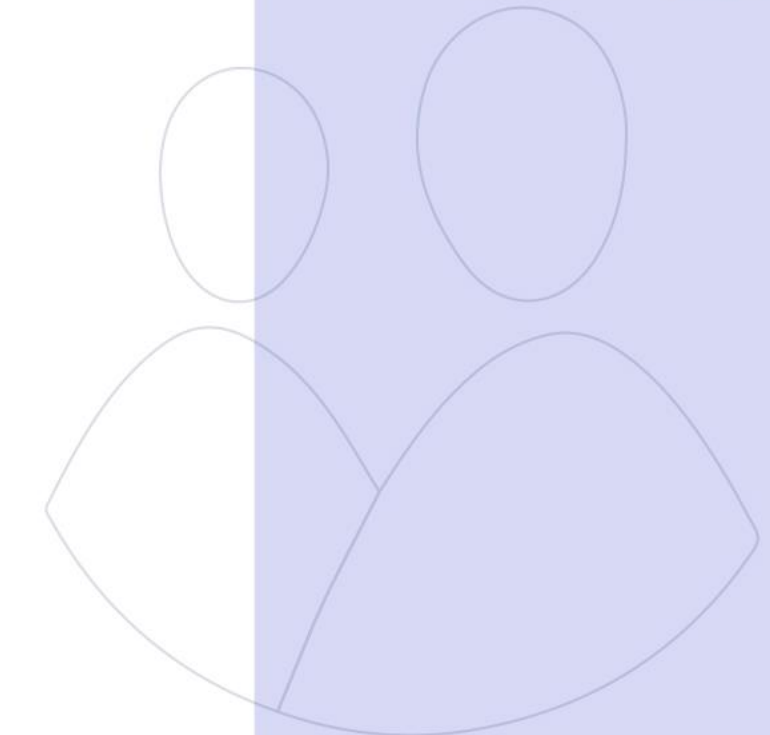


How to get Business Value out of Change Management



Meet the Speaker



Chief Customer Officer
Karl Vantine, Contruent

Global Experience with Rail & Ports, Highways,
Mining, Power, Oil & Gas

Cost, Contracts, EVM, Scheduling, Estimating,
System Integration

MBA, MA, PMP, AACE

Contruent

 Project Controls
EXPO
Washington, DC - USA

About Contruent



Our Mission

Empowering decision-makers to build our world's infrastructure with precision and speed.



Con·tru·ent

Derived from 'construction' + 'true' + '-ent' (performing, promoting, or causing a specific action)



Origin

1990s: Began as ARES PRISM, project controls software.

Contruent

 **Project Controls**
EXPO
Washington, DC - USA

What We Do

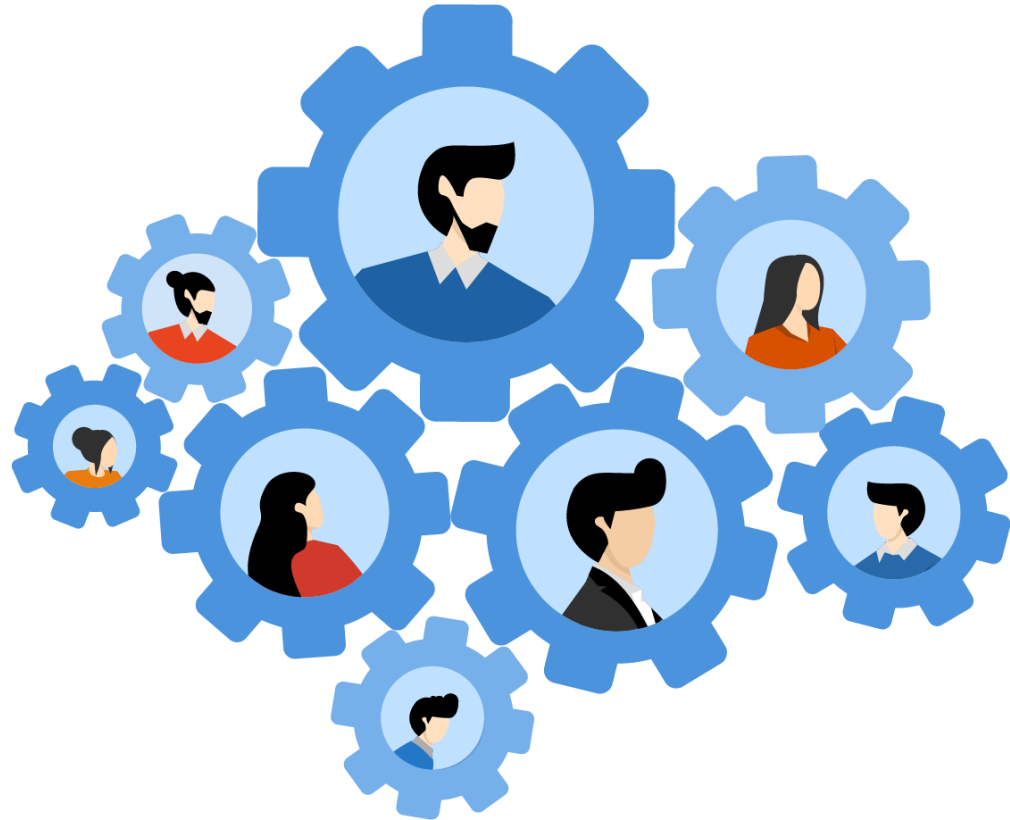


Empowering decision-makers to build our world's infrastructure with precision and speed.

- We work as a global team across 5 offices and operate in 26 countries, now headquartered in Naperville, Illinois.
- We work with industry leaders across Infrastructure, Oil, Gas, Mining, Rail, Energy, Utilities & Nuclear.
- Proven ROI across the entire project lifecycle working with sophisticated customers and complex projects spanning the globe.

Who's in the Audience today?

- CEO, CFO, COO
- Project Manager
- Construction
- Project Controls Manager
- Cost/Schedule/Risk
- Contract Management
- Change Specialist



Today's Focus

How to get business value out of **Change Management** in construction project management.

- Know what constitutes Business Value to your organization (Reduced Risk, better Public Perception, Lower Costs, Increased Revenue, etc.)
- Connect that Business Value to practical application of Tools & Processes
- Understand what drives Change on your projects
- Know what makes Change so Expensive in your Organization
- Build the right Infrastructure to Manage that Change

The Problem with Projects!

27%

Average cost over-run. [PMI]

45%

Projects aren't delivered on time and on budget. [KPMG study]

3.8x

Projects are more likely to fail without full integration of systems and processes. [Logikal study]

Higher probability of success if you utilize project controls!
[KPMG]

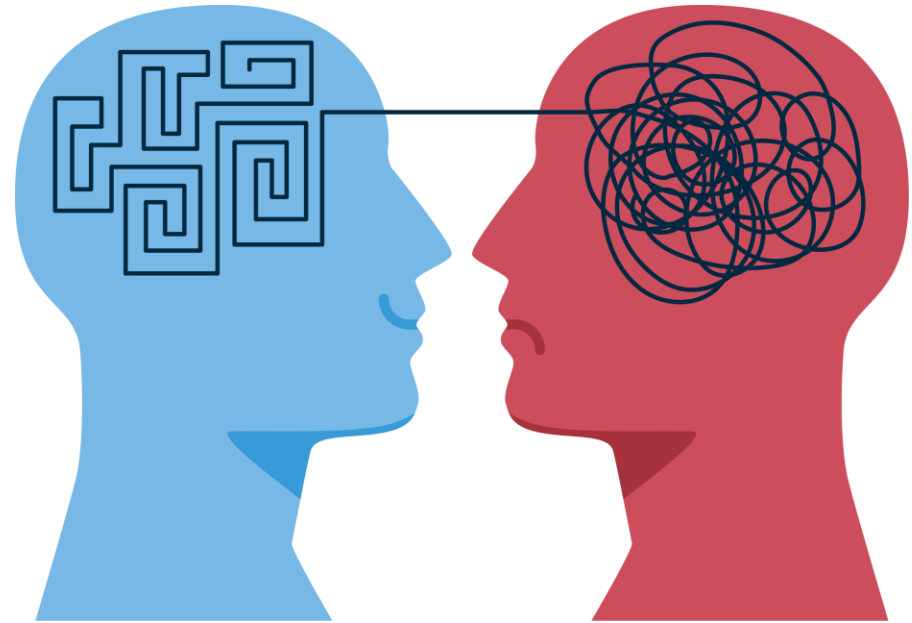
Change is a Key Driver of these Statistics!



