

PROJECTCHAT 2024

# Successful business & project managers and planners take and manage risk

Andrew Ferguson

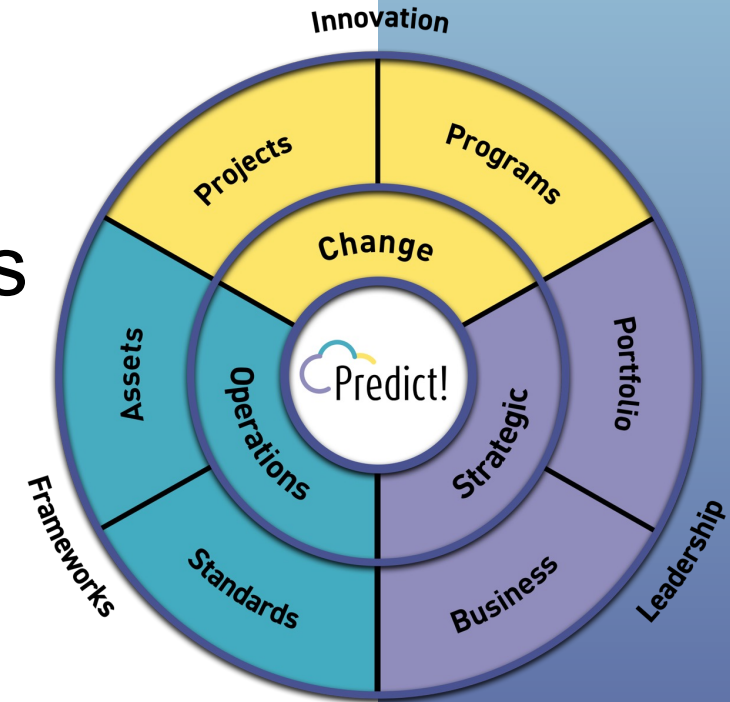
The Predict! Guy

20<sup>th</sup> Mar 2024



# Agenda

- Introduction
- Key Drivers for Risk Management
  - AND Improving Project Success
- Essential Risk Management Features
  - Some key features and tools available
    - Risk Detail, Overviews, Reporting
- Quantitative Risk Analysis
  - Schedule & Cost QRA
- Questions



# Global Defence & Aerospace Customers



**BAE SYSTEMS**



National  
Defence



# Project Challenges & Risk Drivers



- Major issues
  - Workforce planning
  - Cost escalation (materials / wages)
  - Cyber threats
- Global uncertainties
  - Supply chain (logistics, raw materials)
  - Geopolitical
- Productivity drive
  - Digitisation, AI
  - Innovation – new technologies / complexities
- Stakeholder Scrutiny
  - Australian National Audit Office
  - Boards and Shareholders
  - Community expectations – corporate and Govt

**Do the “right projects” right (...on-time, on-budget)**

# AIPM: Improving project success in 2023 Survey Report

## How Australia's project delivery performance is tracking?

The core purpose of the PM profession is to deliver successful projects, BUT:

### Key AIPM Projects Metrics Summary

- **36% projects delivered on Budget**
  - *(40% in 2020)*
- **32% projects delivered on Time**
  - *(42% in 2020)*
- **50% projects met Business Goals**
- **48 % projects Satisfied Stakeholders**

<https://aipm.com.au/blog/onwards-and-upwards-improving-project-success-in-2023/>

Extracted 13/3/2024

# ANAO Defence Major Projects Report(s)

MAJOR PROJECTS REPORT

AUDITOR-GENERAL REPORT NO.14 OF 2023-24

## 2022-23 Major Projects Report

PUBLISHED Friday 9 February 2024



### Common Findings of Ongoing Project Challenges

- Numerous scope changes / variations!
- Cost and budget changes ~many AUD \$Mn
- Schedule and delivery changes ~many Months/Years
- Strong need for sound and robust Risk Management
- Predict! gets a mention or two!
- ***Note that Defence & Industry share both the pain and gain on Defence Major Projects!***
  - ***As does the Australian community***

# Some Essentials of Modern Risk Management

- Agile risk approach required to deal with fast changing scenarios / environments
- EWRM – Strategic, business portfolio, programme, and project risks working together
- Structured preventative, detective and corrective controls / actions
- Notifications and alerts to support timely decision making / audit trail of changes record
- **Risk Details –List and Bowtie views** - descriptive and logical input and review
- **Graphical Overviews** of whole risk network, groupings, linkages,
- **Robust and flexible risk reporting** to enhance monitoring, control & communication
- **Cost & schedule risk analysis QRA** and scenario testing for timely risk based decisions making

# Predict! Risk Management and QRA

- Risk Detail - easy to enter and review
- Robust risk registers - easy to use, group and sort
- Effective reporting – critical stakeholder engagement,

AND

- Importantly, we need:
  - Easy to use Monte Carlo Quantitative Risk Analysis for:
    - Sound cost estimates,
    - Robust schedules,
    - Accurate EVM monitoring and reporting
    - Effective risk-based decision making



# Risk Detail View - conventional view

text details, causes, controls, consequences, impacts...

risk decisions
Folders ▾ Risk Lists ▾ Action Lists ▾ Control Lists ▾ Create ▾

Search...

🔄 ⚙️ ? ⭐ 🔔 👤

⚡
T-7: Technical demonstrator failure
⚠️
★

Follow
📄
✉️
🔗
🗣️

Retire
Link Control
Create Action
Save ▾
Cancel

➤ Status
✎

▼ Description
✎

**Risk reference** **Folder**

Air Proj A\_1T Project A

**Description**

A Planning Application has been lodged with the Local Authority and preliminary discussions have been held. However,

**Causes** New Cause

- Another Cause
✎
- New Demo cause
✎
- Significant opposition
✎
- third cause
✎

**Consequences** New Consequence

Threat and actions assessment

**Initial assessment** High (12)

**Controls** 14 ✎

Linked controls	Effectiveness
Preventive	
<span>➤ P-7: Preventative: Safety Equipment</span> <span>✎</span>	<div style="width: 10px; height: 10px; background-color: yellow; border-radius: 50%; margin-right: 5px;"></div> <span>Substantially Effective</span> <span style="float: right; display: flex; gap: 5px;"> <span>💡</span> <span>✎</span> </span>
<span>➤ P-8: Preventative: Supplier authorisation</span> <span>✎</span>	<div style="width: 10px; height: 10px; background-color: orange; border-radius: 50%; margin-right: 5px;"></div> <span>Partially Effective</span> <span style="float: right; display: flex; gap: 5px;"> <span>💡</span> <span>✎</span> </span>
<span>➤ P-9: Preventative: No smoking regulations</span> <span>✎</span>	<div style="width: 10px; height: 10px; background-color: orange; border-radius: 50%; margin-right: 5px;"></div> <span>Partially Effective</span> <span style="float: right; display: flex; gap: 5px;"> <span>💡</span> <span>✎</span> </span>
<span>➤ P-12: Preventative: Electrical PAT testing</span> <span>✎</span>	<div style="width: 10px; height: 10px; background-color: yellow; border-radius: 50%; margin-right: 5px;"></div> <span>Substantially Effective</span> <span style="float: right; display: flex; gap: 5px;"> <span>💡</span> <span>✎</span> </span>
<span>➤ P-13: Enviro: Dust control during earth movements</span> <span>✎</span>	<div style="width: 10px; height: 10px; background-color: white; border-radius: 50%; margin-right: 5px;"></div> <span>---</span> <span style="float: right; display: flex; gap: 5px;"> <span>💡</span> <span>✎</span> </span>
<span>➤ P-19: Enviro: Proactive maintenance</span> <span>✎</span>	<div style="width: 10px; height: 10px; background-color: green; border-radius: 50%; margin-right: 5px;"></div> <span>Totally Effective</span> <span style="float: right; display: flex; gap: 5px;"> <span>💡</span> <span>✎</span> </span>
<span>➤ P-33: 6.05 Responsibilities after termination or change of employment</span> <span>✎</span>	<div style="width: 10px; height: 10px; background-color: red; border-radius: 50%; margin-right: 5px;"></div> <span>Ineffective</span> <span style="float: right; display: flex; gap: 5px;"> <span>💡</span> <span>✎</span> </span>
<span>➤ P-35: 6.07 Remote working</span> <span>✎</span>	<div style="width: 10px; height: 10px; background-color: yellow; border-radius: 50%; margin-right: 5px;"></div> <span>Substantially Effective</span> <span style="float: right; display: flex; gap: 5px;"> <span>💡</span> <span>✎</span> </span>

