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The Start of the PMO Journey in Project Data Analytics

David Belshaw – Head of Project Management, Rolls-Royce

Craig Bennett – Project Controls Specialist, Rolls-Royce

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Talk Objectives

1. Learn how a PMO has implemented project data analytics and get practical tips and advice on how to apply project data analytics in your own PMO.

2. Explore how digital forms and workflows can replace paper-based processes and can save costs and time.

3. Discover the potential of project data analytics for the future and how it could affect the role of PMO.

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Introductions

David Belshaw

- Leads a PM function of 450 people
- Passionate about PM, PMO and building PM capability.
- Chair of Project Data Analytics Coalition

Craig Bennett

- Project Controls Specialist leading a number of digital PM improvements.
- Passionate about process efficiency, new technology and challenging the status quo.

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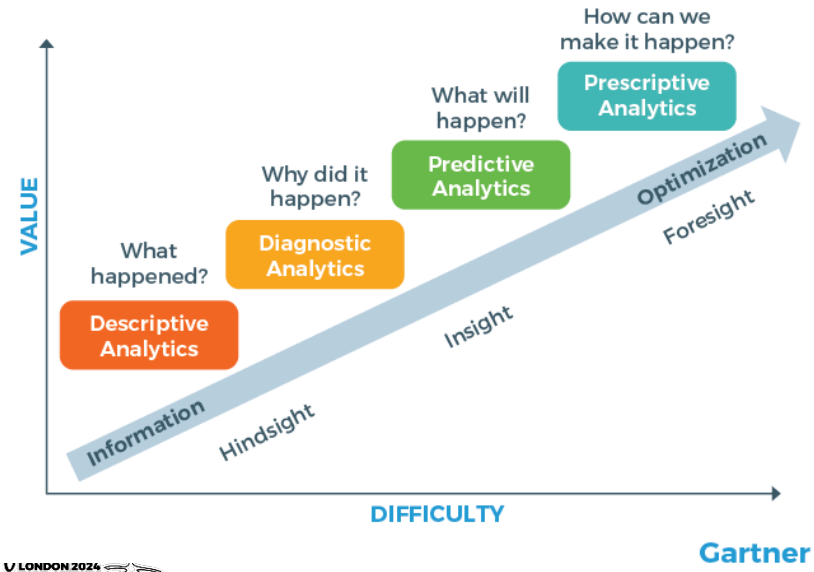
What is Project Data Analytics?

- Project data analytics is the use of past and current project data to enable effective decisions on project delivery.
- It involves applying different types of analytics to various aspects of project management, such as resource allocation, budgeting, scheduling, risk management, quality control, etc.
- Project data analytics can help project managers and stakeholders improve project performance, efficiency, and outcomes by using data-driven insights and recommendations.



Why should RR pursue project data analytics?

- We need to do more for the same.
- We spend too much time reporting/feeding the beast.
- We are seeing increasing demand for specialist PM skills.
- New technology is available and if we don't use them we will fall behind.
- The potential benefits are immense.

How can Project Data Analytics help us?

Predictive Analytics for Delivery Performance:

- Identify factors that contribute to delays or issues in project delivery.

Resource Optimisation:

- Use data analytics to identify resource allocation inefficiencies.

Data Integration

- Integrate data from various sources, such as project management software, timesheets, HR systems, and more.

Productivity Improvements:

- Implement AI-driven tools or systems to automate repetitive tasks and streamline workflows.

AI-Powered Resource Allocation:

- Utilise AI algorithms to allocate resources dynamically based on project needs and team availability.

Real-time Monitoring:

- Implement real-time monitoring and reporting dashboards to track resource utilisation, delivery performance, and productivity.

The Rise of Low-code

Low-code platforms enable users to build applications by using graphical user interfaces, drag-and-drop components, pre-built templates, and other features that simplify the development process

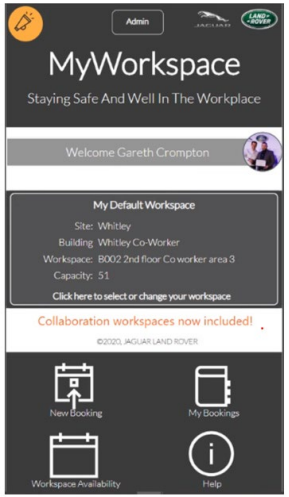
- Reduce reliance on IT or software engineers
- More flexibility and speed
- Fosters innovation and is enabled by a host of other technologies

AI tools existing that can create high quality code:

- From natural language
- Convert different programme languages
- Review code for bugs
- Identify improvements
- Add commentary

Open source technology and code:

- 1000s of AI tools
- Open Source LLMs
- Code repositories



Digital Forms and Workflows

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The Problem

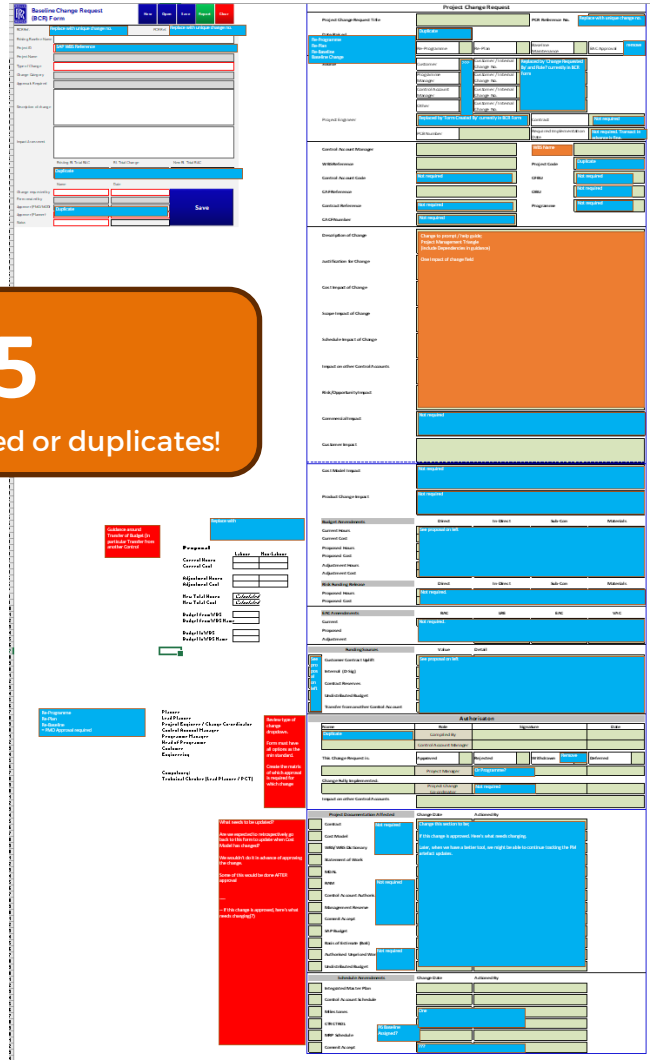
7

Standard Change Request forms

AX3131	Project Change Request	2	May-19	S Morris	PP 5	Projects and programmes
TX1517	Change Request	6		P Britton		Engineer products
TX3014	Change Request	2		Dave Bradish		Engineer products
TX3125	Change Request - CCA Spares	1				Supply products
TX3218	CPC Administrative Baseline Change Request Form	1		A Scott		
TX3219	CPC Standard Baseline Change Request Form	4	May-15	A Scott		
TX3315	Change Request Form	1	Feb-20	A Heath		

75

Fields not required or duplicates!



