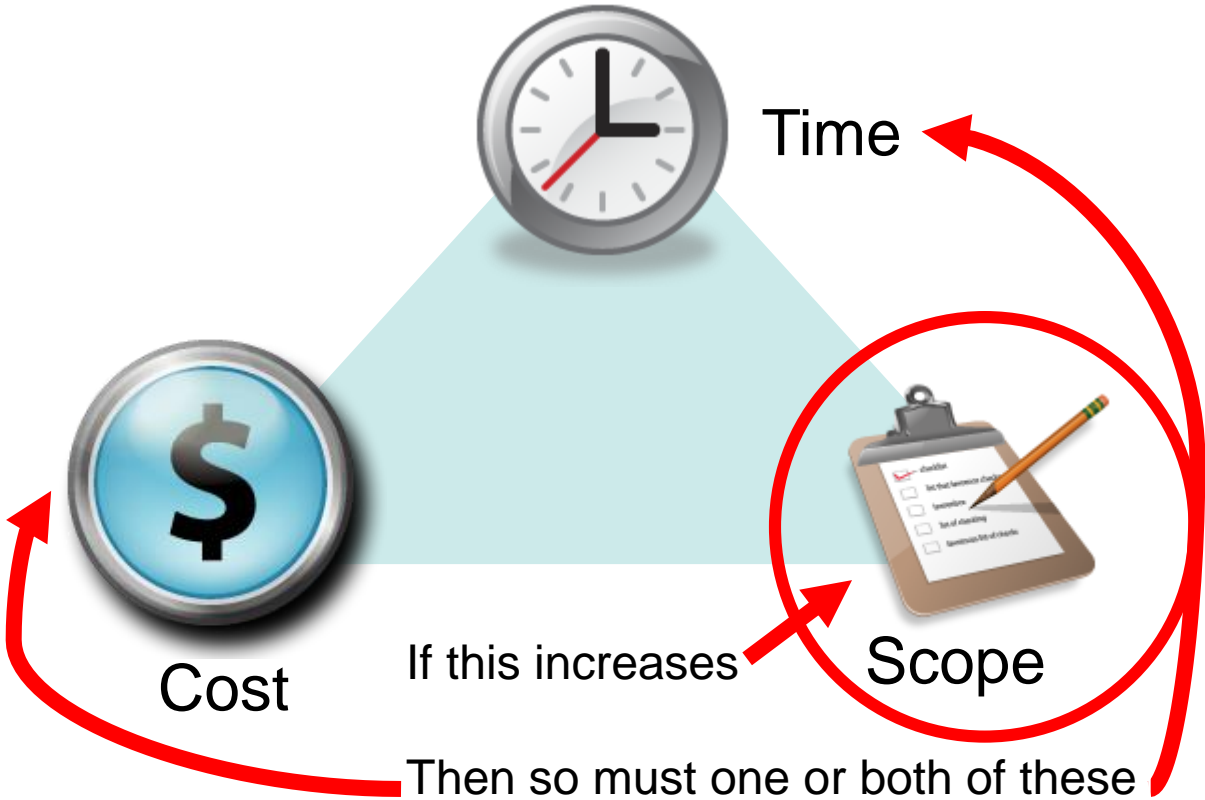
PBS Example



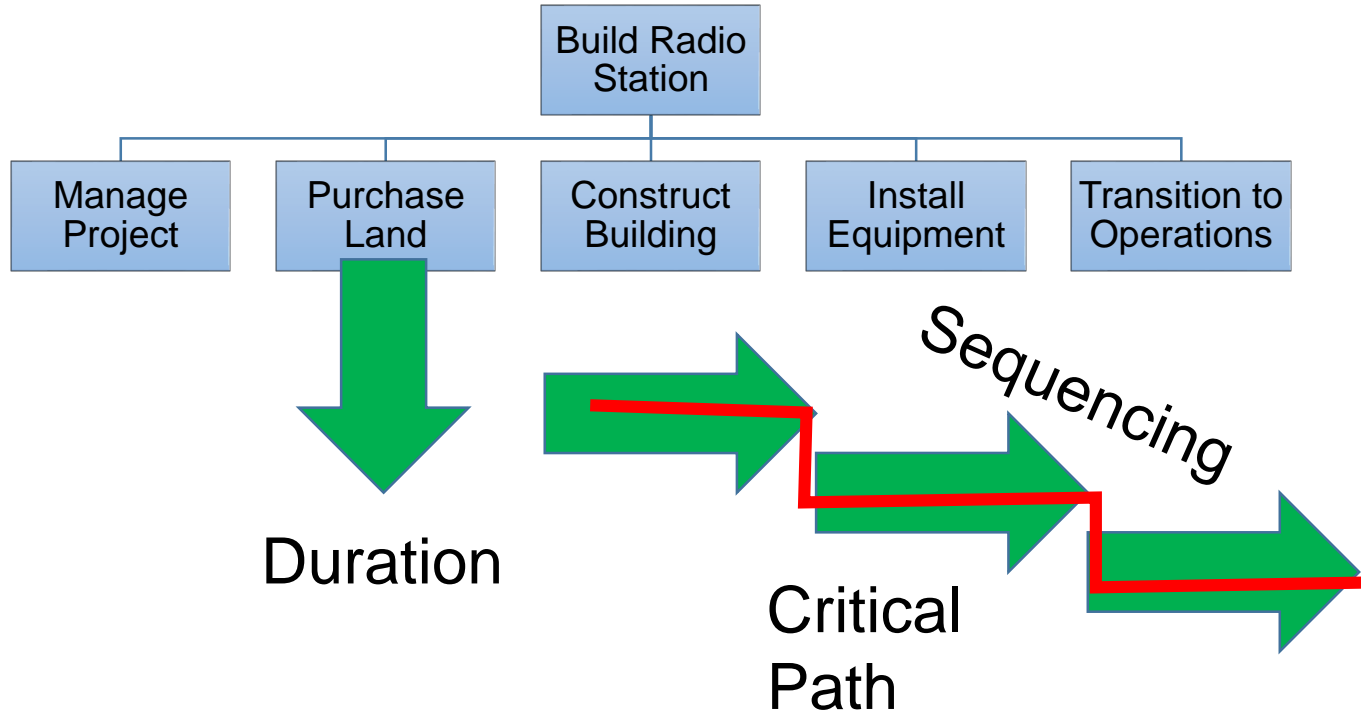
Why Both Are Useful



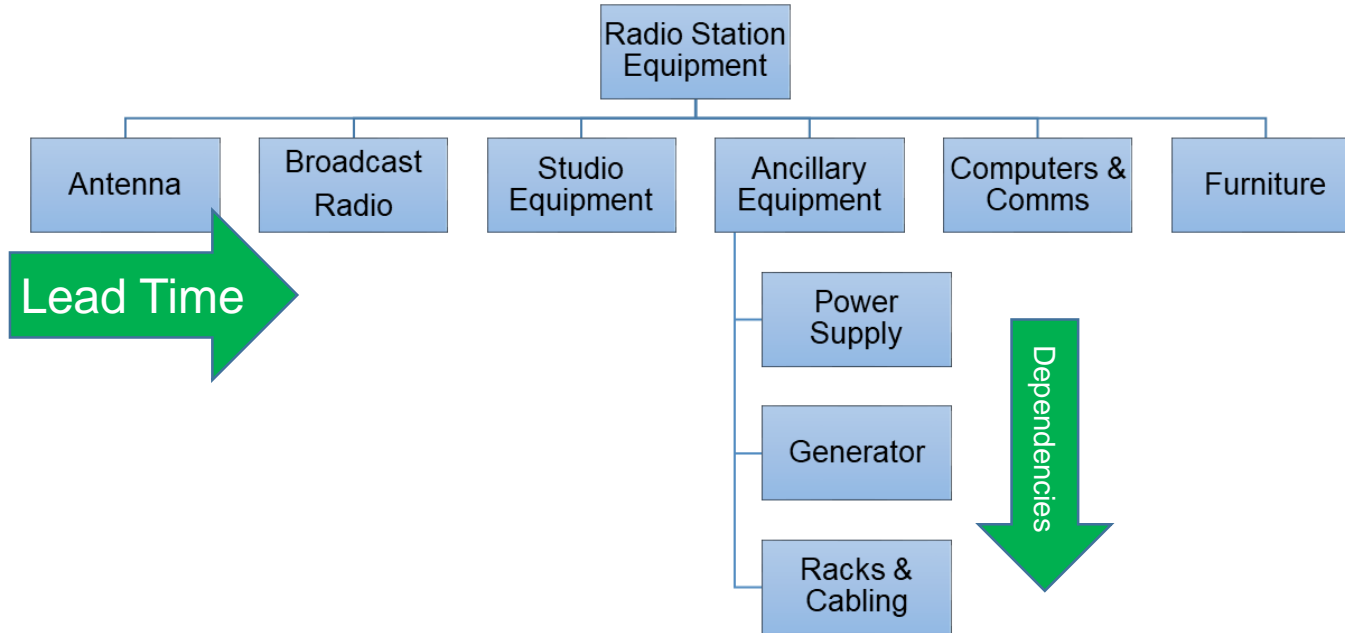
Back to the Triple Constraint



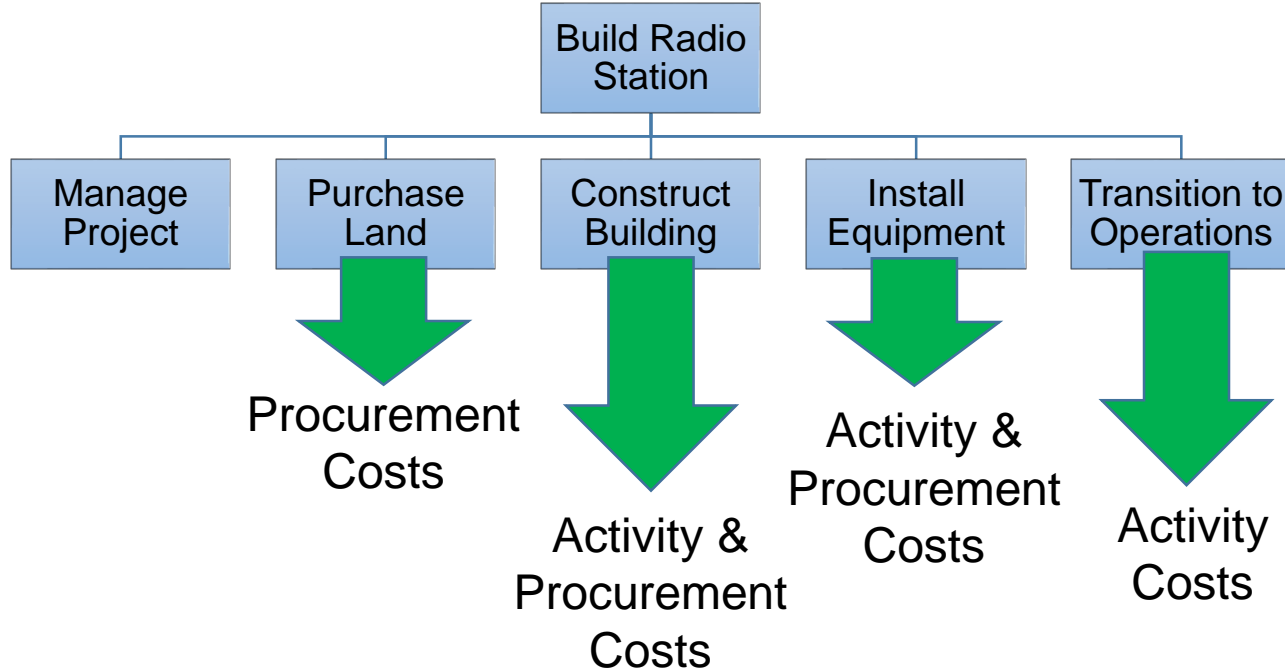
WBS Impacts on Schedule



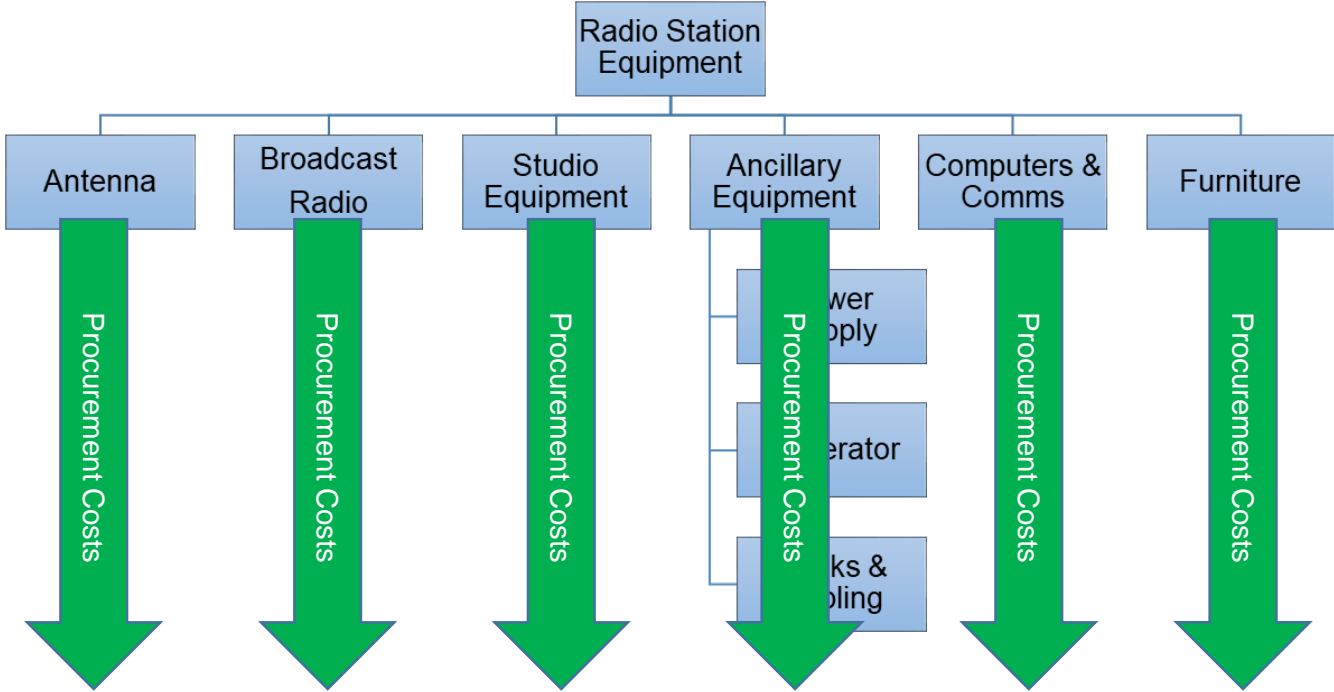
PBS Impacts on Schedule



WBS Impacts on Cost



PBS Impacts on Costs



Impacts on Risk

- WBS:
 - Critical path
 - Overruns in duration, activity cost
- PBS:
 - Interdependencies
 - Overruns in cost, delivery time