# Risk Detail View 2– Interactive Risk Bowtie

**Bow Tie** T-7: Technical demonstrator failure

Add Cause

Add Consequence



Zoom to fit

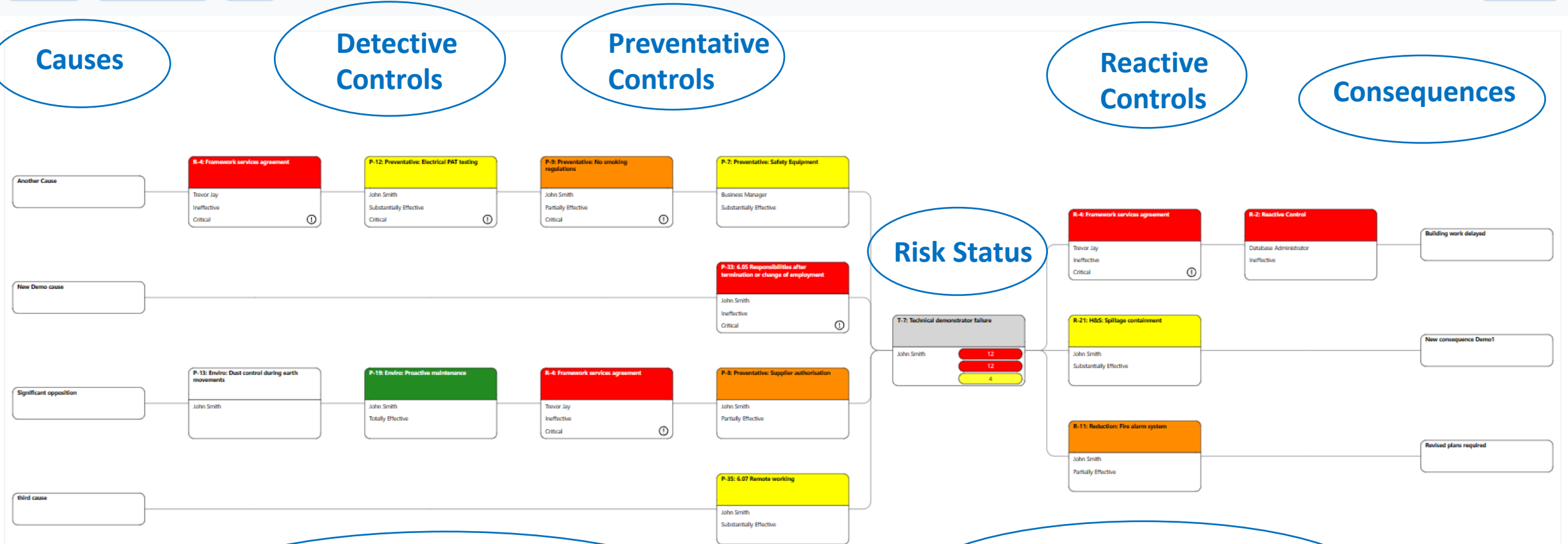
Causes

Detective Controls

Preventative Controls

Reactive Controls

Consequences



Risk Status

Controls showing effectiveness and criticality assessment

Common Controls linked to many risks as needed

# Risk Registers / Lists – Defence & Industry

### Risk folders

⚙️ 📄 ⭐

Show retired folders

Show Business Units only

- Enterprise
  - Strategy 1
  - Functions
  - Internal Controls 2
  - Business Units 1
    - Defence
    - Renewables
    - Utilities
  - Assets
- Risk Library
- New Business 7
- Upload folder 6
- Small Projects

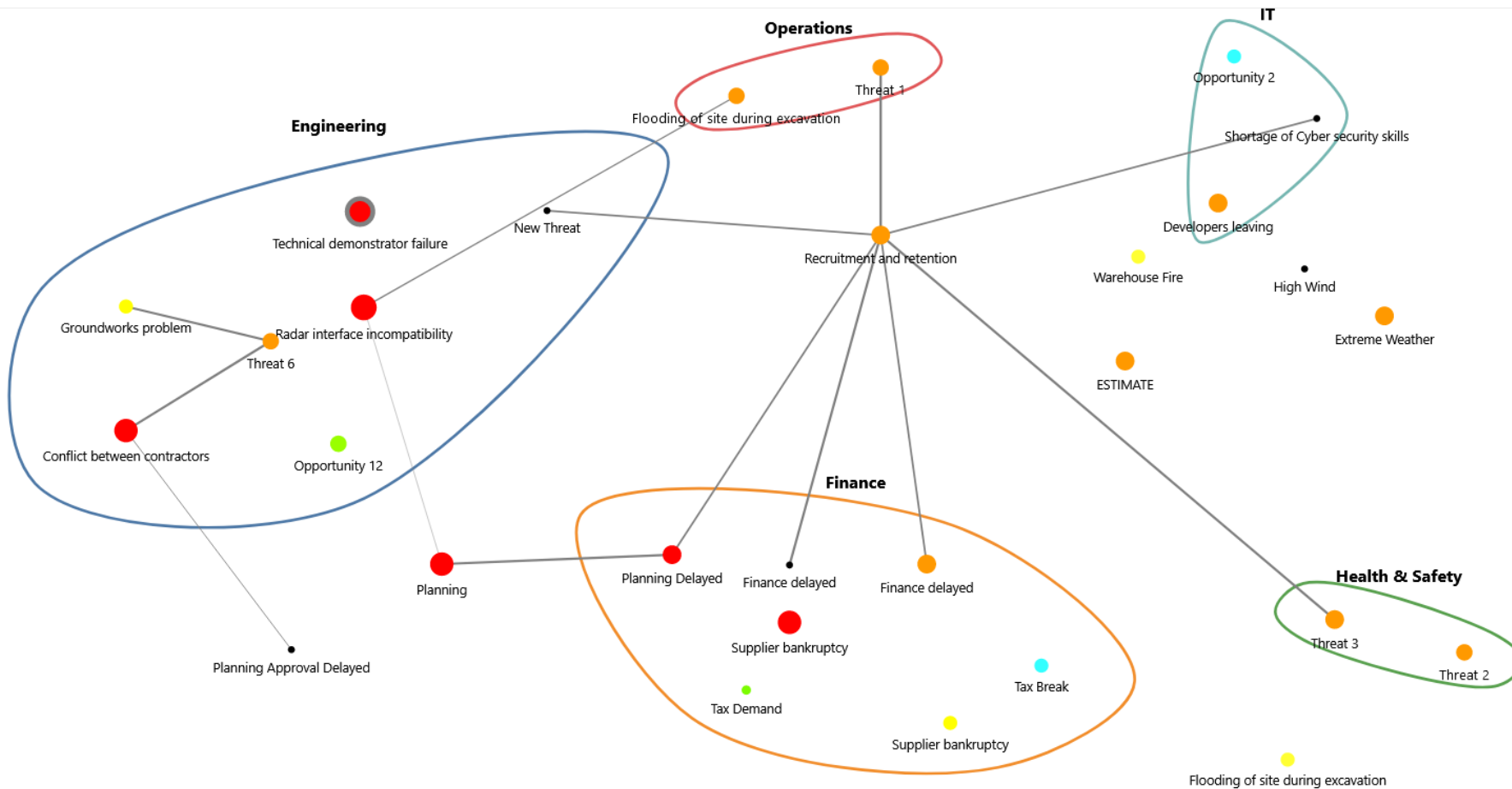
**Business Units:** 53 items visible

Flexible views / grouping of key data fields needed to manage and communicate risk information