Status of Project Change Request is unknown

Project Change Requests completed without Baseline Change Requests

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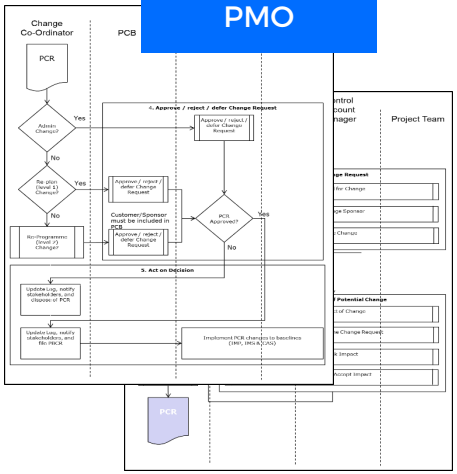
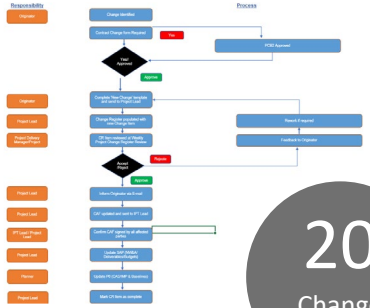
How we managed Project Change

PMO

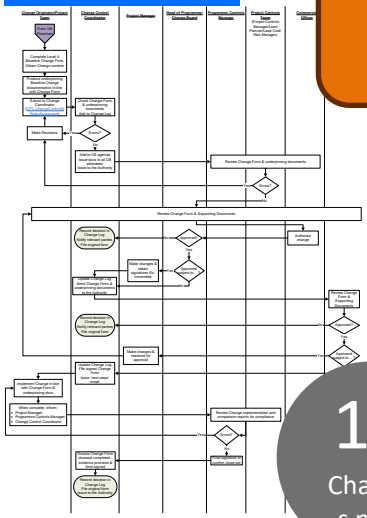


Project A



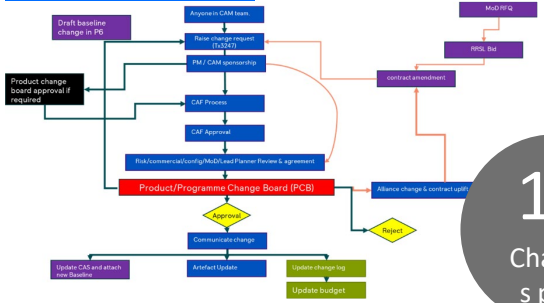
20 Change s p/m

Project B



16 Change s p/m

Project C

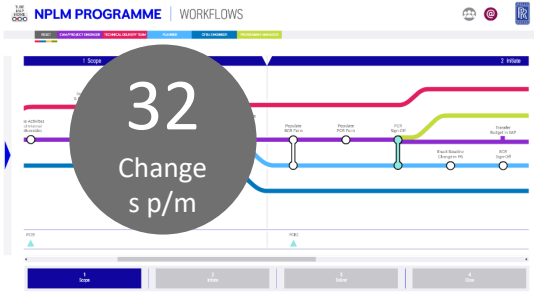


12 Change s p/m

Project D

2 Change s p/m

Project E



32 Change s p/m

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Process First

- Reviewed many standards, this just shows how simple it could be.
- We are closely aligned to APM.

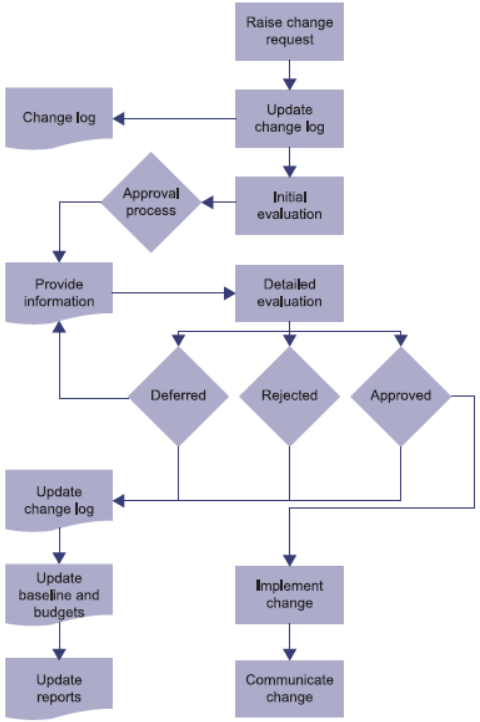
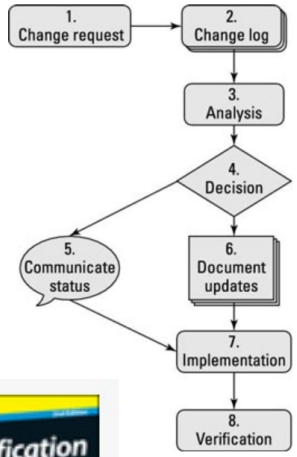
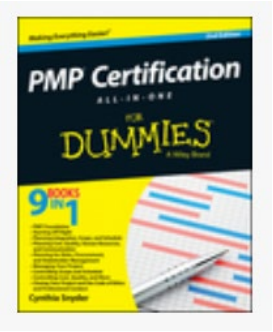


Figure 4.3.6 **A change control process**

Source: Planning, Scheduling, Monitoring and Control (2015)





Key Requirements

1

No duplication of data between BCR and PCR. Baseline changes and project changes are both done through one form and one process.

2

Clear visibility of status.

3

P6 Baseline aligned to SAP Budget. Project change process simplified and standardised.

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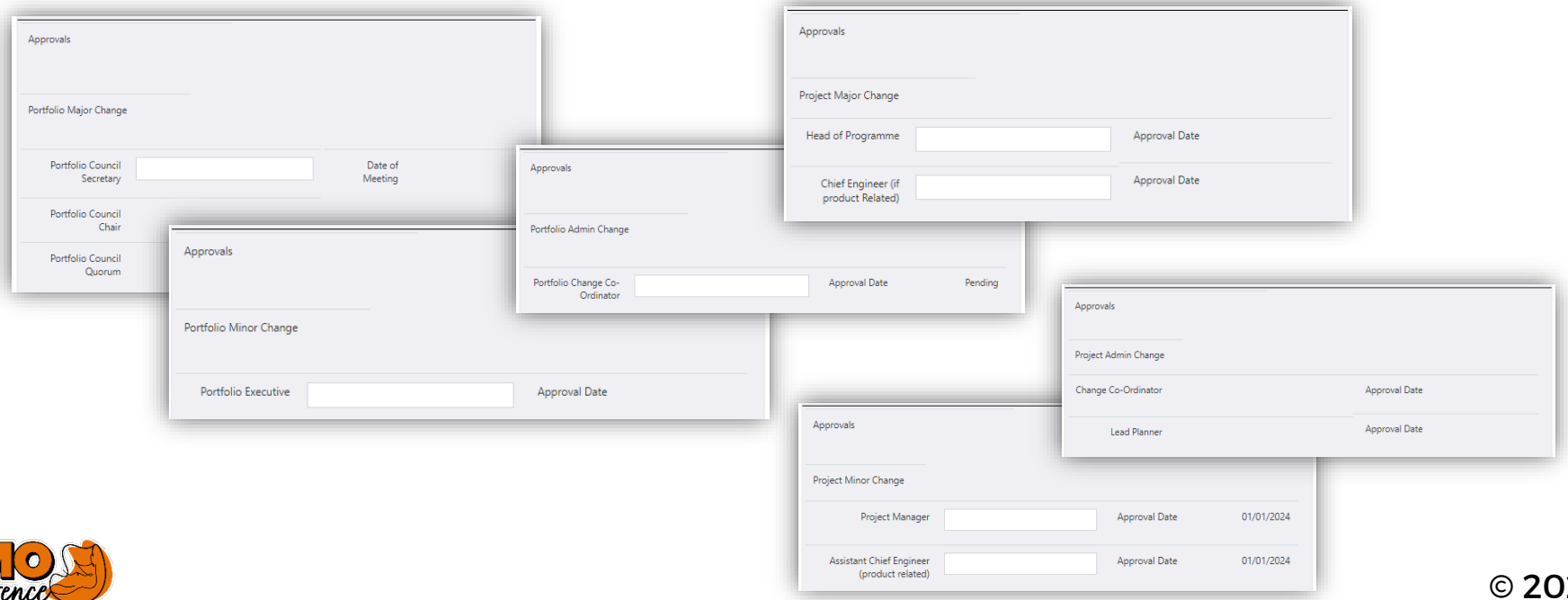
Digital Forms

