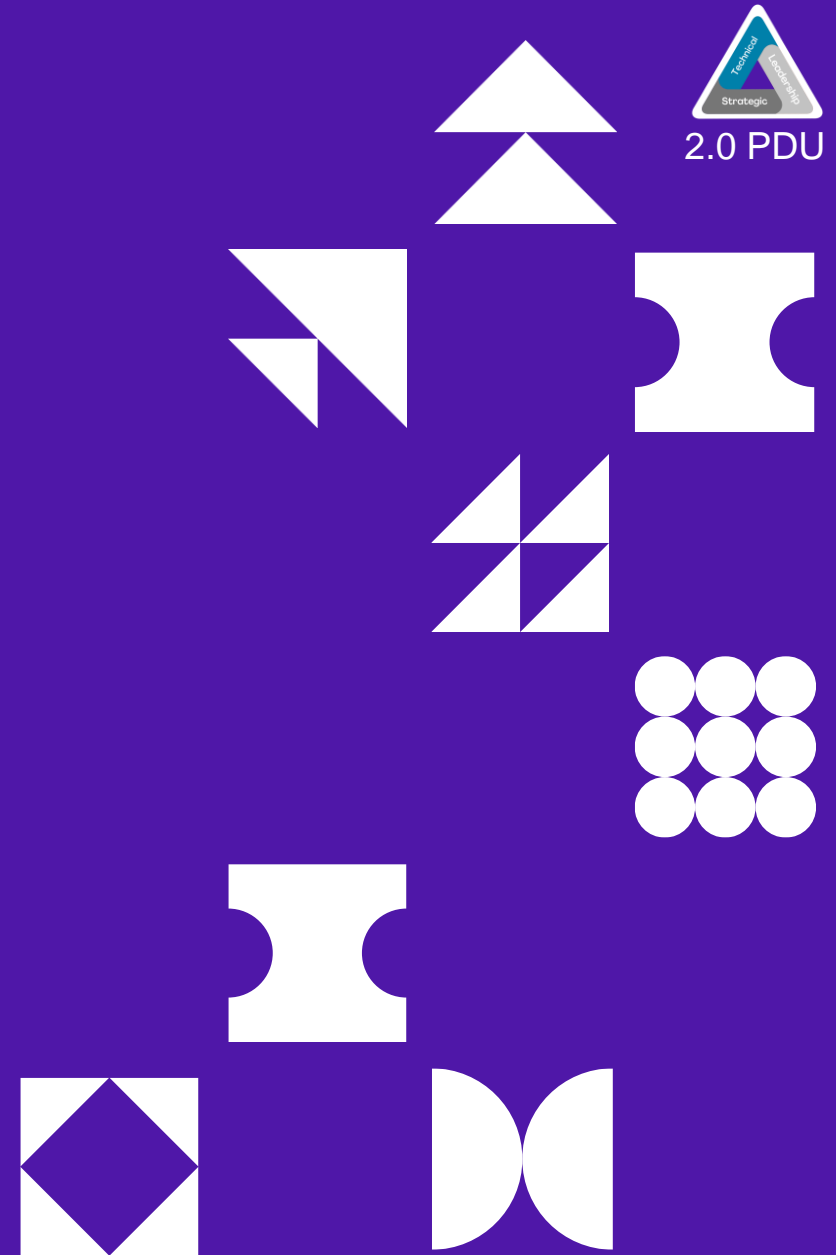
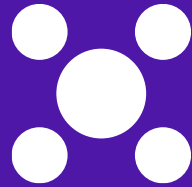


Stephen Cabano

Construction Leader & Change Facilitator

“Effective Change Management”

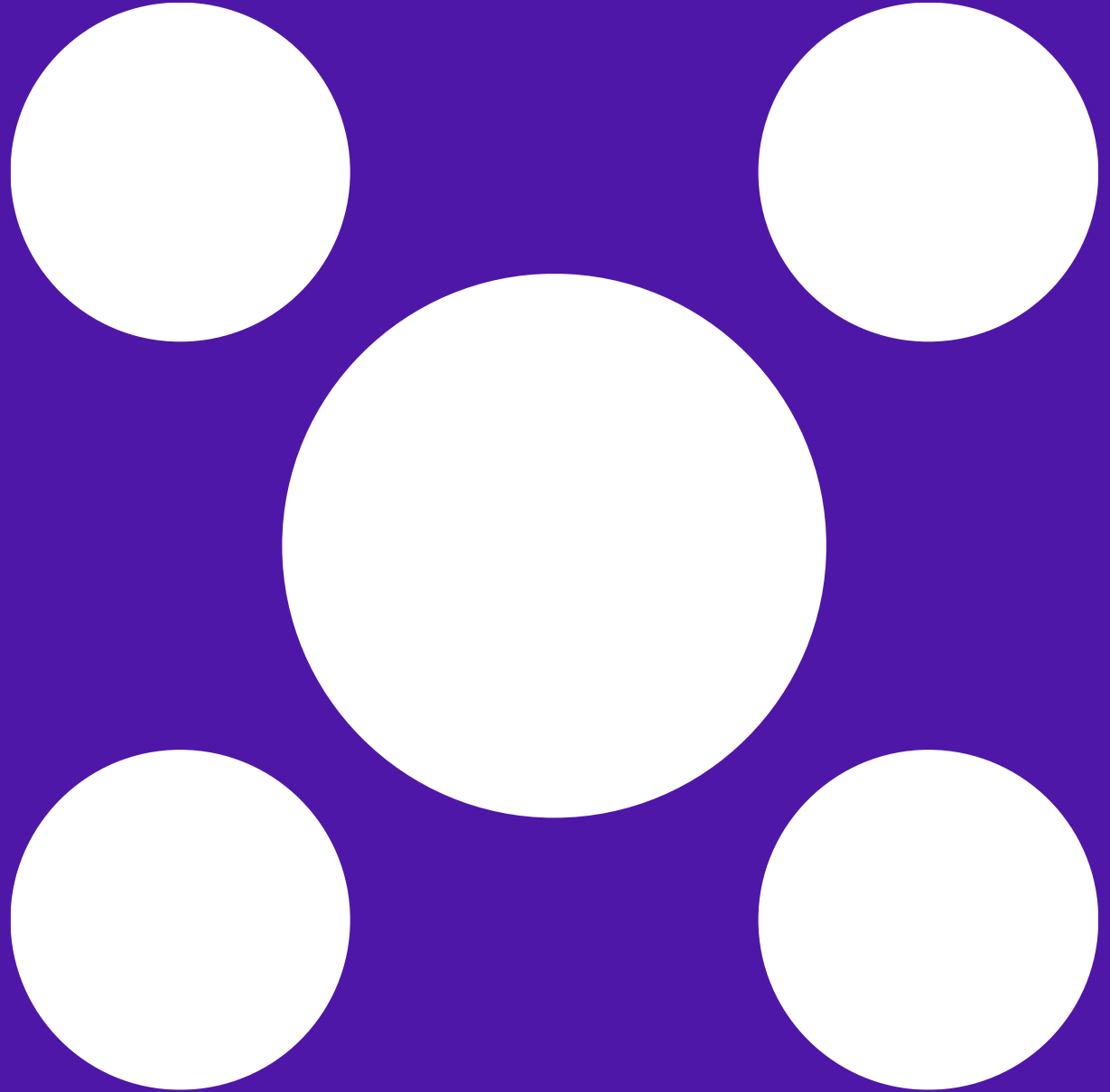


SAFETY MOMENT

WORK SAFETY



INTRODUCTION



EFFECTIVE CHANGE MANAGEMENT AGENDA

TOPIC

- Introduction
- Safety Moment
- Capital Project Delivery Process & Stage Gate Requirements
- Scope Development and Scope Freeze
- Acceptance of Scope/Execution Plan Changes
- Different Types of Change
 - In Scope Changes
 - Out of Scope Changes
 - Contract Changes
- Cost of a Change
- The Change Process

12:15pm Lunch Break

- Change Management “What-if” Situations
- Closing Comments
- Question/Answers

INTRODUCTION

Basis of Presentation / Discussion

This topic is being presented in an environment of an owner engineering/ construction project. The facilitator will attempt to also correlate Change Management from this perspective to others, including IT, government and other related projects.

Rules of Engagement

- Ask questions at any time by raising your hand (physically or virtually)
- One question at a time
- Adhere to timing requirements
- Mobile phones on silent mode