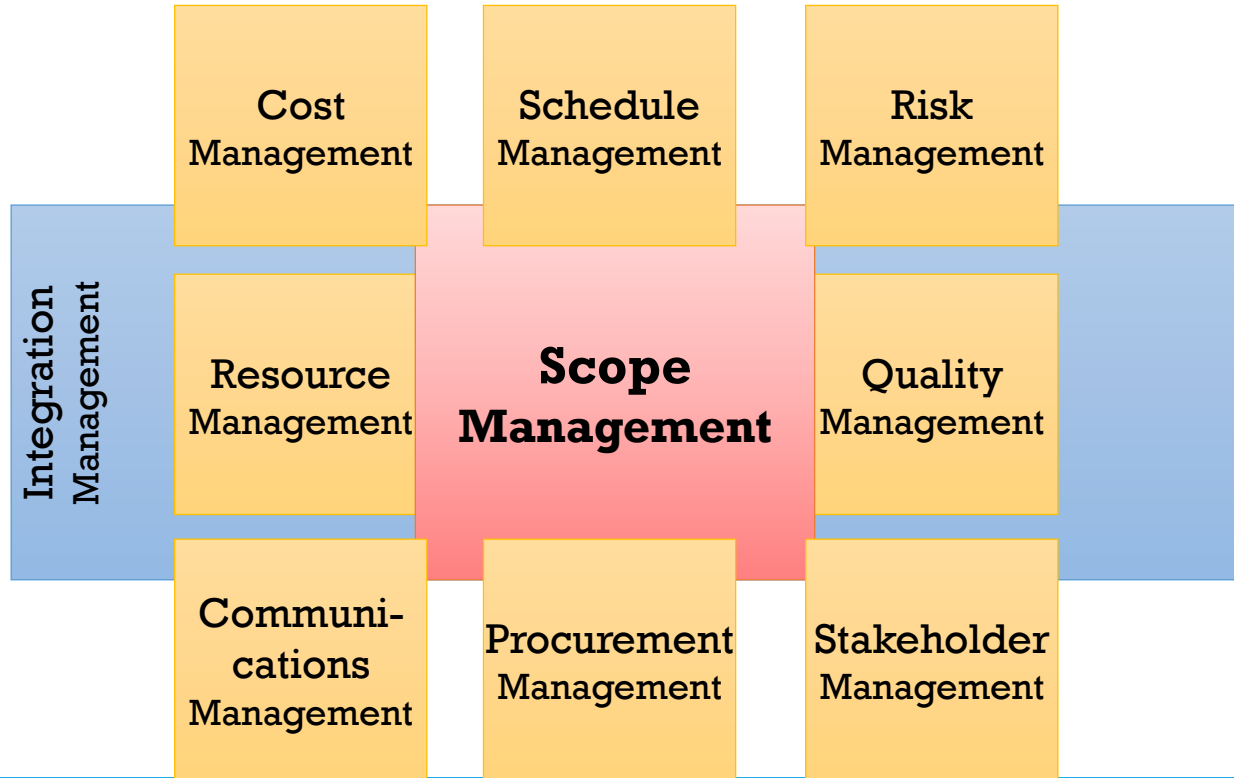
Impacts on Stakeholder Engagement

- WBS:
 - Which stakeholders are involved?
 - How they are involved/
 - Is stakeholder engagement part of the WBS as a project management activity?
- PBS:
 - Producers/suppliers are stakeholders

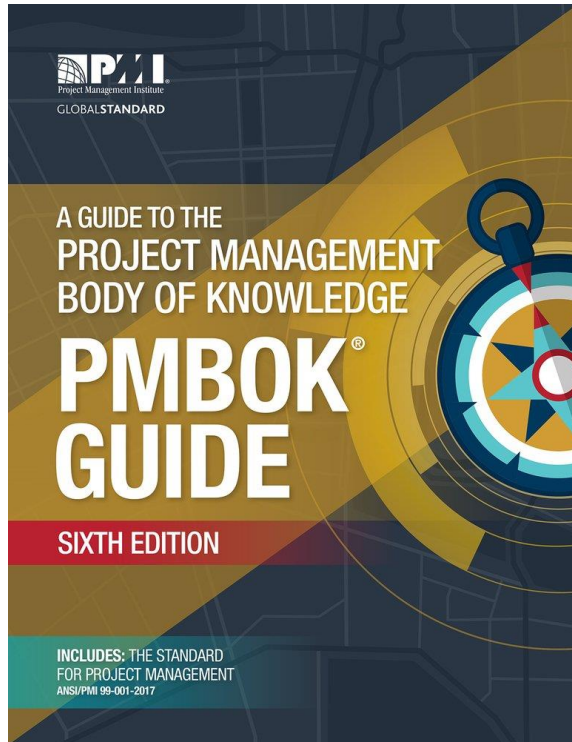
Impacts on Change Management

- WBS:
 - Reflects the project approach: change friendly? Change averse?
 - Changes in scope linked to WBS elements
- PBS:
 - Also reflects the project approach: is it locked in or flexible?

Scope Management: At the Heart



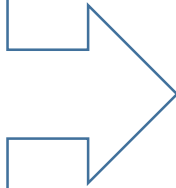
Key Concepts: Project Lifecycle



“Projects can range along a continuum from **Predictive** approaches at one end to **Adaptive or Agile** approaches at the other.”

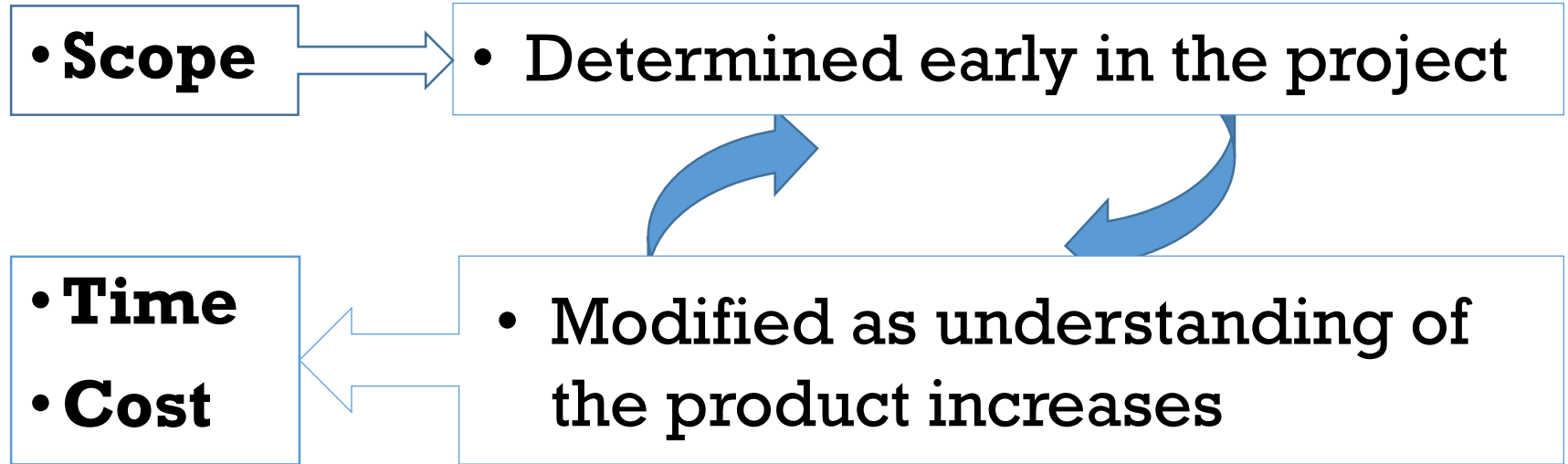
Predictive

- **Scope**
- **Time**
- **Cost**

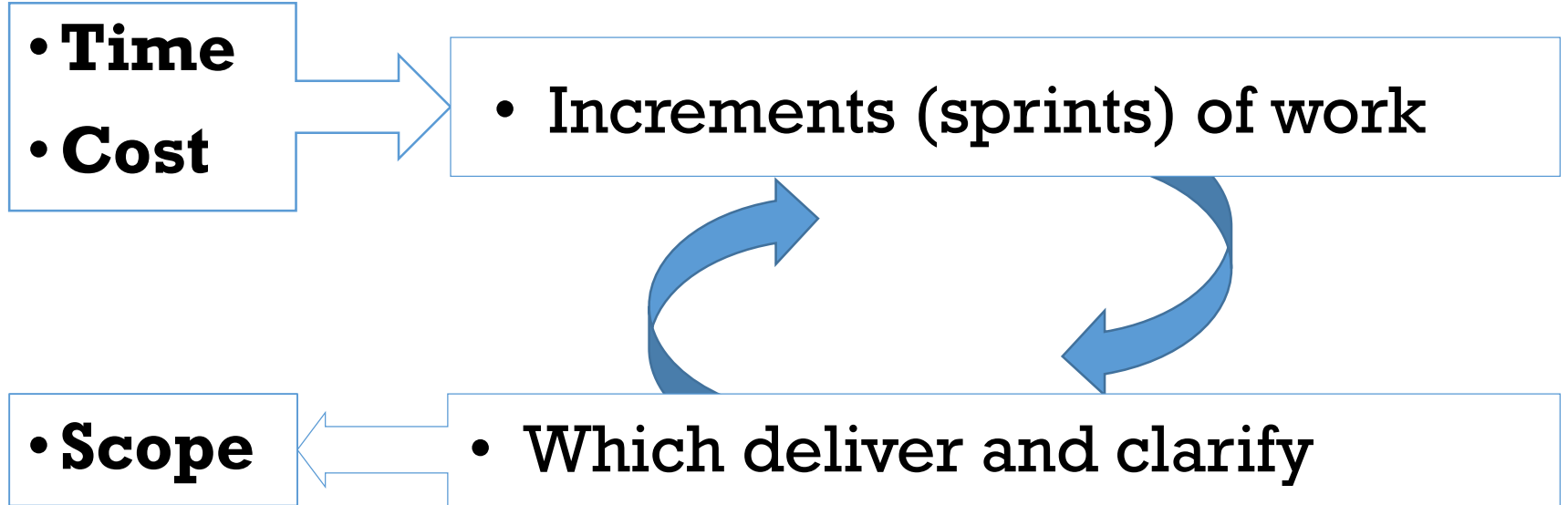


- Determined early in the project
- Baselined
- Changes carefully managed

Iterative



Agile



Scope Management Process

- Plan Scope Management
- Collect Requirements
- Define Scope
- Create WBS (and PBS!)
- Validate Scope
- Control Scope

Scope Management Process

- Plan Scope Management
- Collect Requirements
- Define Scope
- Create WBS

Planning

- Validate Scope
- Control Scope

Monitoring & Controlling

Key Inputs

- Project Charter
- Project Documentation
 - Assumption Log
 - Risks Register
 - Stakeholder Register
- Project Management Plan
- Enterprise Environment Factors
- Organizational Process Assets

Key Outputs

- Scope Management Plan
- WBS
- Requirements Documents
- Inputs to Assumptions Log
- Inputs to Stakeholder Register
- Change Requests

Tailoring Considerations

- Knowledge Management
- Requirements Management
- Validation
- Control
- Development Approach
- Stability of Requirements
- Governance

Scope Management Plan

- Preparing the Scope Statement
- Creating the WBS
- Scope Baseline approval and maintenance
- Formal acceptance

Requirements Management Plan

- Collection
- Analysis
- Tracking
- Prioritization
- Traceability
- Change management
- Reporting

**Scope
Management**

```
graph TD; A[Scope Management] --- B[Plan Scope Management]; A --- C[Collect Requirements]; A --- D[Define Scope]; A --- E[Create WBS]; A --- F[Validate Scope]; A --- G[Control Scope];
```

**Plan
Scope
Management**

**Collect
Requirements**

**Define
Scope**

**Create
WBS**

**Validate
Scope**

**Control
Scope**

- 
- **What Scope Management problems have you encountered?**
 -

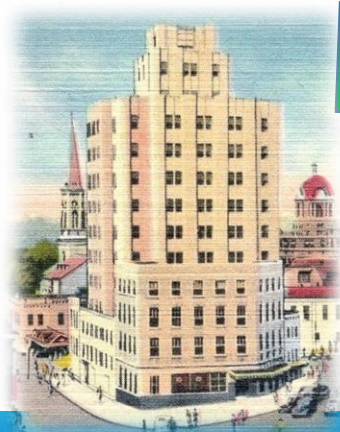
The Relocation Project



Accounting



Human Resources



New Location

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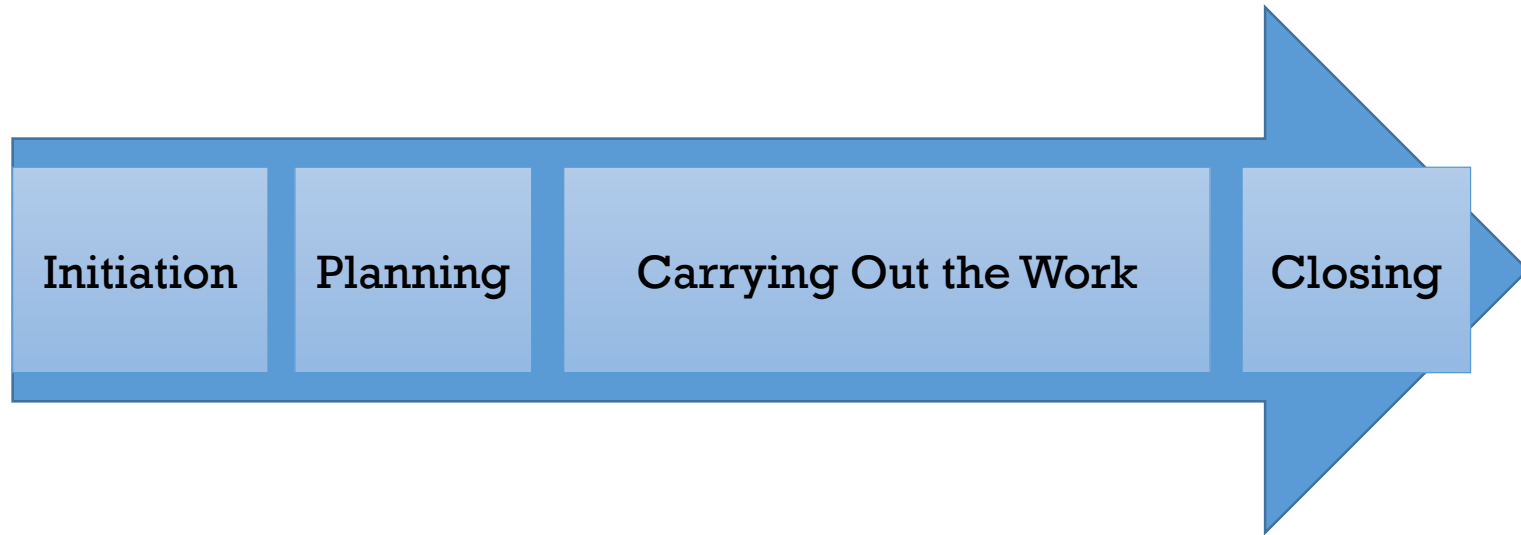
Group Exercise #1: Defining Scope

- You are the PM for the Relocation Project.
- Prepare an initial Project Scope Statement:
 - Work Breakdown Structure
 - Product Breakdown Structure
 - List of Planning Assumptions