Why?

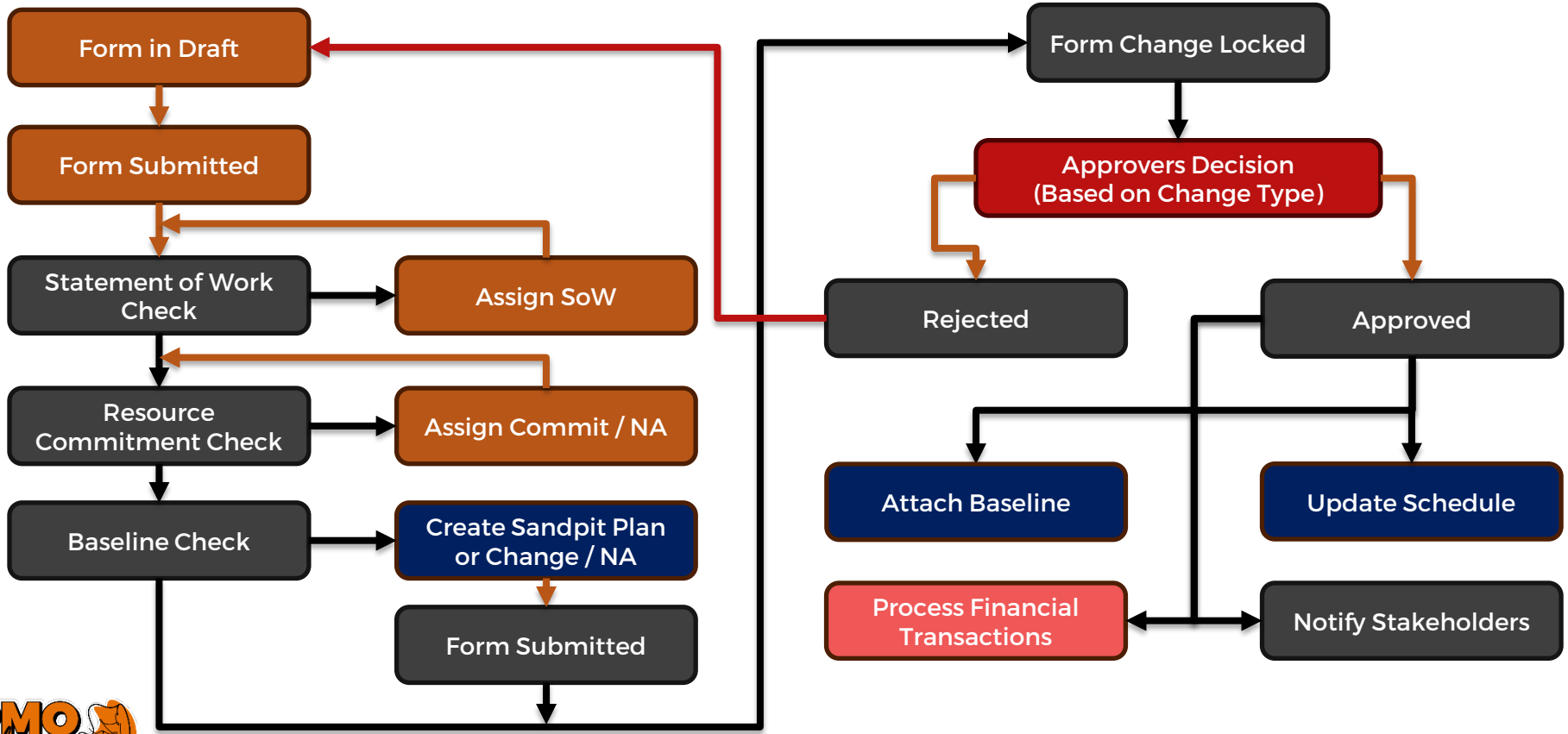
- Improves data quality (validation on inputs)
- Allows data to be used and accessed
- Allows for automated assurance
- Data integration with other systems
- Better, improved reporting
- Live status
- Digital Andon (where is flow stopped)

Dynamic Forms

- Required Approvers will change dependant on the level and type of change being enacted.
- The form will automatically adjust the Approvers section to inform the user of the required roles or equivalent for approval.