		Risk ID	Risk name	Owner	Categories	Score - Current	Score - Target
<input type="checkbox"/>	⚡	T-18	Supplier bankruptcy	John Smith	Bridges, Finance, Fred's nuts & bolts, United Kingdom	High (11)	Low (4)
<input type="checkbox"/>	⚡	T-35	Planning	John Smith	USA	High (11)	
<input type="checkbox"/>	⚡	T-166	Conflict between contractors	John Smith	Culverts, Engineering, United Kingdom	High (11)	Low (4)
<input type="checkbox"/>	⚡	T-176	Delay of Government Furnished Material	John Smith	Do Anything Co, Operations, Runways	High (11)	Low (4)
<input type="checkbox"/>	⚡	T-179	Sub-Contractor bankruptcy	Trevor Jay	Bridges, Finance, Fred's nuts & bolts	High (11)	Low (4)
<input type="checkbox"/>	⚡	T-184	Conflict between contractors	John Smith	Culverts, Engineering	Medium (9)	Low (4)
<input type="checkbox"/>	⚡	T-10	Threat 3	Business Manager	Fred's nuts & bolts, Health & Safety, Secondary Roads, Germany	Medium (8)	Low (5)
<input type="checkbox"/>	⚡	T-77	Recruitment and retention	John Smith	Availability, Contractors, Do Anything Co, Human Resources, RD staff, USA	Medium (8)	Low (3)
<input type="checkbox"/>	⚡	T-82	Extreme Weather	Trevor Jay	United Kingdom	Medium (8)	
<input type="checkbox"/>	⚡	T-127	Developers leaving	John Smith	IT, Germany	Medium (8)	

# Visual Risk Register – A Different View!

**Predict! Risk Visualiser:** Risks from Multi role fighter Program, grouped by Functional Area category



Graphical view showing:

Risk Groupings/categories

Level of impact

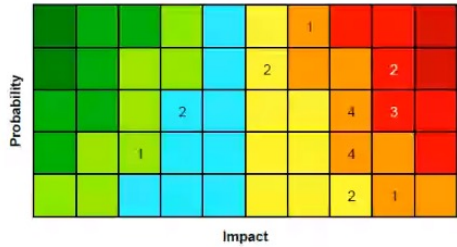
Linkages to other risks

Speed of effect on business outcome (velocity)

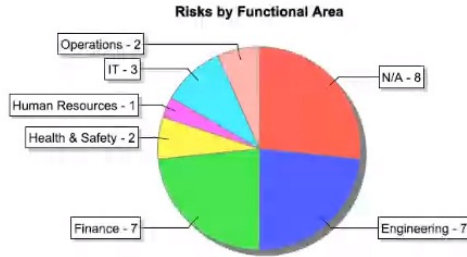
# Predict! Reports – standard & client specified...

## Risk Dashboard

Risks within Folder: Multi role, higher, Program



Secret



### Top 5 risks based on current score

Risk ID	Name	Description	Functional Area	Owner	Review	Current Score	Target Score
T-3	Radar interface incompatibility	There is a risk that foundation work will uncover existing services	Engineering	Smith, John	Oct 31, 2023	High (12)	Low (5)
T-7	Technical demonstrator failure	A Planning Application has been lodged with the Local Authority and preliminary discussions have been held. However,	Engineering	Smith, John	Jan 31, 2024	High (12)	Low (4)
T-18	Supplier bankruptcy	There is a risk that the chosen (cheapest) supplier has financial problems extr	Finance	Smith, John	Aug 31, 2022	High (11)	Low (4)
T-106	Conflict between contractors	Example risk to show waterfall	Engineering	Smith, John	Jan 1, 2024	High (11)	Low (4)
T-35	Planning	—	N/A	Smith, John	Feb 28, 2022	High (11)	Not assessed

Prepared by: John Smith on 14 Mar 2024



Page 1 of 1

Customer Logo

Secret

## Risk Register view on page

### T-8: Contamination of site during excavation

Brown, David

#### Description:

There is a risk of adverse weather conditions during the foundation stage.this is a test

#### Cause:

Foundations are planned late in the summer, when severe thunderstorms may be experienced.

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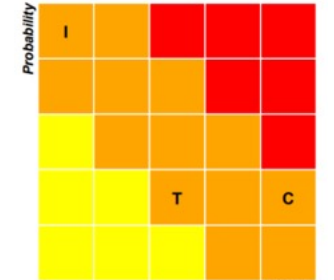
w

Insert detailed information about the root cause of the risk event here

#### Effect:

Delay to subsequent stages and increased expense of waterproofing

#### Status:



I = Initial, C = Current, T = Target

Current Assessment	Exposure Period: Sep 17 - Jul 19	Target Assessment												
<p><b>Major (19)</b></p> <p>Probability: 99.0%</p> <table border="1"> <tr> <th>Min</th> <th>MI</th> <th>Max</th> </tr> <tr> <td>Severe</td> <td></td> <td></td> </tr> </table> <p>Cost: 5 Days 10 Days 40 Days</p> <p>Performance: Negligible</p> <p>Environmental: N/A</p>	Min	MI	Max	Severe			<p>Rationale: null</p>	<p><b>Significant (9)</b></p> <p>Probability: 12.5%</p> <table border="1"> <tr> <th>Min</th> <th>MI</th> <th>Max</th> </tr> <tr> <td>£40K</td> <td>£300K</td> <td>£650K</td> </tr> </table> <p>Cost: 3 Days 7 Days 11 Days</p> <p>Performance: Negligible</p> <p>Environmental: N/A</p>	Min	MI	Max	£40K	£300K	£650K
Min	MI	Max												
Severe														
Min	MI	Max												
£40K	£300K	£650K												
<p><b>Action</b></p> <p>Investigate feasibility of reworking project plan</p> <p>Increase resource on 'Detailed Design' task to bring it forward</p> <p>Reduce lag leading up to 'Building Regulations'</p>	<p><b>Owner</b></p> <p>ProjectManager, Paddy Porter</p> <p>Architect, Archie Anderson</p> <p>ProjectManager, Paddy Porter</p>	<p><b>Status</b></p> <p>---</p> <p>Not started</p> <p>---</p>												
	<p><b>Due</b></p> <p>Feb 18</p> <p>-</p> <p>-</p>	<p><b>Cost</b></p> <p>£30.0k</p> <p>£100.0k</p> <p>£20.0k</p>												

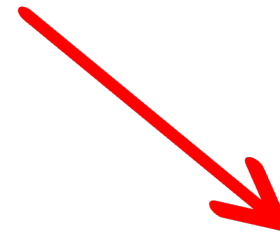
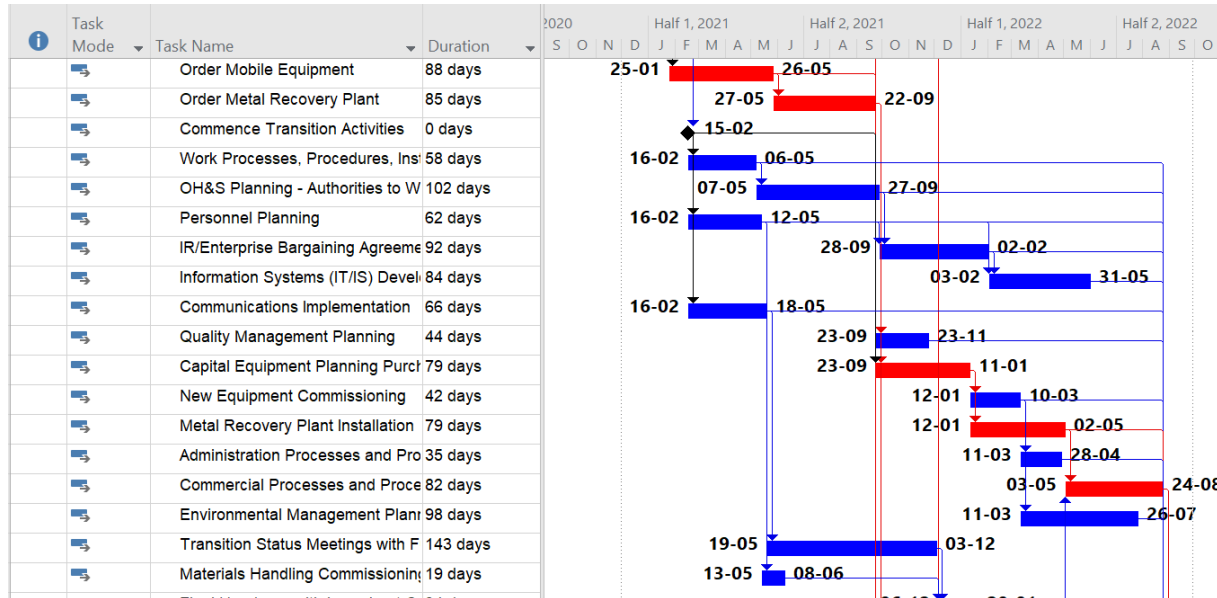
## Single Risk on a Page View

NB. Many other standard and custom reporting possibilities

# Quantitative Cost, Schedule & Risk Analysis

- Robust risk registers must be easy to use
- Robust and effective reporting,
- **AND Importantly:**
- **Sound Quantitative Risk Analysis** of both Cost and Schedule data for
  - Sound cost estimates,
  - Robust schedules,
  - Accurate EVM monitoring and reporting
  - Effective & objective risk-based decision making!