SCOPE MANAGEMENT: THE NOT-SO BASICS

WHY SCOPE IS COMPLEX

The Project Life Cycle

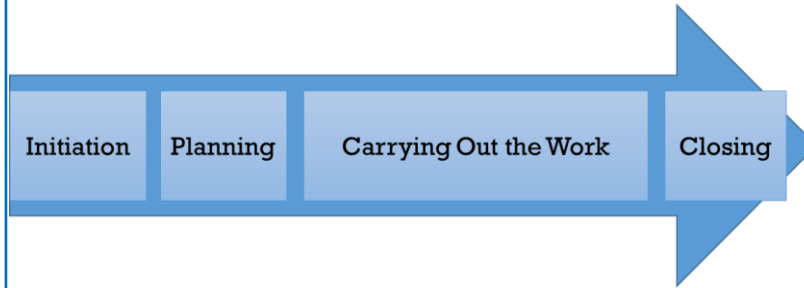


The Larger Life Cycle

What Happened in the Past

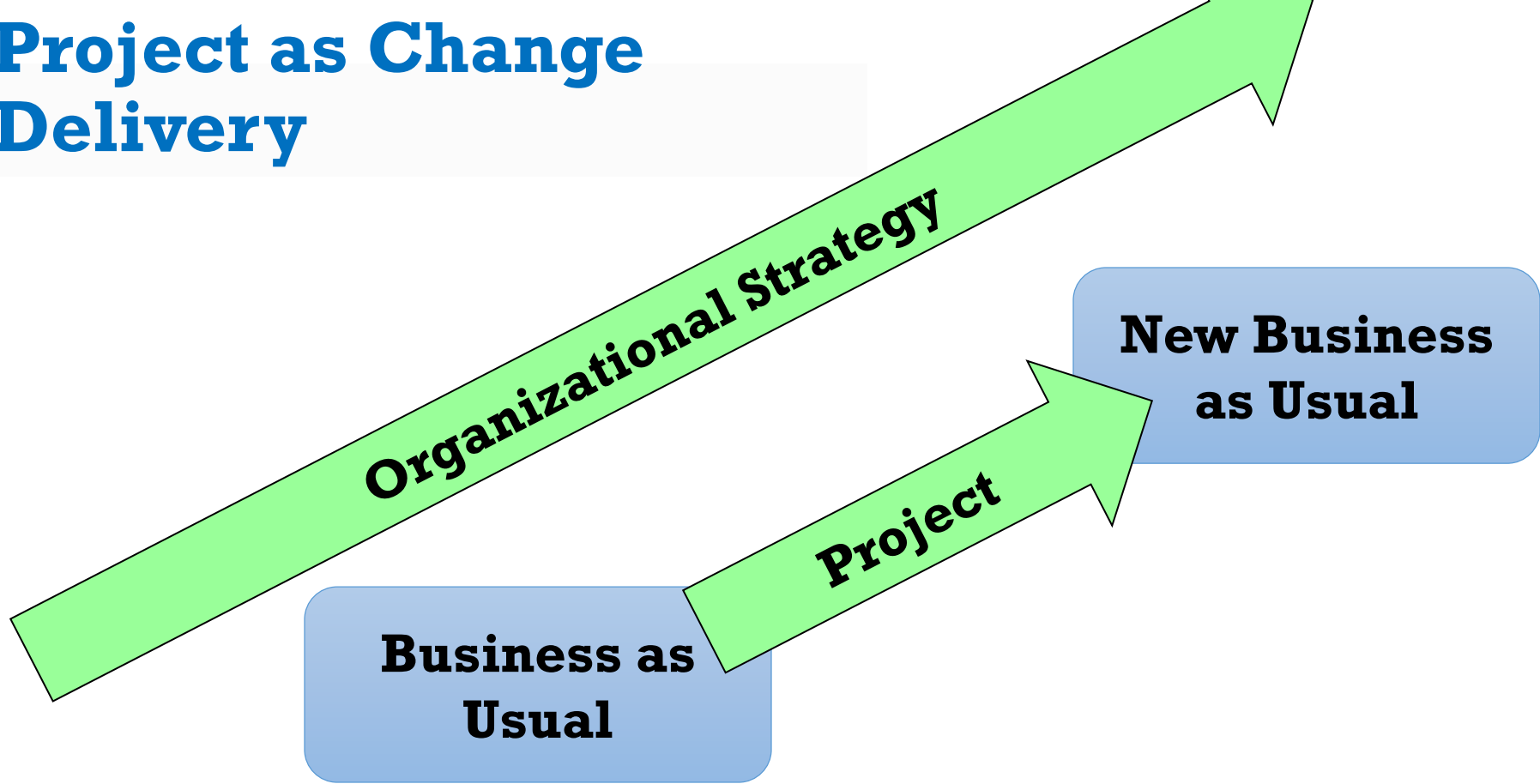
What Led to Project Initiation

What is Going On During the Project



What will Happen After the Project

Project as Change Delivery



The Larger Life Cycle

**What
Happened in
the Past**

What is Going On During the

- **Enterprise Environmental Factors**
 - Organizational culture
 - Infrastructure
 - Personnel
 - Market Forces
 - Regulations
 - Organizational Process Assets

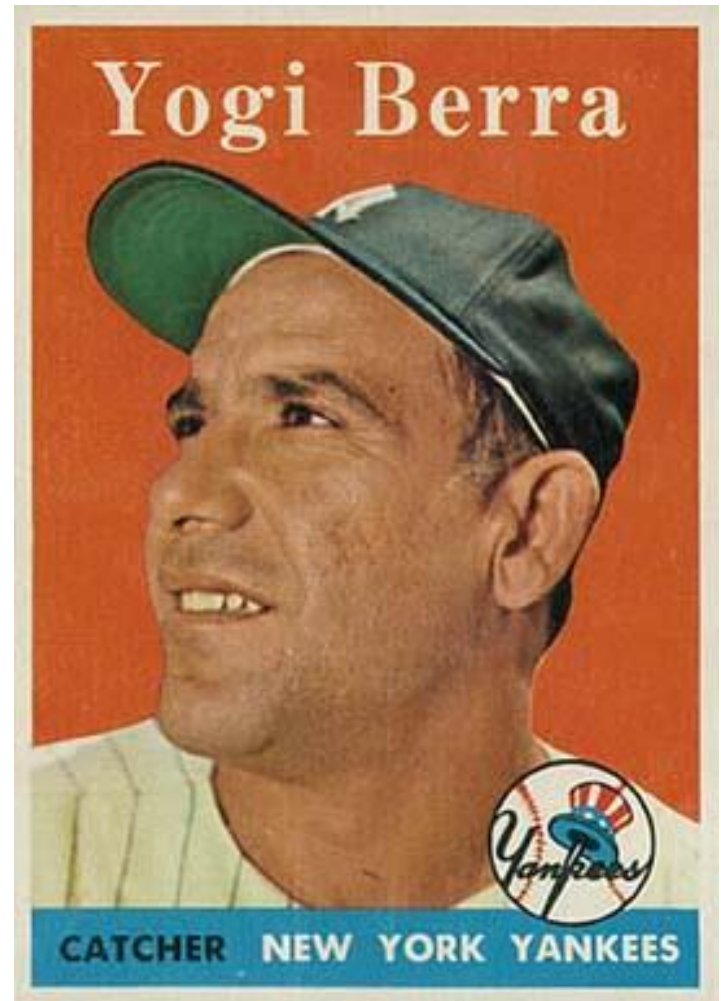
- 
- **What other aspects of “what happened in the past”**
 - **can influence scope?**

What is the Project's Why?

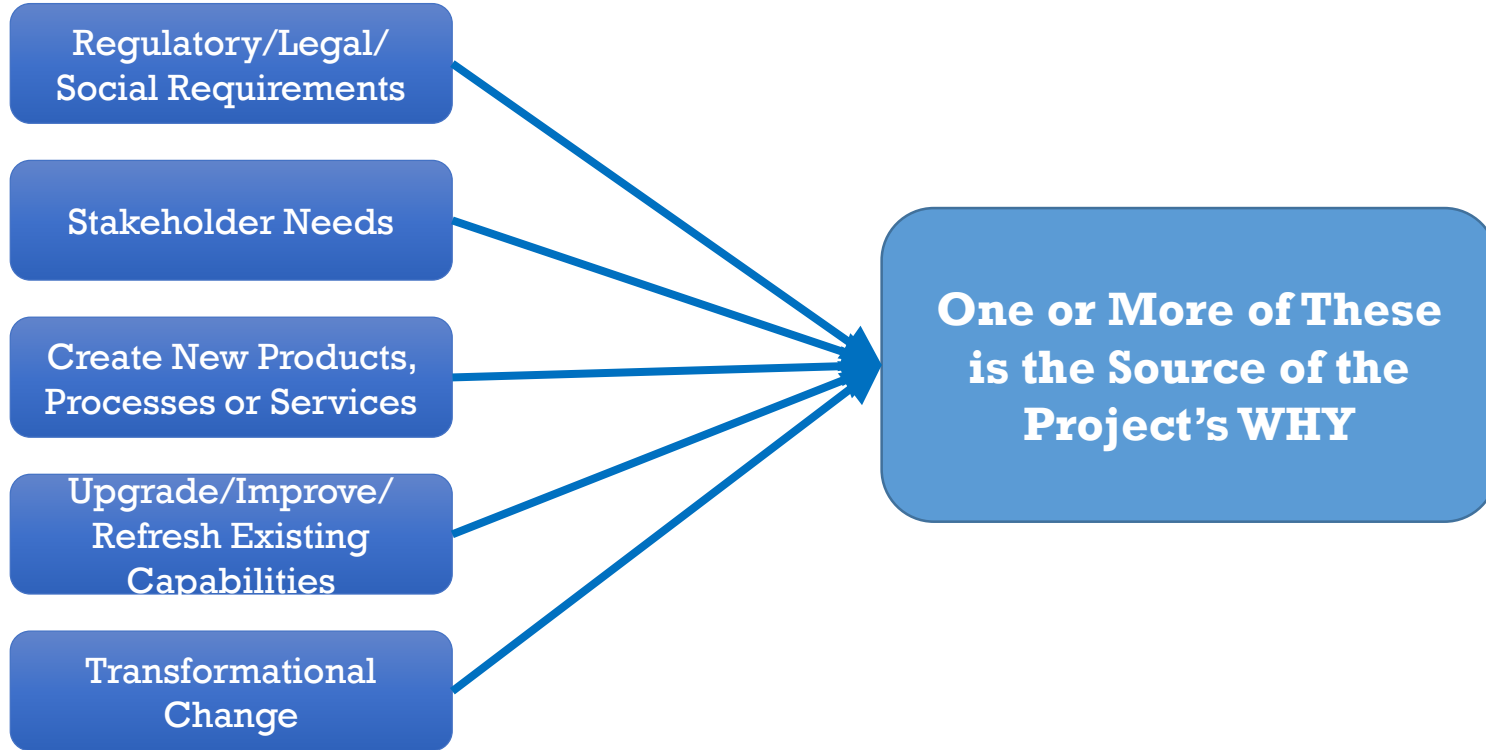
Why are we
doing this?



*“If you don't know
where you are going,
you'll end up
someplace else.”*



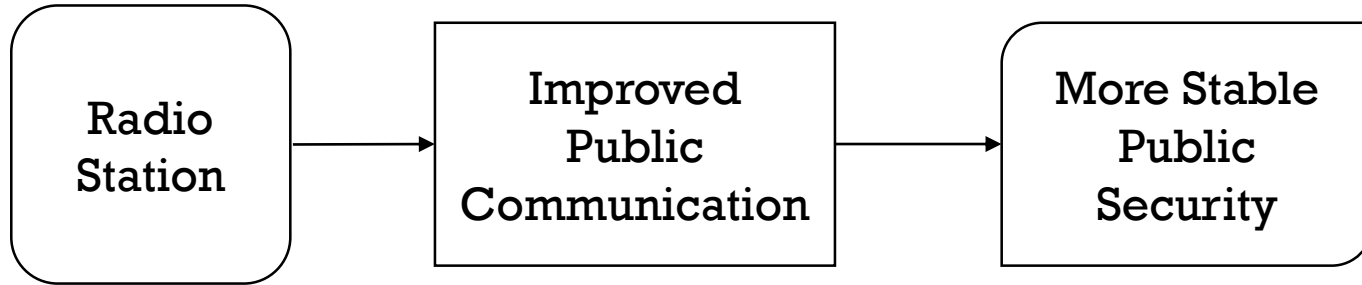
Project Initiation Context



The Basic “Why” Model

- Projects deliver **outputs**
- The outputs enable **outcomes**
- The outcomes realize **benefits**
- The benefits achieve **strategic objectives**

A Benefits Model



*Project
Delivers*

Output

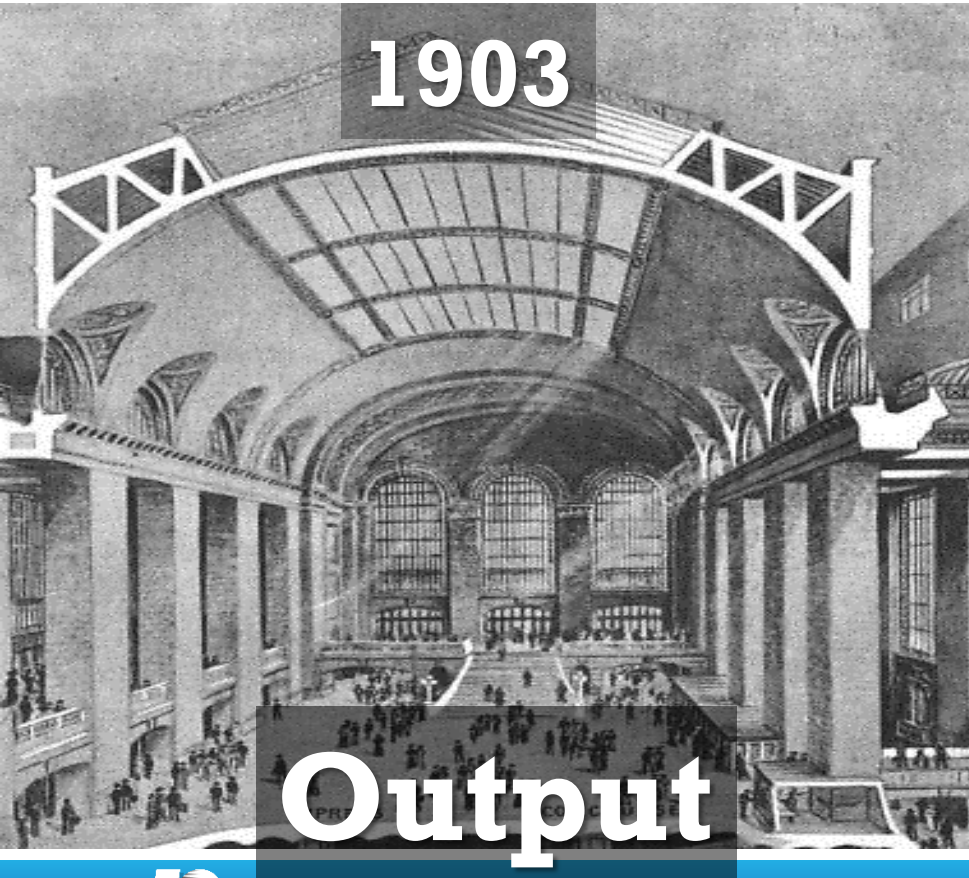
Enables

Outcome

Realizes

Benefit

Outputs versus Benefits



Scoping the Scope

- How can you plan Scope Management if any of the following are missing from the Project Charter?
 - Purpose
 - Measurable Objectives and Success Criteria
 - High-level project description, boundaries, and key deliverables
 - Project approval criteria (e.g, what constitutes project success)?

Scope in the Project Charter

- “The Scope section addresses the Who, What, Where, When, and Why of a project.”*

*Most of the Project Charter templates you will find on the Internet

Quintilian's Hexameter

Quis?

Quid?

Ubi?

Quibus auxiliis?

Cur?

Quomodo?

Quando?





Quintilian's Hexameter

Quis?

Who?

Quid?

What?

Ubi?

Where?

Quibus auxiliis? By what means?

Cur?

Why?

Quomodo?

How?

Quando?

When?