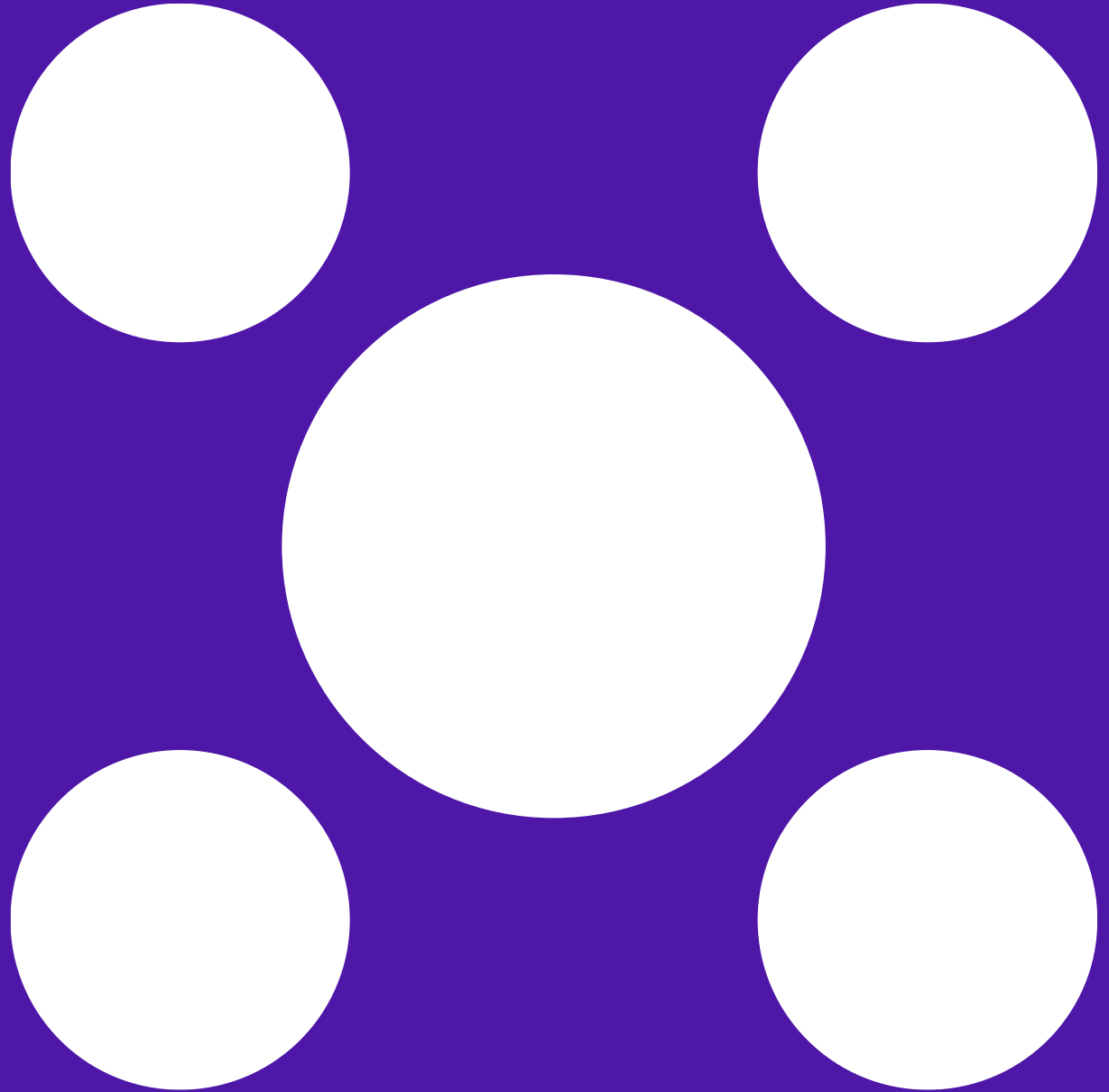
COURSE OBJECTIVES

Gain an understanding of:

- The Change Management philosophy
- How Change evolves across the Project Delivery Process
- The interface between Scope Development and Change Management
- Scope and Execution Plan changes
- Different types of change
 - In Scope Changes
 - Out of Scope Changes
 - Contract Changes
- The Change Management Process



CAPITAL PROJECT DELIVERY PROCESS & STAGE GATE REQUIREMENTS



CAPITAL PROJECT DELIVERY PROCESS & STAGE GATE REQUIREMENTS

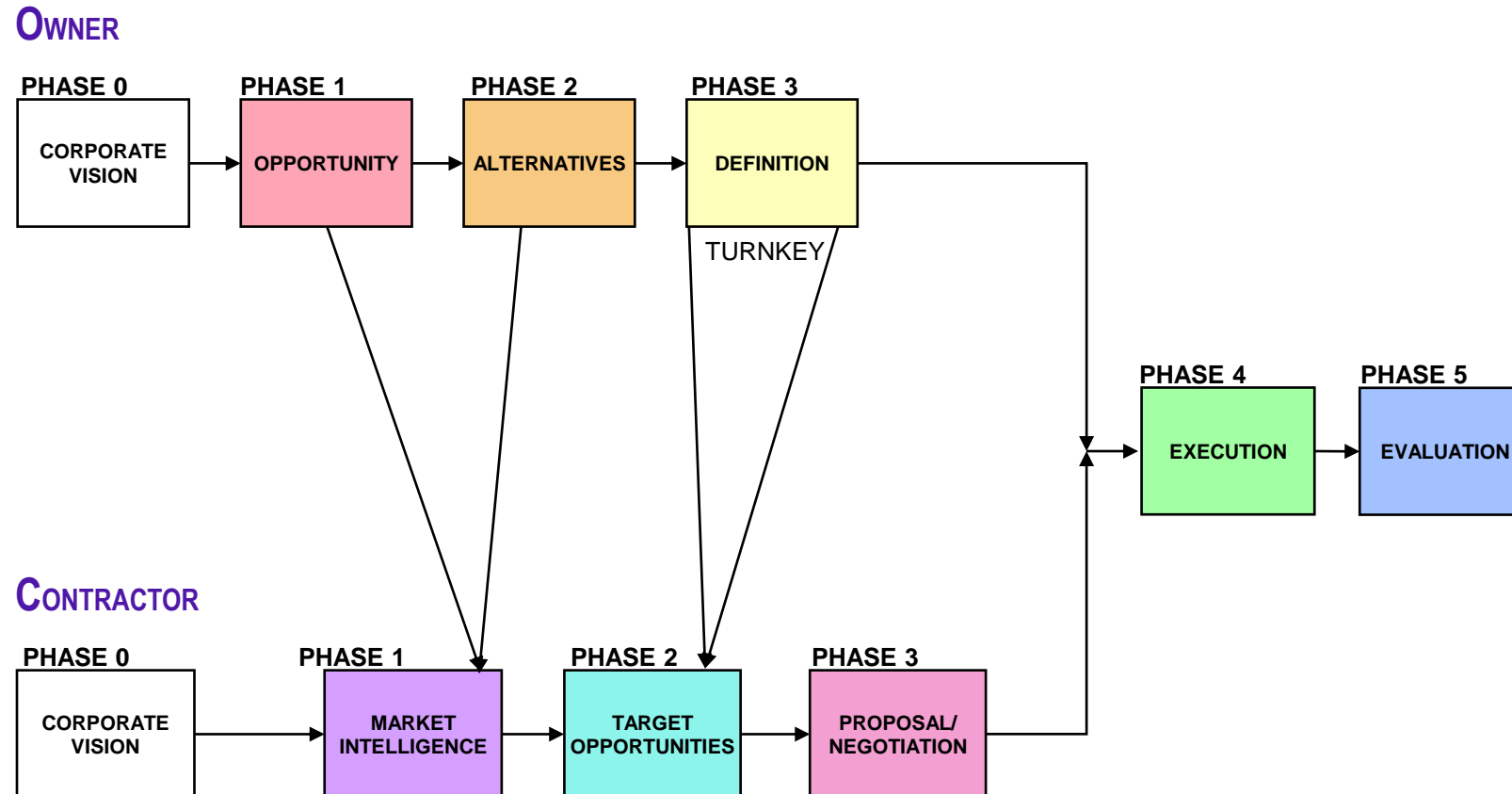
Owner Capital Project Delivery Work Process

1 OPPORTUNITY	2 ALTERNATIVES	3 DEFINIITON	4 EXECUTION	5 EVALUATION
<p>OBJECTIVES</p> <ul style="list-style-type: none"> • Define Opportunity • Test for strategic fit with business objectives • Preliminary assessment of “business case” • Plan for next phase 	<p>OBJECTIVES</p> <ul style="list-style-type: none"> • Generate alternatives • Develop expected value for selected alternatives(s) • Identify preferred alternative(s) • Apply appropriate value improving practices • Test for strategic fit with “business case” and objectives • Plan for the next phase 	<p>OBJECTIVES</p> <ul style="list-style-type: none"> • Fully define scope (basic engineering design) • Regulatory permits/requirements • Develop detailed project execution plans • Appropriate value improving practices • Refine estimates and economic analysis to appropriation level • Confirm if expected value meets business objectives 	<p>OBJECTIVES</p> <ul style="list-style-type: none"> • Implement execution plan • Finalize contracts and execute contracts • Detailed engineering/design, procurement and construction • Finalize operating plan • Collect, analyze, and share metrics and lessons learned 	<p>OBJECTIVES</p> <ul style="list-style-type: none"> • Operate facility • Monitor performance • Benchmark performance against objectives and competitors • Share results and lessons learned • Continue performance assessment and identify opportunities