# Simple Schedule import process



## Project Location **Predict! Import Menu example**

<1. Enterprise > <69. Predict Sample Project >

Schedule Report

Options

Use percent complete

Options

## Uncertainty Options

None  From Risk Controller

Durations: Optimistic:  Likely:  Pessimistic:

Costs:

## Risk Options

Include Risks

Assessments:

Impacts:



- **OPP, MSP, Primavera**
- **Initial or as “progressed”**
- **Logic and Milestone data**
- **Cost and Duration data**
- **Risks are linked to activities**

# Source Data – OPP Schedule Risk Register View

Tasks for: Predict Sample Project

Design - Subsystem A: 1 items visible

	Risk ID	Name	Risk Owner	Score - Current	Score - Target
<input type="checkbox"/>	T-190	Ship 2D Extraction Error Risk	John Smith	Low (3)	Low (1)

Design - Subsystem A

- Design - Subsystem A (1)
- Design - Subsystem B (1)
- Design - Subsystem C (1)
- Design Review (1)
- Design Review Completed

- Build
- Build - Subsystem A
- Build - Subsystem B (1)
- Build - Subsystem C

- Risks are attached to relevant schedule activities
- Can import regular “updated” & “stated” schedules
- Risks stay linked to activities (but can be moved)
- Can manage, analyse review & report as a normal risk register, AND
- Conduct Quantitative Cost and Schedule Analysis



# Predict! QRA – Schedule & Risk data

Cost and schedule data from normal risk register OR as attached to a Project Schedule

### My folders

⚙️ 📁 ☆

Show retired folders

Show Predict Sample Project only

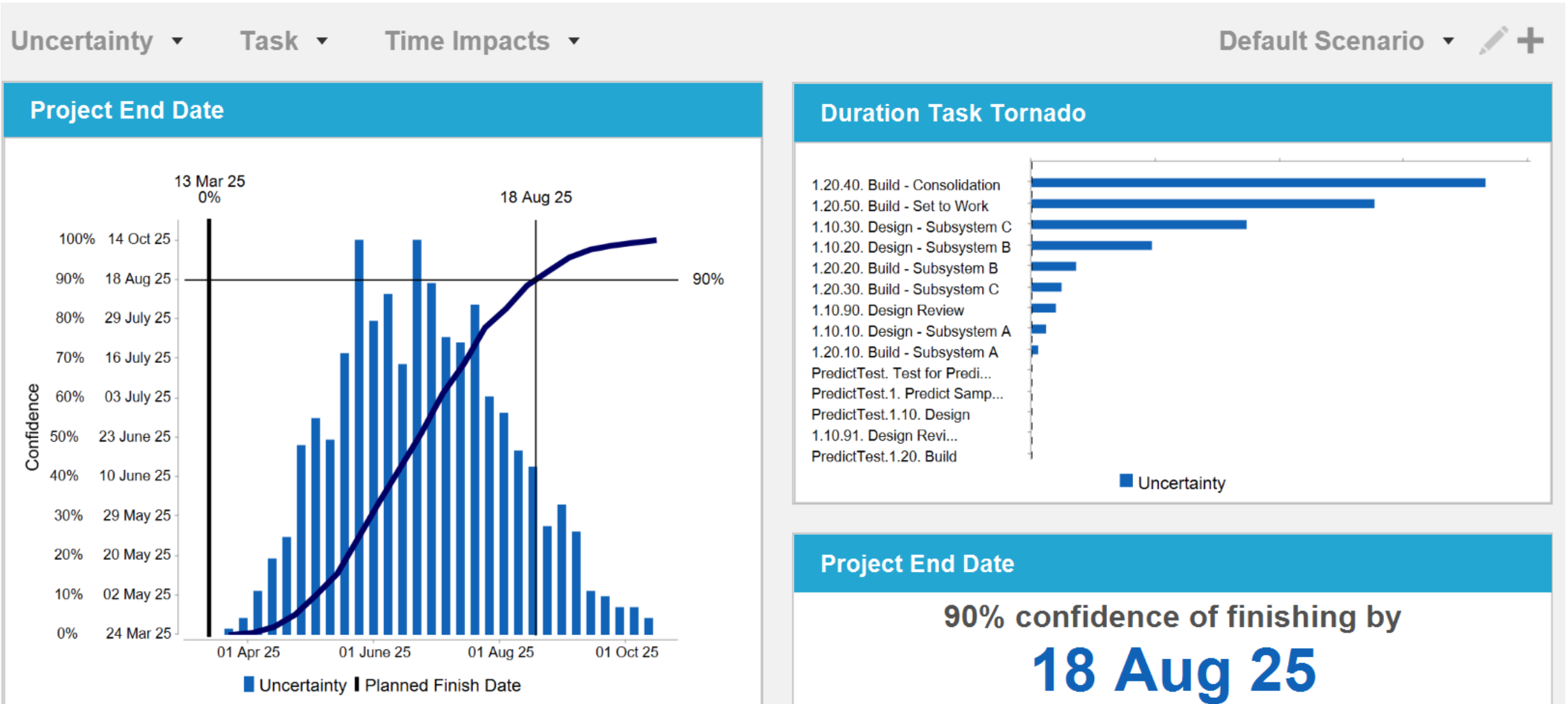
- Enterprise
  - Corporate 1
  - Functions
  - Business Units 1
  - Assets 10
  - Ship 5
  - Predict Sample Project 5**
- Risk Library 1
- New Business 7

