

# Managing Works & Costs

## Lecture 3 Managing Changes

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### Recap on Managing Progress

- ▶ Close Loop Control System
- ▶ Management Styles
- ▶ Collecting Progress Information
- ▶ Corrective Measures – orthodox / unorthodox
- ▶ Meetings
- ▶ Managing External Resources

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# Managing Changes - Scope

## Scope

The PMBOK defines **Scope** as *'The sum of the products, services and results to be provided as a project'*

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## Managing Changes - Scope

- Scope is derived from the Work Breakdown Structure (WBS) and established at the planning phase
- It defines project boundaries for all stakeholders
- Scope forms the basis for contractual agreements
- It is the basis for project change control

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## Scope Creep

- *'Adding features and functionality (project scope) without addressing effects on time, cost & resources or without customer approval' (PMBOK)*

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## Definition of Change

### What is change?

Defined as a

*"departure from the approved project **scope** or design as indicated by a **change** to any contract, drawing or specification after its approval and issue for action"*

*(Lock)*

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## Definition of Change

*What is Change control?*

*"Identifying, documenting, approving or rejecting, and controlling changes to the project baseline"*

*(Lock)*

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## Changes – some Ground Rules

- Request for change must be in writing! Some contracts set this out as a requirement.
- If change request is verbal – it must be followed up with a written request. Some contracts allow for verbal changes to be followed up in writing
- Identify the person responsible to co-ordinate the change control process

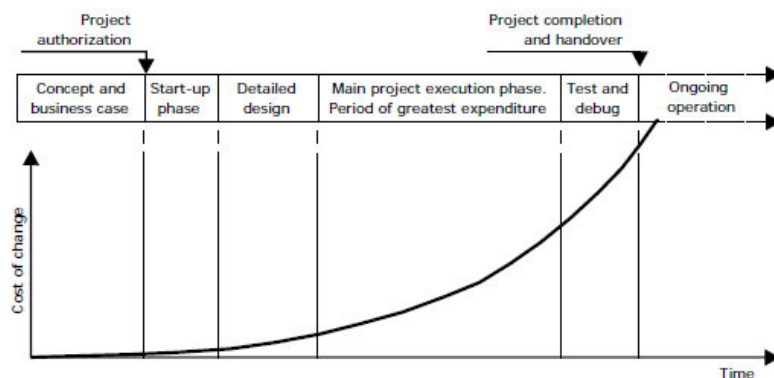
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## Change in the Project Lifecycle

- Change has a higher impact on a project (time and cost) the later it is instigated on a project.
- Early changes – easier to accommodate
- Generally, the later the change occurs the harder it will be to implement it without significant disruption to the project (including resultant costs).

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## Change in the Project Lifecycle



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## Sources of Changes

### 1. Customer Funded Changes

- Request by the customer for a modification
- May result in an increase in costs
- May result in renegotiation of the contract price
- If there is a large volume of change requests, it may indicate weakness in the customer's definition – refer back to the scope

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## Sources of Changes

### 2. Contractor funded changes

- Often issues identified during quality review
- Modifications /additions required to achieve specification
- May be a result of inadequate design (level of specification) if contractor responsible e.g. rework required due to substandard installation / build

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## **Other Items to look out for – Sources of Change**

### **Non conformance reports (NCR's)**

- Revealed by quality control – item is found to be outside required condition / specification.

### **Concession**

- Request to client to accept an item that's not within specification.

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## **Analysing the Impact of Change**

The PM will need to consider the following when assessing a potential change to a project:

1. Quantify the impacts (Time, Cost, Quality)
2. Consider a number of perspectives e.g.
  - Technical Feasibility – Is it possible?
  - Procurement – Can it be bought (and in time?)
  - Production - Can this be resourced?
  - Planning - consider the time impact
  - Cost – consider the budget impact
  - Quality – can this be maintained? Concession sought?
  - Legal and Contractual implications – is the change permitted in the first place?

