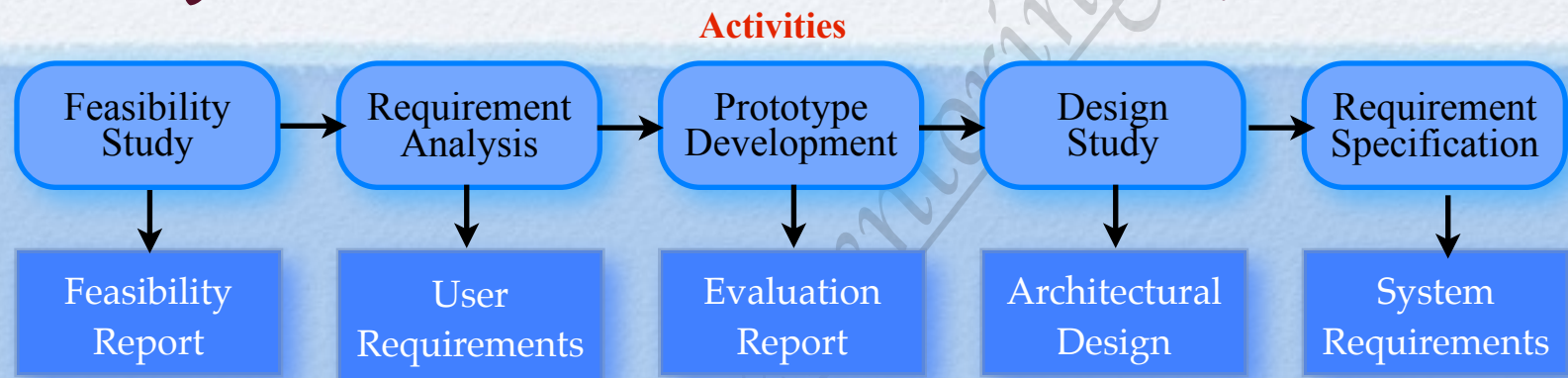


Scope management is still one of the most challenging aspects of managing a project

See:  
Handout –Projects  
may start like this

# PROJECT SCOPE MANAGEMENT



**Milestones**

*(Setting project ....., so as to keep everyone and everything ..... and on track!!)*



Chapter 5 in the *PMBOK® Guide*  
5<sup>th</sup> Edition

# SCOPE DEFINITION IN SOME INDUSTRIES

What's all this stuff about baselining

*I will know what I want when I see it!!  
So start the work, we'll take it from there!*

Our business ideas seems to be continuously changing

*Why waste precious time with documentation, I can always explain it when we need to*

