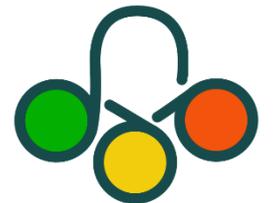


Harnessing the Power of Our Data

Advanced Analytics Team

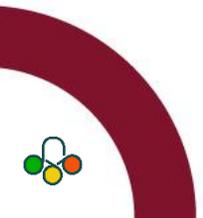
Network Rail Wales & Western Region



Enhancing Project Management through Advanced Analytics and Visualisation

Agenda

- About Our Organisation
- About Us
- About Our Work
- Summary
- Q&A

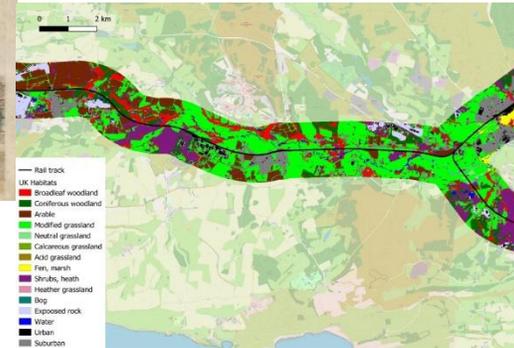


About Our Organisation

- Own, operate, maintain and develop Great Britain's railway infrastructure
- Deliver projects from minor upgrades to major infrastructure
- Wales & Western: 2,700 miles managed, £2.5bn programme (5 years)

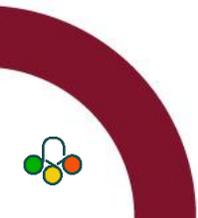
Strategic Priorities:

- Infrastructure upgrades
- Digital transformation
- Operational efficiency



Data-Driven Delivery:

- Improved planning, cost control, risk management, and performance



About Us



Pragya Raina



Ionuț Coroian



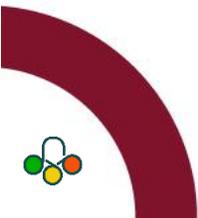
Yamini Kumar



Milla Mazilu



Haroon Rashid



About Our Work

Why

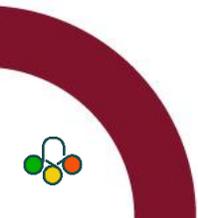
- Maximising value and linking the data silos

What

- Change Control Database
- Phase Readiness App
- Periodic Business Review Pack
- Commentary Collector App
- Data Lake

How

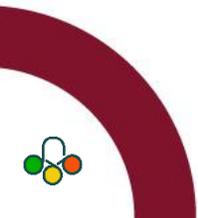
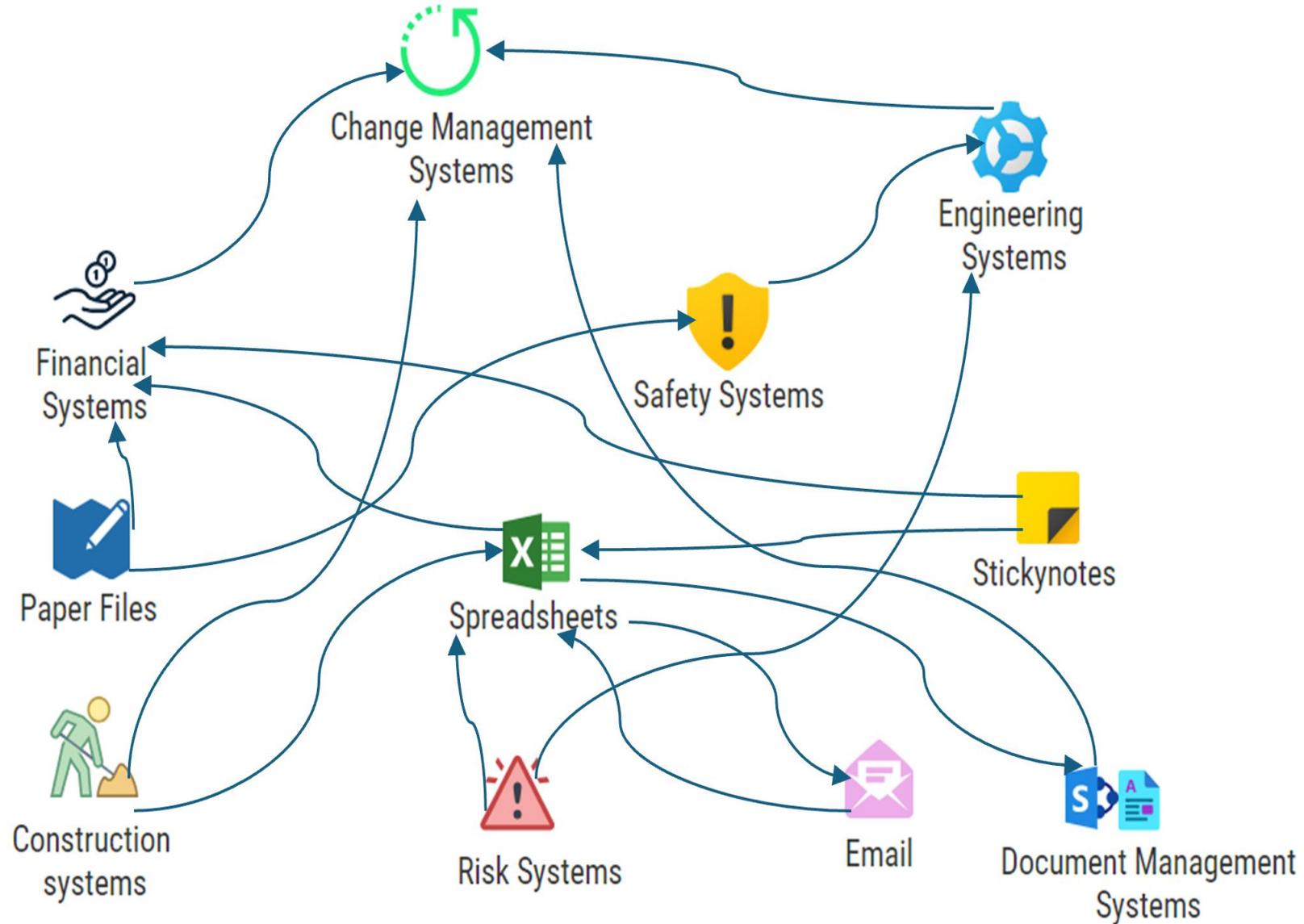
- Over to the team!