- The average construction project is subject to a 5-10% increase in contract value as the direct result of change orders and contract modifications.
- Oxford Economics estimated the total global construction contract value to be \$10.7 trillion in 2020.
- So, the global cost of changes to construction contracts in 2020 was between \$535 billion and \$1.07 trillion.

What Causes Change?

- Architectural Design Errors
- Engineering Specification Omissions
- Communication Issues b/t Owners & Supply Chain
- Inefficient Project Plan
- Defective Workmanship
- Financial Challenges (e.g., currency fluctuation)
- Legal or Regulatory Issues
- Additional Work from Asset Owner (scope creep)
- Organizational Change
- External Forces (e.g., weather, new technology, etc.)



Why is Change so Expensive?



Change impacts all Stakeholders:

Owner, Contractors, Workers, Financiers, Insurers, Community, etc.

- New Scope = New Budget
- Rework = \$\$\$
- Added Administration & Tracking = \$\$\$
- Added Approvals = \$\$\$
- Risk to Public Perception

Project Controls Can't Solve It Alone!

Executive Business Drivers



Why does Executive Engagement Matter?



- When Executives care, cultures change
- Change Management is typically reactive, but good Change Management is Proactive!
- Shift perception of Change Management as busy work to being a Core Function.
- Change needs focus at all levels/phases: Design, Planning, Contracting, Delivery...
- ...and across Functions: Finance, Commercial, Procurement, Project Mgmt, Engineering

Connect Business Value to Project Controls

Optimize Project Spend & Performance

Reduce annual spending due to better forecasting & fewer overruns

Average annual reduction in project spending



2%

Ex. \$20M Per \$1Billion in Annual Project Spend

Improve Visibility to Make Informed Decisions

Reduce time spent on data collection, entry, and validation

Average annual reduction in FTE labor hours



80%

Ex. \$952K Per 10 Project Controls FTEs

Account for Change & Maximize Efficiency

Reduce contract overspending due to improper change management

Average annual reduction in contract overspend



4%

Ex. \$4M Per \$100 Million in Annual Contract Overspend

Managing Contracts & Getting Progress From Vendors

Reduce time spent on contract administration

% reduction in time spent on contract administration



50%

Ex. \$178K Per \$1Billion in Annual Project Spend

Total Value and Savings over 5 years is \$157M

Six Steps to Better Control over Change



Customer Case Study Zone



1

**Plan for
Change**

Plan for Change



- Big Picture = Scope, Estimate, Budget, Schedule
- Avoid Common Planning Fallacies (Biases for Uniqueness, Attachment, Optimism, etc.)
- Assess Risk & Contingency (known unknowns)
- Plan at every Stage of the Project Life Cycle

Plan at every Project Lifecycle Stage

Business Planning Phase

- Set baseline scope early
- Build a contracting strategy that allows for change

Project Planning Phase

- Write contracts that clearly establish project cost, scope, schedule
- Plan contingency in anticipation of unforeseen project changes

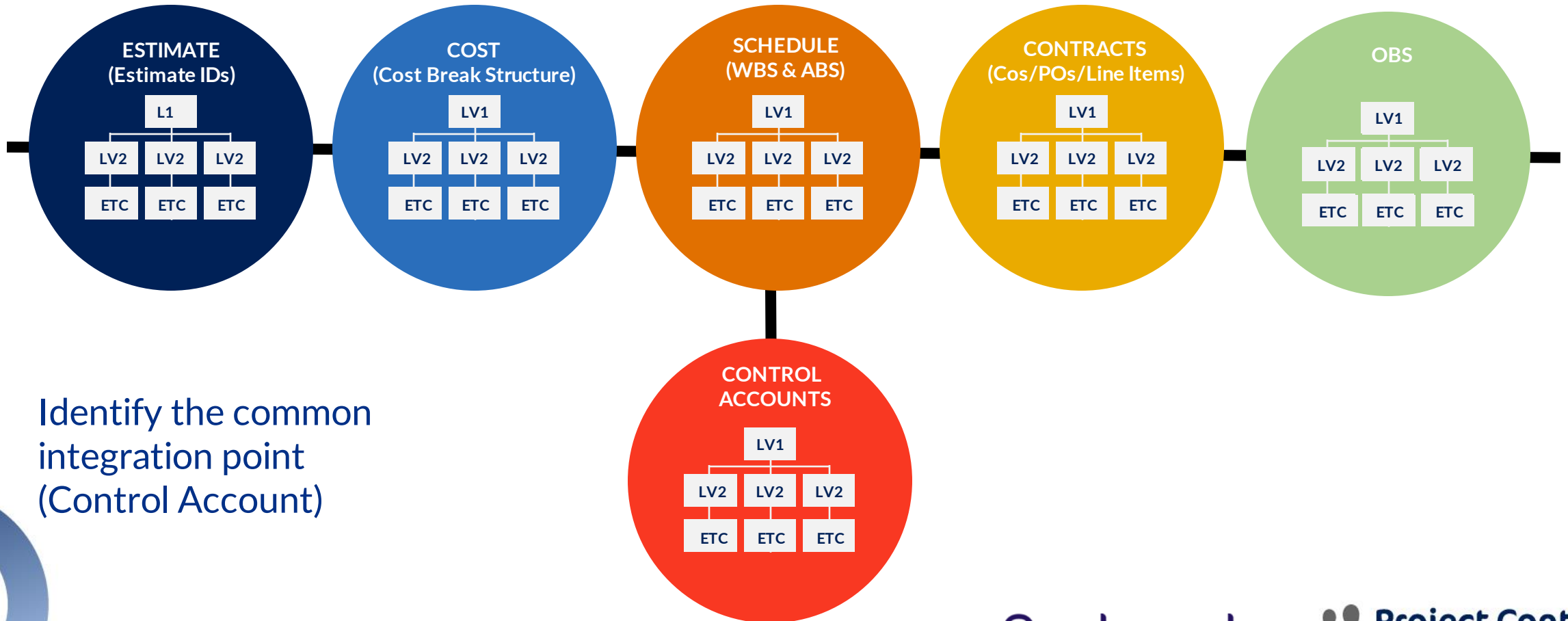
Detailed Design Phase

- Scrutinize architectural design and engineering specs (before scope changes cause cost/schedule overruns)
- Finalize project scope and benchmark all changes against this iteration of plan

Construction Phase

- Educate stakeholders on change program and change order policy
- Install a culture of change by empowering stakeholders to recognize the need for change
- Be aware of changing market conditions that may require a change in project scope

Create System-wide Traceability of Change



Identify the common integration point (Control Account)