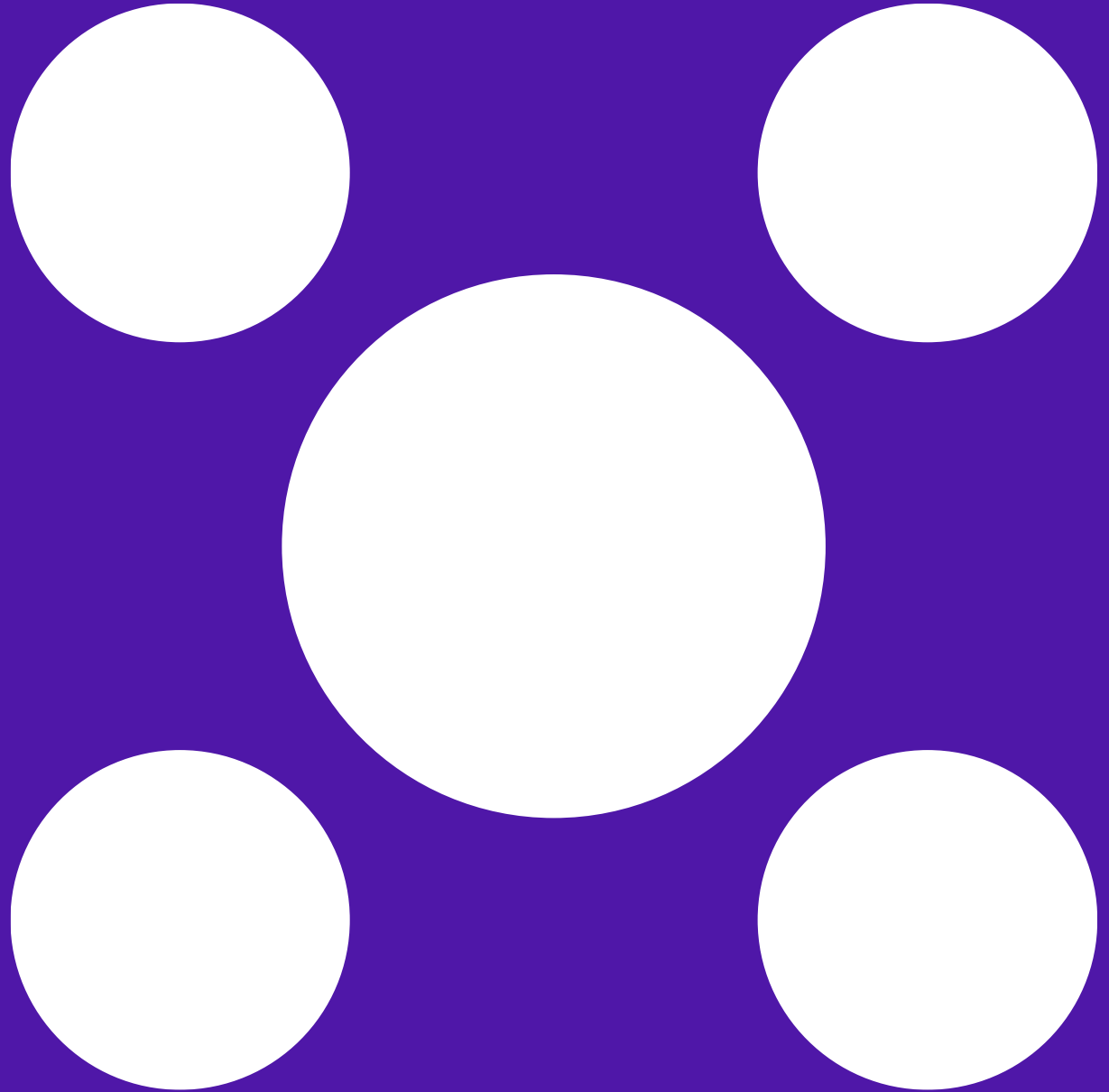


CAPITAL PROJECT DELIVERY PROCESS & STAGE GATE REQUIREMENTS

Owner vs. Contractor Work Process Integration



SCOPE DEVELOPMENT AND SCOPE FREEZE



SCOPE DEVELOPMENT AND SCOPE FREEZE

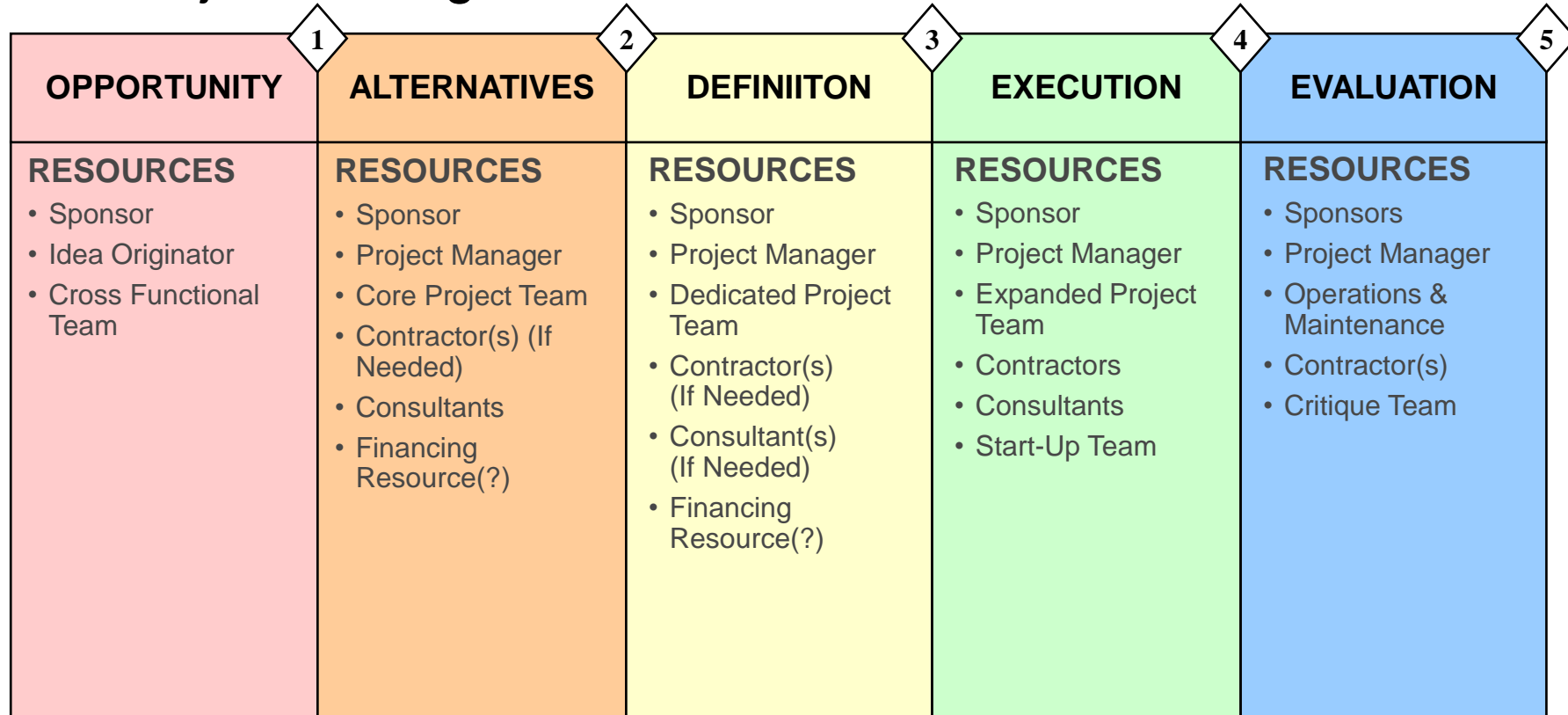
Recommended Project Management Process

1 OPPORTUNITY	2 ALTERNATIVES	3 DEFINIITON	4 EXECUTION	5 EVALUATION
DELIVERABLES <ul style="list-style-type: none"> • Critical Date(s) • Order Of Magnitude cost estimate (+/-50%) • Plan for next phase 	DELIVERABLES <ul style="list-style-type: none"> • “Best” alternative • Preliminary Regulatory Approval • Milestone schedule • Conceptual cost estimate +/-30% • Preliminary Project Execution Plan • Conceptual engineering package • Updated business case • Plan for Phase 3 • Project Justification Package 	DELIVERABLES <ul style="list-style-type: none"> • Contract documents • Regulatory permission • Detailed PEP • Basic design package • Cost estimate +/-10% • Detailed project master plan/schedule • Front End planning package (including Basic Design Package) • Updated business case • Project Authorization package 	DELIVERABLES <ul style="list-style-type: none"> • Updated PEP • Physically complete facilities • Start-Up completed • “Lessons Learned” documented • Provisional Acceptance Documentation 	DELIVERABLES <ul style="list-style-type: none"> • Final acceptance (end user) • Project and property close-out • As Built • Lessons Learned communicated • Final information