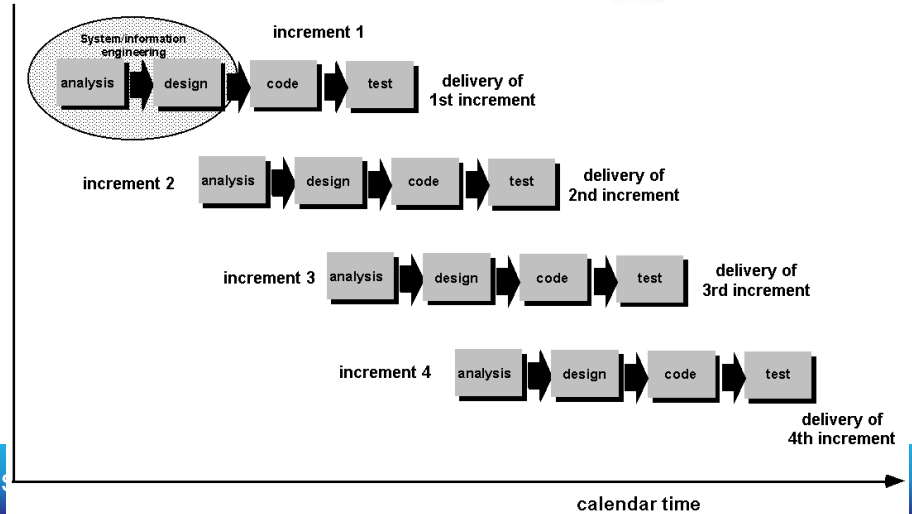
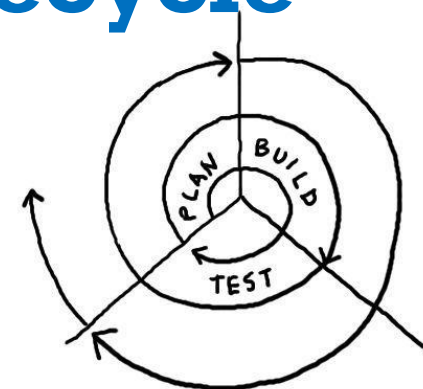
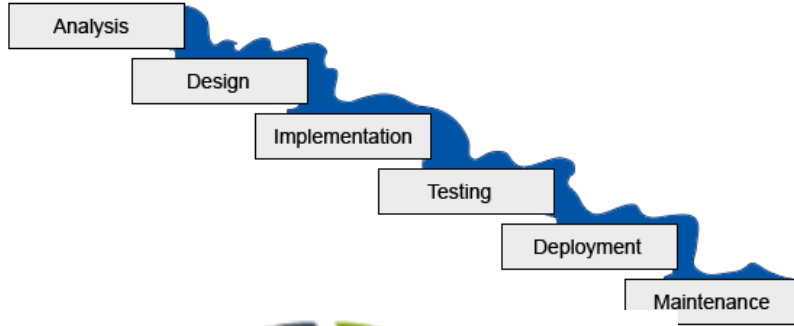
Work Scope vs. Product Scope

- The WBS (the “How” of Delivery)
- The PBS (the “What” of Outputs)

Work Aspects: Change Approach

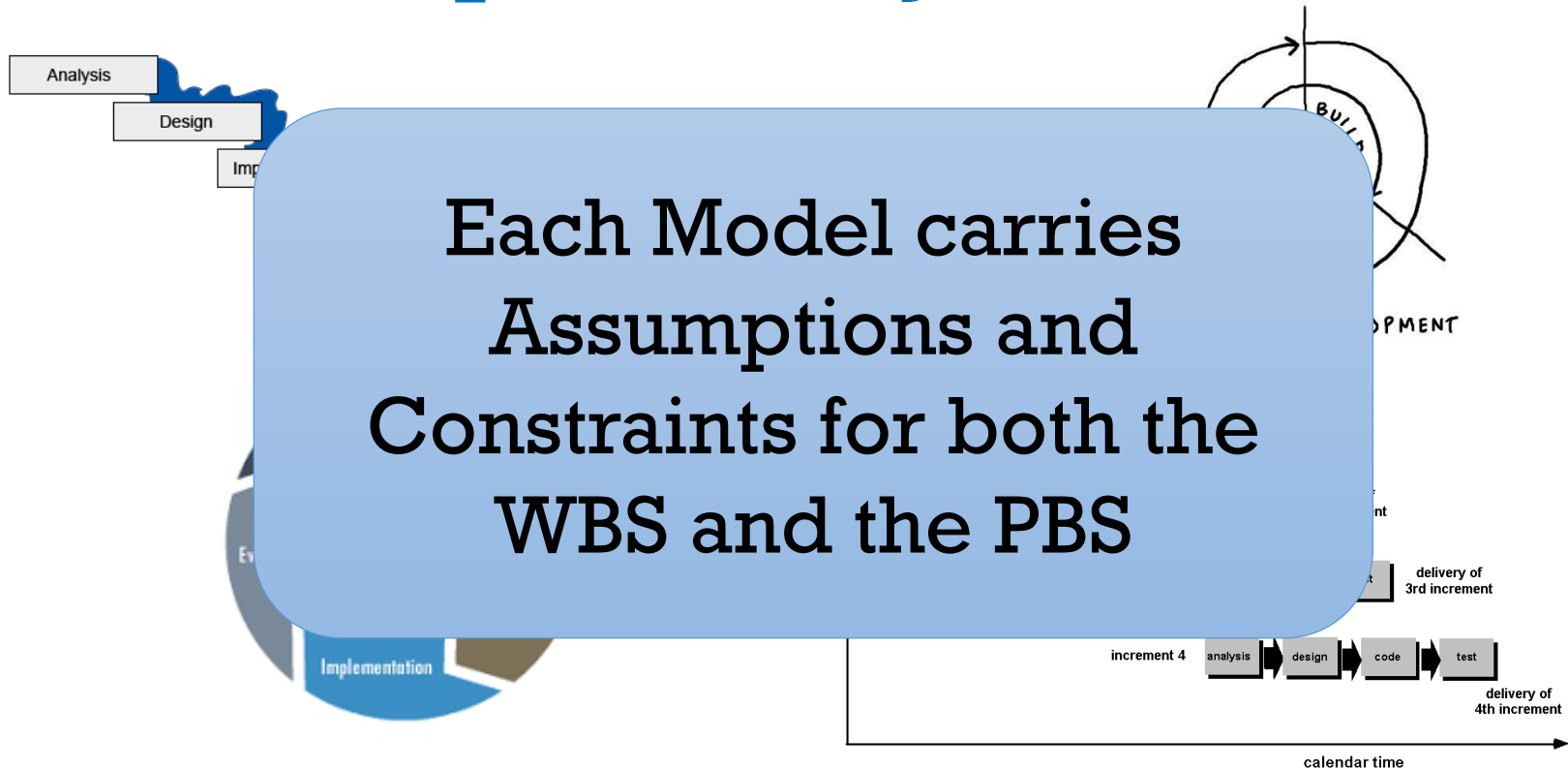
- **Green Field?**
 - Little or no existing infrastructure, least impact on current operations
- **Upgrade/Improvement?**
 - Backwards compatibility, synchronization with existing operations, before/after comparisons
- **Transformational?**
 - Transition from “As Is” to “To Be,” slack in transforming workforce, before/after comparisons

Work Aspects: Project Lifecycle



Work Aspects: Project Model

Each Model carries
Assumptions and
Constraints for both the
WBS and the PBS



Adaptive/Agile/Incremental

- How will the approach be reflected in the Work Breakdown Structure?
- Or will the WBS (and PBS?) be updated and re-baselined repeatedly?
- Are prototypes and other interim deliverables also part of the Product Breakdown Structure?

Project team

- Aspects to consider:
 - Co-located? Dispersed? Virtual?
 - Do they share a common language? Culture? Time Zone?
 - What is the level of commitment of team members?
 - What are their Priorities? Constraints?
 - What is their level of authority?
 - What is their level of expertise/experience?

Sourcing/Procurement

- **Sourcing Decisions:**

- In-house?

- Outsourced?

- Mix?

- Equipment?

- Services?

- Mix?

- Very often, procurement must be included as part of the WBS
 - But procurement approach can also influence the PBS

Contractors as part of the project team

- How are they contributing?
 - As suppliers?
 - As developers?
 - As producers?
 - As integrators?
 - As workforce capacity?
 - As consultants/subject matter experts?
 - Onsite? Offsite?
 - Some or all of the above?

Transition/Handover

- Tied to the change model (e.g., Green Field)
- Transition impacts on WBS (and PBS?):
 - Workforce training/retraining
 - New/adapted procedures
 - Parallel operation (old/new)
 - Fallback option
 - Initial operational support

Product Aspects

- PBS and its components
 - Sourcing
 - Buy? Assemble? Develop? Integrate?

Defining the Outputs/Deliverables

- Production outputs
 - What most customers consider outputs: the things they will use
- Management outputs
 - What are needed to plan, monitor, and control the project

Individual Product Requirements

- Physical Scope
- Quality
- Control requirements
- Acceptance criteria

Physical scope

- Quantity
- Size
- Capacity
- Location

Quality

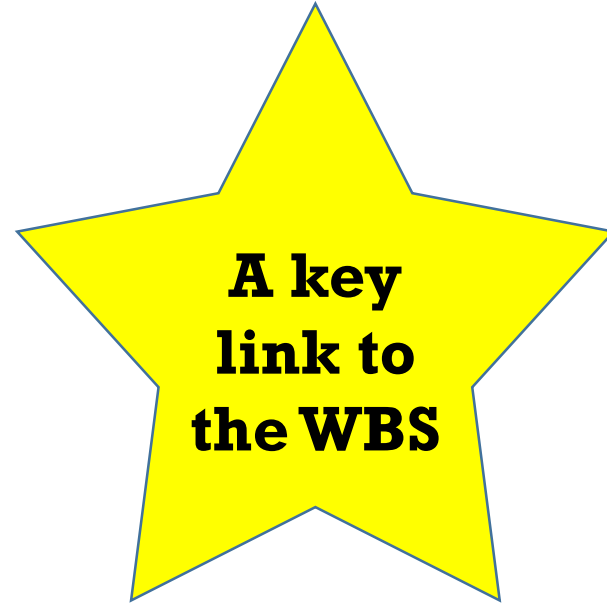
- Functional requirements
 - What the product needs to do
- Nonfunctional requirements
 - What the product needs to be
 - Often referred to as the “ilities”
 - Reliability
 - Availability
 - Maintainability

Product control requirements

- Design/development/production checkpoints
- Inspection
- Testing
- Inventory

Acceptance criteria

- Who accepts?
- What?
- When?
- Where?
- How?

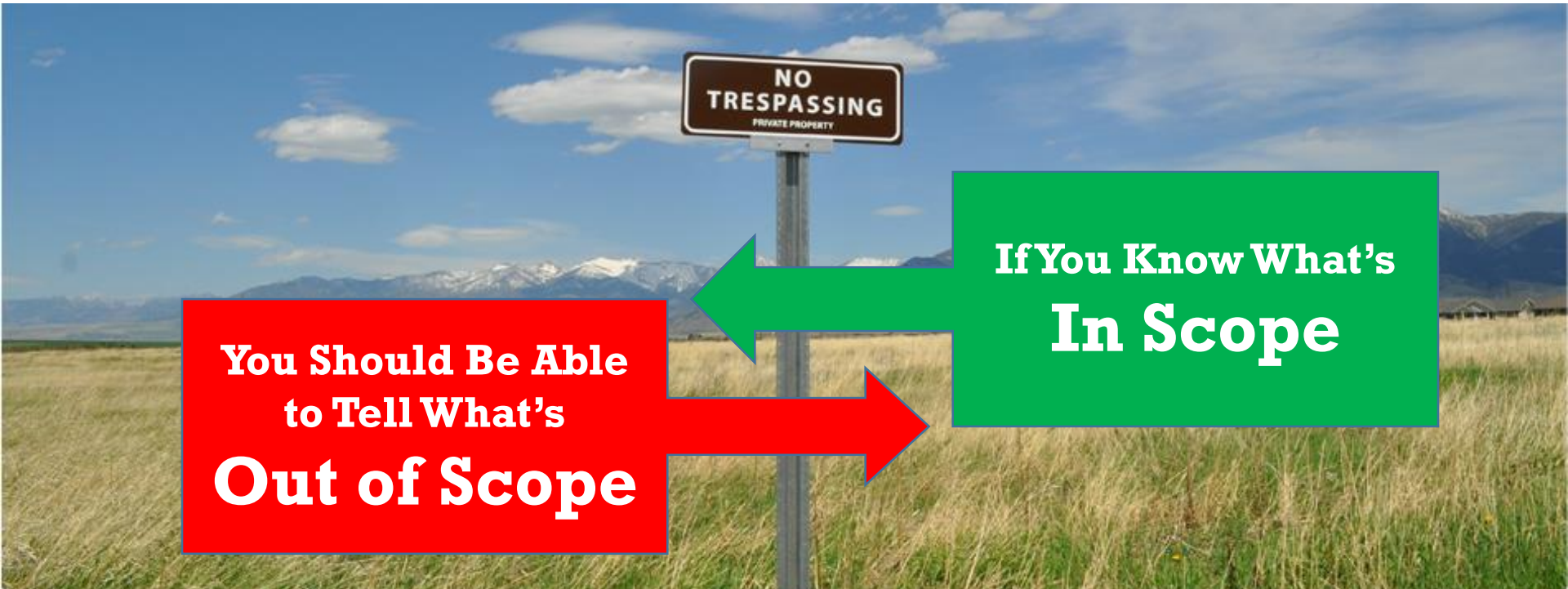


Other Aspects of Scope

- Boundaries
- Constraints
- Sustainability
- Change Appetite
- Volatility (e.g., Market, Organization, Technology)
- Time

Boundaries

- Where does the project stop?



**You Should Be Able
to Tell What's
Out of Scope**

**If You Know What's
In Scope**

Constraints

- **Authority**
 - What Project Manager has authority to decide
- **Legal**
 - What means are considered legal?
- **Regulatory**
 - Are there health and safety constraints?
- **Interfaces**
 - Do the products have to work with other systems?
- **Policy**
 - Are there policy constraints on how the work is done?
- **Operational**
 - Are there constraints on disrupting running operations?

Sustainability



Project Math

- **Q:** *Is Project Scope the Sum of:*
 - Product Scope (PBS)?
 - Work Scope (WBS)?
 - PBS + WBS?

- ***If none of the above, what's missing?***

What happens if the PM can't allocate a requirement to the WBS or PBS?