Change Control Database

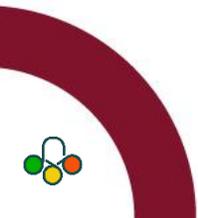
Yamini Kumar
Programme Controls Manager

Challenges



Implementation

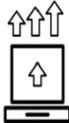
- We developed a consolidated database for all change papers.
- This centralised solution has reduced manual effort and resulted in annual savings of over 9,700 hours.
- It has also improved the tracking and management of change requests across projects, ensuring greater transparency and efficiency.

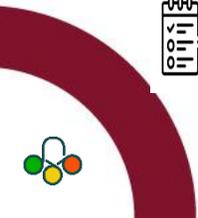


Legacy - Manual Process (Before)

-  Draft Change Paper
-  Print Change Paper
-  Review paper in Change Control Panel
-  Get Manual Signatures on Change Paper
-  Scan Change Paper
-  Upload to Document Management System
-  Update Change Paper Status on the System
-  Email Teams the signed copy of the paper
-  Update status of change paper in the system
-  Update Meeting minutes and email teams the Meeting Minutes and Actions

New - Streamlined Process (After)

-  Draft Change Paper in the system
-  Review and Panel Discussions (All Stakeholders)
-  Update Decision and Record Minutes in System



Change Control Database

New Item

 Paper Reference

Automatically generated after the first save.

Approving Panel *

—

Refer to Delegated Authority Limits to establish which changes can be approved at L2 and which will require L1 panel submission. If unsure, check with the Programme Controls team. The selection made in this field will affect which of the panel approval date/minuting fields are opened.

 Project

This is a lookup column that displays data from another list that currently exceeds the List View Threshold defined by the administrator (5000).

Search for your project in the above search box. The project list is over 7000 entries now, so the search can be a little slow.

 Paper Author *

Enter a name or email address

 Related Efficiency

Select an option

 Paper Presenter

Enter a name or email address

 Related Change Papers

This is a lookup column that displays data from another list that currently exceeds the List View Threshold defined by the administrator (5000).

The name of the person who will present at panel. This can be left blank if the author believes the paper

If there are any prior papers which are related to this change, please select them here.

Paper Status *

Draft

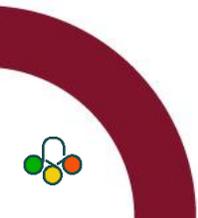
To submit to panel, use 'Submit to Lx Panel' to notify the panel manager that your paper is ready for change panel. Change panel manager will review the submissions, and add papers to the agenda by using the 'Agenda Lx Panel' status. Once papers have been reviewed at panel, change panel manager will update the status to 'Reviewed at Lx Panel'. This will generate notifications for the Paper Editor, Author, and Presenter, and also CC all the PCMs. Never delete papers, just mark as 'Withdrawn'. Papers can be marked as superseded, as long as the related change paper is confirmed.

 Attach

Add attachments

Save

Cancel



Results



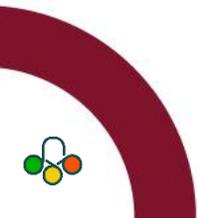
**Project
Performance**



Time Savings



Cost Reductions



Phase Readiness Review

Haroon Rashid
Programme Reporting Specialist

The Picture

The team renews the Track infrastructure



We go to site every weekend



We plan 2 years ahead



Sometimes we deliver 2 projects over a weekend



Every project has a Project Lifecycle



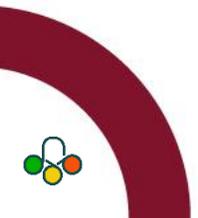
Every Project has 6 Phase Gates that total 100+ deliverables



Every day we are in every Phase within a Project Lifecycle



We undertake around 18 Phase Gates a week across all stages of the Project Lifecycle



So, what is the problem?

Current Process is using Excel

Version Control is poor

Inconsistent Document Control

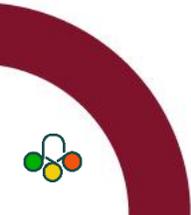
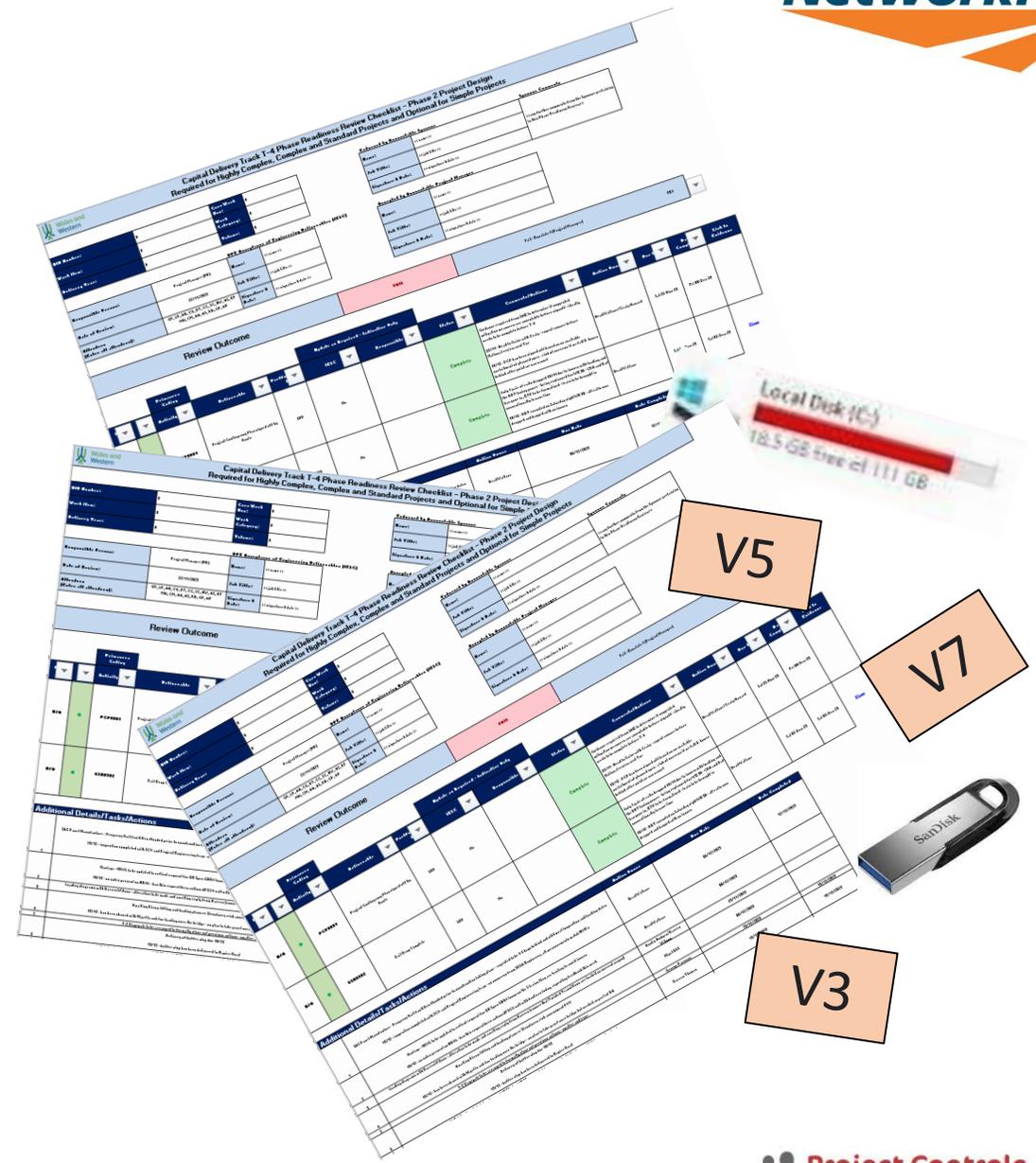
Missing Information