 Stage Gate

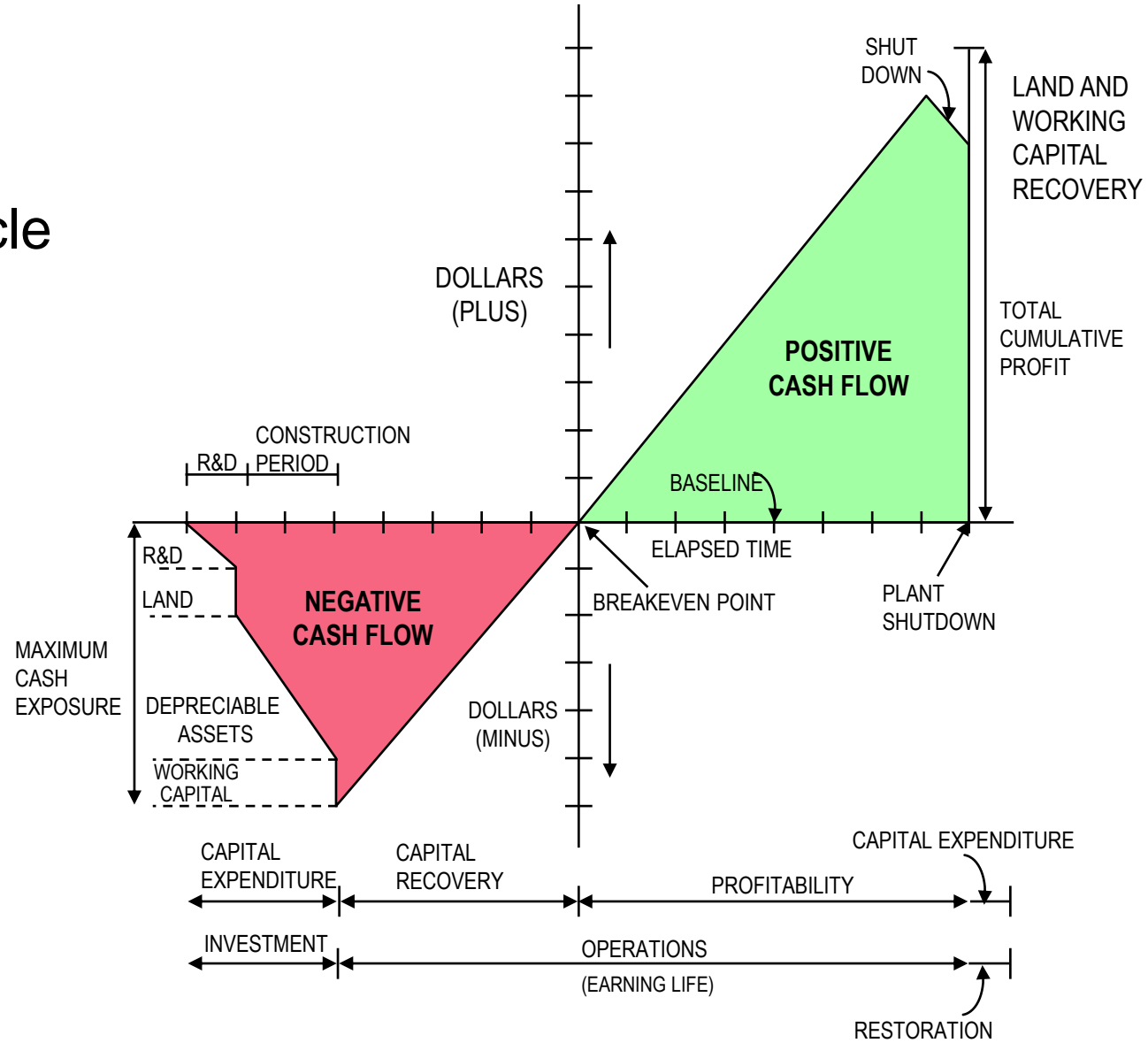
SCOPE DEVELOPMENT AND SCOPE FREEZE

Recommended Project Management Process

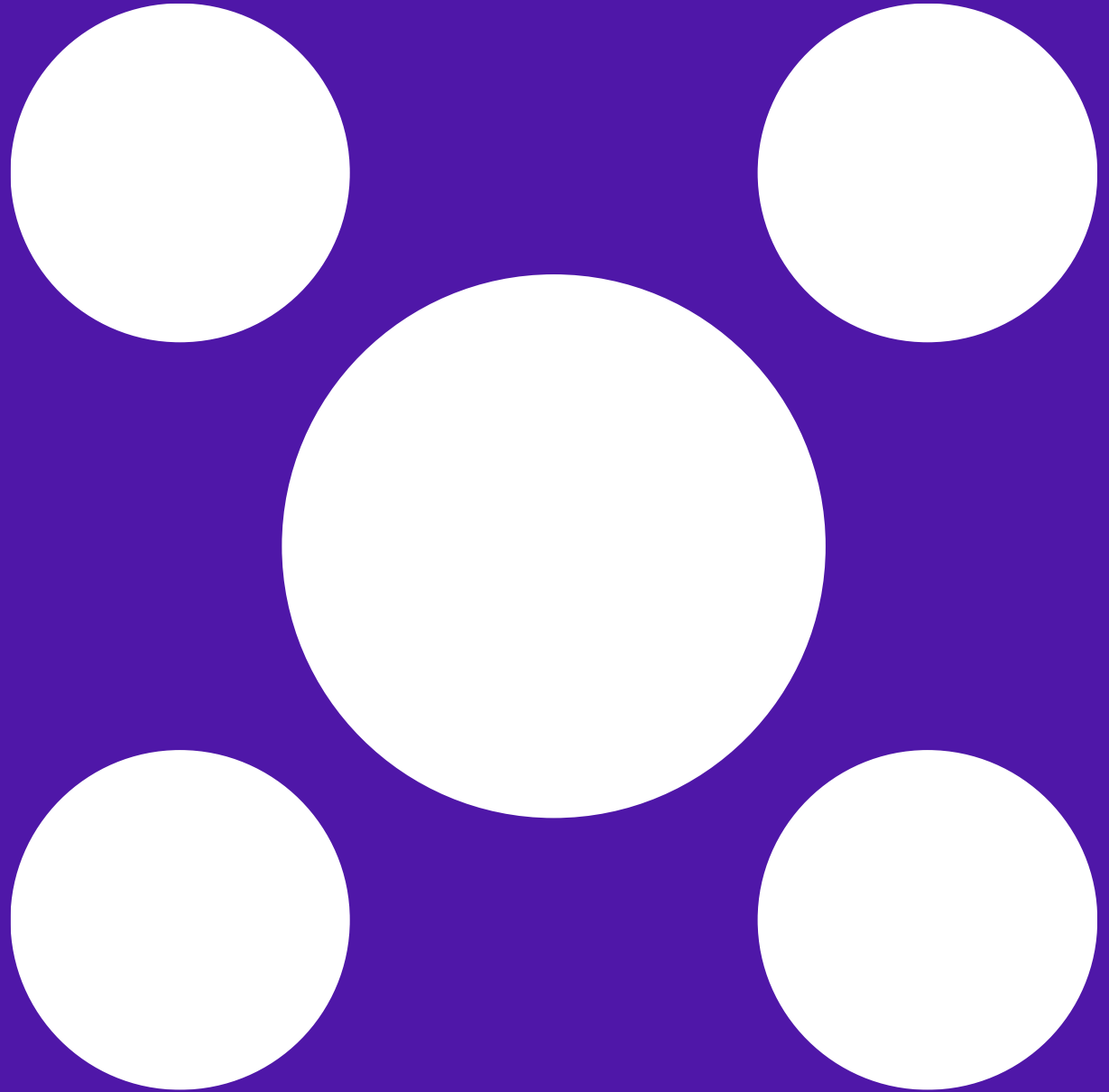


SCOPE DEVELOPMENT AND SCOPE FREEZE

The Project Life Cycle



ACCEPTANCE OF SCOPE / EXECUTION PLAN CHANGES



ACCEPTANCE OF SCOPE / EXECUTION PLAN CHANGES

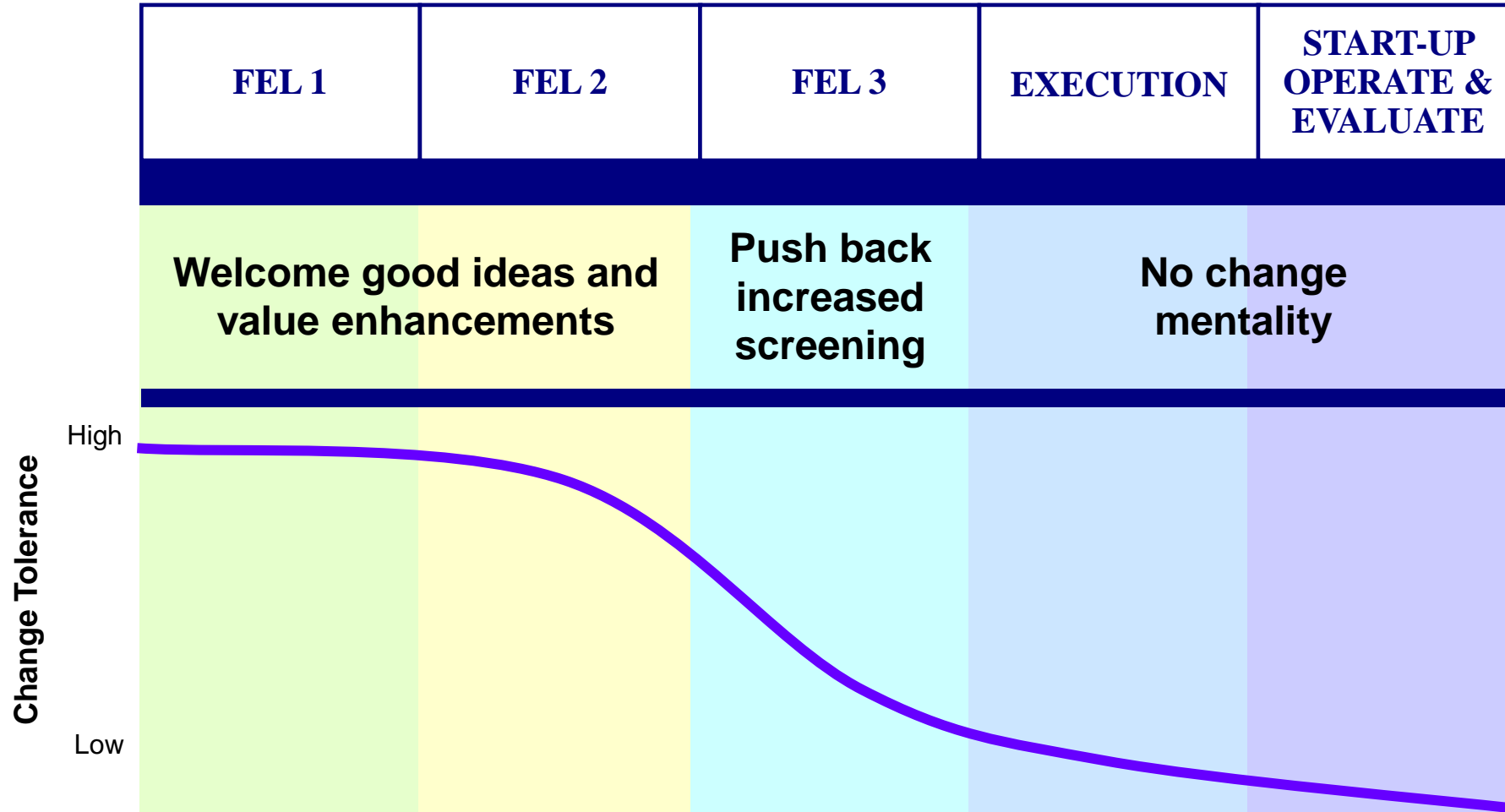
Term “Changes” Has Multiple Interpretations

- Changes to original defined scope of work
- Changes to original defined working conditions
- Faulty engineering or delays
- Design development
- Equipment/material supplier errors or delays
- Faulty workmanship re-work
- Inefficient construction planning and/or sequencing
- Excessive QA/QC demands
- Labor performance – below expectations or unavailable
- Etc.