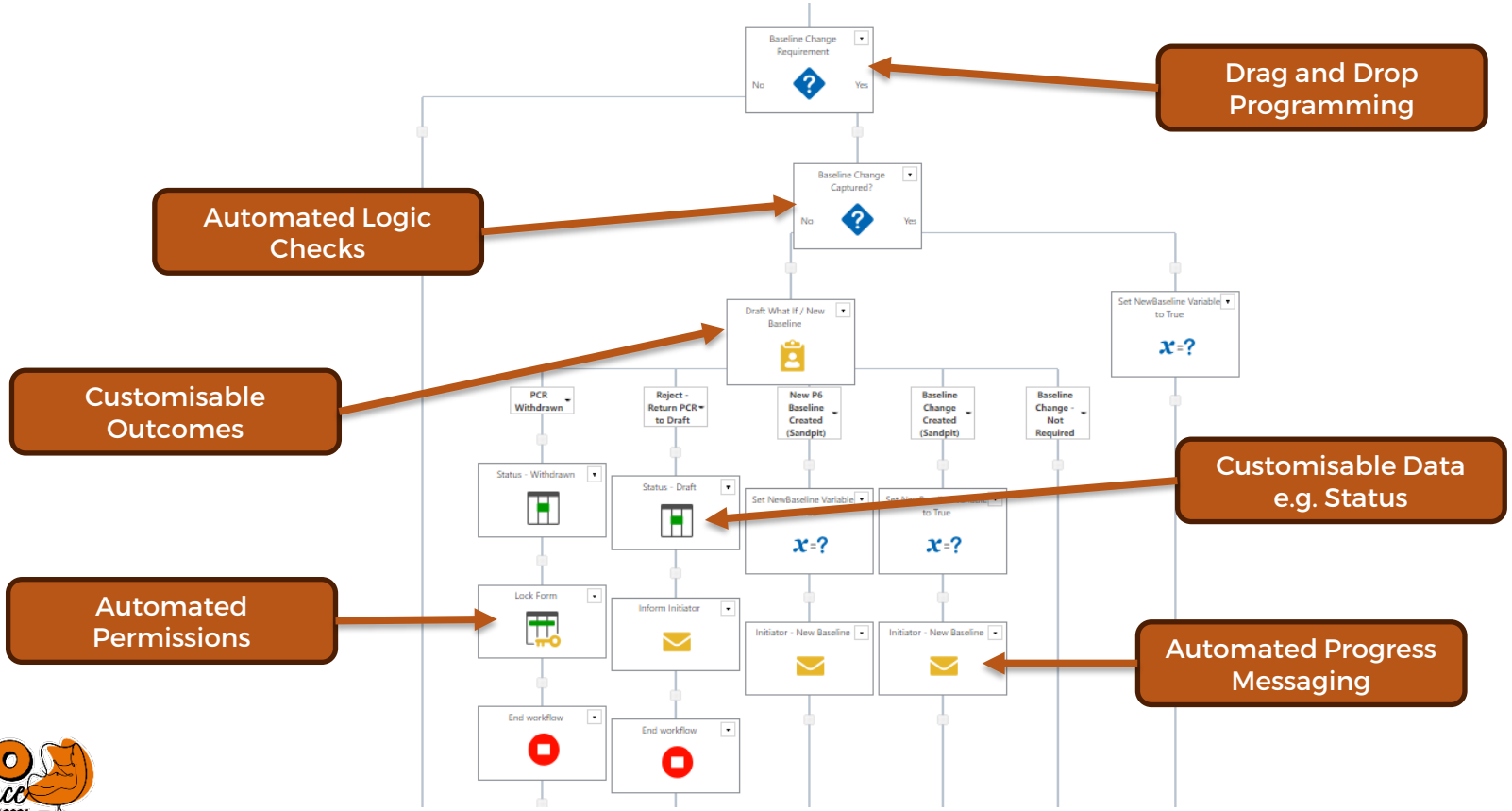


Understanding the Workflow



Automated Workflow

Low Code Solution



Drag and Drop Programming

Automated Logic Checks

Customisable Outcomes

Customisable Data e.g. Status

Automated Permissions

Automated Progress Messaging

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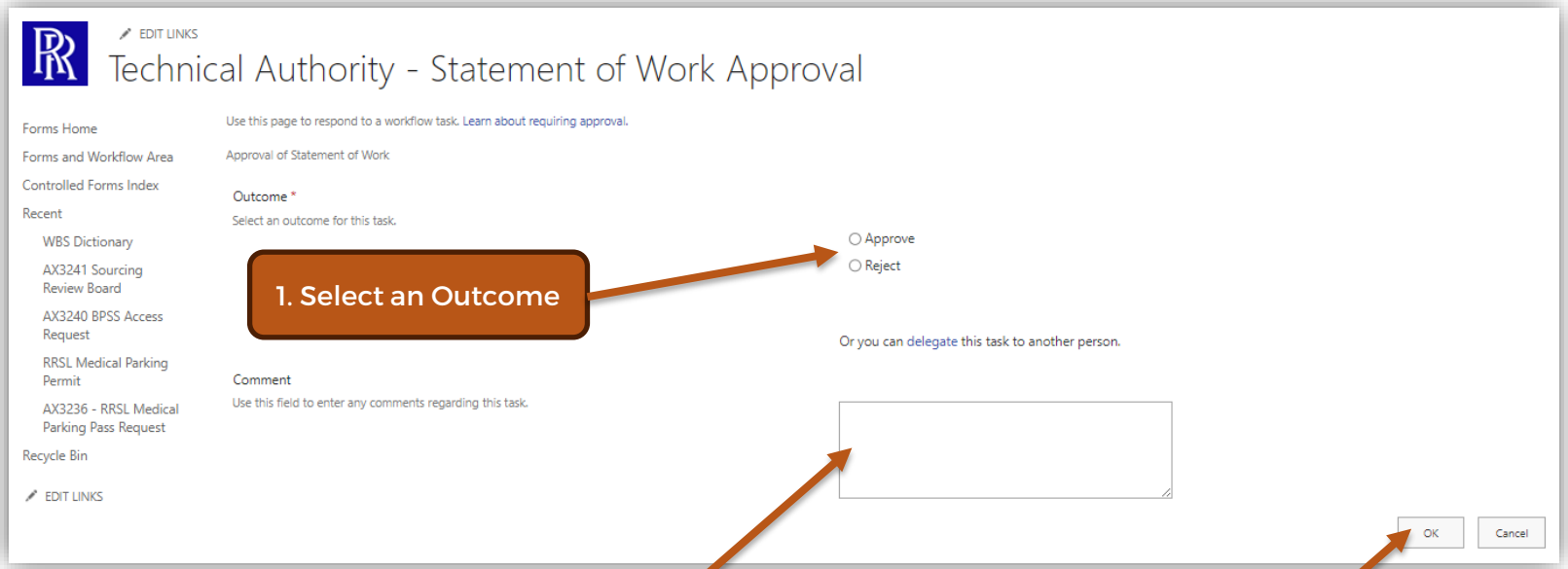
Workflow Tasks - Notification