Budget for Change

Customer
Best
Practice

CONTROL ACCOUNT TYPES

	Financial Budget	Control Budget	Approved Budget	Forecast
Risk Register Forecast			RISK TEAM	
Contingency	ACCOUNTING AND FINANCE TEAM	CONTRACTS	SR. MANAGERS AND DIRECTORS	
Target / Scope			DELIVERY TEAMS AND MANAGERS	

2

Structure
for Change

Change Control Structure



Robust Change Control includes:

- Clear Change Policy
- Structured Change Types (Trend vs. Change)
- Communication Plans (Roles & Responsibilities)
- Approval/Delegation Processes
- Escalation Processes
- Contingency Management
- Reporting & Success Metrics

Change Types

Customer
Best
Practice

TREND CHANGE

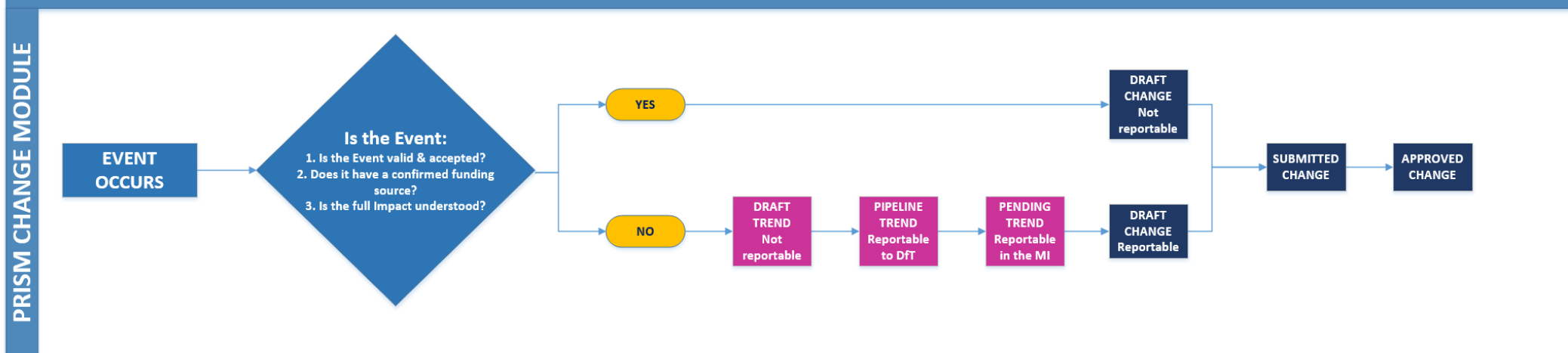
CERTAIN event, **UNCERTAIN** impact

Pressure or Saving to the Current Baseline

CERTAIN EVENT, **CERTAIN** IMPACT

Change to the Current Baseline

Trend vs Change



Change Types & Impacts

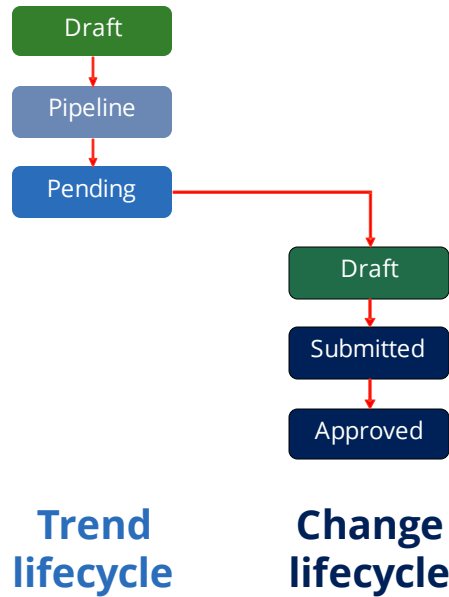
Customer
Best
Practice

Type	Impact	Total Value Nets to Zero
CHANGES	Investment Authority/Authorization to Spend in Budget	Yes
	New Scope Award	Yes
	Original Baseline	No
	Owner Baseline Changes	No
	Inflation	Yes - if budgeted for in Contingency
	Contractor Baseline Changes	Sometimes
	Decompose	Yes
	Scope Swaps (outside contract)	Yes
	Transfer (within contract/contingency)	Yes - if budgeted for in Contingency
TRENDS Pressure (Positive Trends) or Efficiencies & Savings (Negative Trends)	Change to AFC	No
	New Scope Award	No
	Contacto Baseline Change	No
	Transfer	Yes
	Savings	No

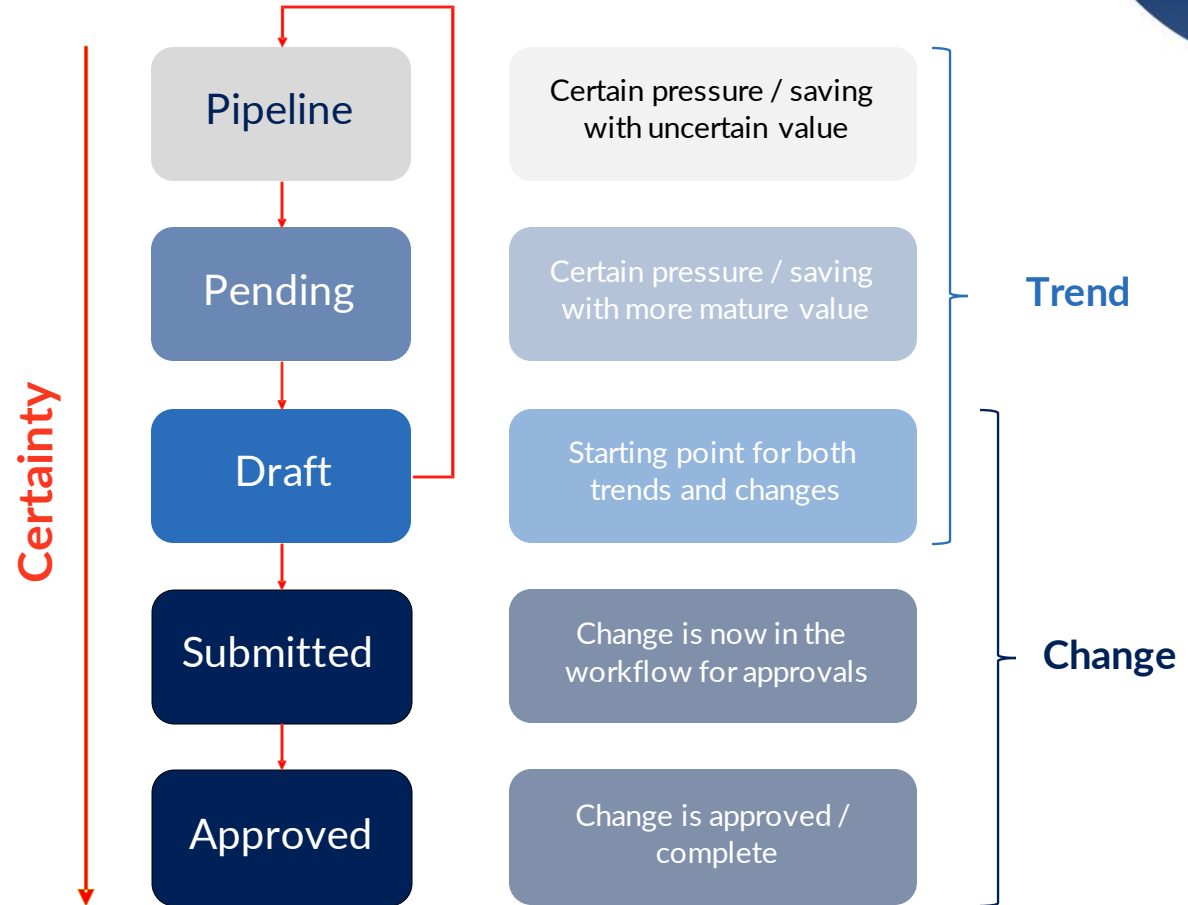
Change Status



The certainty and maturity of the request grows as it progresses through the Trend and Change lifecycles:

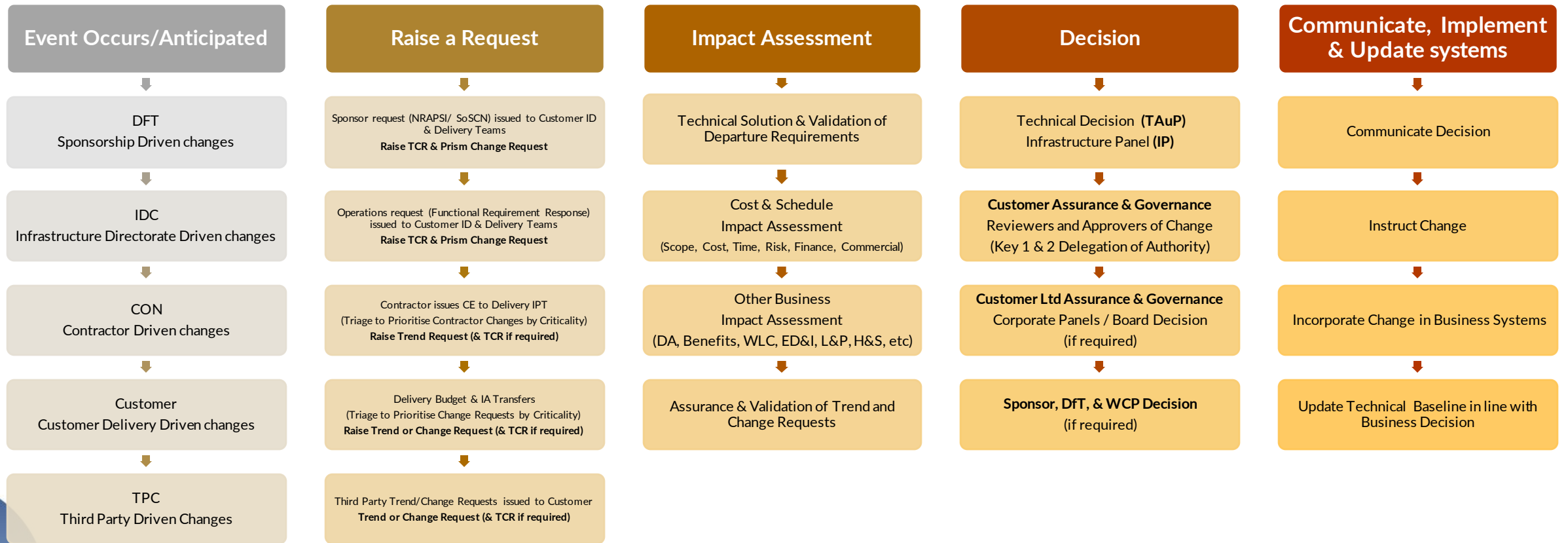


Rejected and Cancelled status apply to both Trends and Changes where they either did not make the criteria to proceed to implementation or they are no longer valid