Importance of a Holding Space

- Early in the Project Life Cycle, it's not always clear what's In Scope and Out of Scope
- Deciding too early can lead to problems with Planning, Execution and Acceptance
- Provide a space to hold what's in doubt
 - This can be one function of the Issue Log

Baselining Scope

- As part of Project Management Plan approval the Scope should be baselined:
 - WBS
 - PBS
 - Requirements Documents
- This is key to enable Change Management and Reporting

Baselining: Establishing Controls

In Scope

Not in Scope



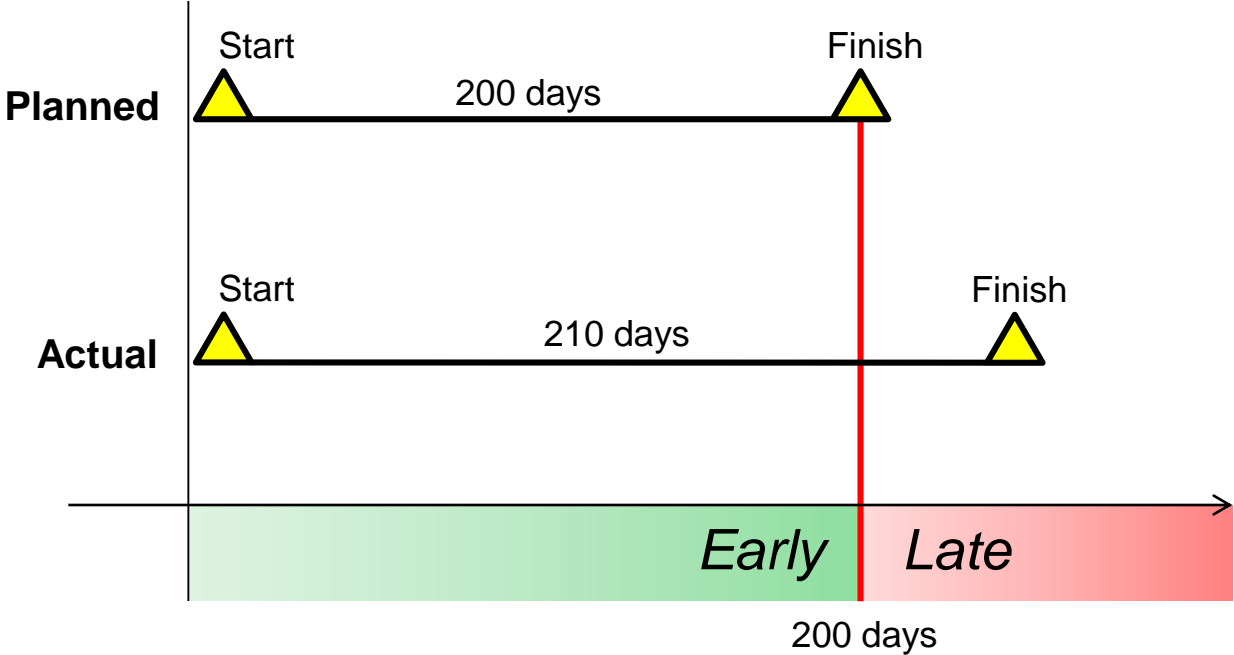
Group Exercise #2: Revising Scope

- In light of the preceding discussion, how should we revise the Initial Project Scope Statement for the Relocation Project?
- Do we need to make changes in:
 - The Work Breakdown Structure to the first level (major activities)?
 - The Product Breakdown Structure?
 - The list of planning assumptions?
- Is there anything we should place into a Holding Space such as the Issue Log?

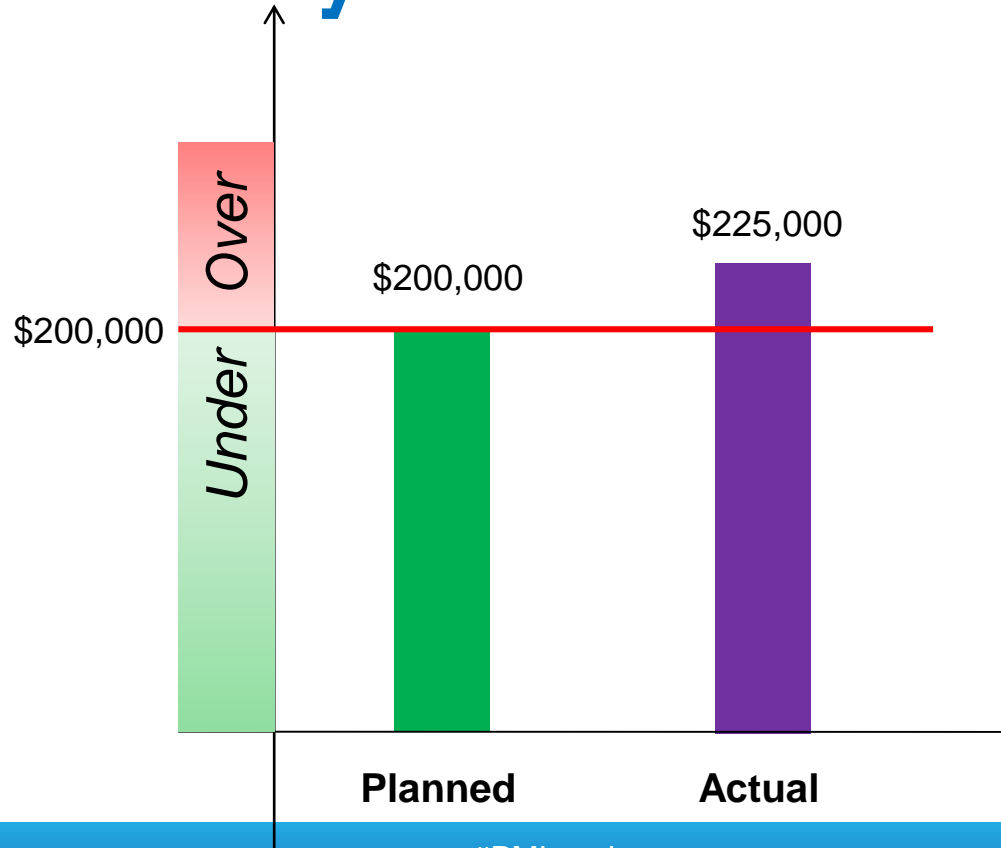
SCOPE MANAGEMENT: THE NOT-SO BASICS

WHY SCOPE IS FUZZY

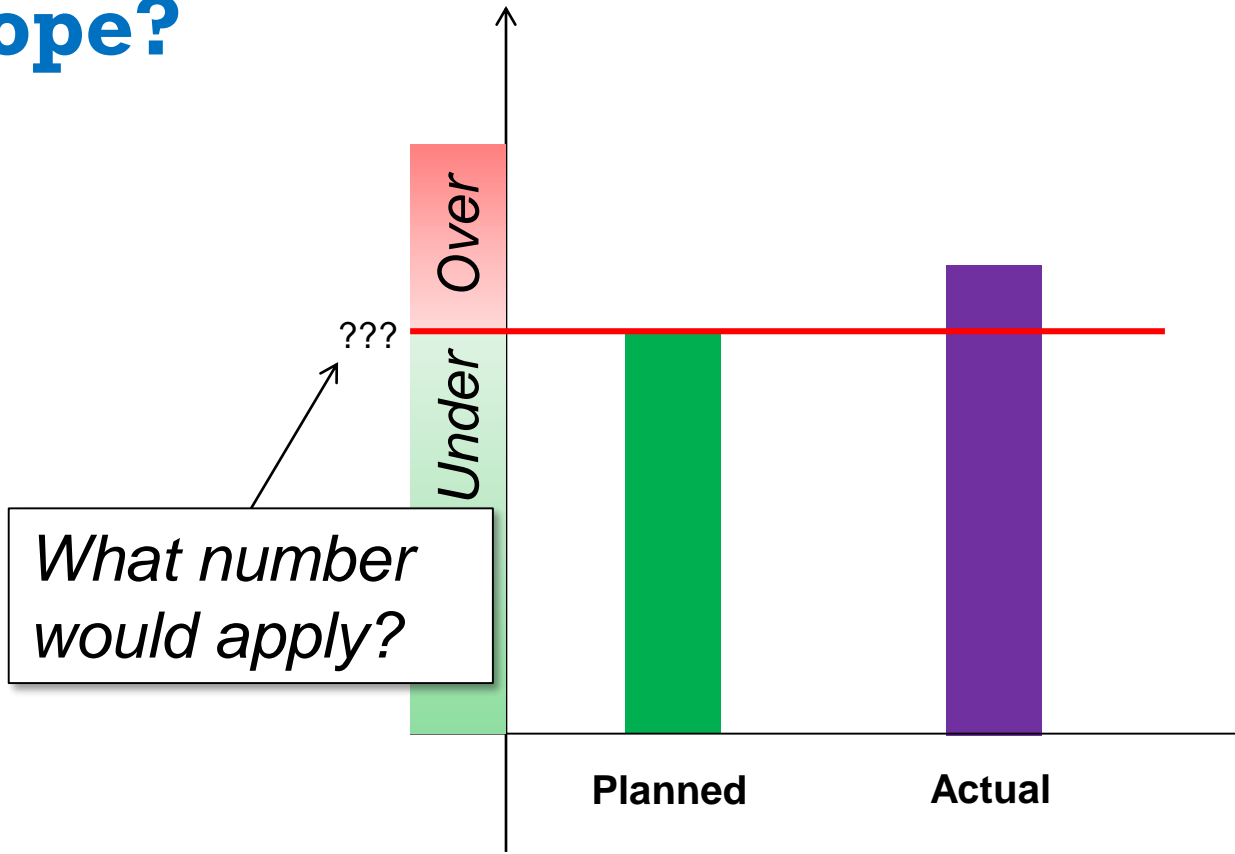
Time is Easy to Measure



Cost is Easy to Measure



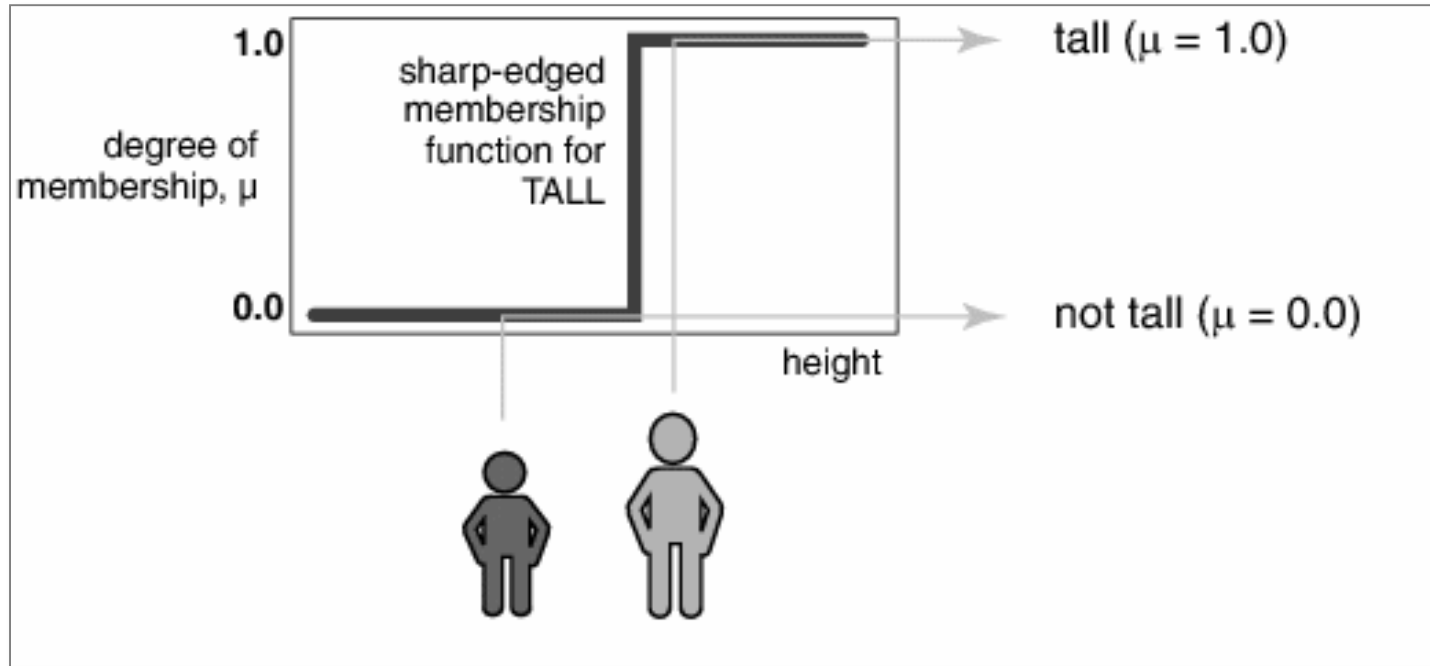
Scope?



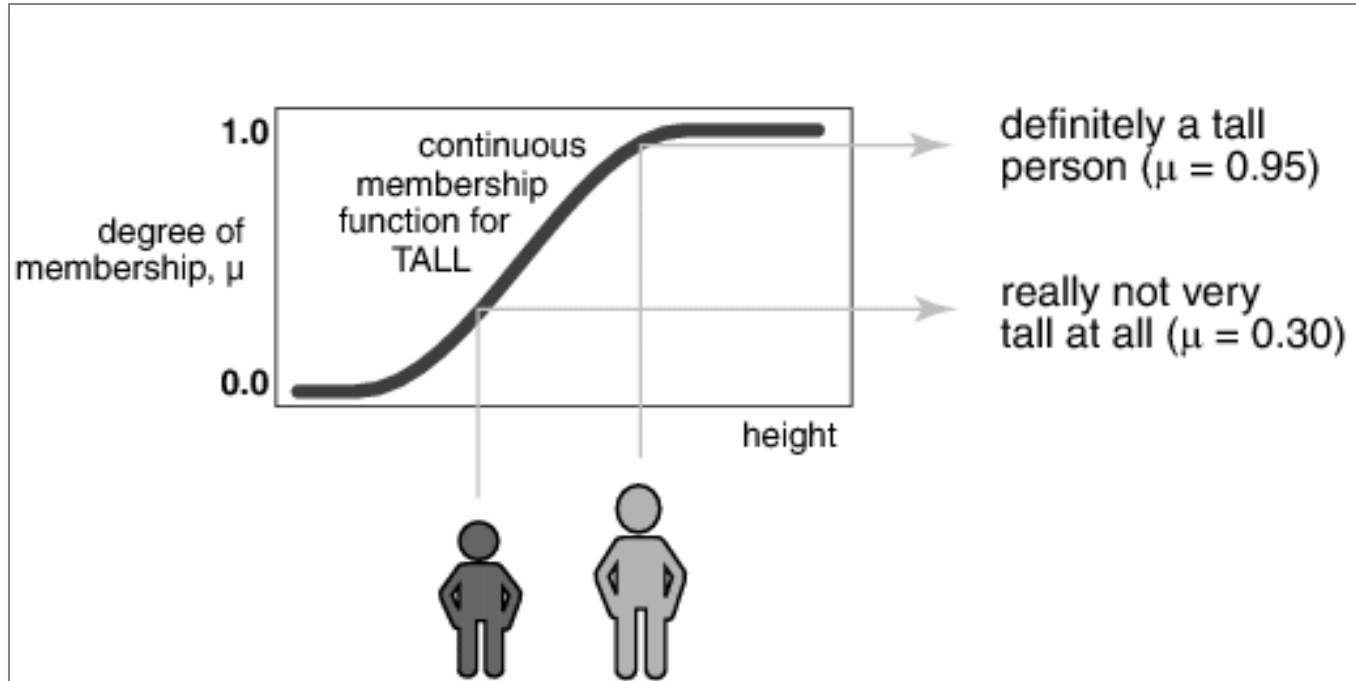
There is **no single measure** for scope

#PMIseminars

A Set with a Clear Boundary



A Set with a Fuzzy Boundary



Fuzzy Sets*

L. A. ZADEH

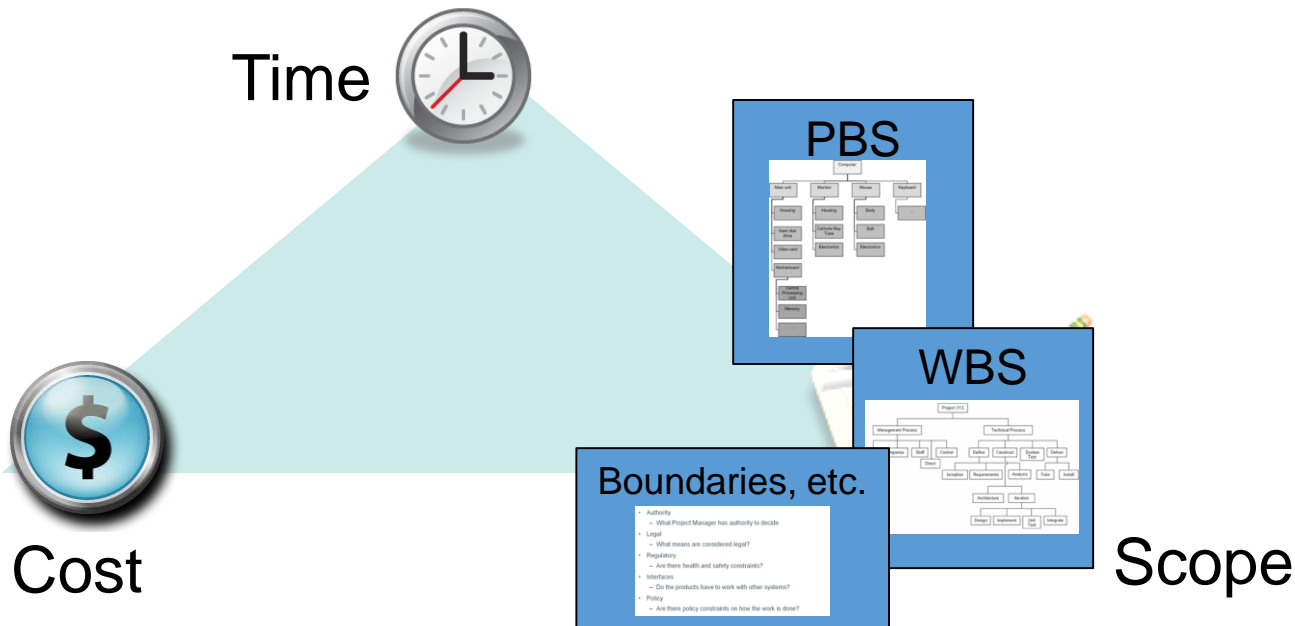
*Department of Electrical Engineering and Electronics Research Laboratory,
University of California, Berkeley, California*

A fuzzy set is a class of objects with a continuum of grades of membership. Such a set is characterized by a membership (characteristic) function which assigns to each object a grade of membership ranging between zero and one. The notions of inclusion, union, intersection, complement, relation, convexity, etc., are extended to such sets, and various properties of these notions in the context of fuzzy sets are established. In particular, a separation theorem for

A Fuzzy Set: Tall Basketball Players



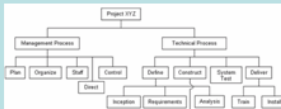
Still a Triangle?