Actions unmanaged

Tabs missing on the Excel Sheet

Late submissions

Systems are out of date



What did it need to do?

Conform to the Business Management Processes and Standards

One system in one place

Action tracking through notification reminders

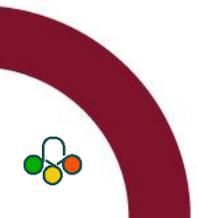
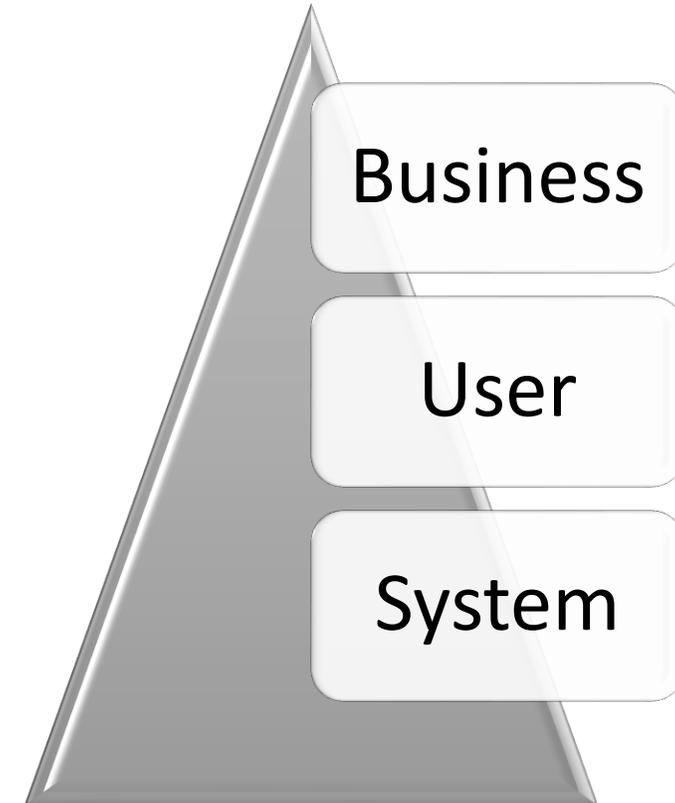
Outcome and review summary notifications

Digital approvals & signatures

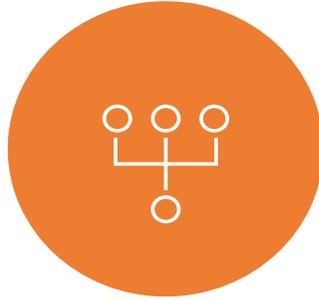
Improve data analytics through Power BI

Hyperlink direct to the Business Document Control System

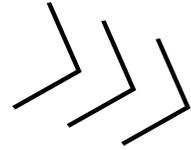
Version control over and template control



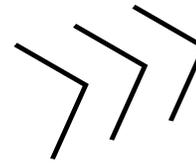
Phase Readiness Review



**HOLD THE PHASE
GATE, UPDATE
DELIVERABLES, RECORD
AND ASSIGN ACTIONS**



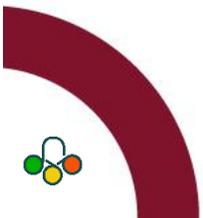
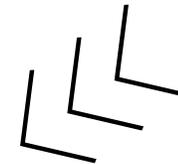
**SELECT THE PHASE GATE
OUTCOME AND SUBMIT THE FORM
TO COMMENCE SIGN OFF PROCESS**



**DEPENDING ON THE
OUTCOME THE PHASE
GATE WILL FOLLOW A
SIGN OFF PROCESS**



**EMAIL NOTIFICATIONS RELEASED
TO ADVISE OUTCOME AND
ACTIONS TO PROJECT MEMBERS**



Phase Readiness Review



Wales and Western | Phase Readiness Review Checklist | Network Rail

Number of Rows: 2932

EDIT IN GRID VIEW

Work Item Name	Project ID	UID	Phase	Product Description	Status	Comments or Actions
Portfolio Products	174316	Not Applicable	TT-123	Review Annual Workbank (TT-123)	Open	
Portfolio Products	174316	Not Applicable	TT-123	Form P10 (Notification of Construction Project - HSE)	Closed	Not part of TT-04 G41 checklist - Prog Mgr Dev con completed
Portfolio Products	174316	Not Applicable	TT-123	Construction, Design and Management (CDM) Plan	Closed	Not part of TT-04 G41 checklist - Prog Mgr Dev con completed
Portfolio Products	174316	Not Applicable	TT-123	Client Requirements Defined (TR3 or equivalent)	Closed	
Portfolio Products	174316	Not Applicable	TT-123	Workbank Capacity Review	Closed	
Portfolio Products	174316	Not Applicable	TT-123	Work Item added to Workbank	Closed	
Portfolio Products	174316	Not Applicable	TT-123	Q7705 Request for Health & Safety Information	Closed	
Portfolio Products	174316	Not Applicable	TT-123	Pre-Construction Information Pack (PCIP) Created	Closed	
Portfolio Products	174316	Not Applicable	TT-123	Health & Safety File (Created) (EDMS)	Closed	
Calddor	174316	S3100624	TT-04	Diversity In...	Closed	Not part of TT-04 G41 checklist - leave open as not completed