My customer has no time to define the scope – says he will trust my judgment

*oops!*

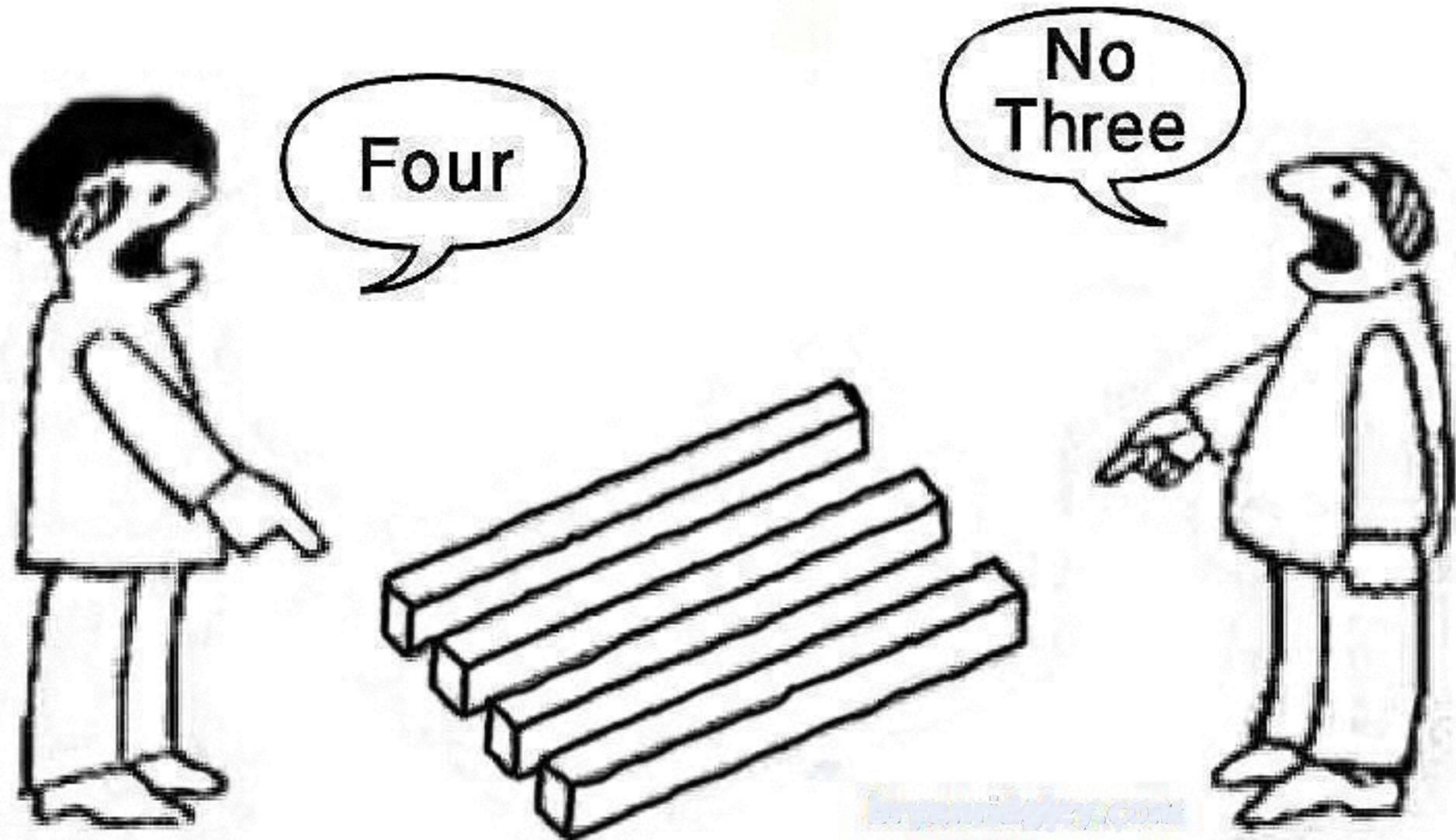
**SCOPE?**

*Our ideas are always evolving*

Now that we have discussed it, every one here "knows" the scope



Reality can be so complex that equally valid observations from differing perspectives can appear to be contradictory.



# THE PROJECT CONTEXT OF SCOPE

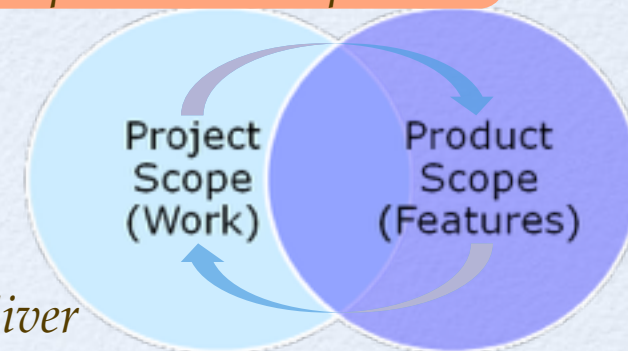
◆ *For a PM, "Project Scope" refers to:*

## 1. Product Scope

- ✓ *Representing the features and functions that characterize the product, service, or result*
- ✓ *The tools to describe a product are the product description and the product breakdown structure*
- ✓ *\_\_\_\_\_ of product scope will be \_\_\_\_\_ against the product requirements*

## 2. Project Scope

- ✓ *Representing the work that needs to be done to deliver the product, service, or result with the specified features and functions*
- ✓ *The primary tool to describe a project's scope (work) is the work breakdown structure*
- ✓ *\_\_\_\_\_ of project scope will be \_\_\_\_\_ against the project plan, an approved version of the project scope statement, and its associated WBS & WBS dictionary (a.k.a. the Scope Baseline)*