Products



Work



Boundaries

Other Factors

- Quantity
- Location
- Functional requirements
- Non-Functional requirements
- Modes of operation
- Production methods and facilities
- Test or certification requirements
- Intended users
- Procurement
- Transparency
- Look and feel/Appearance
- Raw materials
- Environmental factors
- Standardization

What authority does the Project Manager have to decide what means are considered legal?

What are the health and safety constraints?

How do the products have to work with other systems?

Are there any policy constraints on how the work is done?

Q: Where Do Requirements Come From?

A: Stakeholders!

This is why Stakeholder Identification and Analysis should be the first step in the process

Who's a Stakeholder?

- An individual, group, or organization that may be:
 - Involved in
 - Affected by
 - Able to affect
 - Have an interest in
 - Have an opinion about



The Project
or
Its Outcomes

Stakeholders

Have an interest in or Opinion about

Are Affected By

Are Involved In

The Project Team

Stakeholder Analysis

- Interests
- Influence
- Authority
- Rights
- Ownership
- Knowledge
- Contribution
- Means to Communicate/Engage

Stakeholder Engagement

- The Key is to Understand that Requirements Elicitation and Validation is a Social Activity
- Participation Always Improves Buy-In



Stakeholder Engagement: Getting Buy-in

- The impact of time/distance/commitment
- Mitigating the risk of rejection

Never underestimate the value of spending long hours together in conference rooms!

Requirements Collection



Requirements Elicitation

- Interviews
- Role-Playing or Simulation
- Brainstorming
- Questionnaires
- Focus Groups
- Prototyping
- Observation

The Challenge of Requirements Elicitation

The Stakeholder's
Perspective



The Project's
Perspective

It is hard to find someone with 20/20 vision in both

What's a Message?



Requirements Elicitation

Never underestimate the value of a conference room wall covered in Post-It® notes!



Requirements Elicitation/Collection

- Elicitation often involves delving into the stakeholder's unconscious:
 - Expectations
 - Assumptions
 - Fears
 - Opposition



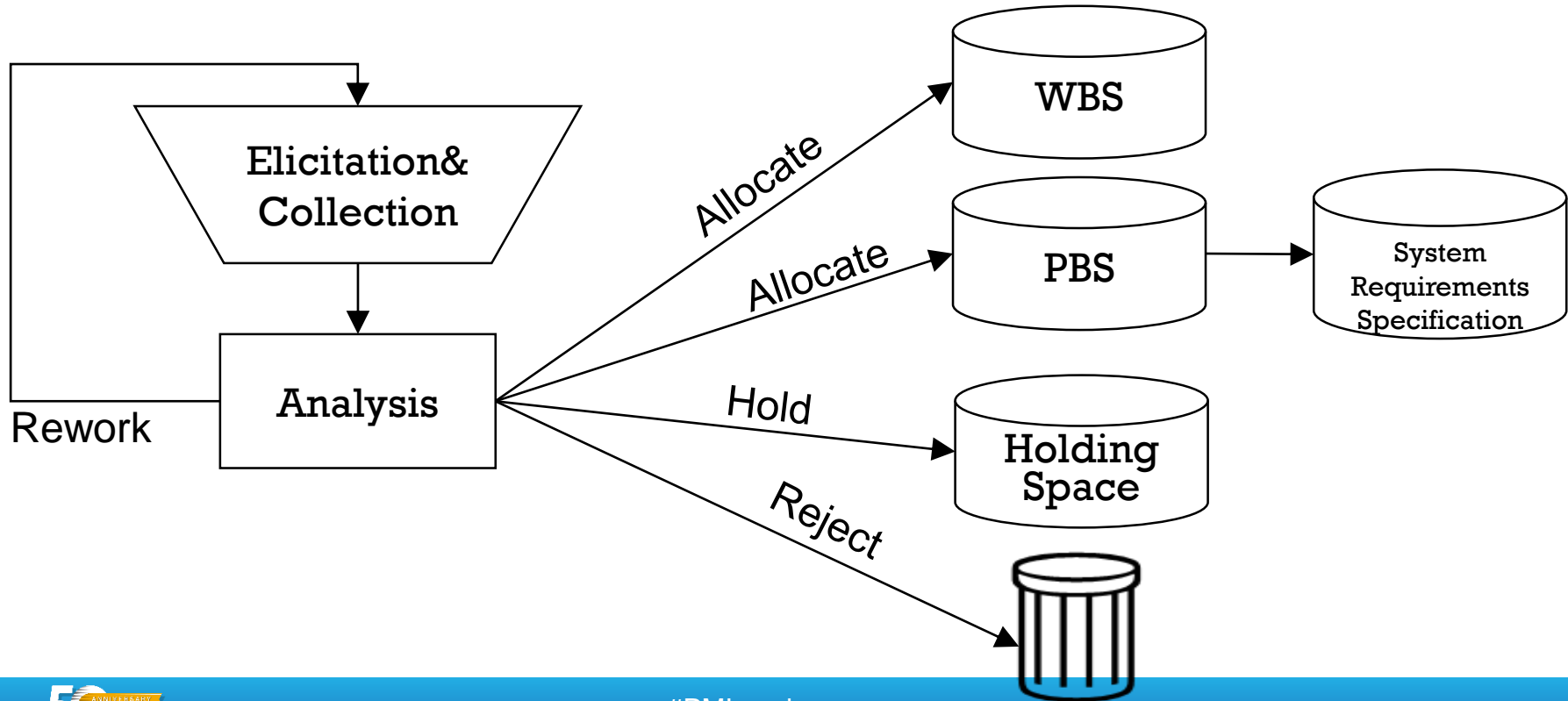
Requirements Elicitation/Collection

- In an Ideal World, Requirements would be delivered on a Silver Plate:
 - SMART
 - Complete
 - Validated
 - Owned
 - Explicit
 - Unambiguous

Requirements Elicitation/Collection

- In the Real World, Requirements are rarely more than *some* of these:
 - SMART
 - Complete
 - Validated
 - Owned
 - Explicit
 - Unambiguous

Requirements Analysis



Requirements Validation

- The Requirements Documentation is almost always assembled from the inputs of multiple stakeholders with varying interests
- If possible, make sure someone takes ownership and validates the requirements
 - Avoid the ugly “Who asked for this?” questions

Traceability: Deriving vs. Inventing

- Charter A few pages
- Project Management Plan 25-50 pages
- Requirements Baseline (WBS, PBS) 25-50 pages
- Statements of Work 10s to 100s of pages
- Product Specifications 10s to 1,000s of pages

Requirements quality control

- The theory of SMART requirements
 - Specific
 - Measurable
 - Attainable
 - Relevant
 - Timely

High Quality Requirements = High Quality Results

The reality of SMART requirements

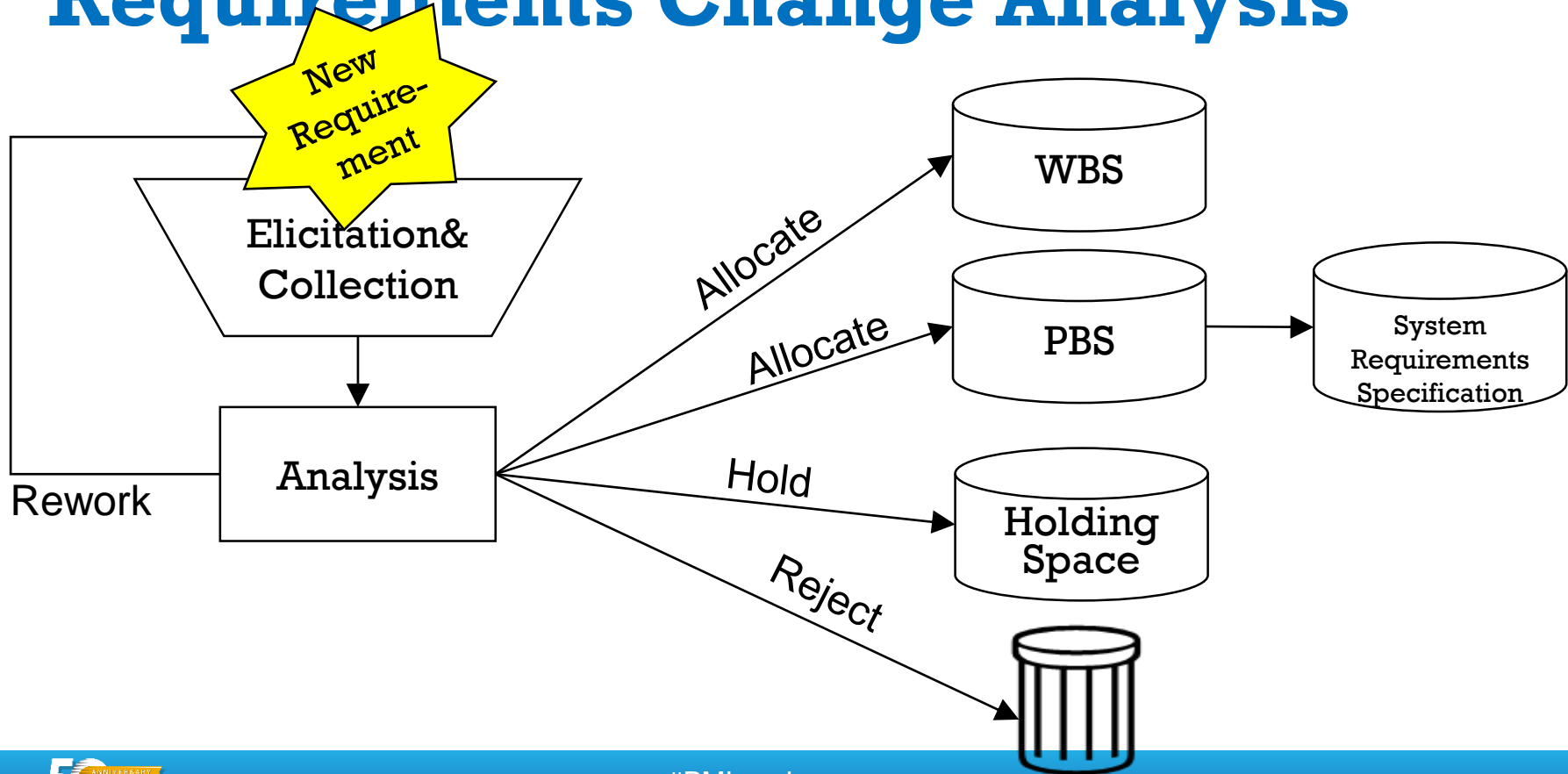
1. High Quality Requirements Do Not Guarantee High Quality Results
2. Quality Has a Cost
3. Few Projects Succeed in Obtaining SMART Requirements across the full project scope

Tom Gilb's Challenge

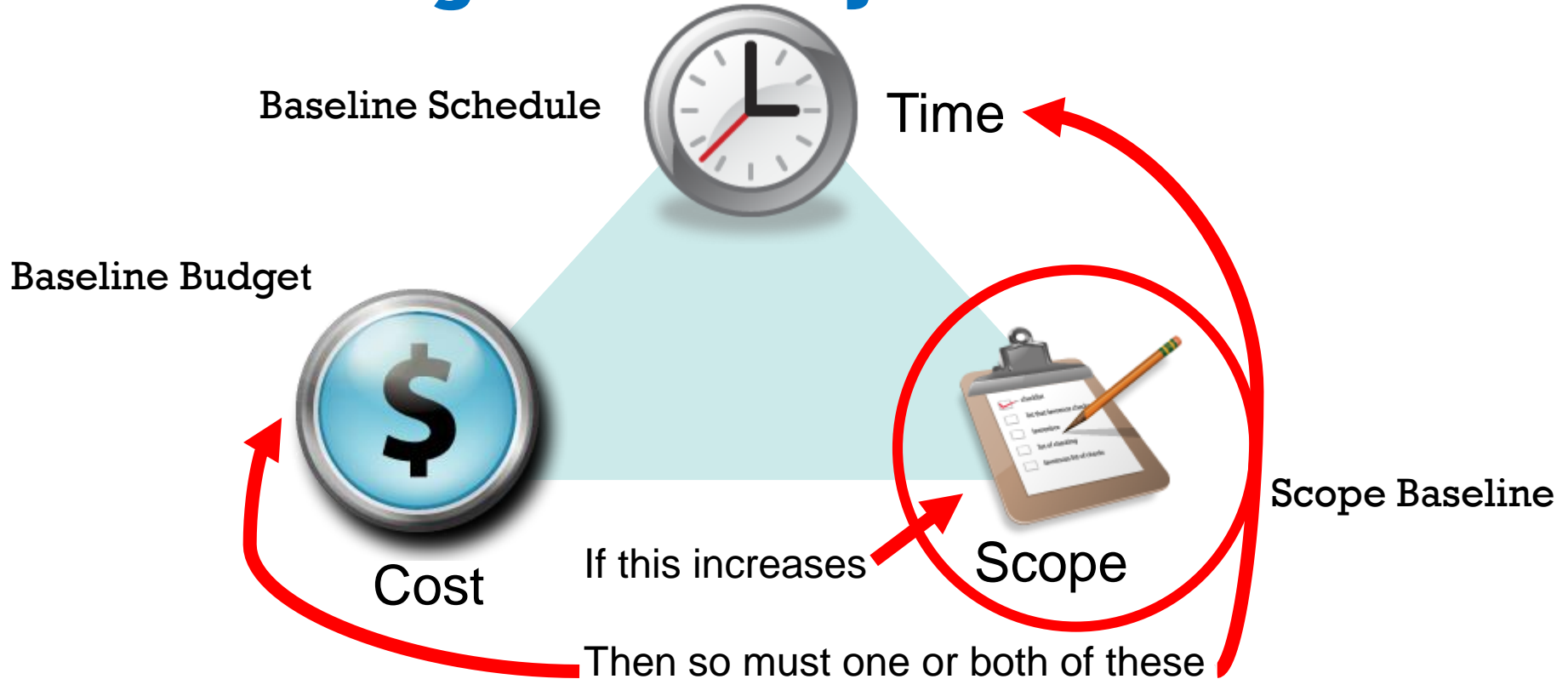
“The Top 10 Critical Requirements for any project can be identified and quantified in a good day's work—and written down on a single page.”