### Predict Sample Project: 5 items visible

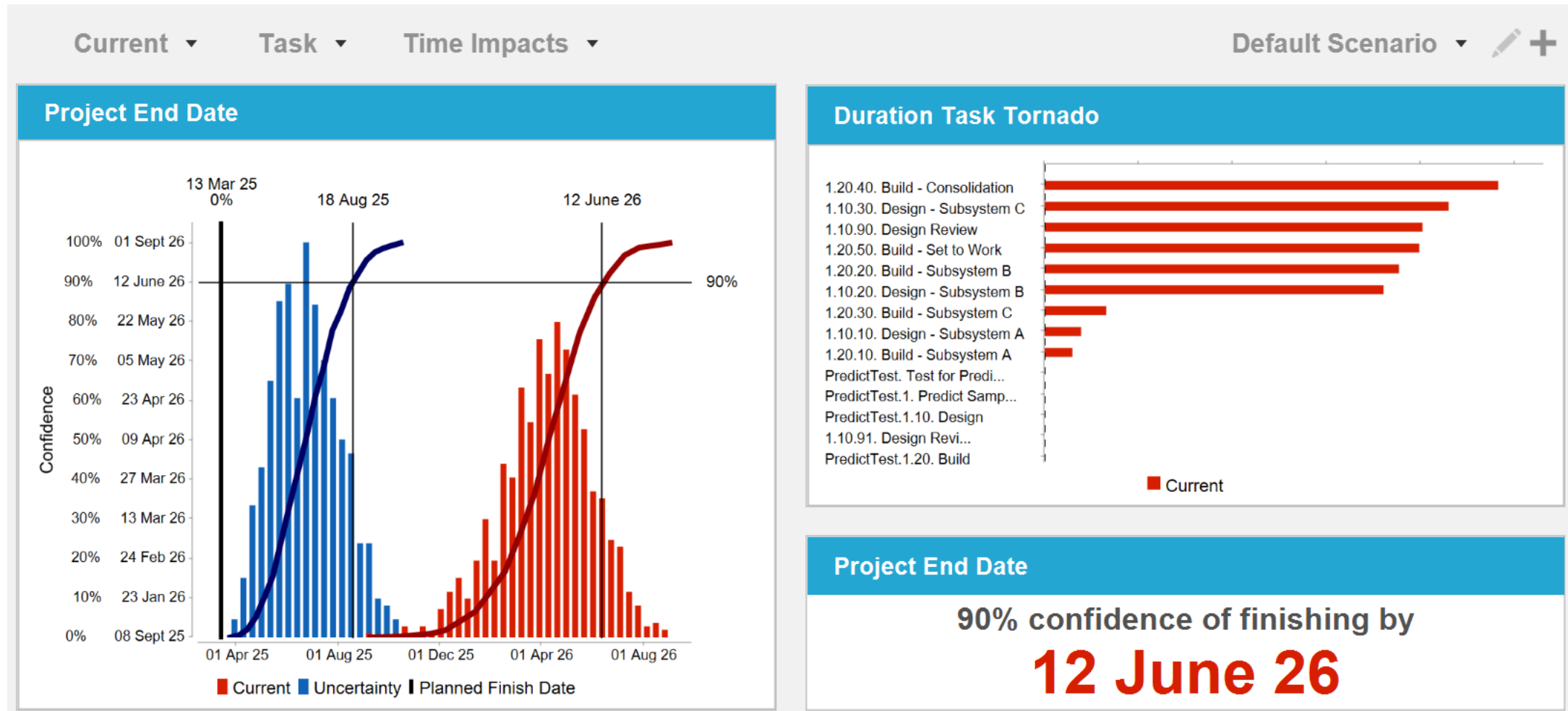
⊕ 📄 **Analyse** 🌐 📄 📄

<input type="checkbox"/>	🔍	Risk ID ^	Name	Score - Current v	Score - Target	Probability v
<input type="checkbox"/>	⚡	T-190	Ship 2D Extraction Error Risk	Low (3)	Low (1)	95
<input type="checkbox"/>	⚡	T-191	Ship Steel Assembly Error Risk	Low (3)	Low (1)	95
<input type="checkbox"/>	⚡	T-192	Ship Pipe Fabrication Error Risk	Low (3)	Low (1)	95
<input type="checkbox"/>	⚡	T-193	Hull systems Risk demo	Low (3)	Low (1)	95
<input type="checkbox"/>	⚡	T-194	Ship 3D Modelling Error Risk	Low (3)	Low (1)	95

# QRA – Schedule Uncertainty data only

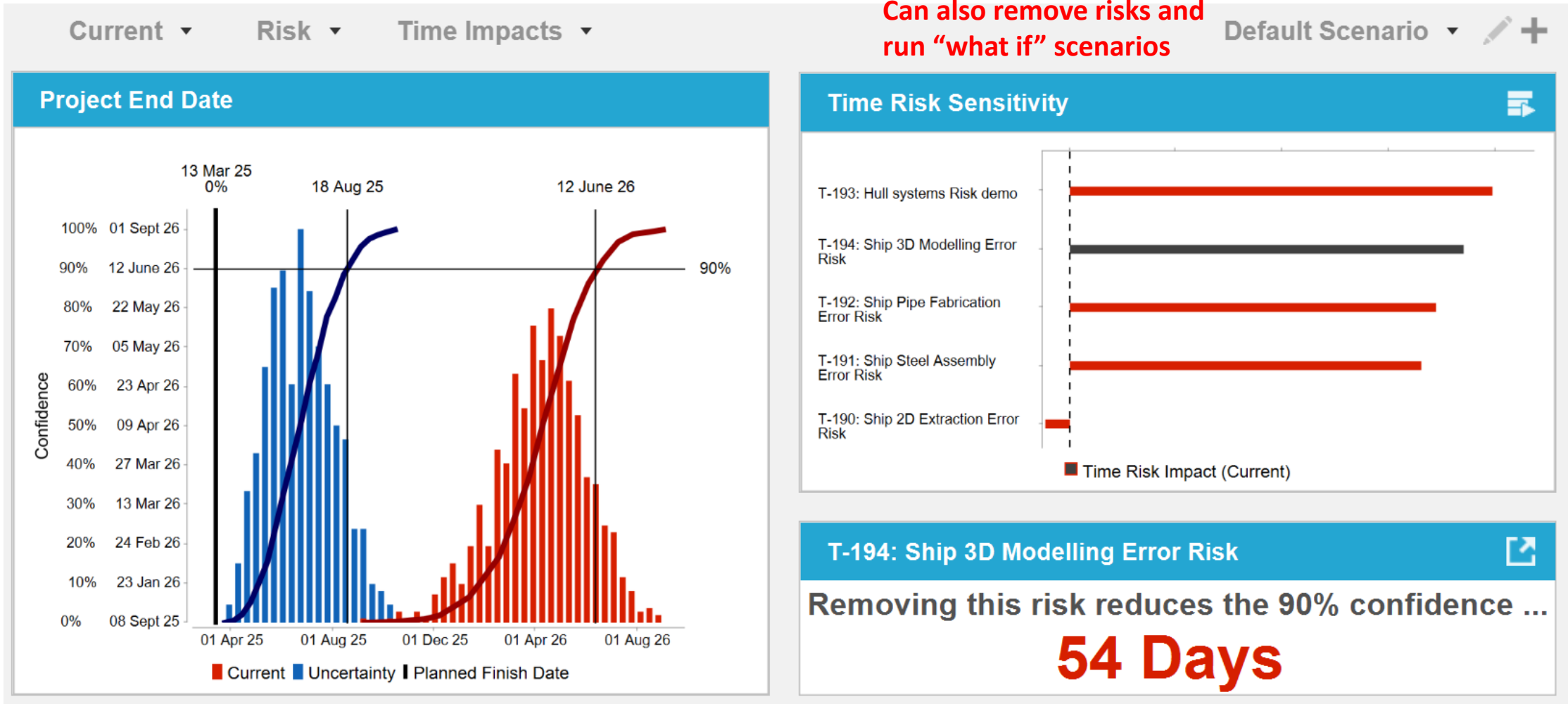


# QRA – Uncertainty & Risk schedule analysis



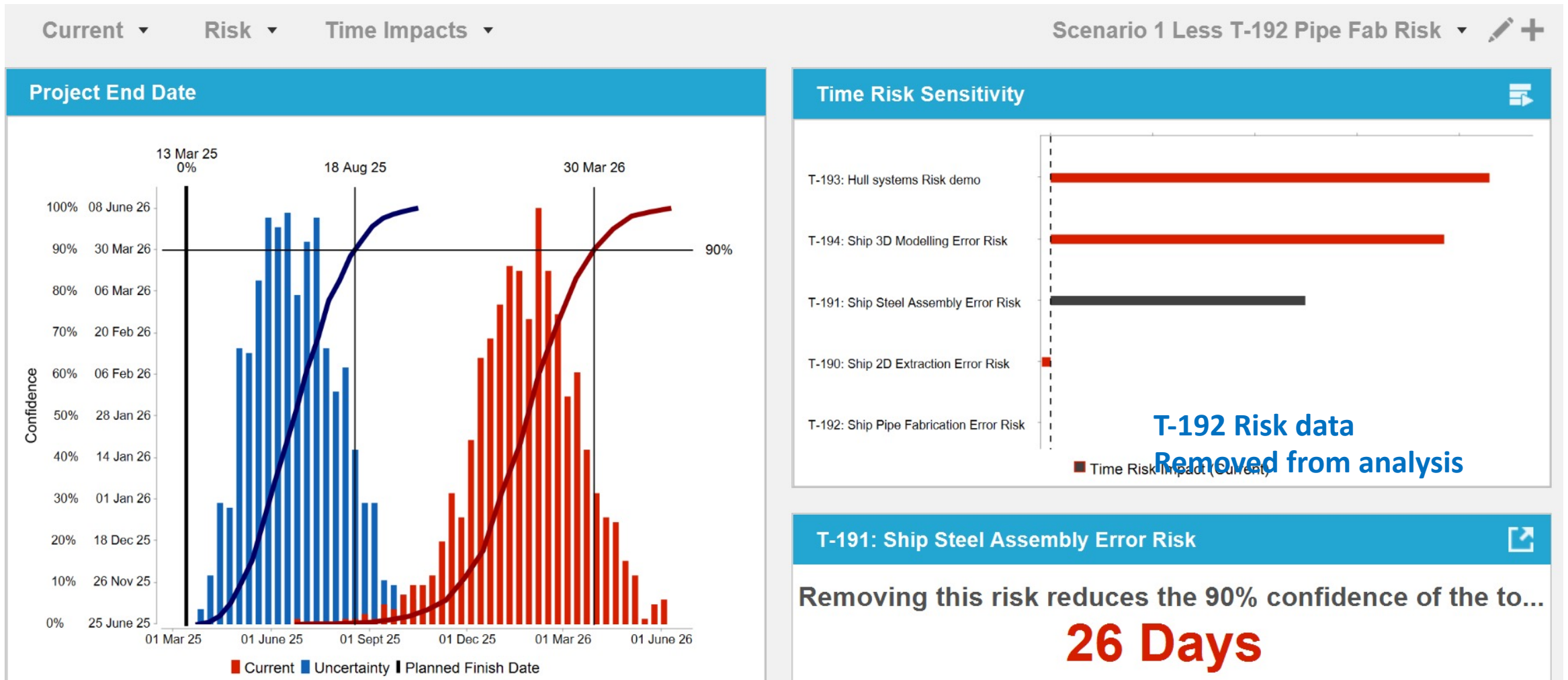
# QRA – schedule risk sensitivity tornado