# IMPLEMENTATION OF THE SCOPE MANAGEMENT PROCESSES

THE CONTRACT / PROJECT CHARTER



- ◆ Each knowledge area of the PMBOK® Guide has a “plan”, and the Plan Project Scope Management process helps to create:
  1. The Project Scope Management Plan, &
  2. The Requirement Management Plan
- ◆ The project scope management plan is required to ensure that the project includes all the work required, & only the work required, to complete the project successfully
  - ★ The project team and stakeholders must have the same understanding of what products will be produced as a result of a project & what processes will be used in producing them
  - ★ This plan also helps reduce the risk of .....
- ◆ This plan would document how the project scope will be defined, developed, monitored, controlled, and verified besides addressing matters like
  - ★ How will the team ..... the project's scope?
  - ★ What tools will ..... will accomplish the scope?
  - ★ Which enterprise environmental factors and organizational process assets come into play here?
- ◆ The requirements management plan is a component of the project management plan that describes how requirements will be analyzed, documented, and managed and would describe:
  - ★ How requirements activities will be ....., ....., and .....
  - ★ Configuration management activities such as: .....
  - ★ The requirements ..... process
  - ★ Product metrics that will be used and the ..... for using them, and
  - ★ ..... structure to reflect which requirement ..... will be captured on the ..... matrix

# A NOTE ON PROJECT SCOPE CREEP

◆ *When requirements are not completely defined and if there is no effective change control in a project, scope or requirement creep may ensue* **11%**

◆ **Scope Creep**

- ★ Refers to the incremental expansion of the scope of a project for which there is inadequate or no schedule, budgetary or quality adjustment received as tradeoff
- ★ Occurs when requirements that may not have been part of the initial planning get added by a stakeholders - as part of the requirements that still have to be met
- ★ "Expanding expectations" & "Creeping elegance"
- ★ "Gold plating"

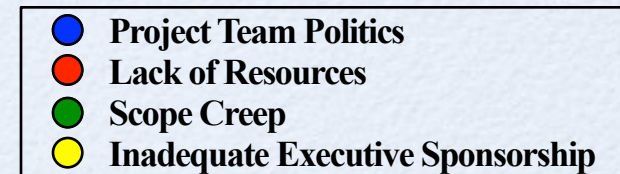
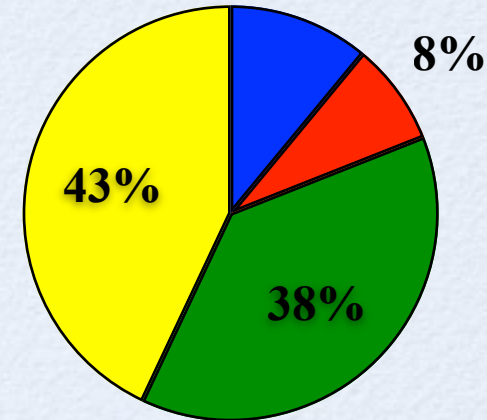
◆ *If not properly identified and managed properly, the project may come in considerably over budget and/or behind in schedule*

◆ **Contributing factors:**

- ★ Poorly defined / understood customer requirements
  - ✓ Trying to maintain "good" customer relations
  - ✓ Changing client requirements
- ★ "Creeping elegance" or over-engineering the solution
  - ✓ Desire to make it "better"

◆ *Scope creep management is always dependent upon on the people who create these changes*

- ★ Business scope creep is a result from
  - ✓ Poor requirements definition early in development
  - ✓ Failure to include the users of the project until the later stage of the system development / engineering life cycle
- ★ Technical scope creep is a result of:
  - ✓ Additional product features
  - ✓ Technology mandated increments



Source: PM Network, May 2004, p.12



# COLLECT REQUIREMENTS - OUTPUTS

## 1. Requirements Documentation

- ★ Describes how individual requirements meet the business needs of the project
  - ✓ Can be simple listing all the requirements categorized by stakeholder and priority
  - ✓ Can be more elaborate including executive summaries, detailed descriptions, and attachments
- ★ Components of requirements documentation can include:
  - ✓ Business requirements
  - ✓ Stakeholder requirements
  - ✓ Solution requirements
  - ✓ Project requirements
  - ✓ Transition requirements
  - ✓ Requirements assumptions, dependencies, and constraints
- ★ Before being base lined, requirements must be:
  - ✓ Unambiguous (measurable & testable)
  - ✓ Traceable
  - ✓ Complete
  - ✓ Consistent
  - ✓ Acceptable to stakeholders

Q. You collected several ideas for requirements for your current project via brainstorming sessions. These have been consolidated into a single diagram to reflect commonality and differences in understanding. This method of requirements depiction is known as?