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# Impact Analysis

Impact Analysis Report Template	
Change Request ID:	_____
Title:	_____
Description:	_____
Analyst:	_____
Date Prepared:	_____
Prioritization Estimates:	
Relative Benefit:	(1-9) _____
Relative Penalty:	(1-9) _____
Relative Cost:	(1-9) _____
Relative Risk:	(1-9) _____
Calculated Priority:	(relative to other pending requirements) _____
Estimated total effort:	_____ labor hours
Estimated lost effort:	_____ labor hours (from discarded work)
Estimated schedule impact:	_____ days
Additional cost impact:	_____ euro €
Quality impact:	_____
Other requirements affected:	_____
Other tasks affected:	_____
Integration issues:	_____
Life cycle cost issues:	_____
Other components to examine:	_____

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## Authorising Change

- Consequences of changes can be far reaching
- Not always apparent at the project team level
- All changes be approved by agreed set of stakeholders e.g. Change Control Board (CCB), the Change Committee, the Change Board etc.

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## Authorising Change

The Project manager may ask the following questions of a proposed change:

- ▶ Would safety or reliability be impaired?
- ▶ Would time or cost be affected?
- ▶ Will the customer pay?
- ▶ Will the change be approved?

Depending on the outcome of the above, the PM may decide to Implement the change.

When the change is implemented, the PM should ensure the update drawings and other documents is carried out.

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## Authorising Change

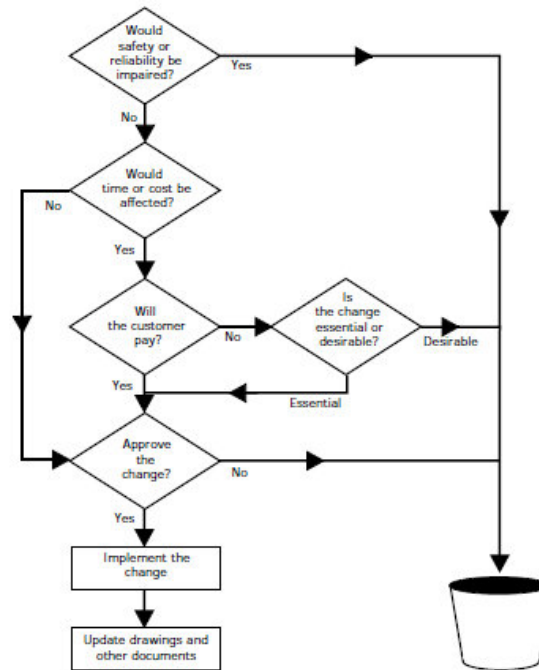
Objective of the Change Control Board to make a decision on each Change Request

- ▶ Authorize
- ▶ Reject
- ▶ Defer
- ▶ Refer for further information
- ▶ Authorize, subject to conditions or limitations

Impact analysis presented to CCB should have sufficient information

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## Change Control Flow Chart



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## Using a Change Coordinator

One person may be elected in this role and given the responsibility of coordinating changes. What would be expected of this person?

- Registering each change request and allocating serial numbers;
- Distributing and filing copies of the change documents;
- Following up to ensure that every request is considered by the change committee (aka Change Control Board) without avoidable delay;
- Distributing and filing copies of the change documents after the committee's instructions have been given;
- Following up to ensure that authorized changes are carried out and that all drawings and Specifications affected by the change are updated and re-issued.

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## Implement Change

1. The Change co-coordinator follows through on the agreed action
2. Decision of the CCB issued clearly and quickly
3. Change Control Log must be updated
4. If decision is to reject, defer then further information may be required
5. Action taken to update all baseline documents, amend contracts, issue purchase orders etc

# Change Control Request

[illegible]

## Numbering & Registering Changes

Why?

- To provide a base from which each change request can be progressed through all its stages, either to rejection or to approval and full documentation and implementation;
- To record changes in budgets and, if appropriate, prices so that the current valid budgets and prices will always be known;
- to provide a search base that allows tracking back ('traceability') so that the origins of all design and commercial changes can be found or verified, both during the life of the project and afterwards.

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## Change Control Register

Number	Originator		Date	Brief Details / Title	Approved (Y/N)	Date of final distribution	Budget changes (if any)
	Name	Department					

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