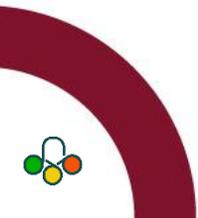
Delivery ...	Delivery Team	Scheme	Description	Efficiency Type	Efficiency Status	SPEED In...	RAG
B&C	_Directorate	_B&C Buildings & Civils D	B&C Access	Post-Authority Cost Avoidance	Ongoing		Amber
B&C	_Directorate	_B&C Buildings & Civils D	B&C Delivery	Post-Authority Cost Avoidance	Ongoing		Green
B&C	_Directorate	_B&C Buildings & Civils D	B&C Design	Post-Authority Cost Avoidance	Ongoing		Green
B&C	_Directorate	_B&C Buildings & Civils D	B&C Workbank	Post-Authority Cost Avoidance	Ongoing		Green
B&C	_Directorate	_B&C Buildings & Civils D	Value Management Workshops / AMP Walkouts Held On Teams	Post-Authority Cost Avoidance	Ongoing		Green

Wales and Western | Phase Readiness Review - Product Status | Network Rail

Year	Route	Portfolio	Work Item	Phase	EMR	Product Description	PRR Status	PI Framework	PRR / PI Check																		
NA	TT-123	TT-04	TT-04	TT-04	TT-04	TT-04	TT-04	TT-04	TT-04																		
<table border="1"> <thead> <tr> <th>PACE 1</th> <th>PACE 1</th> <th>PACE 1</th> <th>PACE 2</th> <th>PACE 2</th> <th>PACE 2</th> <th>PACE 2</th> <th>PACE 2</th> <th>PACE 4</th> </tr> </thead> <tbody> <tr> <td>NA</td> <td>TT-04</td> <td>TT-04</td> <td>NA</td> <td>NA</td> <td>NA</td> <td>NA</td> <td>NA</td> <td>NA</td> </tr> </tbody> </table>							PACE 1	PACE 1	PACE 1	PACE 2	PACE 2	PACE 2	PACE 2	PACE 2	PACE 4	NA	TT-04	TT-04	NA	NA	NA	NA	NA	NA	90	18	30%
PACE 1	PACE 1	PACE 1	PACE 2	PACE 2	PACE 2	PACE 2	PACE 2	PACE 4																			
NA	TT-04	TT-04	NA	NA	NA	NA	NA	NA																			
							T-Compliance Score	17%	Closed Products	30%																	
							S21	T-Compliance	61	Product %																	
							T-Compliance Total	Total Products																			

Phase Readiness Review

The screenshot shows a web dashboard for 'Track Phase Readiness Review Checklist'. At the top left, it says 'Welcome Maurizio Valuto' and '31/05/2024'. There are two buttons: 'PRR Summary' and 'PRR Checklist'. In the center, there is an 'Admin Panel' with 'Project Wise' (represented by a blue icon with four arrows) and 'PACE Links' (represented by the Network Rail logo and a green wrench icon labeled 'PACE'). On the right, there is a 'Network Rail' logo and the text 'Click on the images below to take you to the links.' Below this are several buttons: 'Load Single Work Item' (red button with 'Click Here'), 'SharePoint Lists' (with a Microsoft Lists icon), 'Checklist Templates (Add/Amend/Delete)' (with three buttons: 'SC Template', 'PL Template', and 'Drainage Template'), and 'Add External Users' (red button with 'Click Here'). At the bottom left is the 'Wales and Western' logo, and at the bottom right is the slogan 'For a Greater Railway'.



Phase Readiness Review

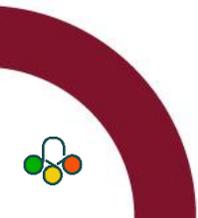
Phase Readiness Review Checklist

Number of Rows in Gallery: 122

←
Save Updates
Cancel Updates

Work Item Name	Project ID	UID	Phase	Product Description	EMR	Status	Comments or Actions	Internal Action Owner
Wem	173943	53490125	ES3	Have you established the Minimum Viable Product to meet the business outcomes (or advised an improved	No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner
Wem	173943	53490125	ES3	Has a One Team charter, outlining common goals, roles, and responsibilities, between NR, Funder, and	No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner
Wem	173943	53490125	ES3	Have you engaged with the operators to develop an optimised and transparent access strategy? (This must	No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner
Wem	173943	53490125	ES3	Where planning and consent approvals are required, do the timescales reflect the agreed SPEED approach	No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner
Wem	173943	53490125	ES3	Have all governance options been explored and are there any opportunities to challenge where it may not	No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner
Wem	173943	53490125	ES3	Have you spoken with / referenced similar schemes (either via your regional champion/CoE or through	No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner
Wem	173943	53490125	T-4	Have you identified a list of opportunities to accelerate the delivery / reduce cost of the	No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner
Wem	173943	53490125	T-4	Have you identified options that would reduce cost and/or risk for the DfT to consider? (yes or no, yes to	No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner
Wem	173943	53490125	T-4	Have the technical standards been sufficiently	No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner
Wem	173943	53490125	T-4		No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner
Wem	173943	53490125	T-4		No	N/A	N/A as undertaken at Portfolio Level	Add Action Owner