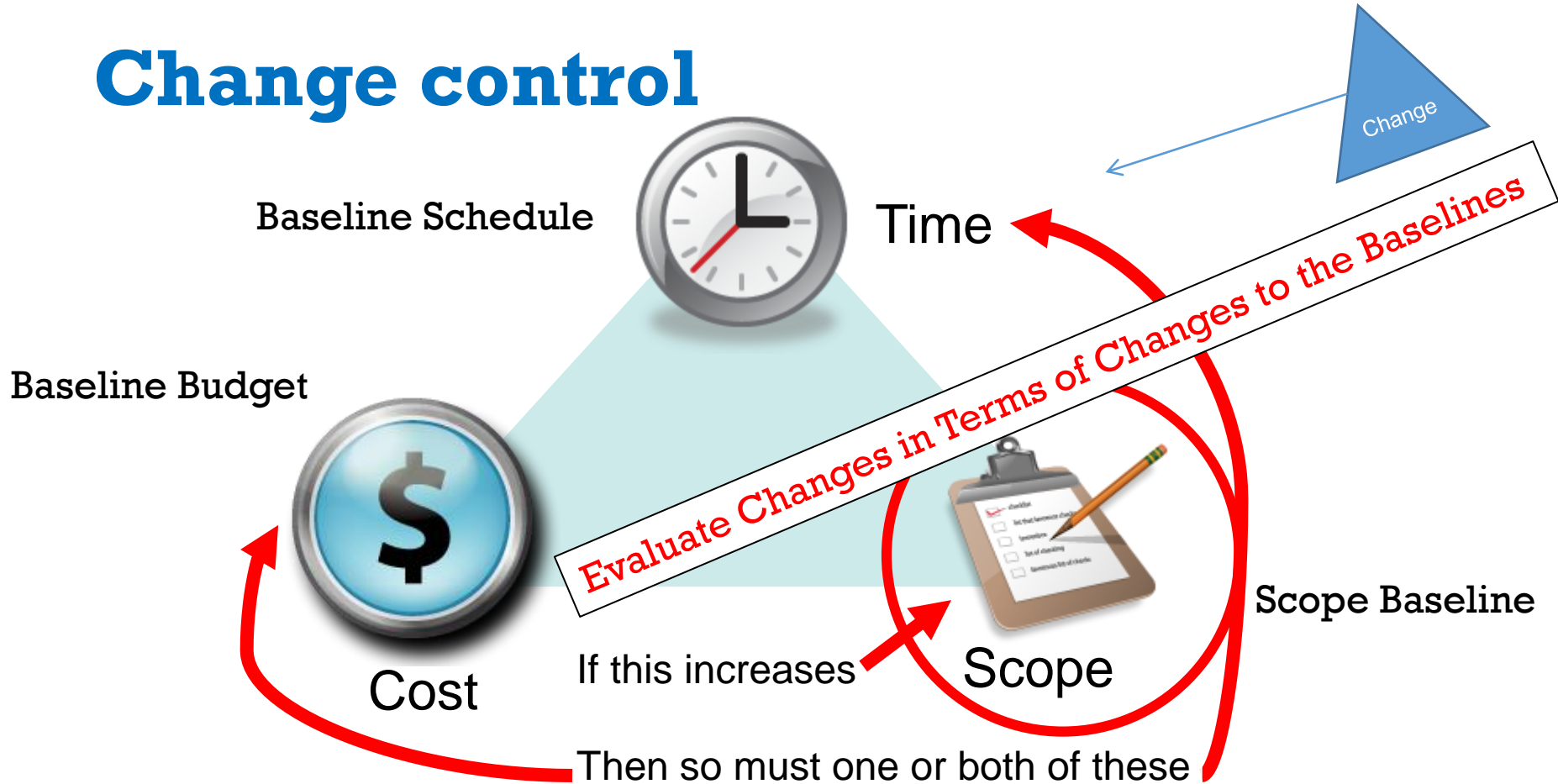
Requirements Change Analysis

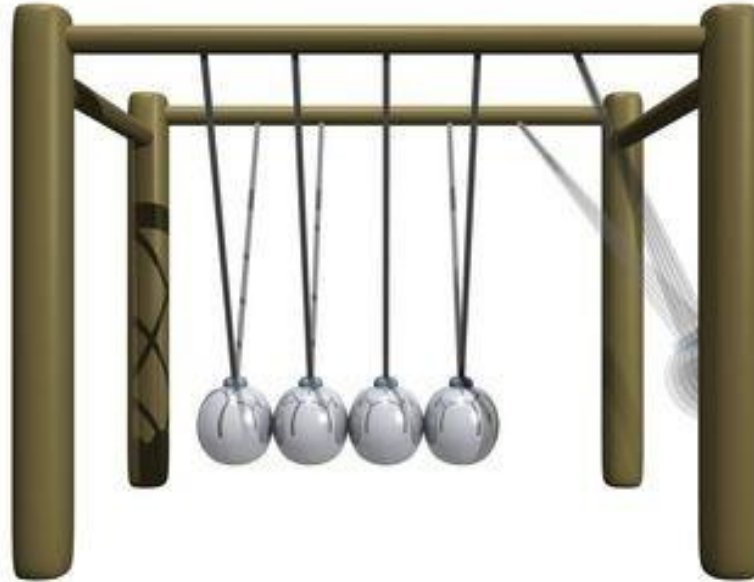


The Integrated Project Baseline



Change control





Every action has an equal and opposite reaction.

Rejecting a change has a consequence.

What Happens to Change that Falls Out of Scope?



Group Exercise #3: Requirements

- Identify one Top Ten Critical Requirement
- Quantify it
- Write it down in no more than 3 sentences



The Tom Gilb Challenge

SCOPE MANAGEMENT: THE NOT-SO BASICS

WHY SCOPE IS RISKY

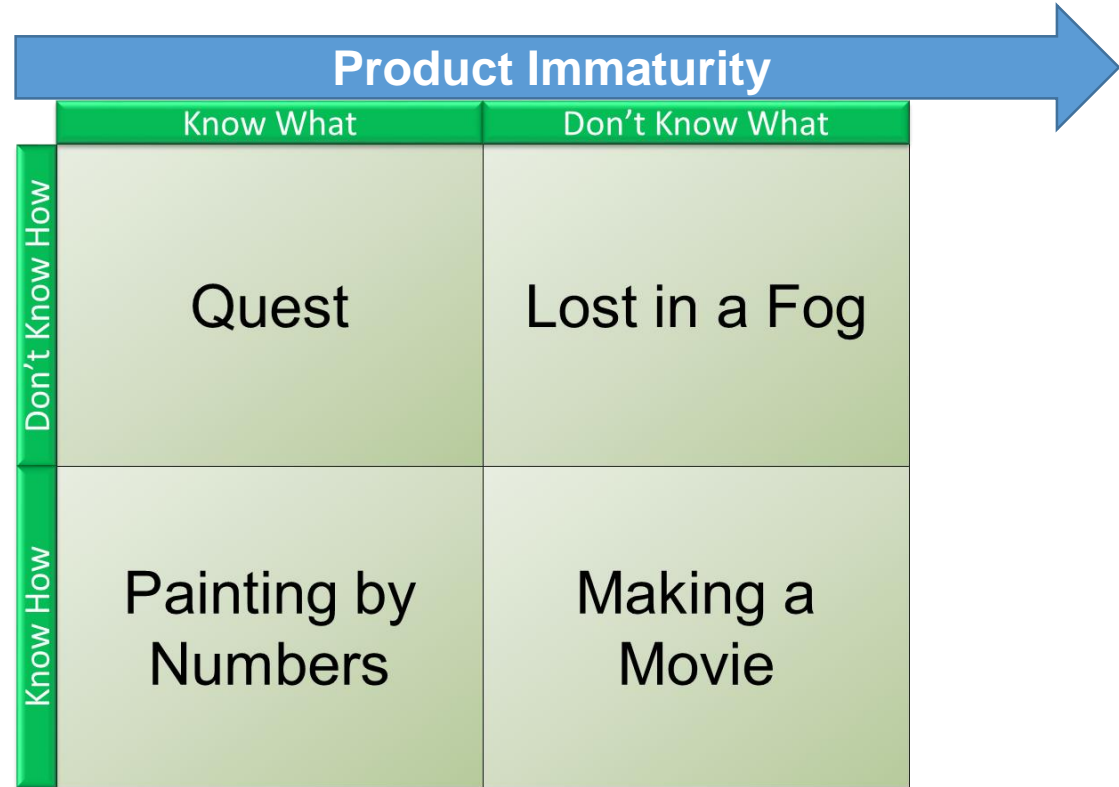
I predict that humans
will continue to be
terrible at making
predictions.



Know What/Know How Matrix

	Know What	Don't Know What
Don't Know How	Quest	Lost in a Fog
Know How	Painting by Numbers	Making a Movie

Know What/Know How Matrix



Know What/Know How Matrix



Maturity

- Have we done this type of work before?
- Have we dealt with this type of product before?
- If not ... Is there anyone we can ~~copy~~ learn from?

Uncertainty

Known Unknowns	Unknown Unknowns
Known Knowns	Unknown Knowns

Uncertainty: Explicit and Implicit

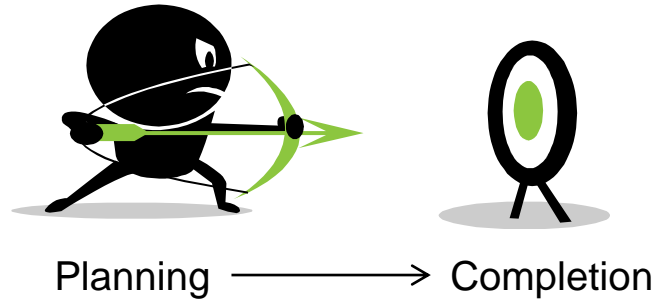
- **Explicit:**

- Whatever is **not stated** must therefore be uncertain

- **Implicit:**

- Whatever is **stated imprecisely or unclearly** must therefore incorporate some uncertainty

Impact of Duration

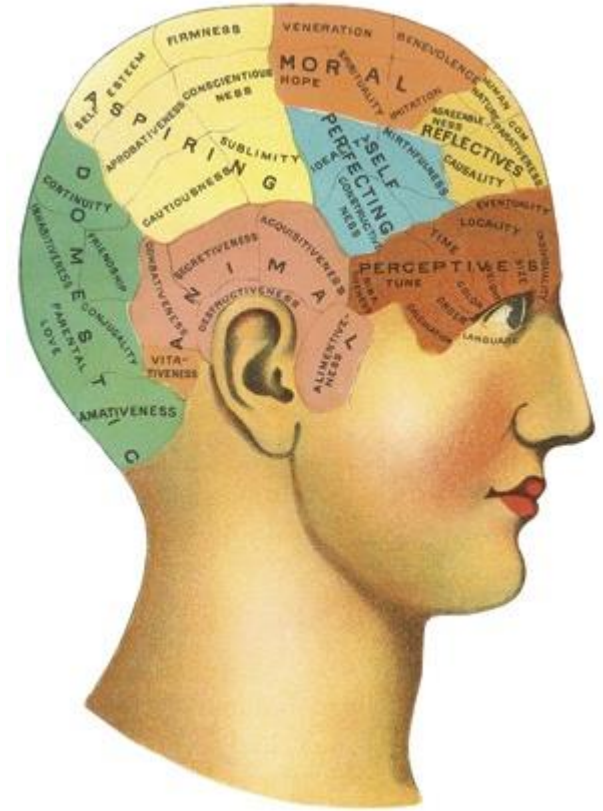


Impact of Duration



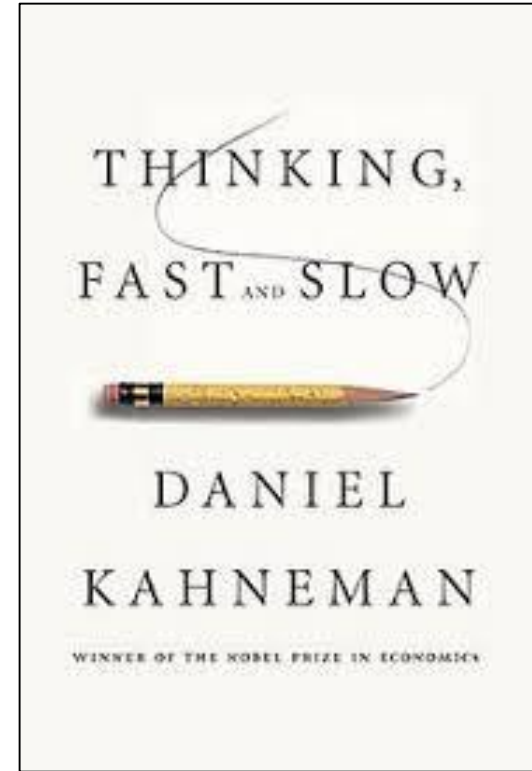
Cognitive Biases

- Groupthink
- Overconfidence
- Selective Perception
- Sunk Cost
- Illusion of Control
- Available Data



Cognitive Biases

- Humans tend to be overly **optimistic** about future benefits
- Humans tend to be overly **pessimistic** about future losses
- The farther away the target, the greater this effect can be seen



Organizational Culture



Formal and Hierarchical?

Informal and Cooperative?

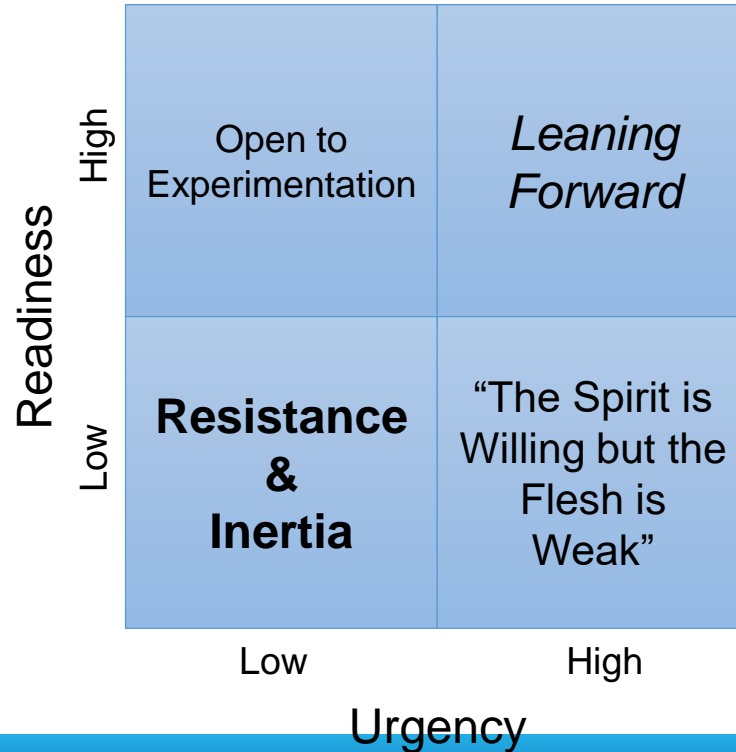


Volatility

- How susceptible is the project to:
 - Change from within the project?
 - Change from outside the project?