## Uncertainty and Current Risk view



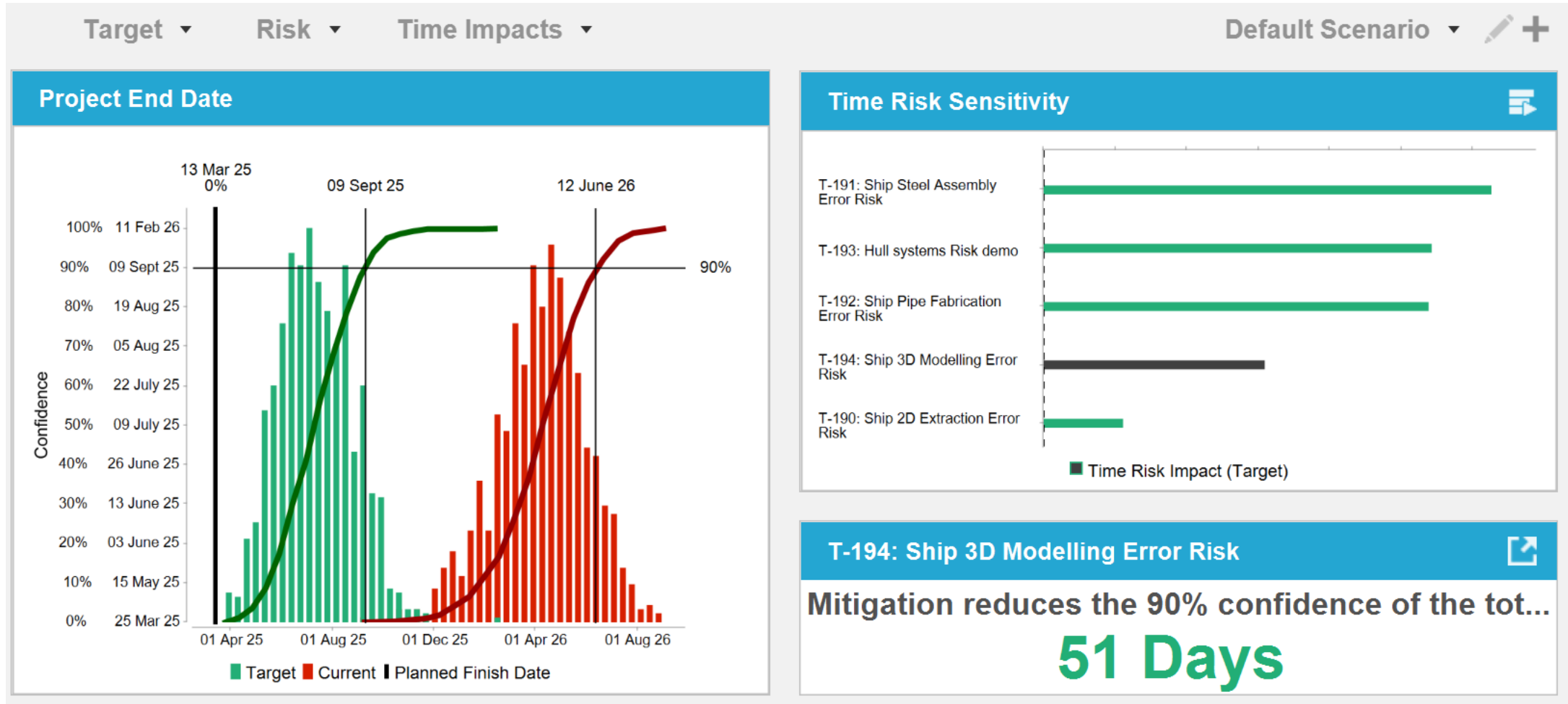
# Alternative QRA Scenario – key risk mitigated