External Action Owner	Action Due Date	Date Completed	Link To Evidence	PACE Ref	PMP Ref	PACE RAG	P6 Framework	Responsible Role	Row Number
Search People	31/05/2024	31/05/2024		P.MP6	N/A	Red	No	Lead Portfolio Manager	12872
Search People	31/05/2024	31/05/2024		P.CR1	G1HP_06	Amber	Yes	Senior Asset Engineer	17585
Search People	31/05/2024	31/05/2024		N/A	P_0001	Green	Yes	Portfolio Manager	17586
Search People	31/05/2024	31/05/2024	https://connect-projectwisewac.bent	P.MP3	P_PCA01	Amber	Yes	Portfolio Manager	17587
Search People	31/05/2024	31/05/2024	https://connect-projectwisewac.bent	P.HS2	CDM001	Red	Yes	Senior Portfolio Manager	17588
Search People	31/05/2024	31/05/2024	https://connect-projectwisewac.bent	P.MP4/2	G1SC_02.GSCM009	Green	Yes	Portfolio Manager	17589
Search People	31/05/2024	31/05/2024	https://connect-projectwisewac.bent	N/A	PID001	Green	No	Portfolio Manager	17590
Search People	31/05/2024	31/05/2024	https://connect-projectwisewac.bent	N/A	P_HSF02	Green	No	Portfolio Manager	17591
Search People	31/05/2024	31/05/2024	https://connect-projectwisewac.bent	N/A	G1_L_01	Green	Yes	Portfolio Manager	17592
Search People	31/05/2024	31/05/2024		N/A	G0_NG4T	Green	Yes	Various	17593
Search People	31/05/2024	31/05/2024		P.HS3	P_0004	Red	Yes	Portfolio Manager	17594



Phase Readiness Review

Work Item Details

Lookup Work Item

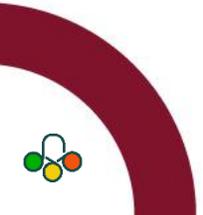
Choose Portfolio

Choose Route

Choose Del Year

Reset Filters

Work Item Name	Project ID	UID	PACE 1 TT-156	PACE 1 TT-123	PACE 1 TT-84	PACE1 ES3	PACE 2 T-42	PACE 2 T-21	PACE 2 T-15	PACE 2 T-9	PACE 2 T-4	PACE 4 T+	Details	Progress	Delete
Ashchurch	173923	52194518	ITPPE-C	ITPPE-C	NA	ITPPE-O	ITPPE-O	ITPPE-O							
Cheltenham Hatherley	173923	52198424	ITPPE-C	ITPPE-C	NA	ITPPE-O	ITPPE-O	ITPPE-O							
Southall East	173923	51190127	Passed	ITPPE-O	NA	ITPPE-O	Esc 1								
Shelwick	173943	53590124	ITPPE-C	ITPPE-O	NA	ITPPE-C	ITPPE-O	ITPPE-O	ITPPE-O						
Landore Jcn	173943	53390124	ITPPE-C	ITPPE-O	NA	ITPPE-O	ITPPE-O								
Wem	173943	53490125	ITPPE-C	ITPPE-C	NA	ITPPE-O	ITPPE-O	ITPPE-O	ITPPE-O	ITPPE-O					
Adlestrop to Moreton in Marsh Dn	174314	51300224	NA	Passed	ITPPE-C	NA	ITPPE-O	ITPPE-O	NA	NA					
Bedwyn Platform Formation	179534	51400419	N/A	Passed	ITPPE-O	N/A			NA	NA					
Cattybrook	174314	52200121	NA	Passed	Passed	NA	ITPPE-O	ITPPE-O	NA	NA					
Culham Station Up	174314	51301017	NA	Passed	Passed	NA	ITPPE-O		NA	NA					
Denchworth Up Main	174314	51370123	NA	Passed	Passed	NA	ITPPE-O		NA	NA					
Frome Up Goods	174314	51400219	NA	Passed	ITPPE-C	NA	ITPPE-O	ITPPE-O	NA	NA	ITPPE-O				



What were our challenges?

External Access to Network Rail Systems

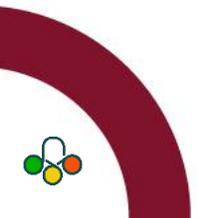
User Buy in

Resilience to change

Updating new Deliverables that were Business Driven

Bulk Uploading

Extending system to other areas of our business
(Compatibility)



What our users say

Much more secure and formal Process

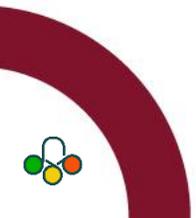
Action Tracking has made a huge difference

Links to deliverable evidence has saved time on Assurance Checks

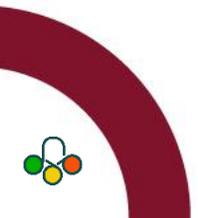
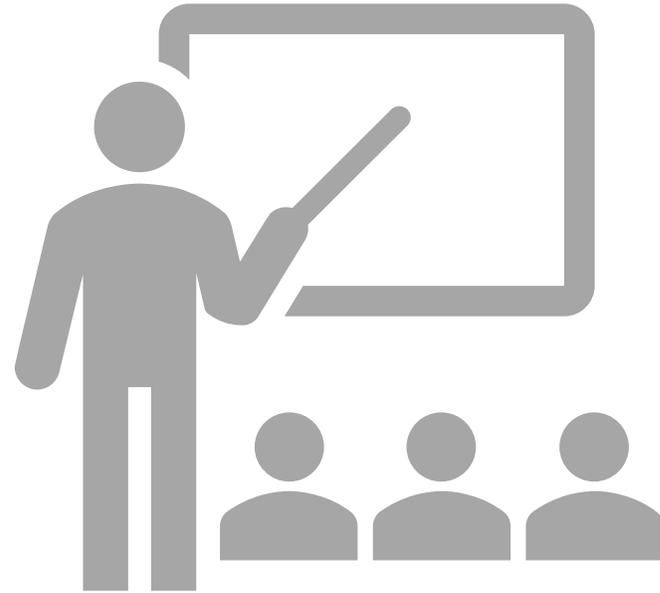
External user Action Notification was a huge hit

Easy Navigation and use of Filters

Bulk Uploading of projects made easy



Lesson and Reflections

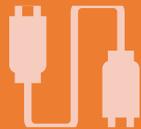


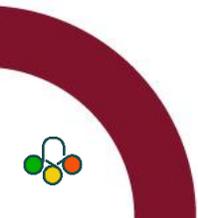
Periodic Business Review

Pragya Raina
Senior Business Reporting Analyst

Reporting Process: Before vs After

-  Fragmented data and legacy systems, hard to consolidate
-  Manual Excel reporting, slow updates and error-prone
-  Processes relied on separate tools (e.g., commentary collected by email and copy-paste)
-  Weak governance, inconsistent standards and poor scalability
-  Manual processes caused delays and reduced productivity
-  Siloed and inconsistent insights