Change Appetite

What Can the Project
Expect To Encounter?



Risk Appetite



Elephants and Risks

Just pretend
I'm not here.



Elephants and Risks

- “Let Sleeping Elephants Lie”
- “It’s not MY Elephant!”
- “What Elephant?”
- “The Boss Says There’s No Elephant”
- “Maybe the Elephant Will Just Go Away”
- “This isn’t an Elephant: It’s an Opportunity!”

Inertia
Ownership
Denial
Influence
Wishfulness
Overconfidence

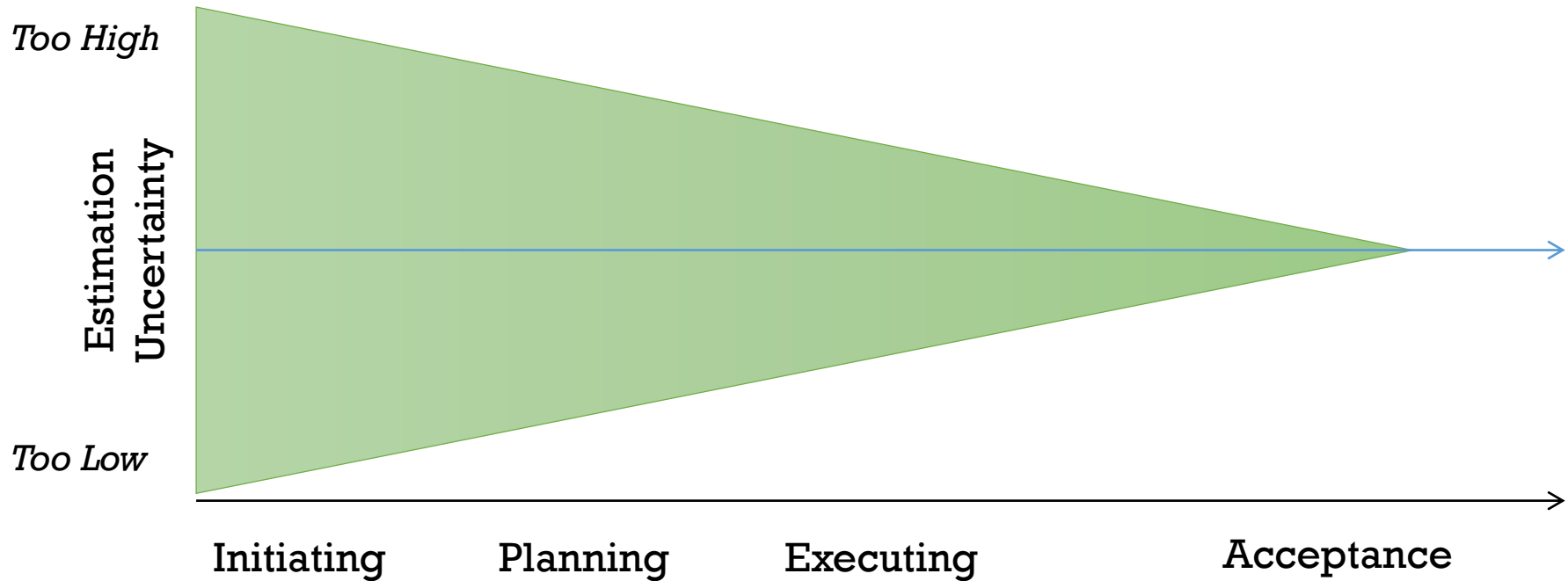
Governance

- Who/What does the Project Manager report to?
 - Internal Project Management
 - Project Board
 - Project Sponsor
 - Program Management Office
 - Corporate Board or Committee
 - Public Board or Committee
- Are there any back-channels? Do they matter?

Decision Making

- Who can approve changes to:
 - Project Scope Baseline?
 - Contracts and Agreements?
 - Project Budget?
 - Project Schedule?
- And how fast do these processes work?

The Cone of Uncertainty

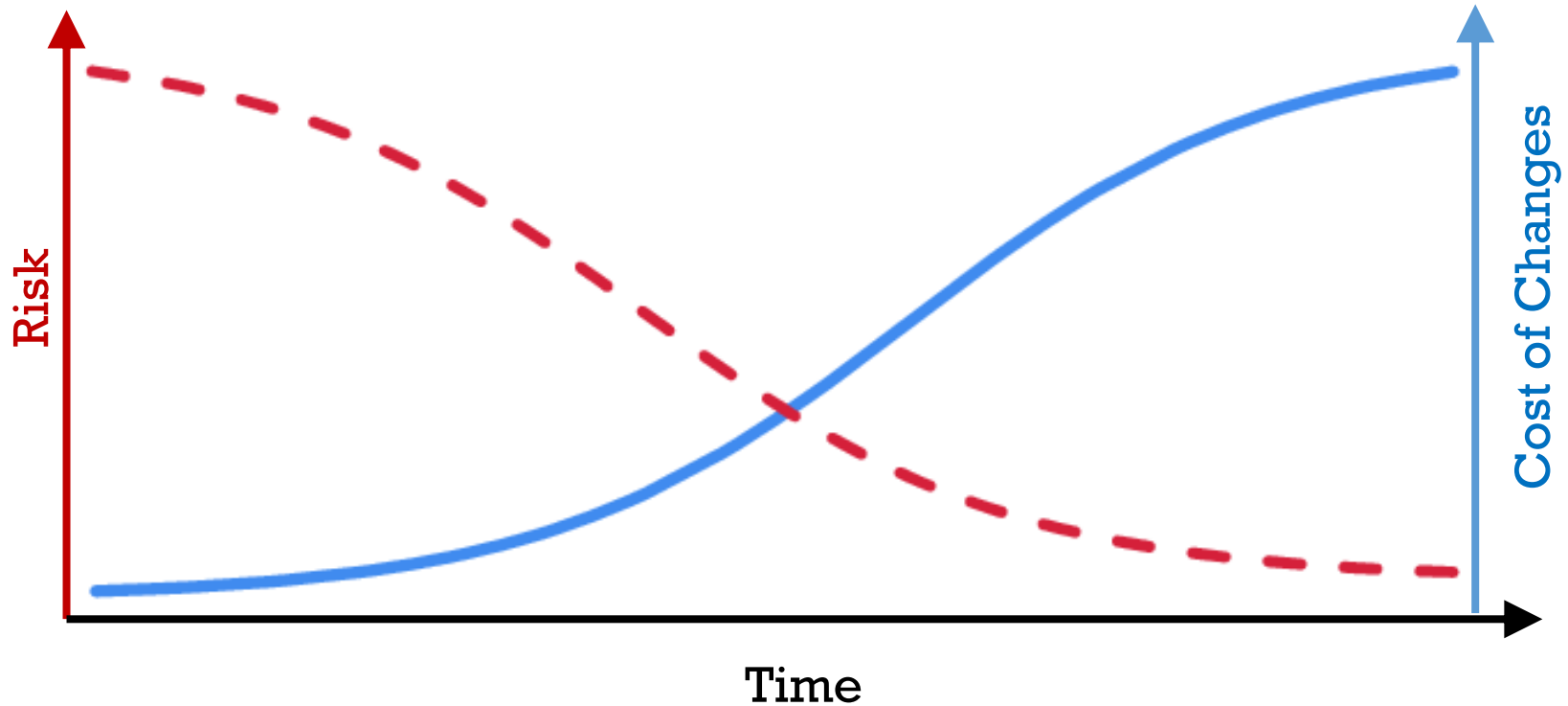


All Estimates are Uncertain

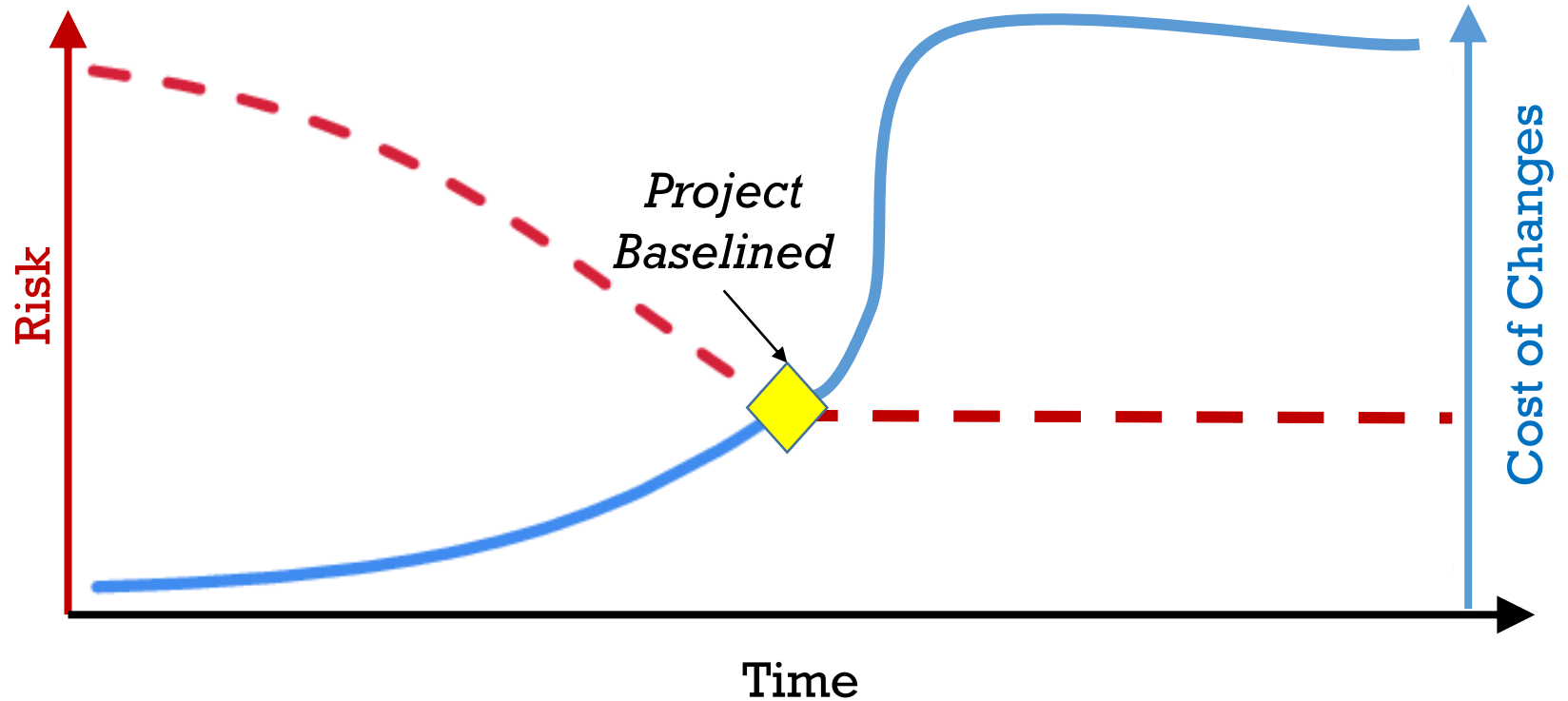
- Lack of adequate data
- Inappropriate comparisons
- Misjudged parameters
- Missing elements
- False precision
- Mandated by decree

This is why professional estimates come with confidence levels or margins of error

Risk & Cost of Change over Time



Risk & Cost of Change in a Predictive Project



Dealing with uncertainty

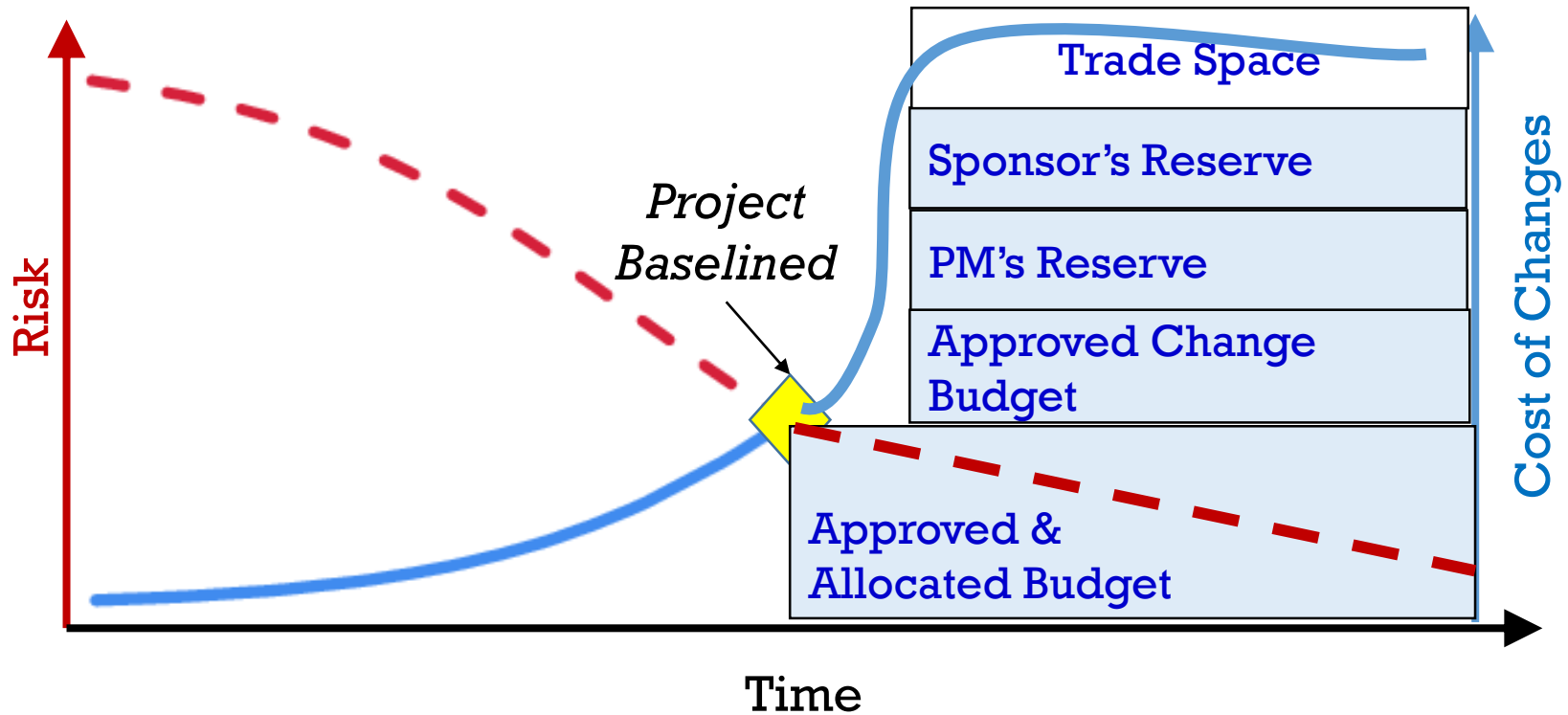
- Define it out—or define it in
- Plan it out—or plan it in
- Reduce it incrementally
- Reduce it agilely
- Eliminate it through renegotiation
- Ignore it and hope for the best ...

Mitigation measures:

- Estimates with confidence levels/margins of error
- Contingency budget
- Change budget
- Tolerances
- Costed Risks
- Adaptive Life Cycle
- Rolling Backlog
- Scope Holding Pen

Most Important of All:
**Constant
Communication!**

Mitigating Risk & Cost of Change



Group Exercise #4: Scope Risks and Responses

- Think about the Relocation Project:
 - Identify two High Risks of Uncertainty or Scope Change
 - Propose two Responses or Ways to Mitigate each

Day One Lessons Identified Discussion

- What have you found useful?
- What can you take away to use on your projects?
- Are there any topics we need to deep-dive into?

Questions?