Workflow Tasks

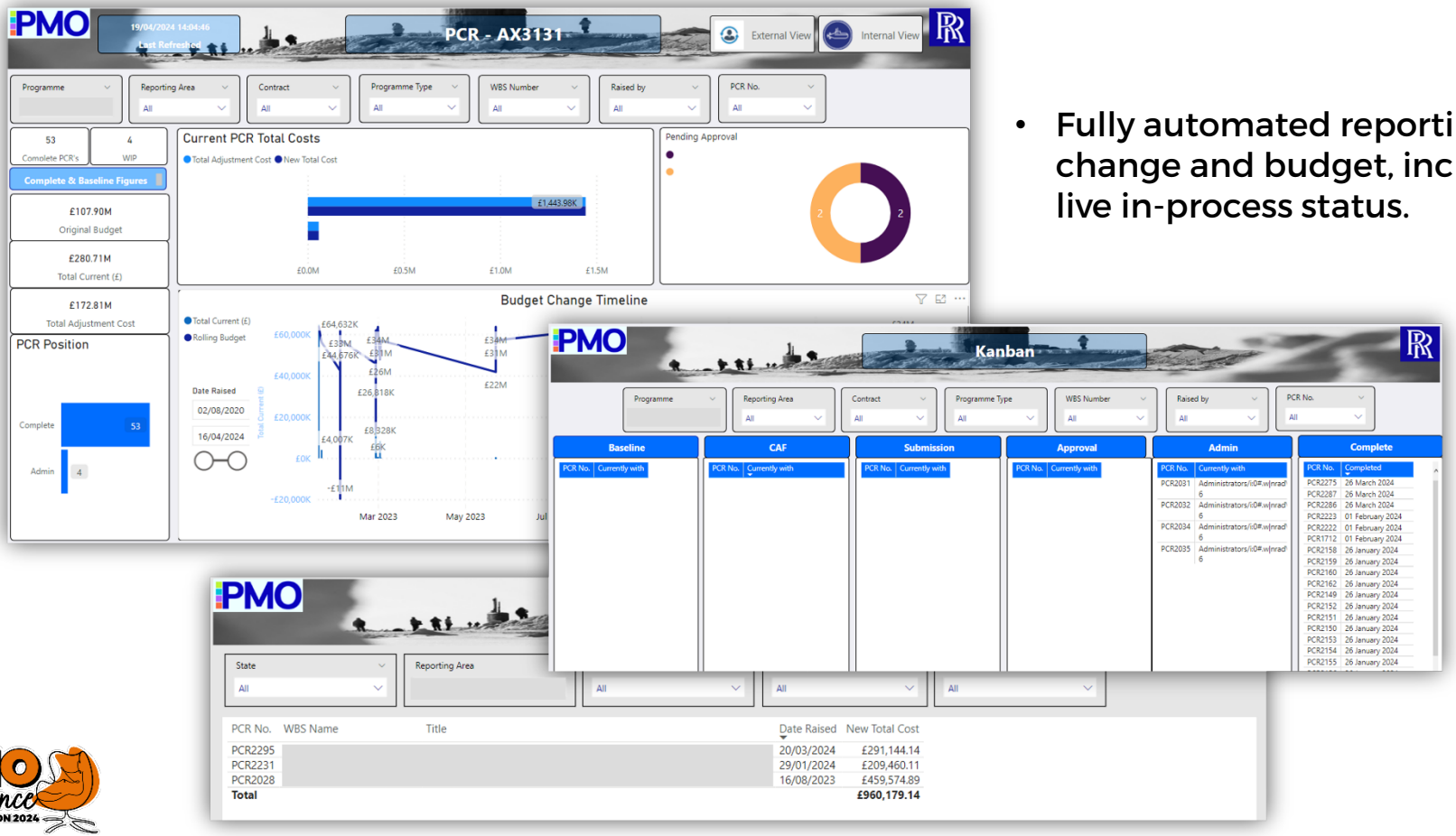


1. Select an Outcome

2. Provide Commentary if applicable

3. Press OK once complete

Automated Reporting



- Fully automated reporting for change and budget, including live in-process status.

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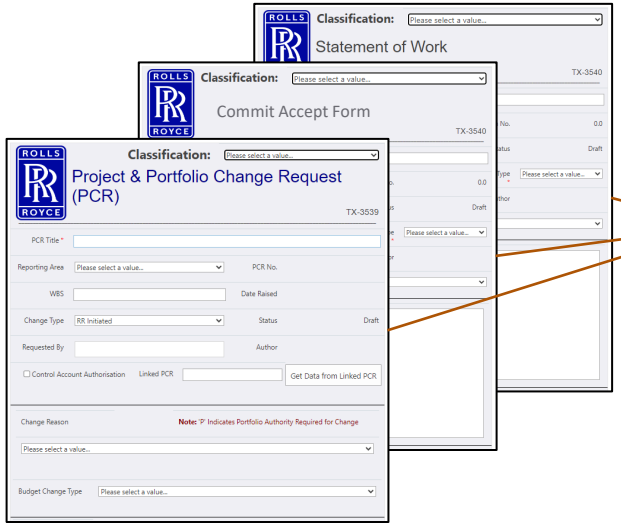
Current State



Accessible and useable data across the entire contract

- Assumptions
- Exclusions
- Dependencies
- Scope

Integrated Data between CAF, SoW and PCR

- CAFs linked to each budget change
- Auditable comparable trail of SoW Changes
- SoW Scope changes comparable to PCRs.

Live Reporting

- Automated Budget Logs
- Live Approval Status
- Process Flow Statistics to feed future improvements
- Electronic Signature and Approval