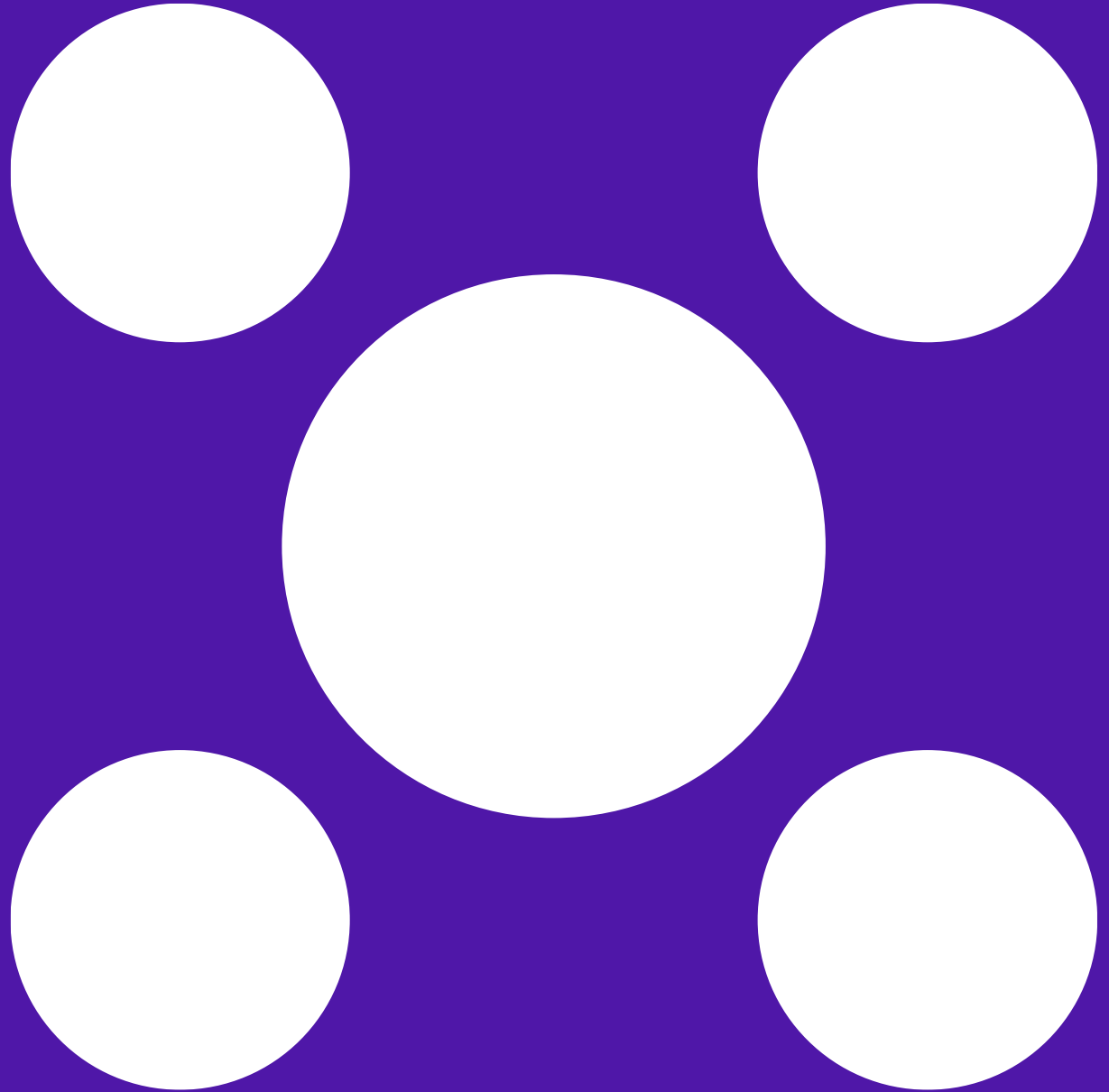


ACCEPTANCE OF SCOPE / EXECUTION PLAN CHANGES

Owner Change Philosophy



DIFFERENT TYPES OF CHANGE



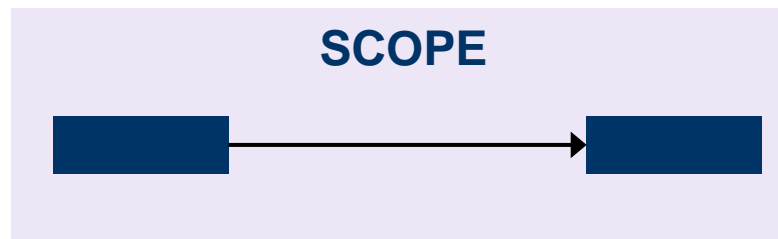
DIFFERENT TYPES OF CHANGE

Changes can be classified as “within Scope” or “outside Scope”

Within Scope

- Changes within the scope of a project are those required for the project to operate satisfactorily and to meet:
 - Business
 - Production
 - Operations
 - Environmental
 - Safety requirements as defined in the appropriations and/or baseline documents

This could mean a Contract Change rather than a Scope Change.



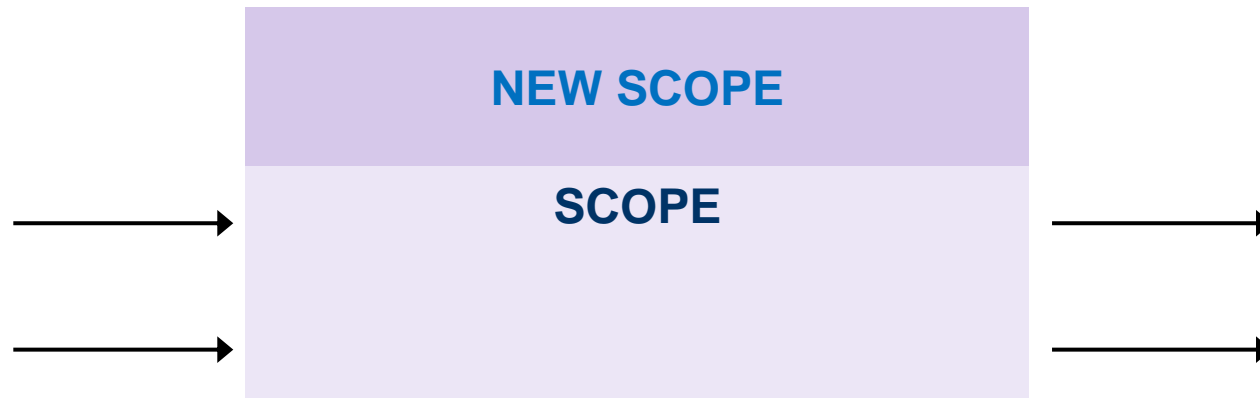
DIFFERENT TYPES OF CHANGE

Changes can be classified as “within Scope” or “outside Scope”

Outside Scope

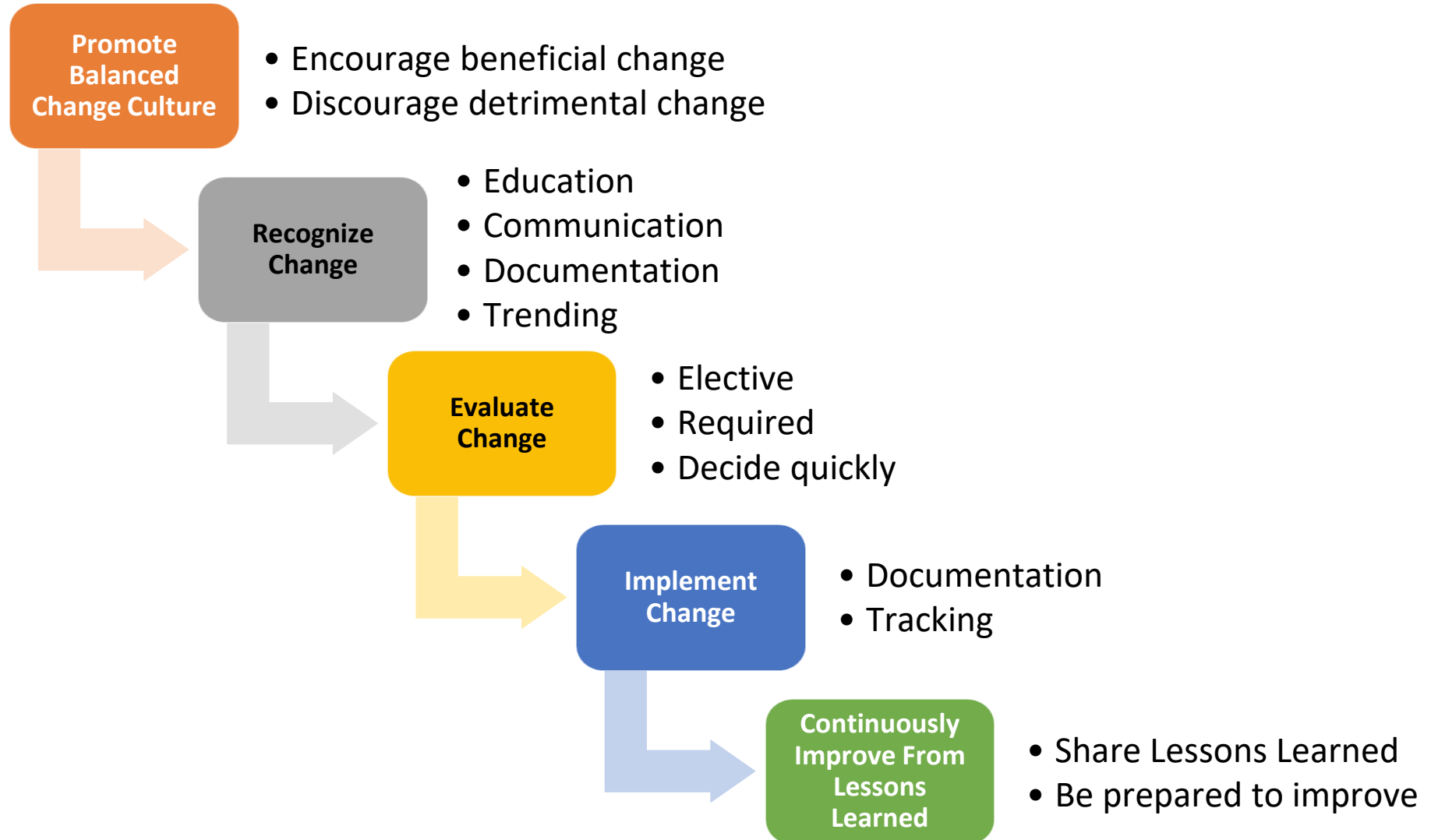
- Outside Scope changes are changes that increase or decrease the appropriation and baseline basic design package parameters

For changes outside the scope of an approved project, a separate approval or supplemental appropriation procedure should be followed.