- A. The Delphi technique
- B. Brainstorming
- C. An Affinity Diagram
- D. Idea / Mind Mapping

## 2. Requirements Traceability Matrix

- ★ This is a spreadsheet table that links requirements to their origin and traces them throughout the project lifecycle
- ★ Each requirement in the matrix is linked to / adds value to a business need & a project objective
- ★ Provides a structure for managing changes to the product scope

# BACKGROUND TO PROJECT SCOPE DEFINITION

(THE MOST IMPORTANT PART OF THE UPFRONT PROJECT DEFINITION)

## ◆ *Project Scope is elaborated at least **twice** in a project*

1. The high-level scope is defined i.e., officially established; when the Project Charter is signed-off!

✓ *Project managers most often have difficulty writing this high-level ..... statement*

✓ *These ..... help establish the boundaries of the project within which the project manager will be making the initial associated ..... and .....*

2. The detailed project scope definition happens during project planning and progressive elaboration

It has greater specificity as more information becomes available & draws information from:

1. *The ..... plan*

2. *The ..... process*

3. *The ..... and ..... if it exists*

4. *Any information about ....., ..... & constraints*

5. *Measurable ..... and ..... inclusions - .....*

6. *Approved ..... during the project execution*

7. *Scope Exclusions* -in many cases the out-of-scope statements provide as much value to the reader as the in-scope statements

*If you don't know exactly what you are supposed to be delivering and what the boundaries of the project are, you have no chance for success!!*



# CREATE WBS - TOOLS & TECHNIQUES

(THE HEART OF PROJECT PLANNING IS AIDED BY THE DECOMPOSITION OR SUB-PROJECT TREE DIAGRAM)

◆ *There are two techniques for the Create WBS process:*

1. **Project Decomposition** - involves subdividing major project deliverables into smaller, more manageable components until project work and deliverables are defined to the work package level

✓ *Work packages are the*

- Detailed short-span job or material items identified for the accomplishment of required project work
- Lowest-level of the WBS: components at which project work can be Planned, Scheduled, Cost-estimated, Monitored and Controlled
- Gives structure to the set of activities in a project
- Becomes the big "to-do" list for the project

✓ *Project decomposition involves:*

1. Identifying \_\_\_\_\_
2. Structuring and organizing the \_\_\_\_\_
3. Decomposing the \_\_\_\_\_ components
4. Developing and assigning \_\_\_\_\_
5. Verifying that \_\_\_\_\_

✓ *The Project WBS, is driven by the scope of a project*

- The level of detail for work packages will vary with the size and complexity of the project
- Considerable thought & planning should be given to its development and implementation so that subsequent changes are minimized
- Major revisions to a WBS require both substantial effort and resources, due to its application to a wide array of project activities

2. **Expert Judgment** helps to analyze the information needed to decompose project deliverables down into smaller component parts in order to create an effective WBS

✓ *Judgment and expertise is applied to \_\_\_\_\_ t*

✓ *Judgment can also \_\_\_\_\_ on how to effectively break down common deliverables*

*Templates may be industry-specific or may come from experience gained in similar projects*

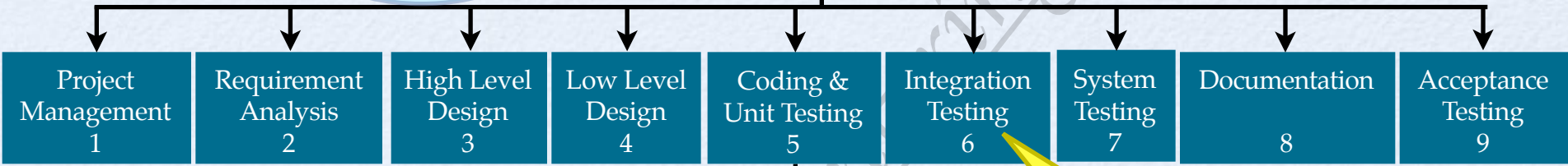
8/80 rule: No work package/task should assign work to organizational unit/individual, that is less than 8 hours or more than (40/80 ± 16 hours) (except when the project is humongous)