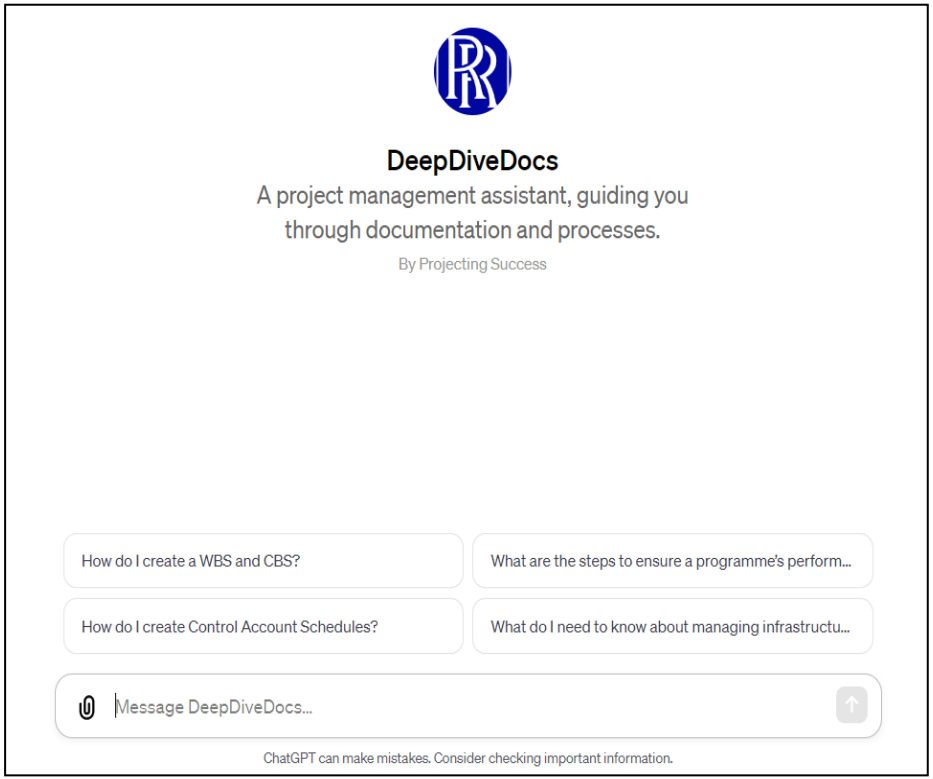
Automated Process Assurance

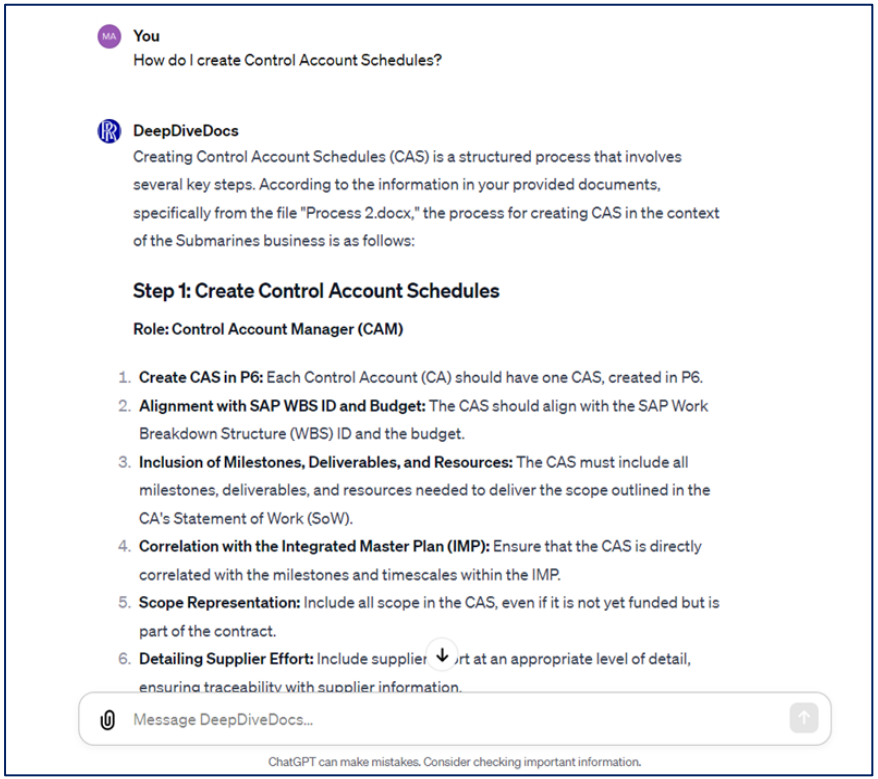
Future State

- Automated SAP Budget Transfers
- Whole contract automatic Assumptions and Exclusions summarised from all Control Accounts and Projects
- CAF Efficiency and Performance tracking
- Scope to Budget and Resource comparison
- Stability Assessments
- Whole Contract Scope Summary
- All Control Accounts SoW scope to IUR automated gap analysis

Other Project Data Analytics Improvements

RR GPT





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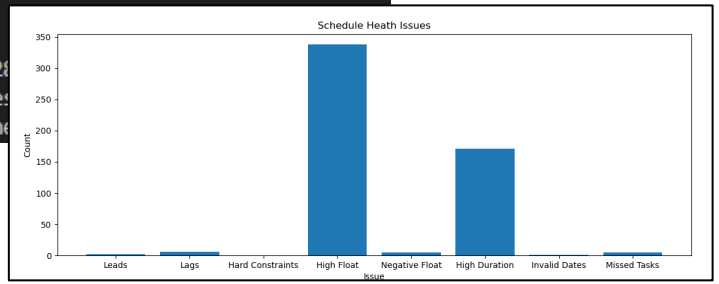
Schedule Health

python Copy code

```python
import xml.etree.ElementTree as ET

def parse_xer_file(file_path):
    tree = ET.parse(file_path)
    root = tree.getroot()
    return root

def check_schedule_health(schedule_data):
    # Perform DCMA 14-point schedule health check
    # Add your specific checks based on the DCMA guidelines

    # Example check: Check for the presence of a project start date
    start_date_element = schedule_data.find(".//ProjectStartDate")
    if start_date_element is None or not start_date_element.text:
        print("Error: Project start date is missing.")

    # Add more checks as needed

def main():
    # Specify the path to the Primavera P6 .xer file
    xer_file_path = 'path/to/your/file.xer'

    # Parse the .xer file
```

```
Relationship Count255
Relationship count FS = 0
Resources Count =241
Resources with RSRC=225
Missed Tasks = 246
Missed Tasks (no base) count = 0
Missed Tasks (late start) count13
Project Duration = 4981 days 08:00:00
Longest path duration = 71 days 00:00:00
Critial Path Length=68 days 00:00:00
Tasks Completed Count=246
Tasks Planned Count=326
Logic: 89.21
Leads: 2
Lags: 6
Relationship Types: 0.0
Hard Constraints 0
High Float 338
Negative Float 5
High Duration 171
Invalid Dates 1
Resources 93.36
Missed Tasks 5.2
Critical Path Te
The score for th
```



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Developing Capability and Capacity

Experiential

- Project:Hacks
- Automate Processes
- Create New Tools
- Start Small, Sandbox, Test, Scale

Formal

- Data Analytics Apprenticeships
- Online Courses like EdX and others
- Formal events through the APM and others

Social

- Engage our Apprentices
- Engage within our sector
- Engage with wider industry through the Coalition
- Engage with our interval teams MIS, Digital, IT.

Apprentices

[Here is the link to sign up.]

Not a training course….

- It's a chance to develop strong capability in RR
- The projects delivered by apprentices can deliver real value
- It is creating a group of people who think differently
- It allows people time to develop their skills and **apply them**

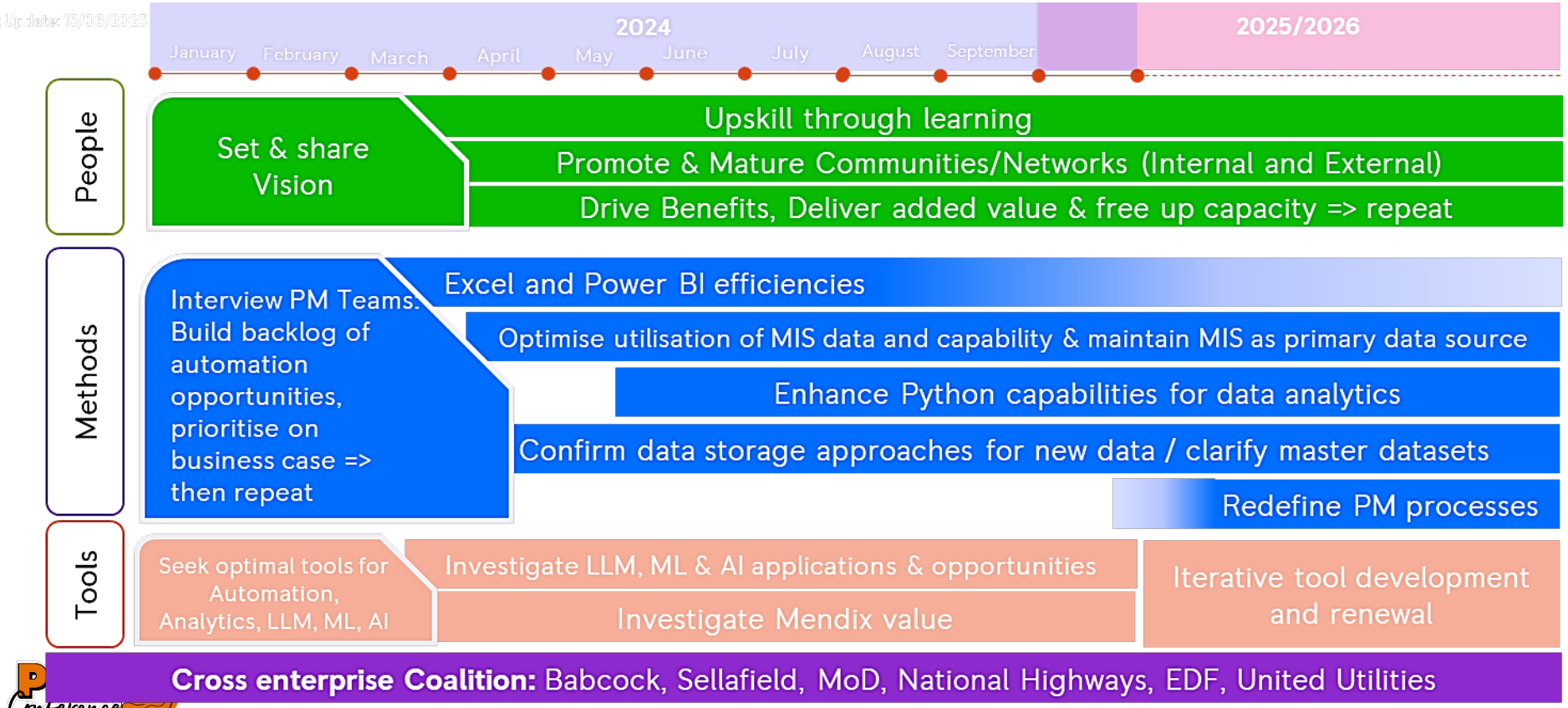
It is a vehicle to reimagine project delivery … and its free!!!