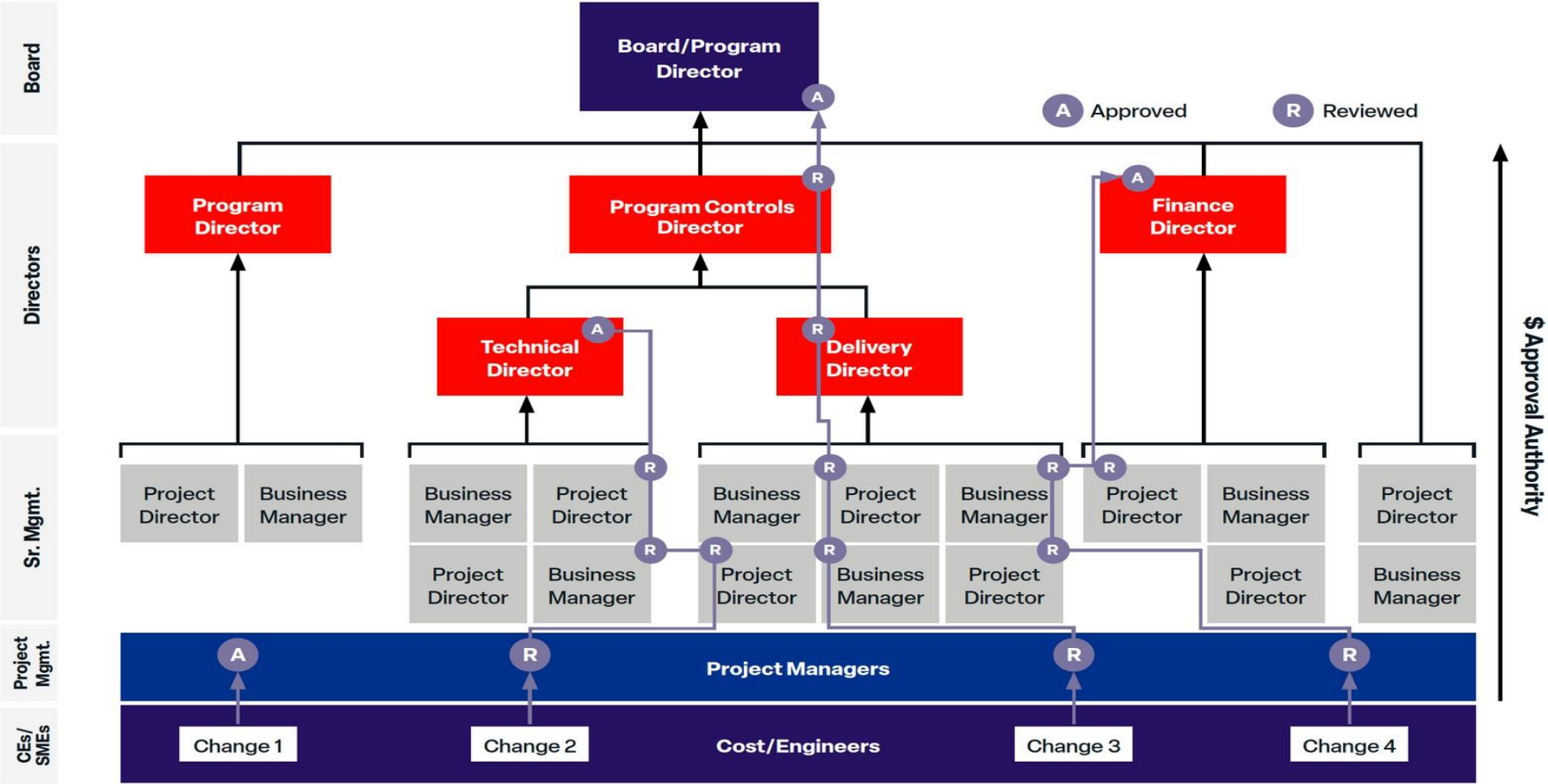
Change Review

Customer Best Practice



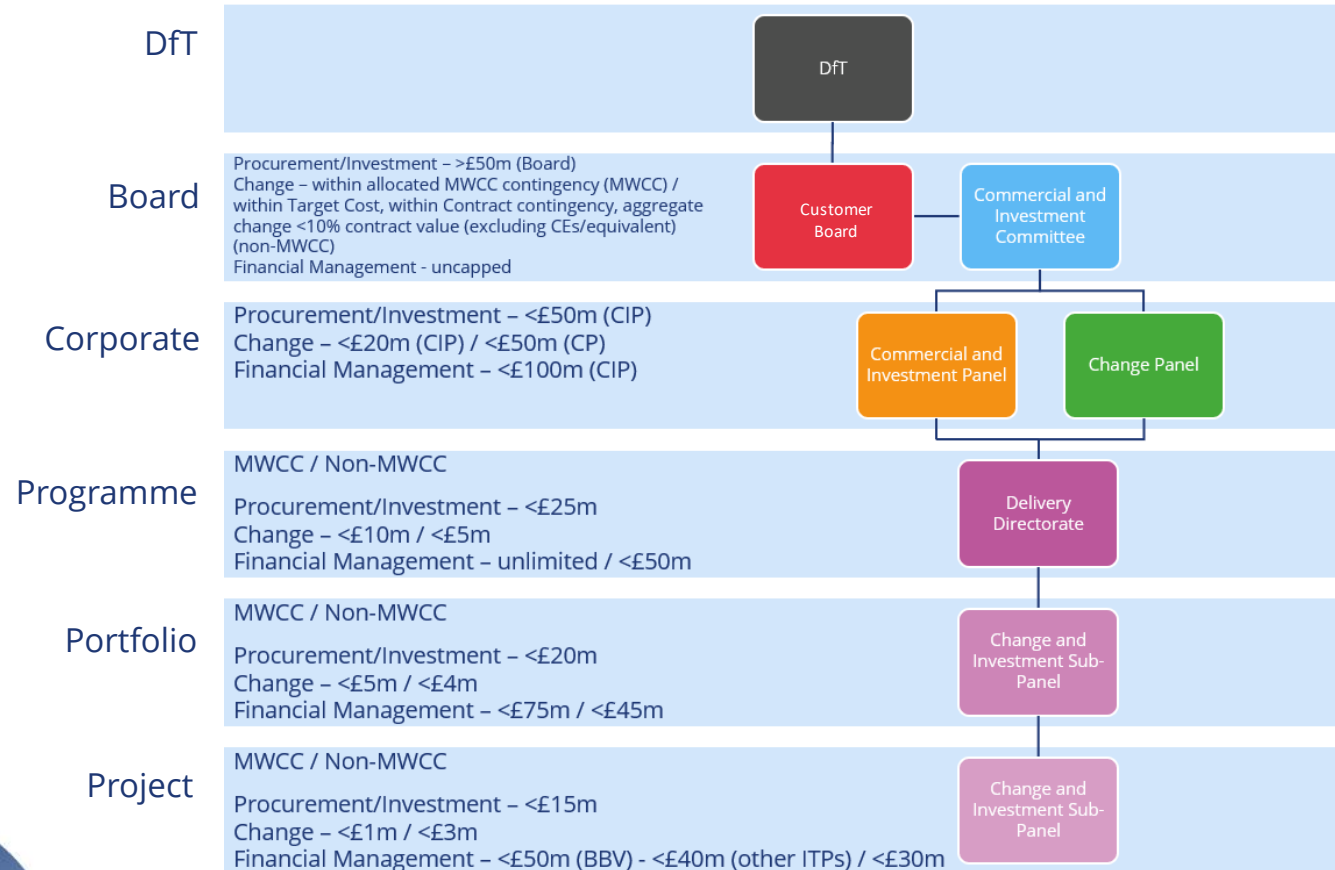
Change Approval

Change Categories, Approval Thresholds and Escalation Rules



Sample Governance Principles

Customer
Best
Practice

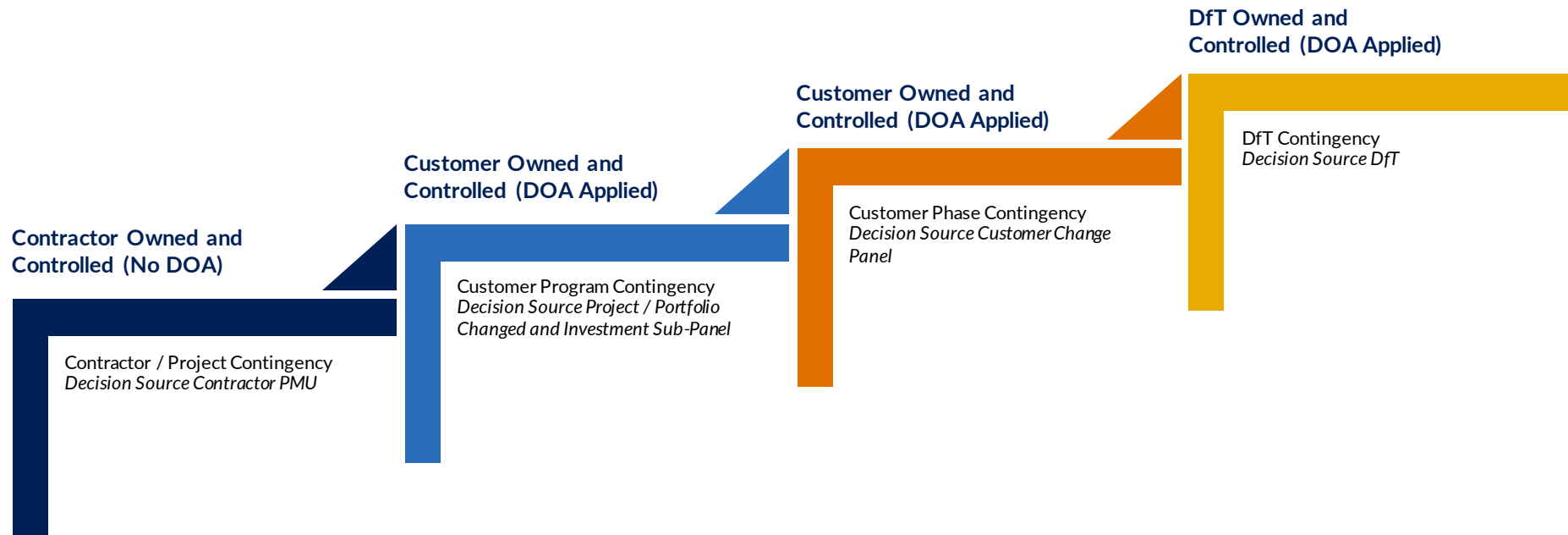


- Governance of change is based on the organisational hierarchy to ensure all changes will be reviewed and approved (or rejected) as required, based on the delegation of authority (**Governance thresholds**).
- For transparency and traceability, **Contruent is the Customer approved system for capturing all change decisions**. Contruent will generate a Change Form with an audit trail of all impacts, reviewers and approvers.
- The Contruent system will automatically generate reviewers and approvers based on the governance thresholds.

Change Funding (Contingency)

Customer
Best
Practice

- Devolution of contingency drawdown encourages responsibility, collaboration, and ownership of issues at all levels of the organization.
- Contingency drawdown requires change approval through delegation of authority and escalated upwards per governance structure.