P90 End date now 30 March vice 26 Jun 26



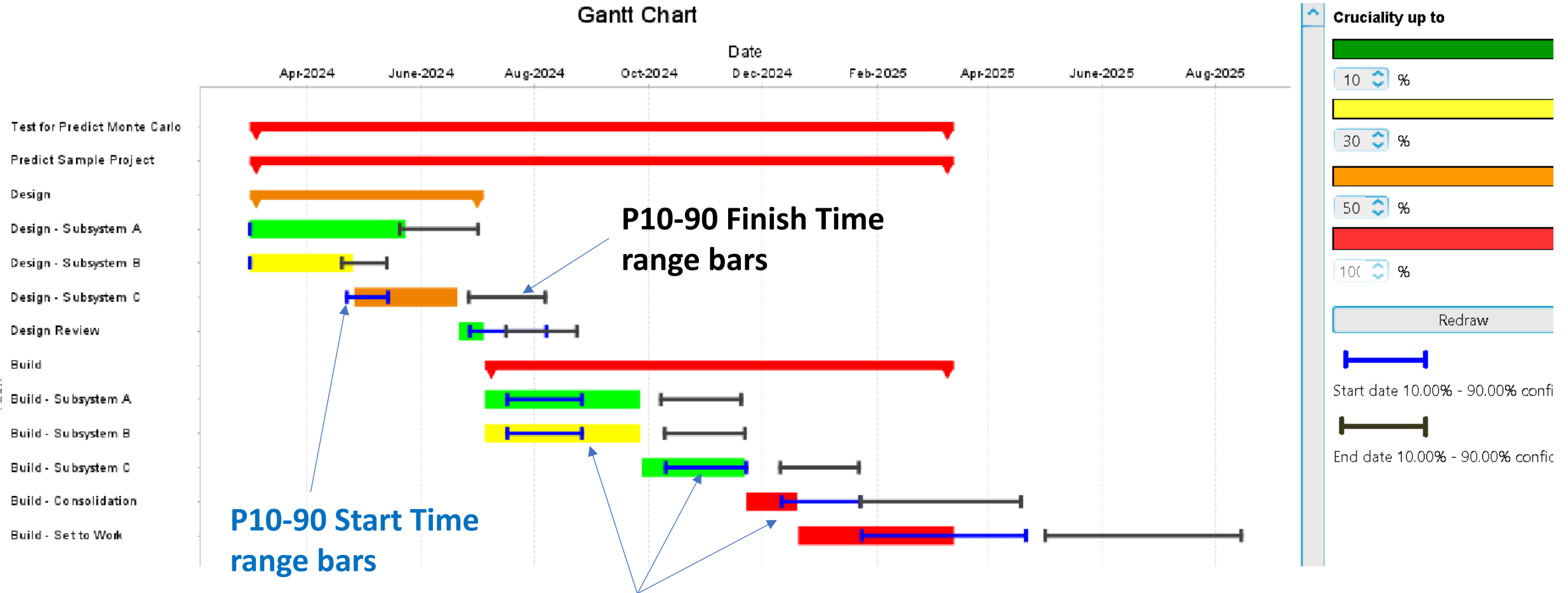
# QRA – schedule risk sensitivity chart

## Current & Target Risk view



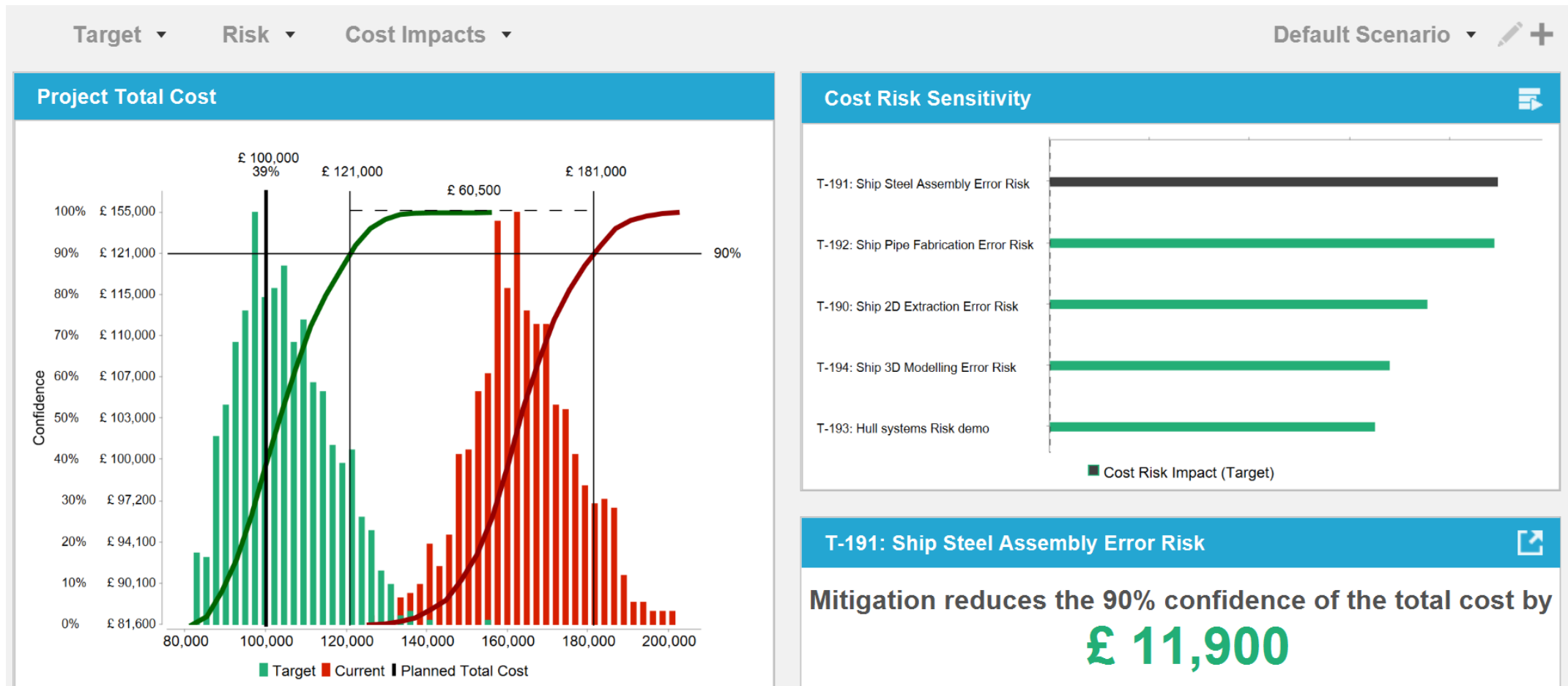
# Schedule Gantt Chart

## Start / Finish time variations



Colour of activity bars shows likelihood of activity on critical path (e.g Red bar >50%)