-  Centralised, automated platform and one source of truth
-  Automated, fast, and accurate reporting
-  Integrated apps and systems enable end-to-end automation (e.g., integrated commentary collection)
-  Standardised, governed, and scalable reporting
-  Over 12,000 hours saved annually, enabling focus on strategic initiatives
-  Integrated and actionable insights



Reporting Platform: Before vs After

Periodic Business Review 2019/20 P03

Contents

Document Control Information

Periodic Business Review

Section 1 Contents

Section 2 Actions

Section 3 Progress Update

Section 4 Programme Delivery Board (PDB) Update

Section 5 Safety & Sustainability Development

Section 6 Risks/Op: Overall Programme

Section 7 Financials - Prior Period Comparison

Section 8 Risk vs Contingency Reserve: Efficiency

Section 9 Change Status L1

Section 10 Change Status L2

Section 11 Milestone Status L1

Section 12 Milestone Status L2

Section 13 WBS Status (2019, 2020, WBS)

Page 1

Periodic Business Review 2019/20 P03

Progress Update

Headlines

Schedule

Commercial

Closeout/Handback

Any Other Issues

Financials - Overall Programme

Project Details	Project Totals	CoWd Accrual						
Proj ID	Name	Approved %	CoWd	Effort	%	2019 Q30	2020 Q30	
57.1839	57.1839	11.000%	58.831M	34.084M	44.155M	43.801M	75.135M	
26.4656	26.4656	1.750%	46.183M	12.323M	15.751M	18.465M	1.470M	
42.9196	42.9196	5.740%	48.033M	25.686M	38.366M	32.496M	6.370M	
Overall Commentary			138.499M	138.499M	10.116M	157.668M	77.125M	91.132M
Project Totals			154.182M	96.290M	128.272M	114.756M	82.976M	
CoWd Accrual			154.182M	96.290M	128.272M	114.756M	82.976M	

Page 1

All Organisation : All Sub Organisation Business Review - 2021/2022 (July)

Milestone trends (2021/22)

Risk Expiry Status

Risk Mitigation Plan Status

Risk Details

CONTINGENCY VS EXPOSURE

Implementation: Responsible Parties

Users



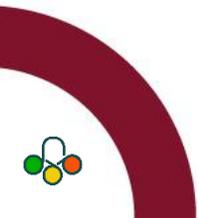
Project Specialists



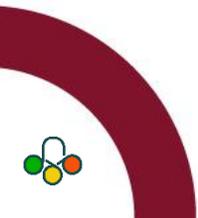
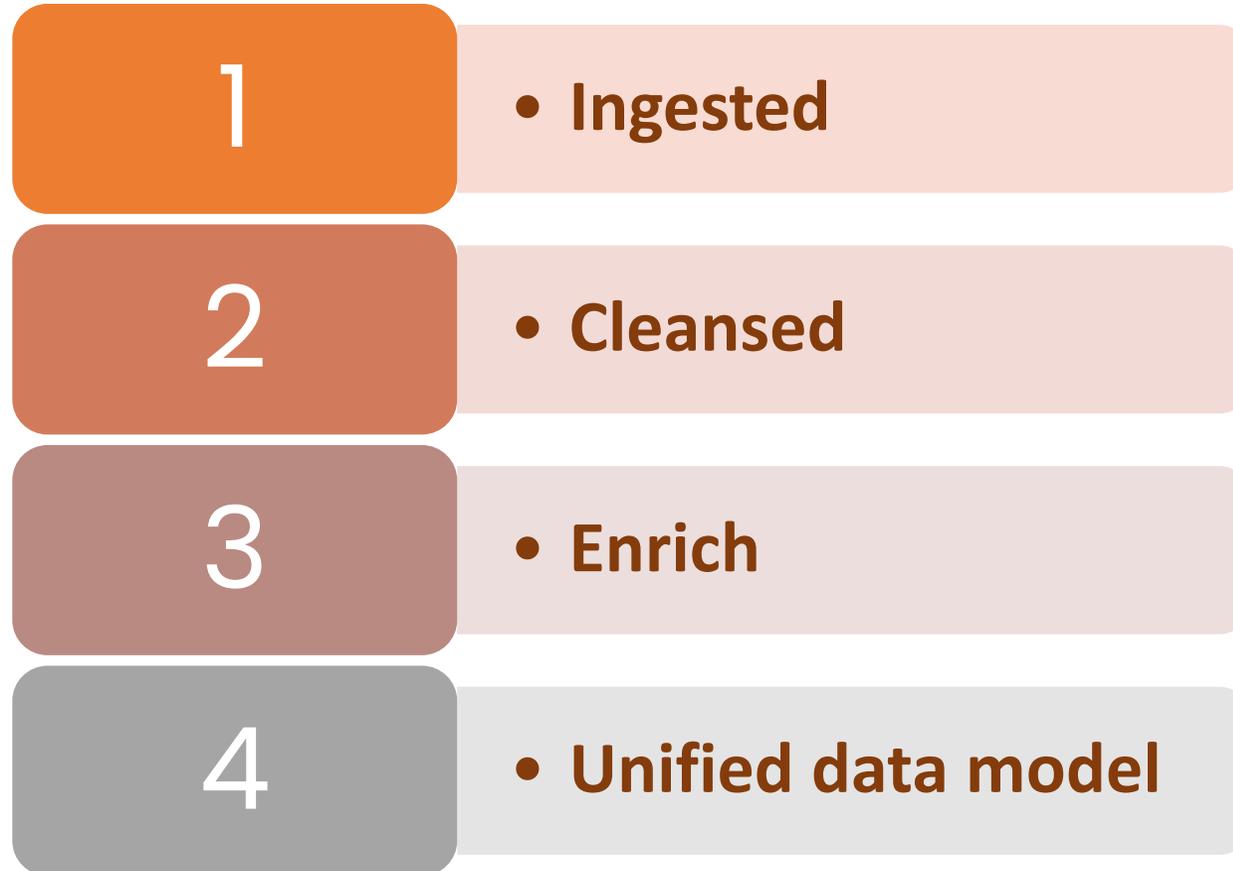
Data Analyst



Data Engineers & Data Scientists



Implementation: Infrastructure



Implementation: Key Enablers



**Iterative
Development**



**Open-Source
Technologies**



**Training
Sessions**



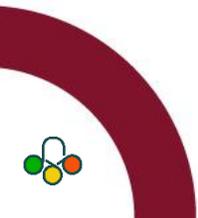
Collaboration



Flexibility



Empowerment



Results: Reporting Ecosystem



Home Refresh Commentary

User Guidance

1. Use only Firefox/Chrome/Edge.
2. Commentaries are available from Monday Week 2.
3. Search for your projects in the search box below.
4. Select project on right; this will open in read-mode.
5. Click EDIT to open the editing page.
6. RSSR/NSR only reporting requires blue commentary.
7. Full reporting requires blue and green commentary.
8. Write your commentary then click SAVE.