Smart Use of Contingency Adds Value



- Fewer approvals needed for “expected/planned” change
- Faster processing - budgeted in contingency
- Less administrative burden (saves money)
- Protects public perception of publicly funded projects

Systematize the Process to Ensure Compliance & Adoption

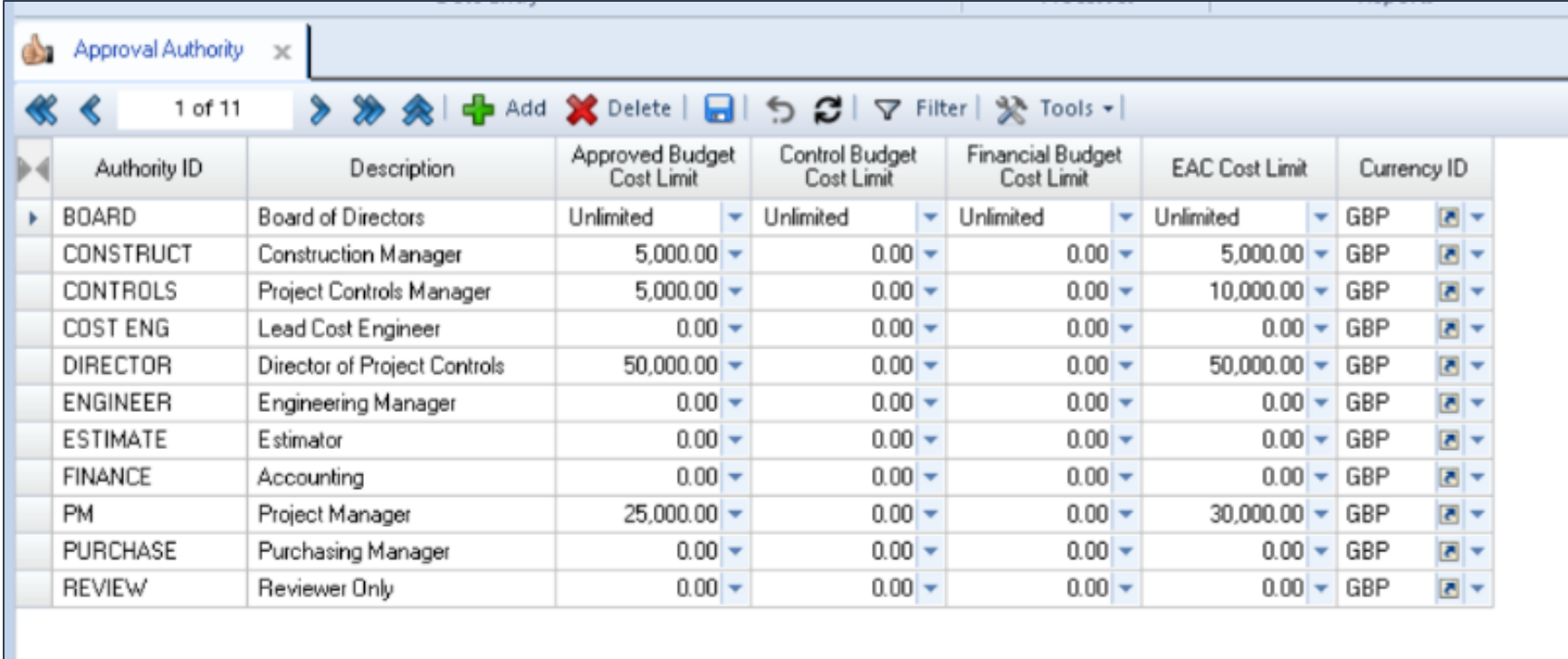
Change Impact

Change Status

Status ID	Description	Sort Code	Final	Add To Approved Budget	Add To Control Budget	Add To Financial Budget	Add To EAC	Add To Pending	Add To PO / Ct Commitment
DRAFT	Draft		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SUBMT	Submitted (Under Review)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CNCLD	Cancelled		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RJCTD	Rejected		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
APRVD	Approved		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

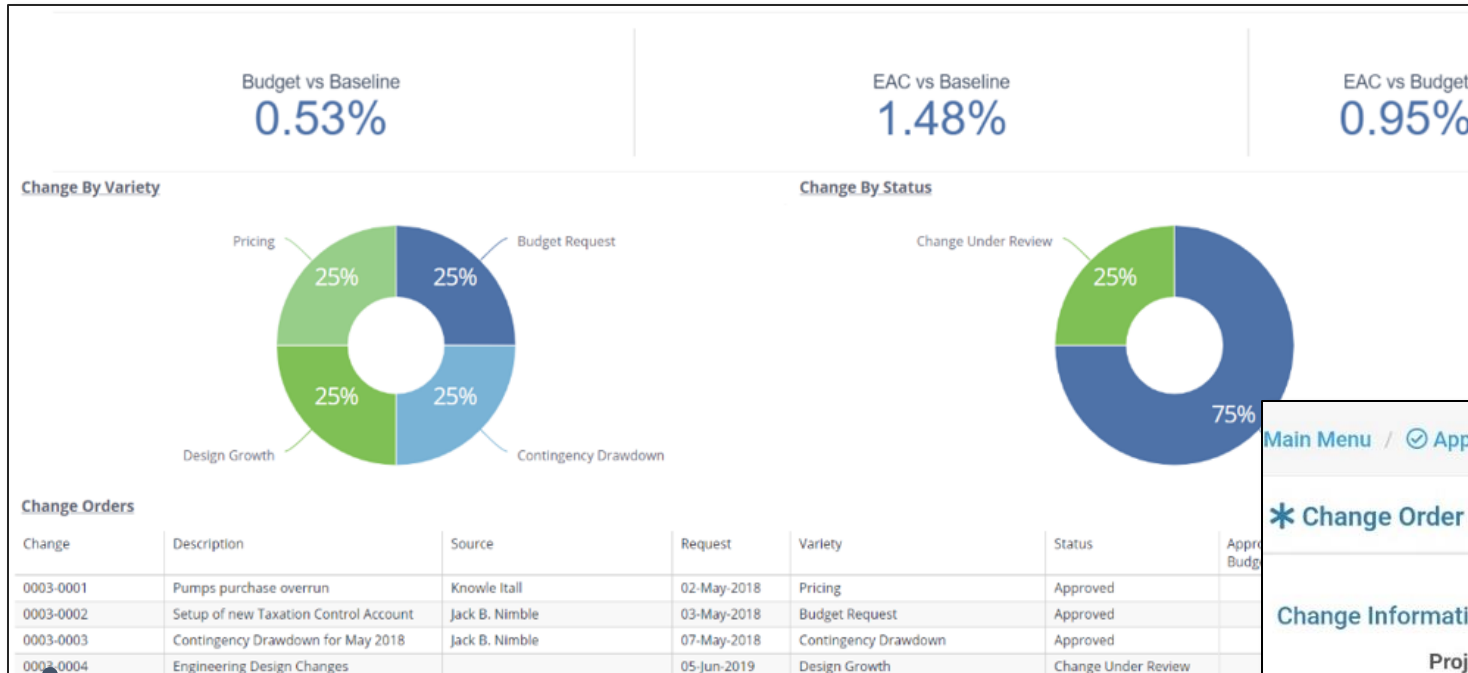
Systematize Approvals to Eliminate Confusion

Change Approval Authorities



Authority ID	Description	Approved Budget Cost Limit	Control Budget Cost Limit	Financial Budget Cost Limit	EAC Cost Limit	Currency ID
BOARD	Board of Directors	Unlimited	Unlimited	Unlimited	Unlimited	GBP
CONSTRUCT	Construction Manager	5,000.00	0.00	0.00	5,000.00	GBP
CONTROLS	Project Controls Manager	5,000.00	0.00	0.00	10,000.00	GBP
COST ENG	Lead Cost Engineer	0.00	0.00	0.00	0.00	GBP
DIRECTOR	Director of Project Controls	50,000.00	0.00	0.00	50,000.00	GBP
ENGINEER	Engineering Manager	0.00	0.00	0.00	0.00	GBP
ESTIMATE	Estimator	0.00	0.00	0.00	0.00	GBP
FINANCE	Accounting	0.00	0.00	0.00	0.00	GBP
PM	Project Manager	25,000.00	0.00	0.00	30,000.00	GBP
PURCHASE	Purchasing Manager	0.00	0.00	0.00	0.00	GBP
REVIEW	Reviewer Only	0.00	0.00	0.00	0.00	GBP

Automate the flow of Work



Approvers receive email notifications and can utilize mobile devices to make decisions.