Note: other apprenticeships are available e.g. Multiverse.

Our apprentices have a COP that is PMO led.

- Share the latest news in AI.
- Request and receive support from each other.
- Problem solve as a community.
- Share our successes and our lessons
- Allows barriers to be escalated to senior management.

Capability Roadmap



What could the future look like? What is here and now?...

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David's and Craig's View

PMO

- Two types of PMO will emerge those enabled by project data analytics and those that aren't.
- Supporting and Controlling PMOs will be automated.
- More C-suite influence of PMOs enabled with project data analytics.
- Interactions with professional bodies will change – PMI Infinity. Certifications to prove knowledge will be replaced.

People Capability

- Fundamentally change the project management organisational design.
- Training and Capability Development will be enabled by AI.
- People will learn as they do tasks with Project Assistants.
- There will still be a role for SMEs but they will shift to be focussed on outcomes not process or system knowledge.

Process

- Workflows will change how we think about process.
- Process and cross-functional interactions will be better understood.
- Artefacts and reporting will be automated.
- Assurance will fundamental shift to review how effective decisions and governance change project outcomes.

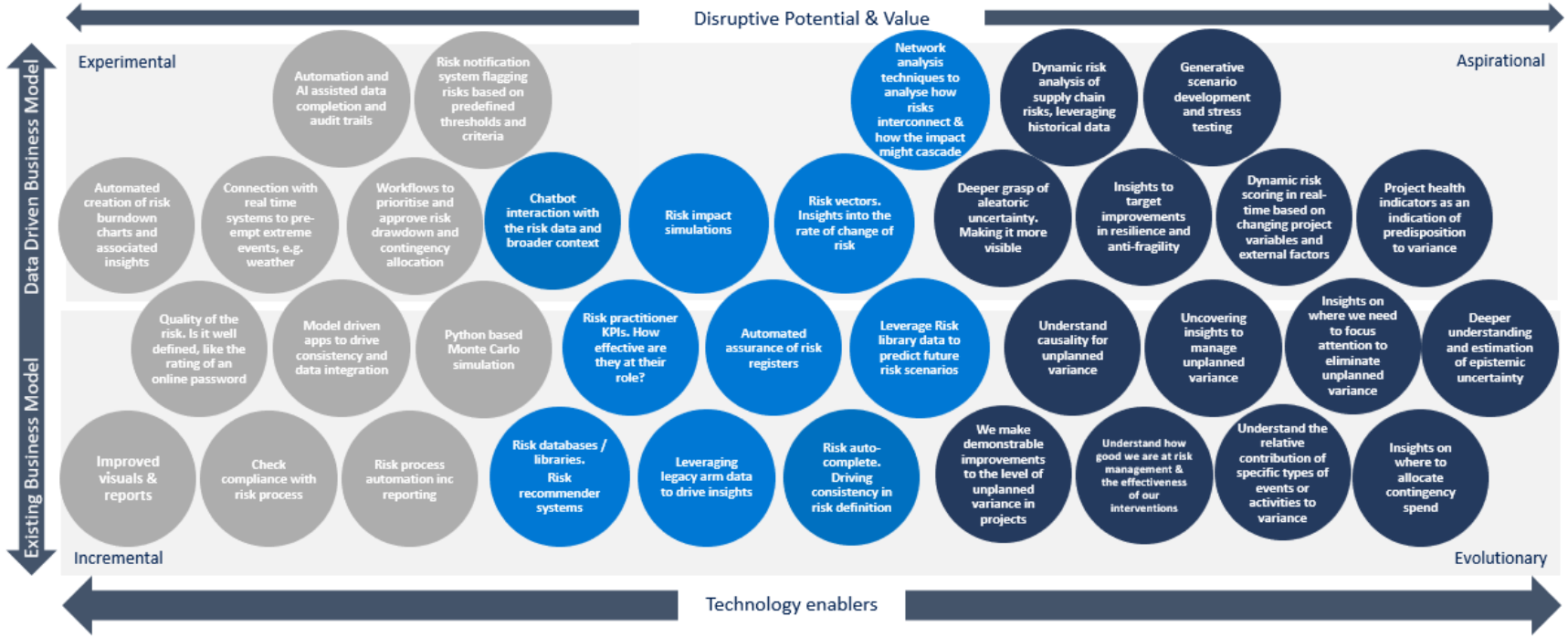
Tools and Systems

- A number of tools will be replaced by community development apps/ software.
- These tools will allow the exact functionality to be created. It will also allow PMOs to adapt to new challenges.
- Real-time understanding of project progress, risks with different options based on different optimisation goals (delivery, cost, resource).