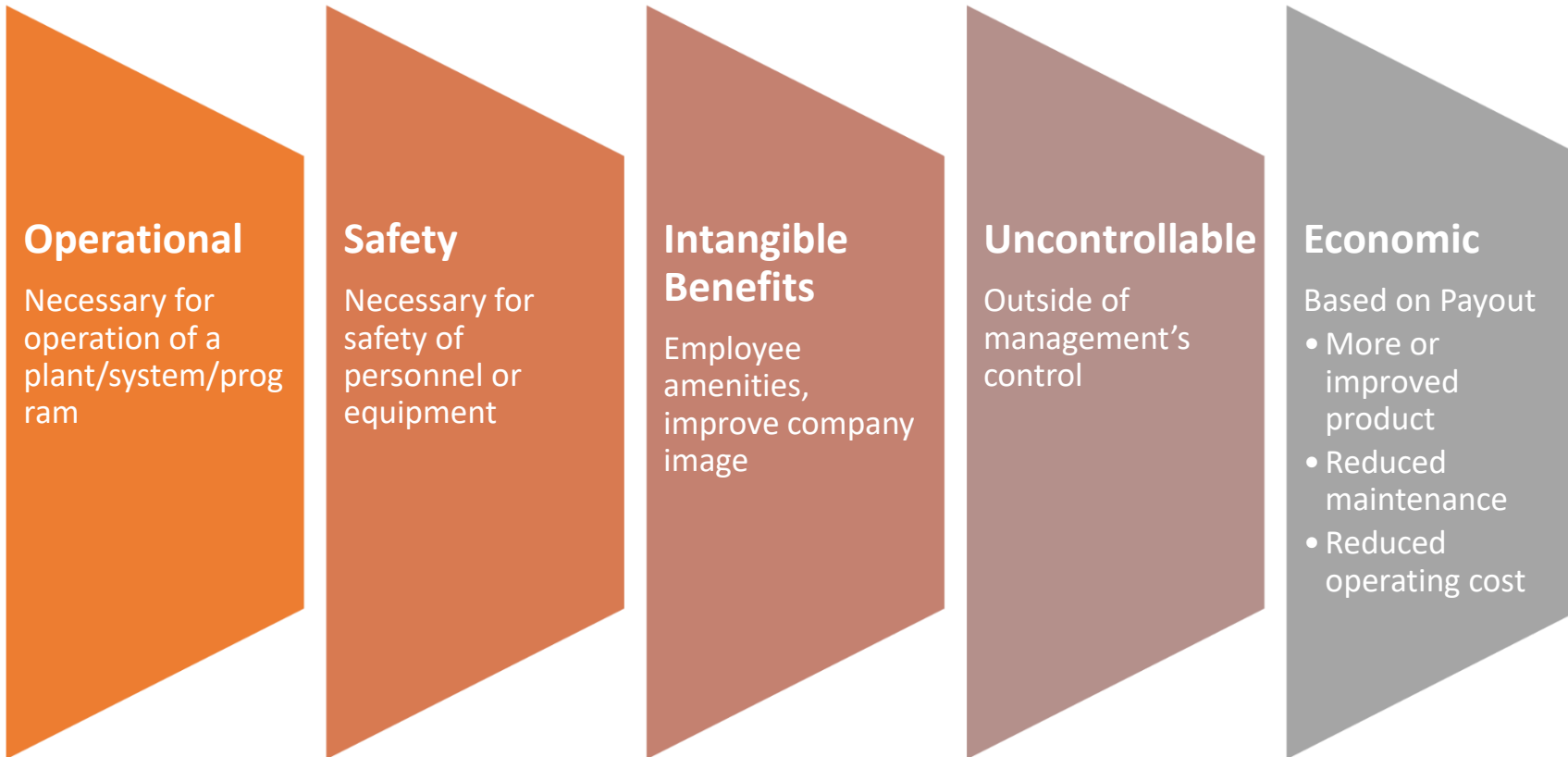
DIFFERENT TYPES OF CHANGE

Principles of Change Management



DIFFERENT TYPES OF CHANGE

Classification of Changes



DIFFERENT TYPES OF CHANGE

Recommended Change Management Practices

FEL 1

Establish a baseline scope early in this phase in order to identify and recognize change. Since this phase may commence with little or no documentation, getting scope “on paper” is essential.

FEL 2

Establish a tolerance level for changes and communicate this to all concerned with the project. It is comparatively inexpensive to incorporate changes this early in the project, which should be treated as a “Blue Sky” period.

FEL 3

Engineering personnel should be conscious of the need to effectively coordinate their work with others. Coordination should be both horizontal (interdisciplinary -- checks for example) and vertical, validating with individuals who were earlier responsible for the business and project planning phases of the project and with those individuals who will be responsible during ensuing phases, i.e., “networking” should be practices.

Execution

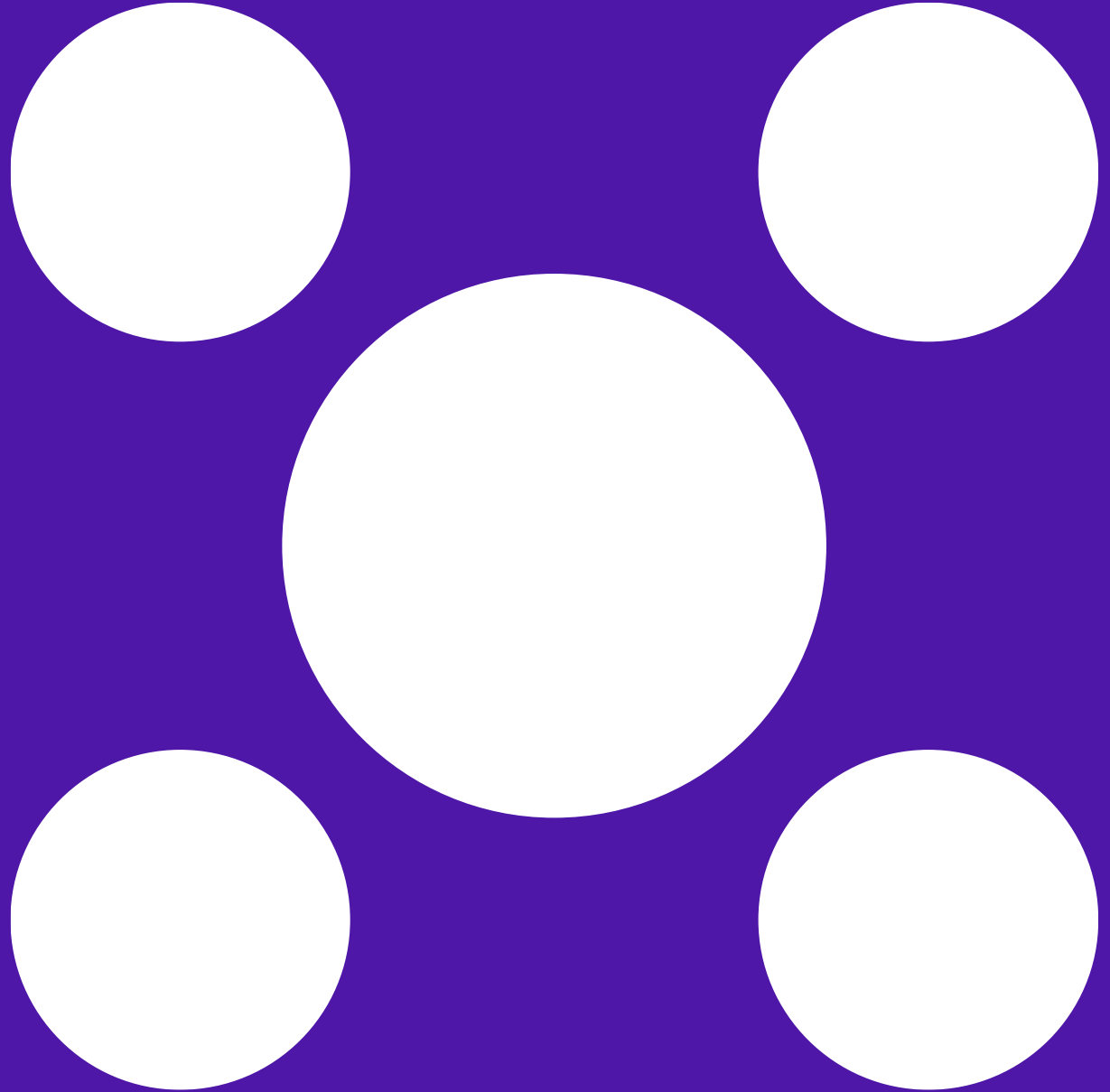
No Change Posture.

Project change management procedures should be part of the project design plan and procedures.

Formulate strategies that, where applicable, ensure that fabrication and construction proceed while changes are being resolved. This ensures that problems inherent in the changes are not compounded.

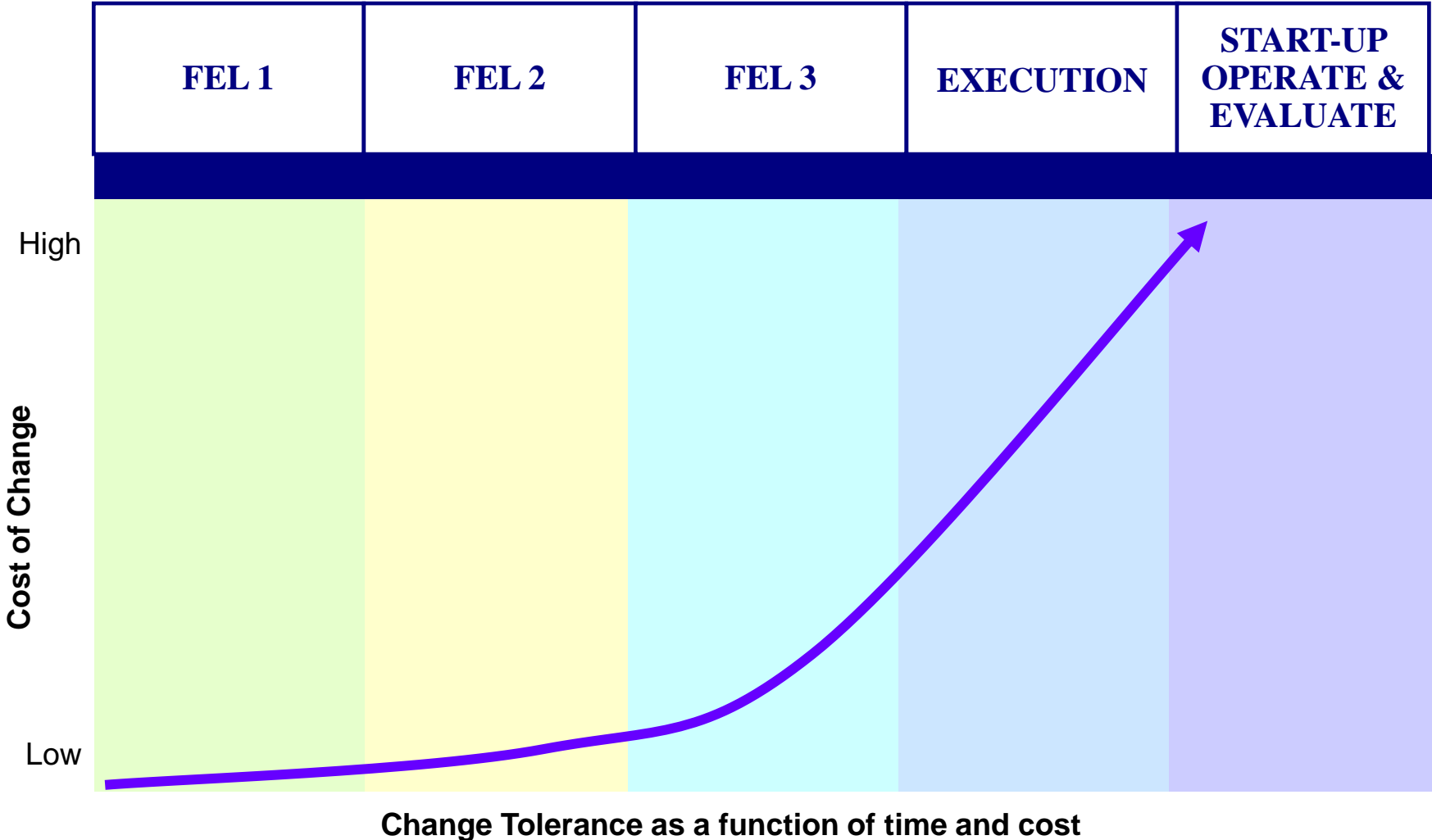
Ensure that responsibilities at time of turnover are clearly documented and understood.