Change management with workflows for an in-program user notification, action items, review and approval.

Main Menu / Approvals / Change Summary / 0005-0005

*** Change Order Summary - 0005-0005** Approved Rejected

Change Information		Status Details	
Project ID	PROJECT A - Sample Project A	Status	SUBMITTED -
Change ID	0005-0005	Status Date	-
Description	scope update		✗ Not Final
Details	This change is regarding a scope update in the concrete pouring volume. The revised amounts have been reflected in this change order		
Comments	No		

3

**Staff
for Change**

Staff for Effective Change Control



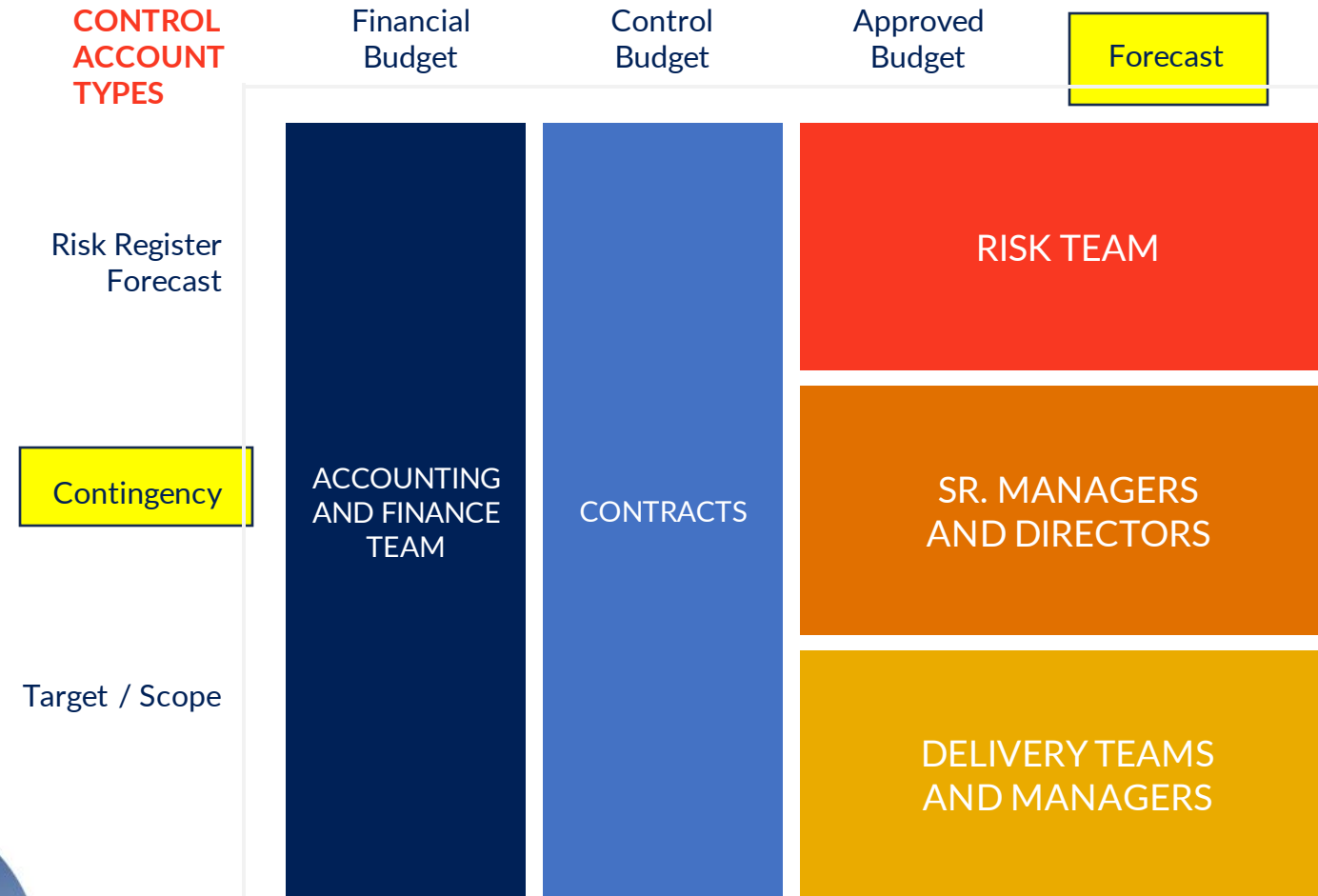
No Accountability = No Control

- Who is Responsible for change control on your Project?
- Is there a career path for that person?
- Does that person have authority/access to Executives?
- Do you Train teams on your change process?
- Do Reviewers/Approvers know your process?
- Are performance metrics tied to effective execution?

4

**Measure
Change**

Measure Change

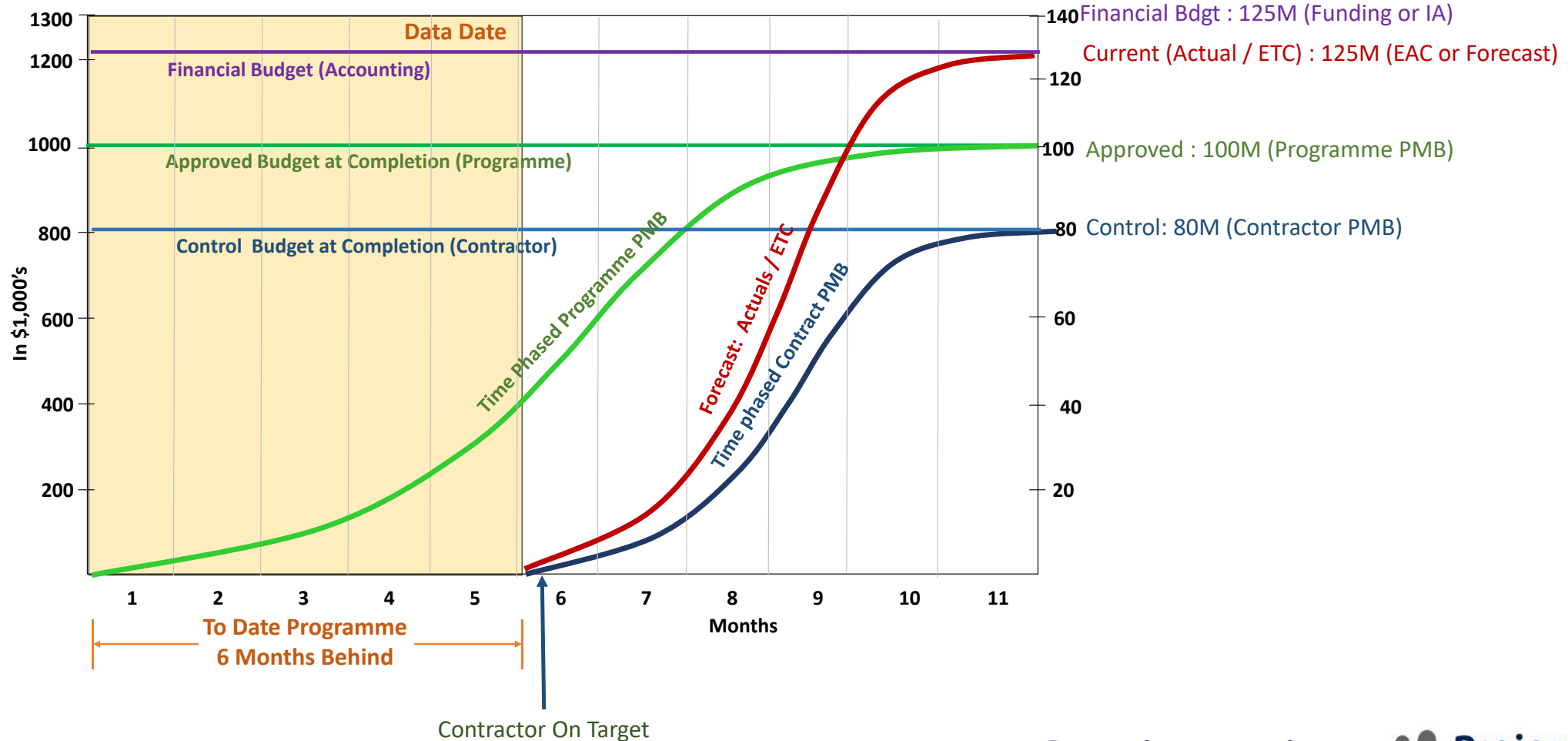


If You Can't Measure It, You Can't Manage It!