# Predict! Cost QRA: Target vs Current Risk Cost QRA



**Cost QRA outputs are similar to  
Schedule QRA and scenario modelling**

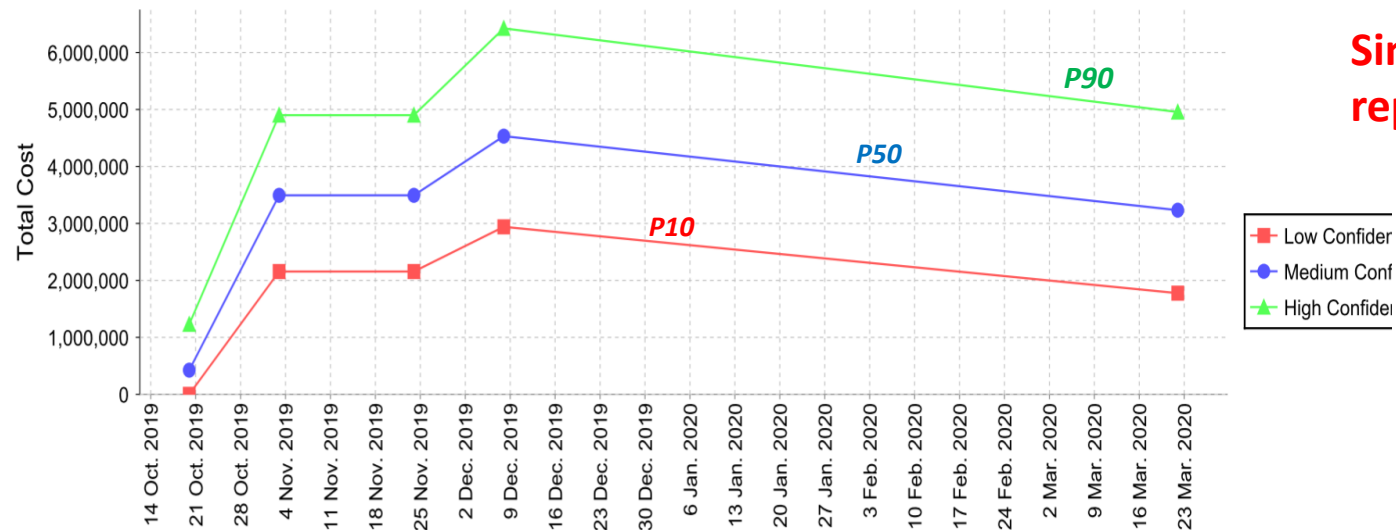


# Cost Analysis Trend Report: Risk Register (Folder) View

RECENT TREND COST QRA: **P10** – **P50** – **P90**

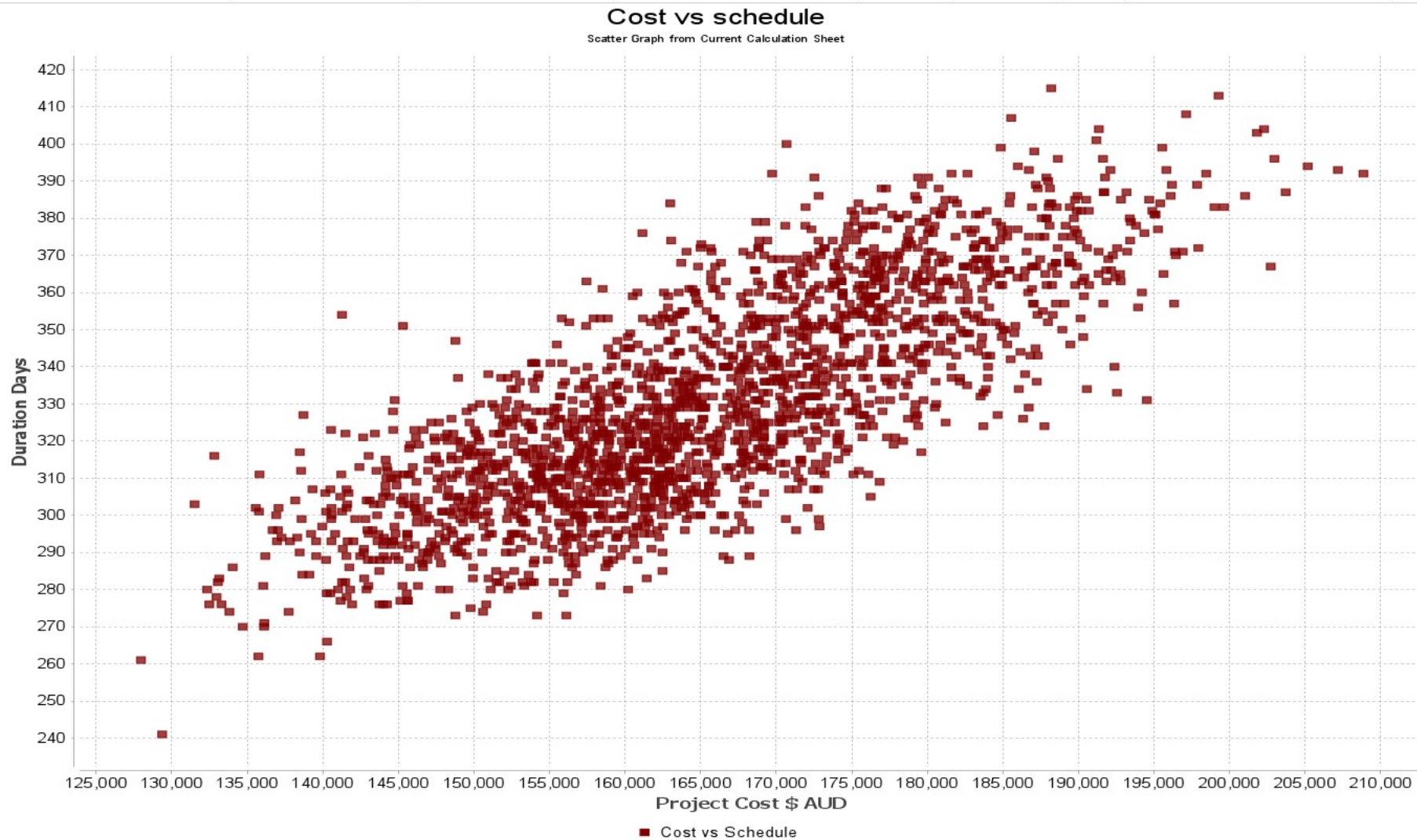
## Analysis Trend Folder: Demo Project

Reference	Review	Owner	Leader	Scope	Targets
HF	30/11/19, 12:00 am	Manager, Project	Director, Program	HF Subsystem	Provide a low risk



Similar Schedule QRA trend report also available

# Correlation Cost & Schedule – scatter plot



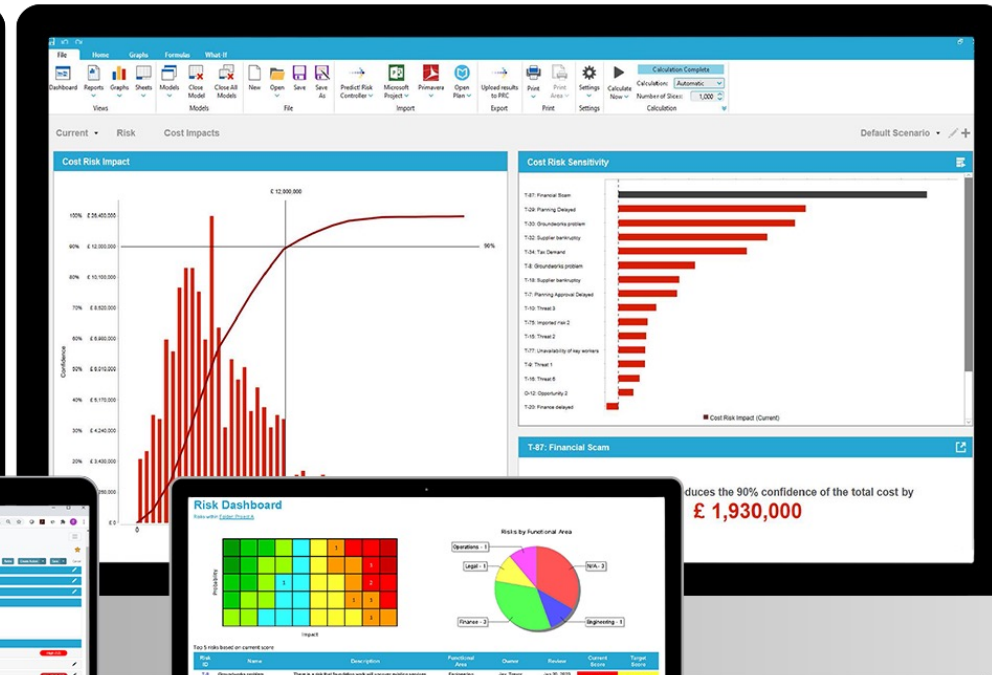
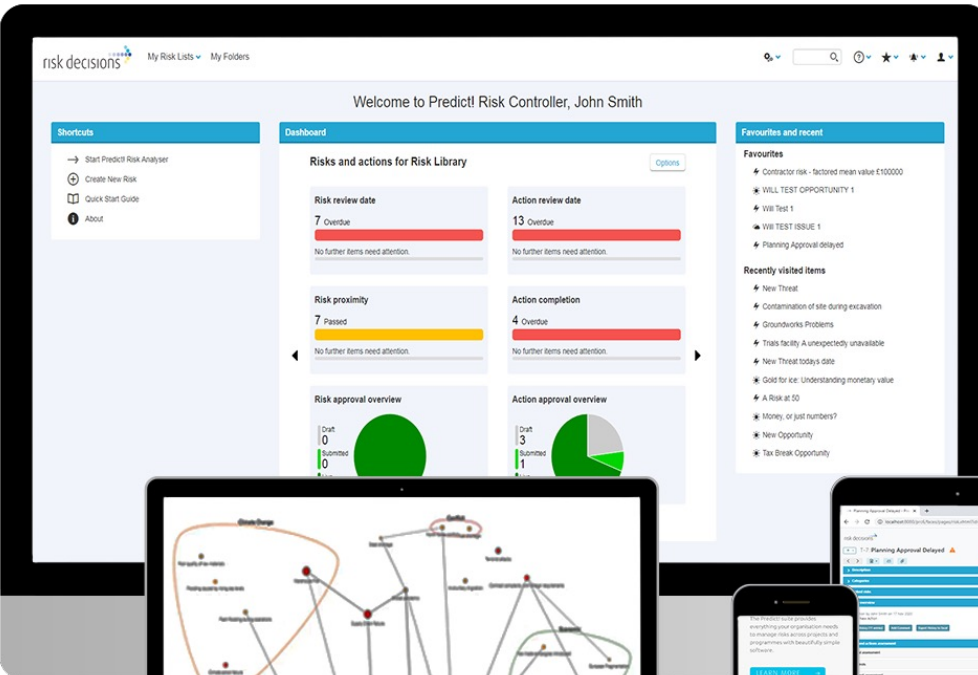
# Predict! Risk Management System



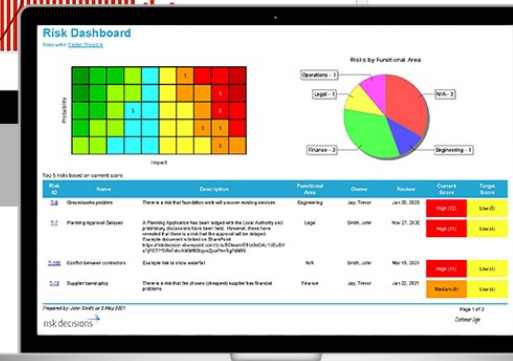
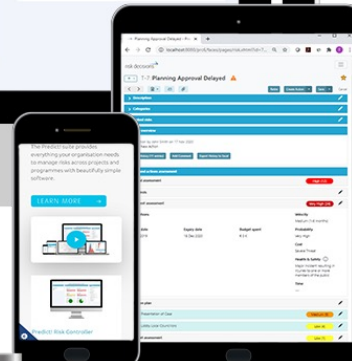
Predict!  
Cloud

Predict!  
Risk Controller

Predict!  
Risk Analyser



2-way  
Rest API



ISO31000  
ISO27001

Predict!  
Risk Visualiser

Predict!  
Risk Reporter

# Conclusion – Projects are challenging

Successful project managers and business owners **identify, take, analyse and manage risks (and opportunities) successfully**

You provide the process, the data and the sweat and tears

 **Predict!** can provide the necessary tools to assist

*Projects are still HARD to deliver  
(but we try to make it fun)*



# Questions (and answers!)

[www.riskdecisions.com](http://www.riskdecisions.com)

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**Stronger  
Together**



**Adventurous**



**Considerate**



**Trusted**