# SAMPLE OF A WBS

This is the project under development

Project Name + Project ID

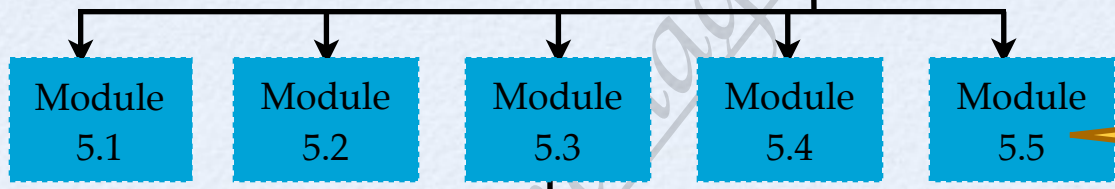


LEVEL-1

Work Packages are unique project deliverables & essentially the responsibility of one person

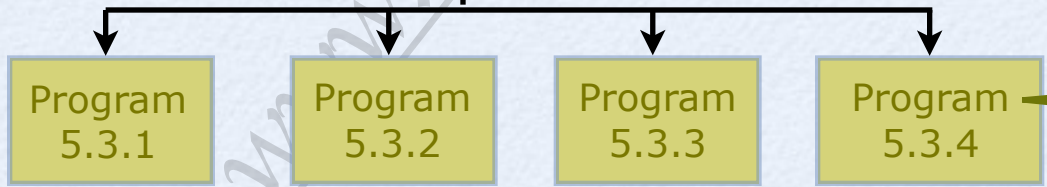
These represent expected project components from the PM & include industry specific managerial and technical deliverables

LEVEL-2



These are the technical supporting deliverables / work-packages that sub-project managers will be responsible for

LEVEL-3



These are supporting sub-deliverables that must be engineered to deliver contractual technical capability



# CREATE WBS - OUTPUTS

## *1. The Scope Baseline includes 3 components here:*

- 1. Project Scope Statement which includes the product scope description, and the project deliverables, and should also define the product user's acceptance criteria*
- 2. The WBS which delineates each deliverable besides the decomposition of the deliverables into associated work packages*
- 3. The WBS Dictionary documents a detailed description of work and the technical documentation for each WBS element*

## *2. Project documents that may be updated may include:*

- ★ The Stakeholder Register
- ★ If there are any approved change requests resulting from the Create WBS process, then the documented product & project requirements may need to be updated to include these approved changes as well
- ★ The Requirements Traceability Matrix would also be upgraded

# SCOPE VALIDATION

FREQUENT, PLANNED-IN MEETINGS WITH THE CUSTOMER OR SPONSOR TO GAIN FORMAL ACCEPTANCE OF DELIVERABLES DURING PROJECT MONITORING & CONTROL

◆ *It is very difficult to create a good scope statement & WBS for a project*

- ★ It is even more challenging to get responsible persons to accept/verify acceptance of project scope, when a completed deliverable needs their ..... and .....
- ★ Issues with work results (after deliverables are done & dusted) become ..... & bothersome scope .....

◆ *Scope Validation involves securing sign-off/formal acceptance of the completed project scope by the requisite stakeholder(s), at logical intervals during the process (each milestone, each deliverable, or at each phase), depending on the project and/or when the entire work of the project is completed*

- ★ Acceptance is often achieved by ..... and then ..... on key deliverables
- ★ Requires identified decision-makers to ....., ....., ..... deliverables and work results to ensure that all of these were completed ..... & ..... vis-à-vis ..... & ..... criteria
- ★ This activity is typically ..... occurring ..... or as a part of ..... reviews after the quality ..... check
- ★ Even ..... deliverables should be verified like this  
- remember we fixed-up user acceptance criteria at the start!
- ★ A famous political quote goes like this, “ .....”