- Need to measure project impact (# and \$ of changes)
- Does your process work?
- What ROI are you getting?

Manage Multiple Performance Budgets

Programme vs Contractor - Baseline Management & Comparison



But don't just Measure Change...

...Measure how well your Process Controls it!

Performance Metric	How to Measure	ROI
Reduced time spent on contract admin/ changes	Hours/month x FTE rate	% Reduction in time spent = \$\$
# of missed/delayed payments to contractors per month	Avg. cost of fines or interest	Avoidance of risk protect public image
More effective tracking and forecasting to reduce surprises and contract overspend	Avg. amount by which contract budgets overspent	% Reduction in contract overspend = \$\$

5

**Forecast
Change**

Forecast Change



- If you measure change, you can forecast for it
- Earlier identification to Avoid/Mitigate impact
- Evaluate (and reevaluate) Risks to spot drivers
- Track the trends...
- Know your critical path
- Know the impact of change to all functions

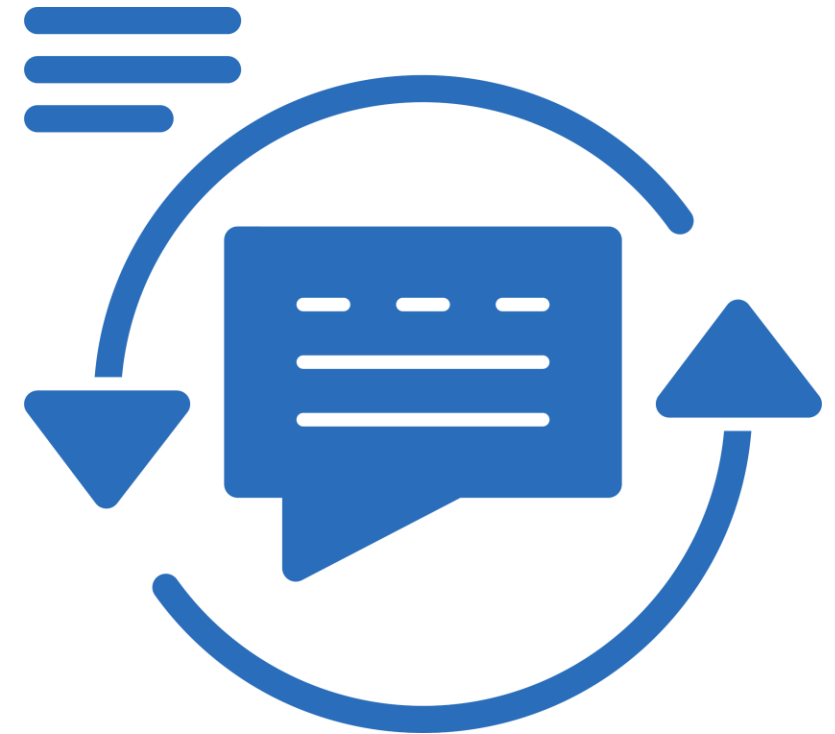
6

Learn from
Change

Learn Lessons from Change

You know what changed but do you...

- Benchmark?
- Store learnings to apply next time?
- Measure how well your process works?
- Have feedback loops in your process?
- Rate suppliers to improve selection?
- Rate customers to improve your contracts?



Back to the Business Value!

Executive Business Drivers



Contruent Connects Business & Functional Value

Account for Change and Maximize Efficiency

Reduce contract overspending due to improper change management

Average annual reduction in contract overspend

4%

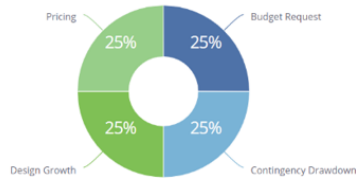
Ex. \$4M Per \$100 Million in Annual Contract Overspend

Budget vs Baseline
0.53%

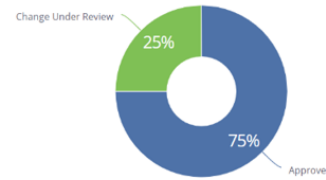
EAC vs Baseline
1.48%

EAC vs Budget
0.95%

Change By Variety



Change By Status



Change Orders

Change	Description	Source	Request	Variety	Status	Approved Budget	EAC
0003-0001	Pumps purchase overrun	Knowle Itall	02-May-2018	Pricing	Approved	0	12.20
0003-0002	Setup of new Taxation Control Account	Jack B. Nimble	03-May-2018	Budget Request	Approved	30,000	30,000
0003-0003	Contingency Drawdown for May 2018	Jack B. Nimble	07-May-2018	Contingency Drawdown	Approved	0	-12.20
0003-0004	Engineering Design Changes		05-Jun-2019	Design Growth	Change Under Review	52,500	52,500

Advanced change management with workflows for an in-program user notification, action items, review and approval

Auto-generate the list of approvers based on PRE-configured delegation of authority policies

Main Menu / Approvals / Change Summary / 0005-0005

* Change Order Summary - 0005-0005 Approved Rejected

Change Information

Project ID: PROJECT A - Sample
Project A
Change ID: 0005-0005
Description: scope update
Details: This change is regarding a scope update in the concrete pouring volume. The revised amounts have been reflected in this change order.

Status Details

Status: SUBMITTED -
Status Date: -
X Not Final

Comments

Approvers receive email notifications and can utilize mobile devices to make decisions

Change Orders - Approvals

1 of 6 | Add | Delete | Filter | Tools | Generate | Submit

User ID	Name / Description	Team	Authority ID	Sort Code	Approved Budget Change Cost	Control Budget Cost	Financial Budget Cost	EAC Cost
HOWARD			PURCHASE	1-A	1,000.00	0.00	0.00	1,000.00
OTTO			ESTIMATE	1-B	1,000.00	0.00	0.00	1,000.00
JUSTIN			COST ENG	1-C	2,000.00	0.00	0.00	2,000.00
BEN			SCHEDULE	1-D	2,000.00	0.00	0.00	2,000.00
EARL			CONSTRUCT	2-A	1,000.00	0.00	0.00	1,000.00
DONW			CONTROLS	2-B	2,000.00	0.00	0.00	2,000.00

Detailed Description | Control Accounts | Budget Details | Approvals | Documents | Events | Action Items | Time Phased Data Setup | Activities | Links | Revision History

Contruent = Faster to Deliver!

- 1 Optimize project spend and performance
- 2 Improve visibility to make informed decisions
- 3 Account for change and maximize efficiency
- 4 Manage contracts and contractor activity



Engage with Us!

Visit our website: [Contruent.com](https://www.contruent.com)

Request a demo: Info@Contruent.com

Email today's presenter: Kvantine@Contruent.com

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THANK YOU