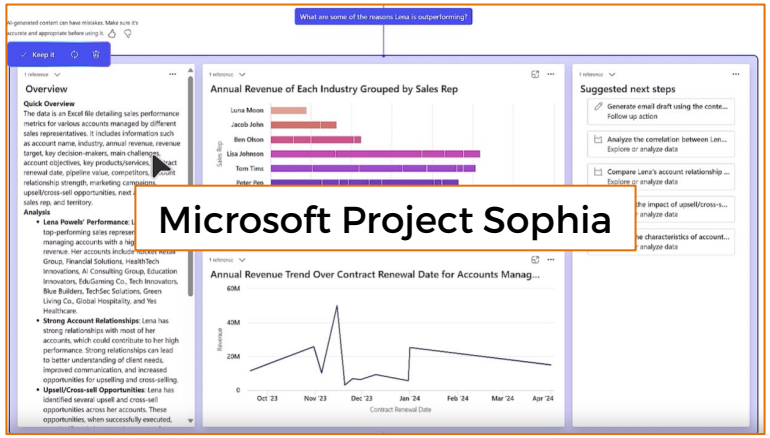
Visions

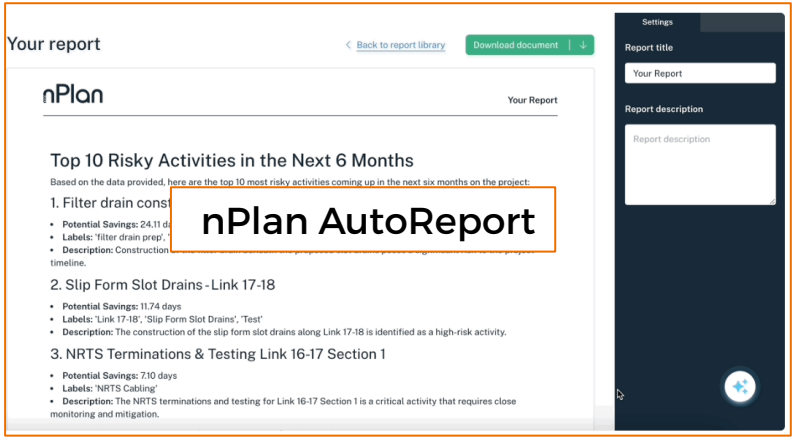
Reimagining: Risk Management

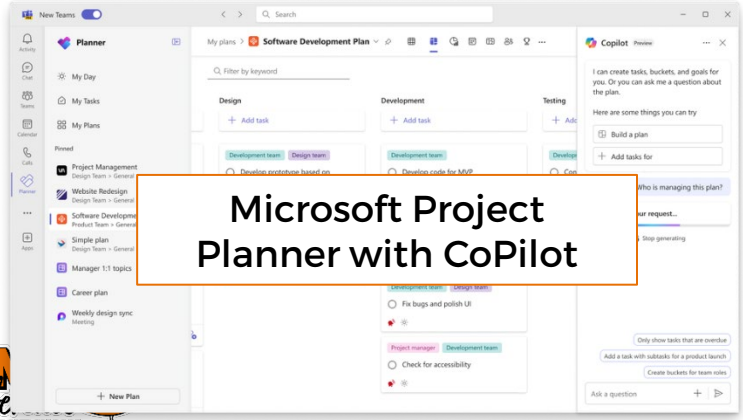
North Star Vision:
Variance Analytics

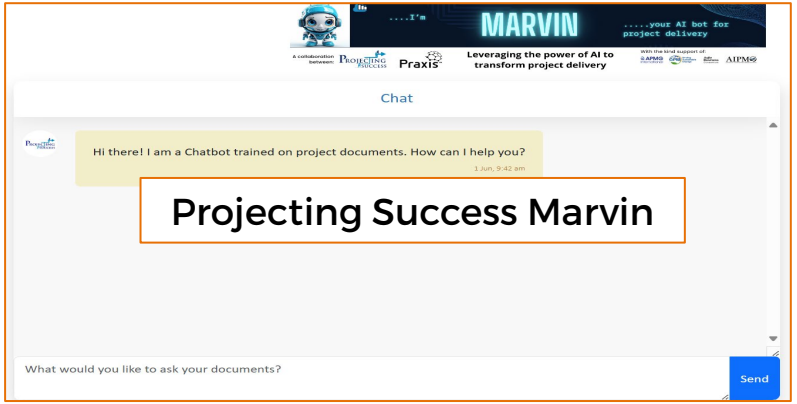


Cool Stuff

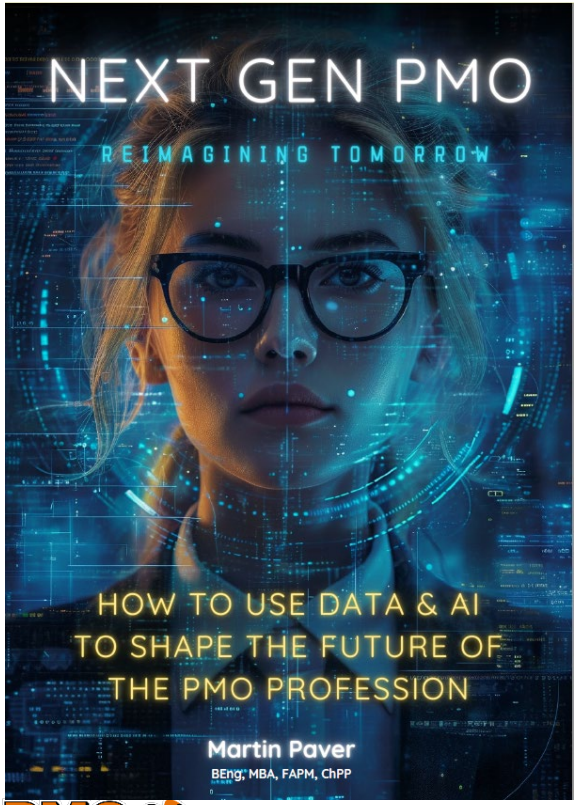

What are some of the reasons Lena is outperforming?
Keep it
Overview
Quick Overview
Analysis
Annual Revenue of Each Industry Grouped by Sales Rep
Annual Revenue Trend Over Contract Renewal Date for Accounts Manag...
Suggested next steps
Microsoft Project Sophia

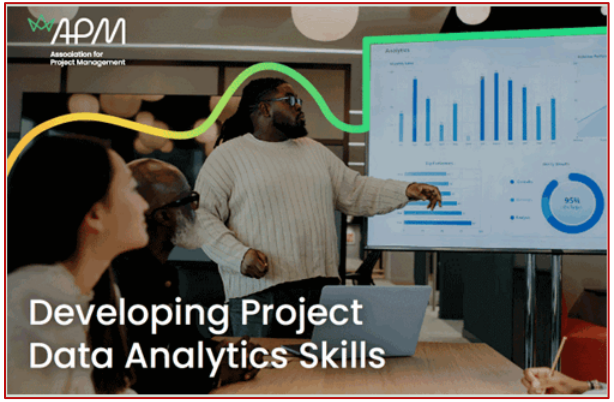

Your report
Back to report library
Download document
nPlan
Your Report
Top 10 Risky Activities in the Next 6 Months
Settings
Report title
Your Report
Report description
nPlan AutoReport

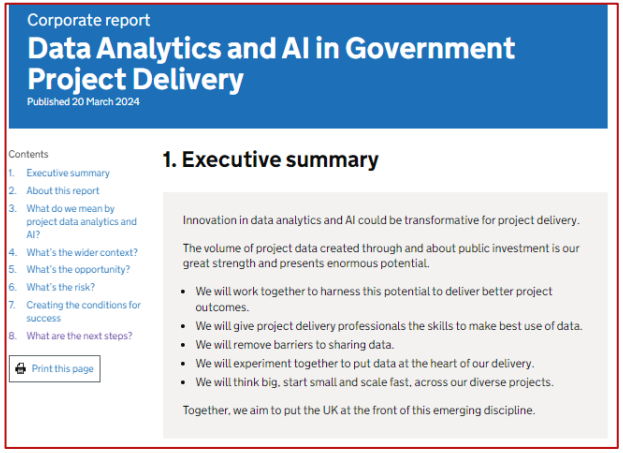

New Teams
Planner
Software Development Plan
Copilot
Design
Development
Testing
Microsoft Project
Planner with CoPilot


MARVIN
Leveraging the power of AI to transform project delivery
Chat
Hi there! I am a Chatbot trained on project documents. How can I help you?
What would you like to ask your documents?
Send
Projecting Success Marvin

Recommended Resources







Corporate report

Data Analytics and AI in Government Project Delivery

Published 20 March 2024

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1. Executive summary
2. About this report
3. What do we mean by project data analytics and AI?
4. What's the wider context?
5. What's the opportunity?
6. What's the risk?
7. Creating the conditions for success
8. What are the next steps?

Print this page

1. Executive summary

Innovation in data analytics and AI could be transformative for project delivery.

The volume of project data created through and about public investment is our great strength and presents enormous potential.

- We will work together to harness this potential to deliver better project outcomes.
- We will give project delivery professionals the skills to make best use of data.
- We will remove barriers to sharing data.
- We will experiment together to put data at the heart of our delivery.
- We will think big, start small and scale fast, across our diverse projects.

Together, we aim to put the UK at the front of this emerging discipline.

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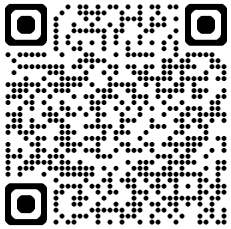
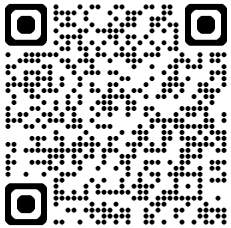
Thank you for listening.

Connect with us:





Any questions?