COST OF A CHANGE



ACCEPTANCE OF SCOPE / EXECUTION PLAN CHANGES

Owner Change Philosophy



COST OF A CHANGE

As stated by the Construction Industry Institute (CII), “Project changes are the most common source of disruption, disagreement, dissatisfaction, and litigation among participants on a project.”

- A number of studies have been performed on how change affects the progress and cost of a project.
- Change has an impact on schedule due to:
 - Rework
 - Costs of inefficiencies
 - Regardless of external or internal
- Impact varies depending on
 - Timing
 - Magnitude
 - Frequency
- Indicate an increasingly negative “ripple effect” the later a change occurs
- Measuring the cost of this ripple effect is often not possible or practical
- Attempting to measure at a detailed level may be highly inefficient

However, the “true” cost of the change should be considered in forecasts wherever possible.

COST OF A CHANGE

For a project to be successful, both client and Contractor personnel must make a cooperative effort to limit changes. The two parties must:

- Recognize the change when it occurs
- Take necessary action to reduce the ripple effect on the project

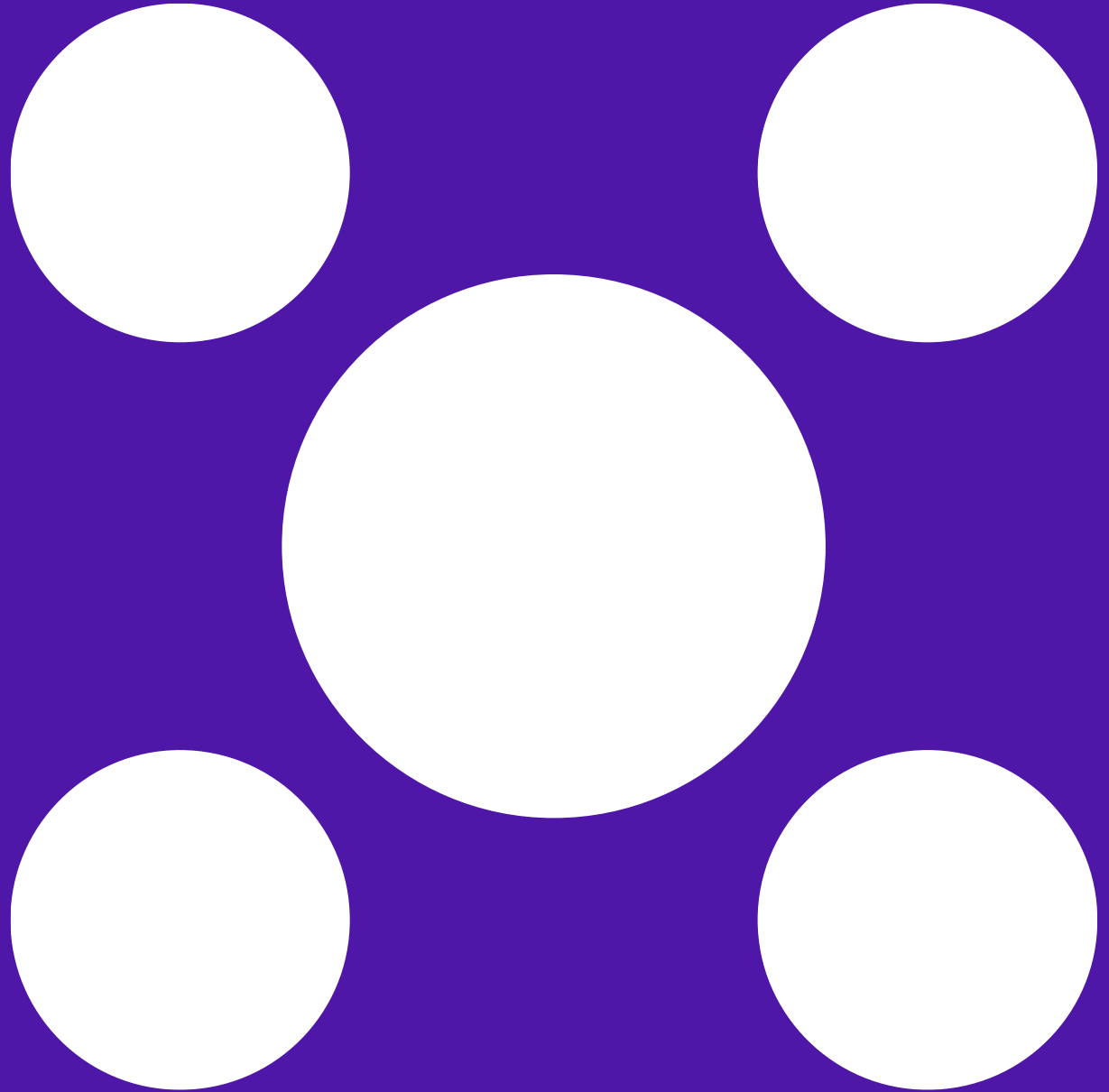


What is THE most important concept of the Cost of Changes?

Recognition that, the later a change occurs on a project, the more effect it will have on the cost and schedule.

The best way to decrease the amount of change is to have effective change management performed by both the client and Contractor.

CHANGE PROCESS



CHANGE PROCESS

The following questions **MUST** be asked for all changes & appropriate actions taken:

- Is the change justified?
 - If so, what is the justification basis?
- Is the change justified based on safety, operability, or environmental requirements?
- Is the change within project scope and is it required to meet project intent?
- Does the change meet return criteria for incremental investment?
- Will the cost of the change exceed contingency drawdown parameters or cause a project overrun?
- What is the effect of the change on the project schedule?
- What are the economic or other effects of a schedule change?
- Are needed funds capital or expense?

CHANGE PROCESS

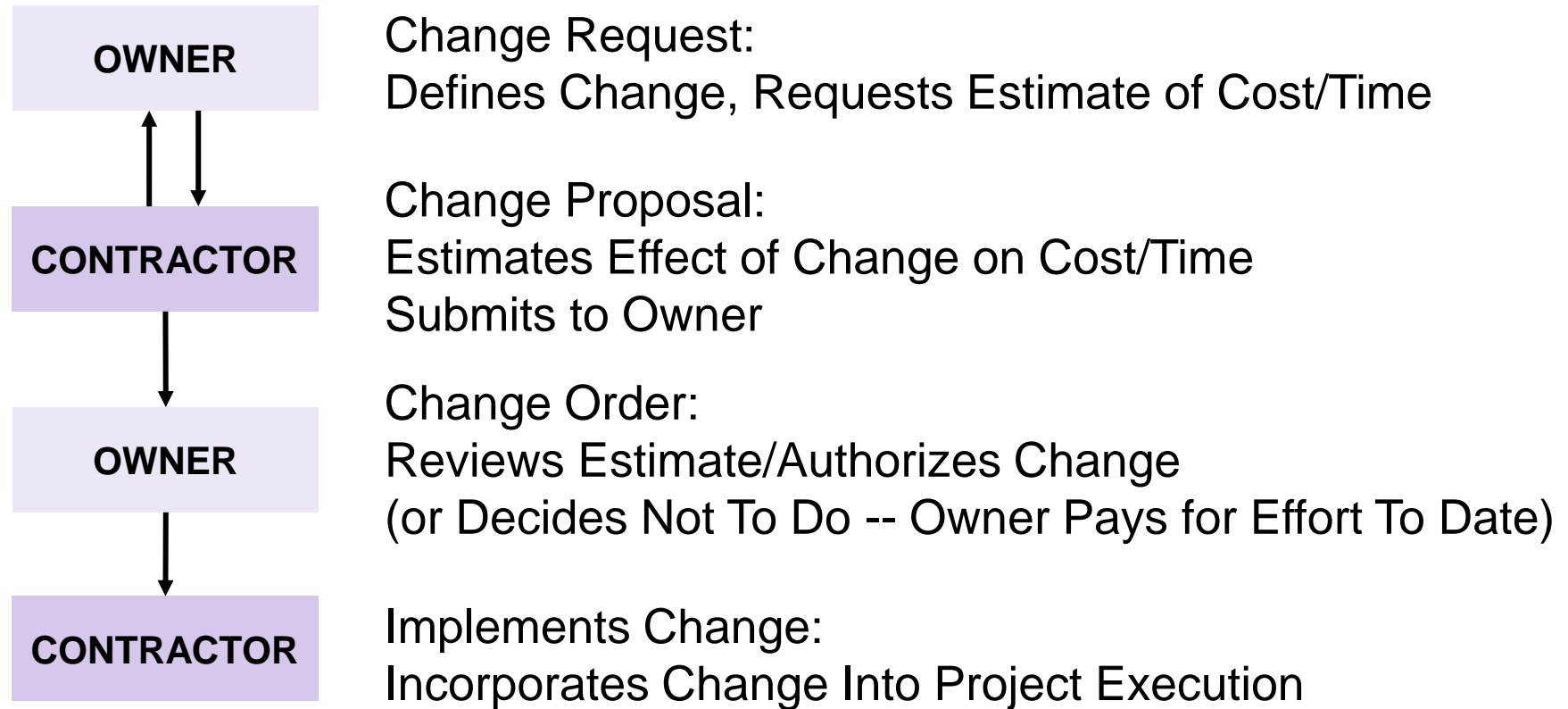


CHANGE PROCESS

- Owner has right to make changes, within general scope of Contract, via a written order
- Contractor's duty to perform
- All changes covered by original terms and conditions, but may alter time and cost
- Oral notification may be construed as "change," if was ordered and produced a change in scope
- Claims do arise from "unapproved change orders"
- Construction changes
 - Defective plans & specifications
 - Method of performance
 - Engineer's interpretation
 - Improper inspection & rejection
- Pre/post performance pricing
- Cardinal change -- beyond the general scope of contract
 - Impossible/impractical to "pump the sea dry"