SEARCH FOR PROJECTS HERE...

The search function above will find project numbers, project titles, project sponsor or manager name.

For Regional Significant Scheme projects, search RSSR.

For Notable Schemes projects, search NSR.

Further search options can be added here.

Feedback is welcome @Milli version: Argo Navis

ASPI
Project:
Period:
Last ed
Last ed

B&C
Project:
Period:
Last ed
Last ed

This website will help you find the key control tools we use across projects in the region.

Reportable Milestones

Change Control

Reporting & Analytics

Supporting Tools

Controlled Project List
This now covers all regional projects ->

PowerBI Reports

We predominantly use PowerBI as our reporting & analytics platform. Our core reports are shown below, and we refresh these at least weekly. The **PBR Pack** is our most frequently accessed report.

The **Commentary Collector app** is our primary method of capturing progress commentary at project level, and this is also included in the links below.

How-to: To access our PowerBI reports, please use the links below or navigate to any 'Programme Controls' channel in Teams. We use Teams regularly to post refresh updates.

Data Update Frequency	
Week 1	Monday (Period End Report)
Week 2	Thursday & Friday
Week 3	Daily
Week 4	Monday, Wednesday & Friday (Commentaries: Daily)

Our Reports See all

PBR Pack [L1]
June 10

WW Dashboards [L0]
June 10

Accruals Report [L3]
June 10

Reforecasting Report [L3]
June 10

Milestone Report [L3]
June 10

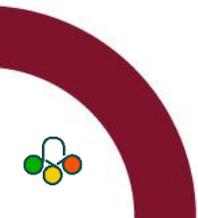
Commentary Collector
June 10

Commentary Collector

Milla Mazilu
Head of Advanced Analytics

Challenges

- **Cumbersome process**
- **Extensive manual liaison**
- **Version control issues**

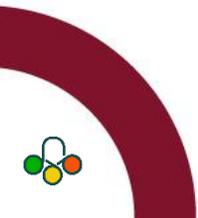


Implementation

 Home
 Refresh
 Edit
 **Commentary Collector - Period 07**
 Open in PowerBI
 Quit

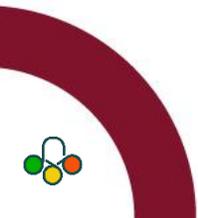
Now VIEWING. To update commentary, click EDIT. This will check out the commentary, to prevent it being edited by others at the same time.

Headlines & Key Achievements	Escalation
<p>Write clear, concise, and engaging headlines that accurately reflect the overall position and key takeaways. Use active verbs and specific language that clearly convey the status or progress.</p> <p>Keep your audience in mind when crafting headlines. Tailor the language and style to effectively communicate with stakeholders, including executives, team members, clients, and other external partners.</p>	<p>Document any issues or risks that require escalation to higher levels of management or other stakeholders during the reporting period. Provide clear and concise explanations of the nature, impact, and potential solutions for each issue.</p> <p>Share your rationale for escalating each issue and the specific steps taken to address it before escalation.</p>
Period Progress	Next Period Forecast
<p>Articulate the progress made during the reporting period.</p> <p>Include any challenges encountered, solutions implemented, and lessons learned that could help improve future performance.</p>	<p>Anticipate and outline the upcoming activities, goals, and challenges for the next reporting period.</p> <p>Use this section to communicate your expectations and plans to keep stakeholders informed and aligned.</p>



Results

- **Input Once, Reuse Often**
- **Accessible to All**
- **Version Controlled and Auditable**

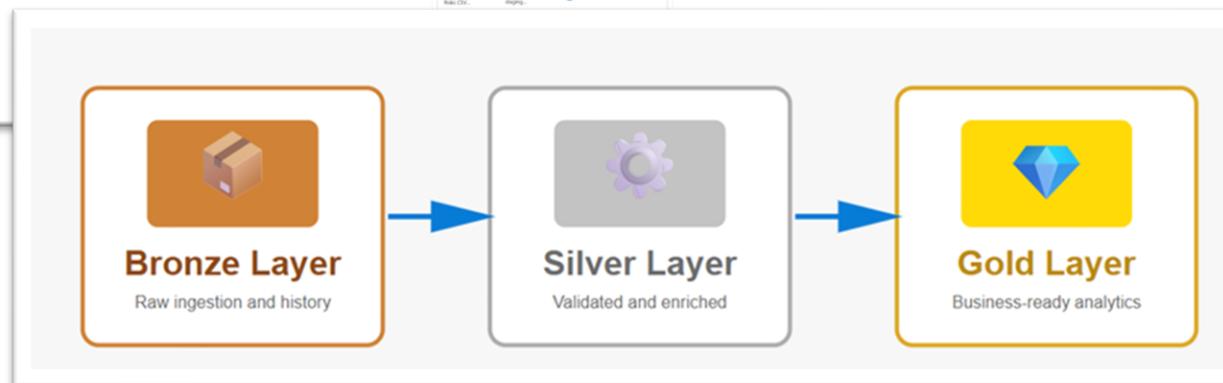
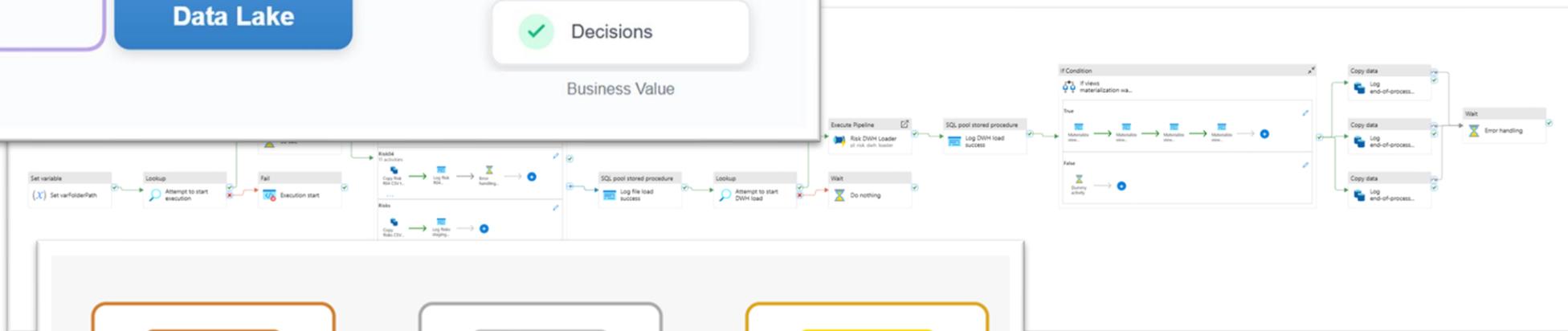
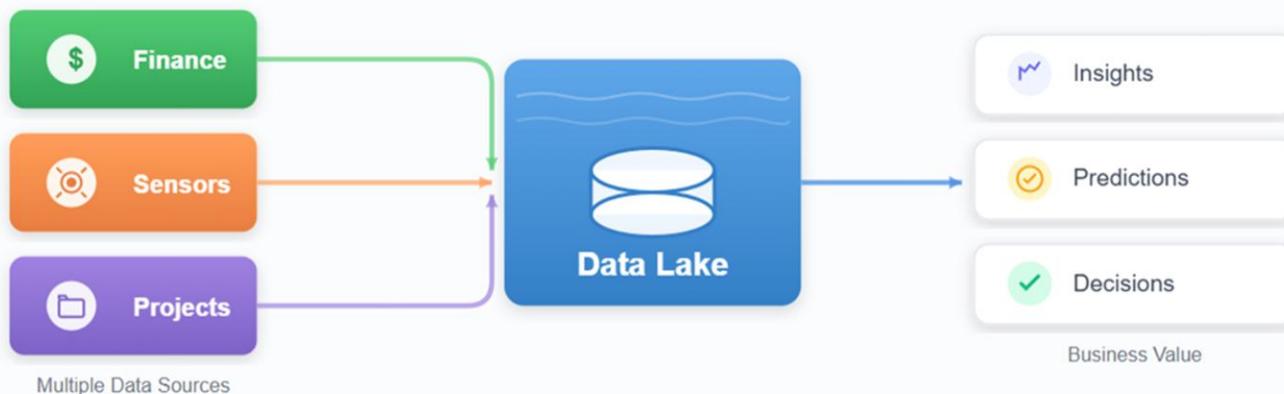