◆ *A key component of this process is having the stakeholders participate ..... & formally ..... to assure that all associated stakeholders are ..... with the ..... deliverables*

◆ *This process should also establish and document the extent of project completion, if the project is .....*



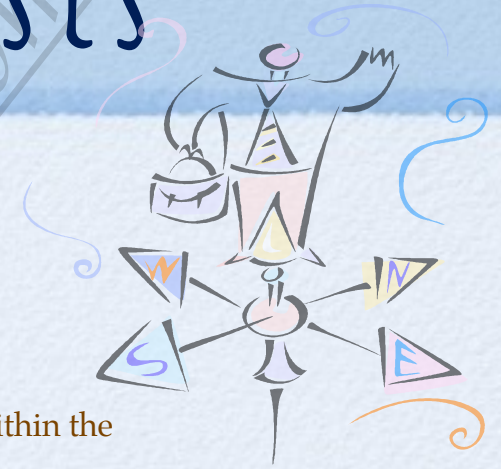


# VALIDATE SCOPE - TOOLS & TECHNIQUES

- ◆ *The PMBOK<sup>®</sup> Guide lists “Inspection” and “Group Decision-making techniques” as the means for Validating Scope*
  - *then goes on to clarify that this includes activities such as measuring, examining, and verifying to determine whether work & deliverables meet requirements and product acceptance criteria*
- ★ Measure, examine, and test
  - Measuring, examining, and testing requires the (sign-off providing) stakeholder to review the deliverable to assure that the item was completed satisfactorily
- ★ Review current deliverables and work results
  - This review would involve auditing the current deliverables and work results against the Project Scope explained within the Project Plan, the Requirements Documentation and the Requirements Traceability Matrix
- ★ Signed documentation of acceptance
  - The exercise of signing the “Acceptance Form” validates the formal nature of the scope verification process
    - ✓ *In the signing of this document, there may be caveats and conditions that are added which need to be put into play as corrective actions*
    - ✓ *If there is no acceptance signature, then the project may need to be cancelled*

*If the scope is fulfilled theoretically the project is complete, even if the customer is not happy. However, you should try to make the customer happy if their business has any value to you or if their influence can be damaging*

# CHANGE REQUESTS



♦ *Very few projects are ever completed according to the original plan, because changes to the plan can result from*

- ✓ Increased knowledge
- ✓ A need for competitiveness, or
- ✓ Changing customer / consumer tastes

♦ *Change is an inevitable phenomenon on project*

- ★ A scope change is any alteration affecting the agreed-upon project scope detailed within the Work Breakdown Structure
- ★ Hence some type of change control process that will be agreeable to all stakeholders is mandatory for every project
- ★ Once the changes are deemed necessary, there is almost always an accompanying increase in the budget and/or elongation of the schedule

♦ *The process for recommending and approving scope changes can vary based upon whether or not the client is internal or external to the organization*

- ★ Scope changes for external clients have long been viewed as a source of added profitability on projects
- ★ Scope changes for internal customers, could be warranted as a result of:
  - ✓ ..... including potential spin-offs
  - ✓ Customer .....
  - ✓ A change in a government ..... or ..... standard
  - ✓ An error or omission in defining the scope of the product (missing a required design feature)
  - ✓ An error or omission in defining the scope of the project
  - ✓ A value adding change (an environmental remediation project reducing costs by leveraging technology)
  - ✓ Implementing a ..... or a work-around to respond to a risk that has occurred

There is no such thing as a work-around plan - FYI please!

Experience with project management and client characteristics do help a project manager and the team to differentiate between subtle Change Requests, Review Defects, Review Comments & Suggestions from stakeholders, specially the Customer!



# MANAGING SCOPE CHANGE CONTROL...

- ◆ *It is important to enforce this process throughout the entire project, even when the project is very early in the "Execution" phase*
  - ★ Even if a scope change is perceived to be very small, exercising the change process ensures
    - ✓ All parties agree to the change
    - ✓ Understand its potential impact on the CSSQ
    - ✓ Earn you some brownie points for "free change requests"
- ◆ *Must incorporate any agreed-upon changes or addenda into the deliverables produced during Project Initiation and Project Planning*
  - ★ Ensure that all project deliverables are in line with the revised Project Scope
  - ★ Remember to document and include any lessons learned from scope change control in the project repository for later use by
    - ✓ The current project
    - ✓ Any other projects to be performed by the organization