CHANGE PROCESS

Change/Change Order Sequence



CHANGE PROCESS

Claims Avoidance

- Knowledge is power – know your contract and adhere accordingly
- Documentation is king
- Clear and concise communication
 - Written
 - Verbal
 - E-mail
 - Text Messages
- Effective change management
 - An unresolved change typically results in a claim
- Establish in the contract a dispute resolution process
- Address disputes promptly – the longer they take to resolve the harder it is to resolve

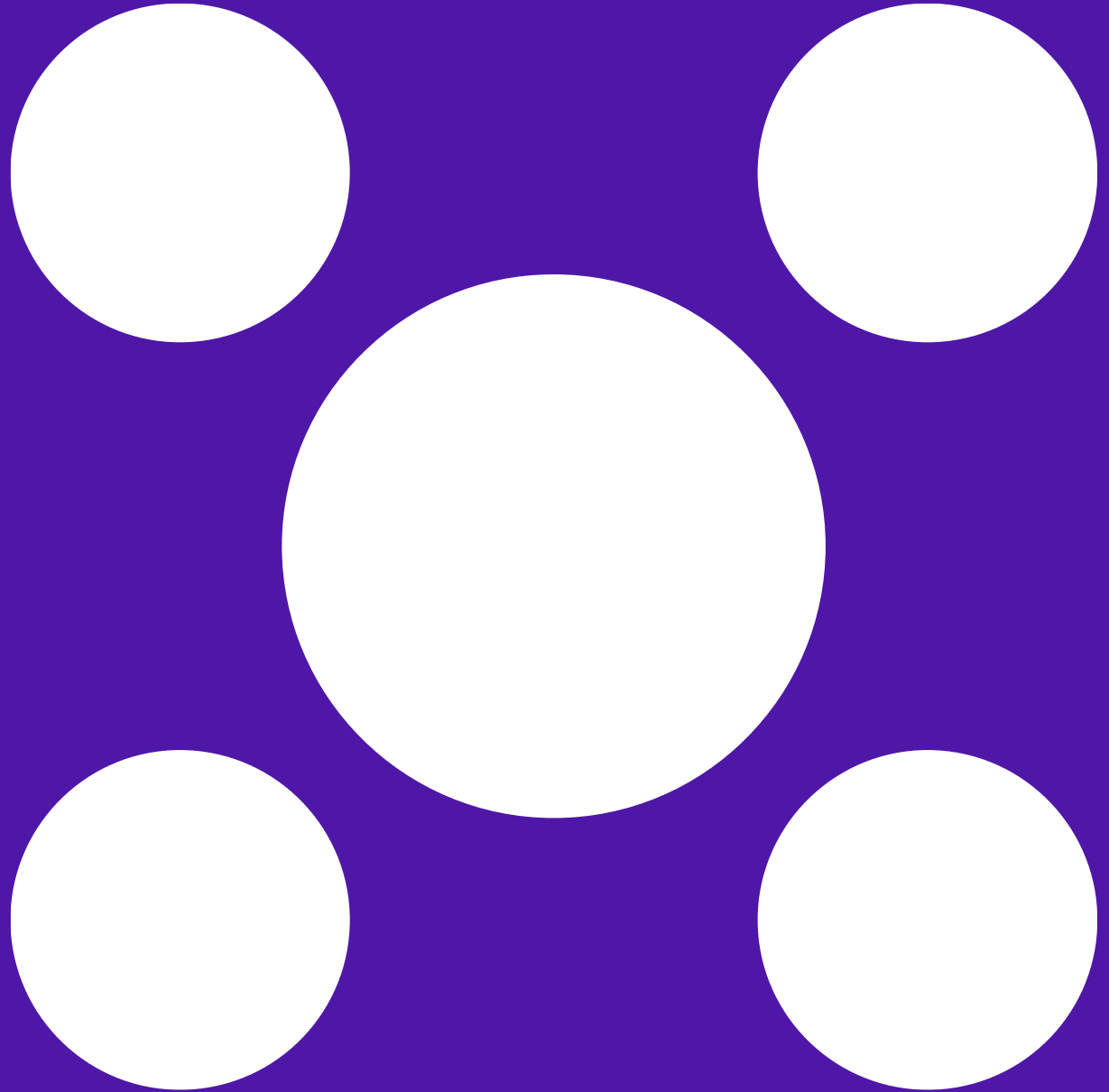


CHANGE PROCESS

Handling Disputes and Claims

- Minimize disputes/claims
 - Proper/complete contract documents
 - Fair & timely administration of contract
 - Keep good records
- Anticipate disputes/claims
 - Identify potential claims early, take corrective action, resolve before they become major issues
- If disputes/claims arise (consider whether to advise legal)
 - Written documentation essential
 - Give prompt attention
 - Try to settle amicably; don't intimidate/be intimidated; be sensitive to future implications
 - Organize with appropriate personnel (legal, technical, project)
 - If appropriate, refer to higher levels of management
- Consider counterclaim, if appropriate, or other “balancing” approach

WORKSHOP: WHAT-IF CHANGE MANAGEMENT SITUATIONS



WORKSHOP: What-if Change Management Situations

FULL TEXT IN WORKBOOK

- Objective:** To address several what-if scenarios and evaluate them as far as their change impact
- Situation:** You are part of the owner project team on a mid-size industrial project being executed in the US Gulf Coast.
- Approach:** You will be broken out into teams (face-to-face and virtual)
- Each team will be assigned one of the situations on the following page.
 - Your team will need to pick a team leader who will speak for the team.
 - Your team will need to evaluate the situation and address the defined deliverables outlined below.
- Deliverables:** Each team will develop the following deliverables:
1. Does the situation constitute a change?
 2. What is the impact of the issue?
 3. How would you deal with the issue?
 4. What could have been done earlier to mitigate the impact?
- Timing:** As follows:
- Each team will have 10 minutes to address their designated scenario in a face-to-face or virtual environment.
 - Each scenario will be discussed for 4 minutes.
 - Facilitator will call on select teams to present their analysis during these 4 minutes (all teams may not get called on).
 - There will be 10 minutes to address any final questions and close out the session.

These issues are provided in the early planning stages:

1. The project engineering team has determined that after Phase 2 engineering calculations were completed additional electrical power is required and a sub station needs to be included in the scope of work.
2. Upon further investigation of the selected site for the project, site conditions are such that 15% more piles are required to provide the foundational stability to support the new facility.
3. After identification of the technology and further front end design, the major pieces of equipment for the facility have been identified. Upon discussions with the suppliers, it is discovered that one of the major pieces of equipment has a lead time of 18 months which is 8 months longer than original planned resulting in a project delay in the project of 6 to 8 months.

These issues are provided right after owner full project funding. The project has gone to owner management and was authorized for the defined cost, schedule and functionality.

4. It has been discovered that directly after project authorization the team goes out to the market and realizes that execution contractors are very busy and the market price for the execution activities has increased by 20% causing a 15% increase on overall project cost.
5. The market for the product that this project will produce has increased substantially. As a result, owner management has requested a 15% increase in plant capacity while maintaining the agreed to schedule.
6. At the kickoff meeting with the selected and awarded execution contractor the contractor team is different from the team that was proposed during the bid evaluation and final negotiations. The contractor states that they were awarded a much larger project that the existing team is needed on.

These issues are provided during project execution:

7. The execution contractor starts to mobilize its execution team and after several weeks it is obvious that they are not able to staff the team as originally planned. The contractor states that they are fine, and they will still be able to complete on time and within budget.
8. After contract award, the contractor mobilizes, it's defined team that was agreed to in the contract. Three weeks into the project the contractor states that it needs to pull it's Project Manager and Engineering Manager off the project and replace them. They state this is due to another major project they just were awarded that need bilingual project leaders and the 2 individuals are the only 2 bilingual resource they have.
9. During the initial phase of construction, the site experiences an inordinate amount of bad weather. The contractor states that they are not able to execute work during these bad weather days and their progress is being delayed resulting in a delay of delivery for the whole project.
10. During the construction phase, the contractor has experienced some issues that need the owner's input. The contractor has issued a number of request for information (RFI) requests to the owner with limited to no response. The contractor is claiming that this is slowing them down and they will no longer be able to meet their defined completion date.
11. During the fabrication and delivery of a major piece of equipment that is on the critical path of the project, the vendor declares bankruptcy and the vendor shop is locked down and closed for all business until the bankruptcy issues are resolved.
12. The project is nearing completion and the operation team is being brought in to initiate handover activities. Operations starts to identify aspects of the facility that they are not happy with and demand adjustments to the facility.



QUESTIONS & ANSWERS

Stephen Cabano

Construction Leader & Change Facilitator

“Effective Change Management”



President of Pathfinder, LLC
pathfinderinc.com