Data Lake

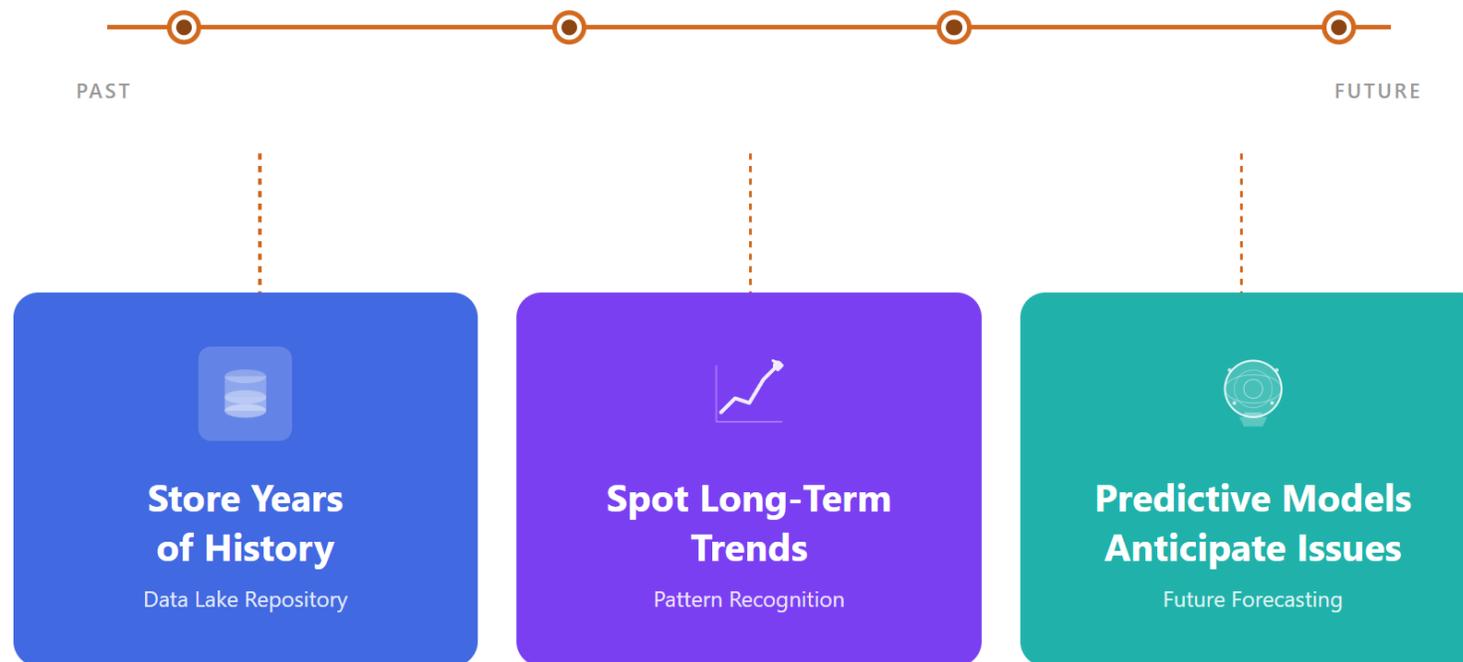
Ionuț Coroian
Senior Systems & Data Manager

Transforming Data into Operational Excellence

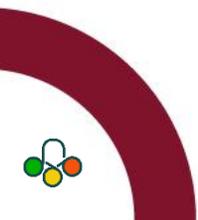
Data Lake Architecture



Historical Trends & Advanced Analytics



See the Past → Understand Patterns → Forecast the Future



Enable Self-Service Reporting

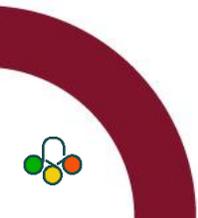
Direct Access to Enriched Data

Answers in Minutes, Not Days

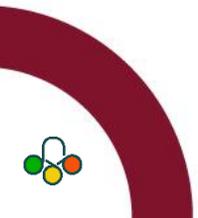
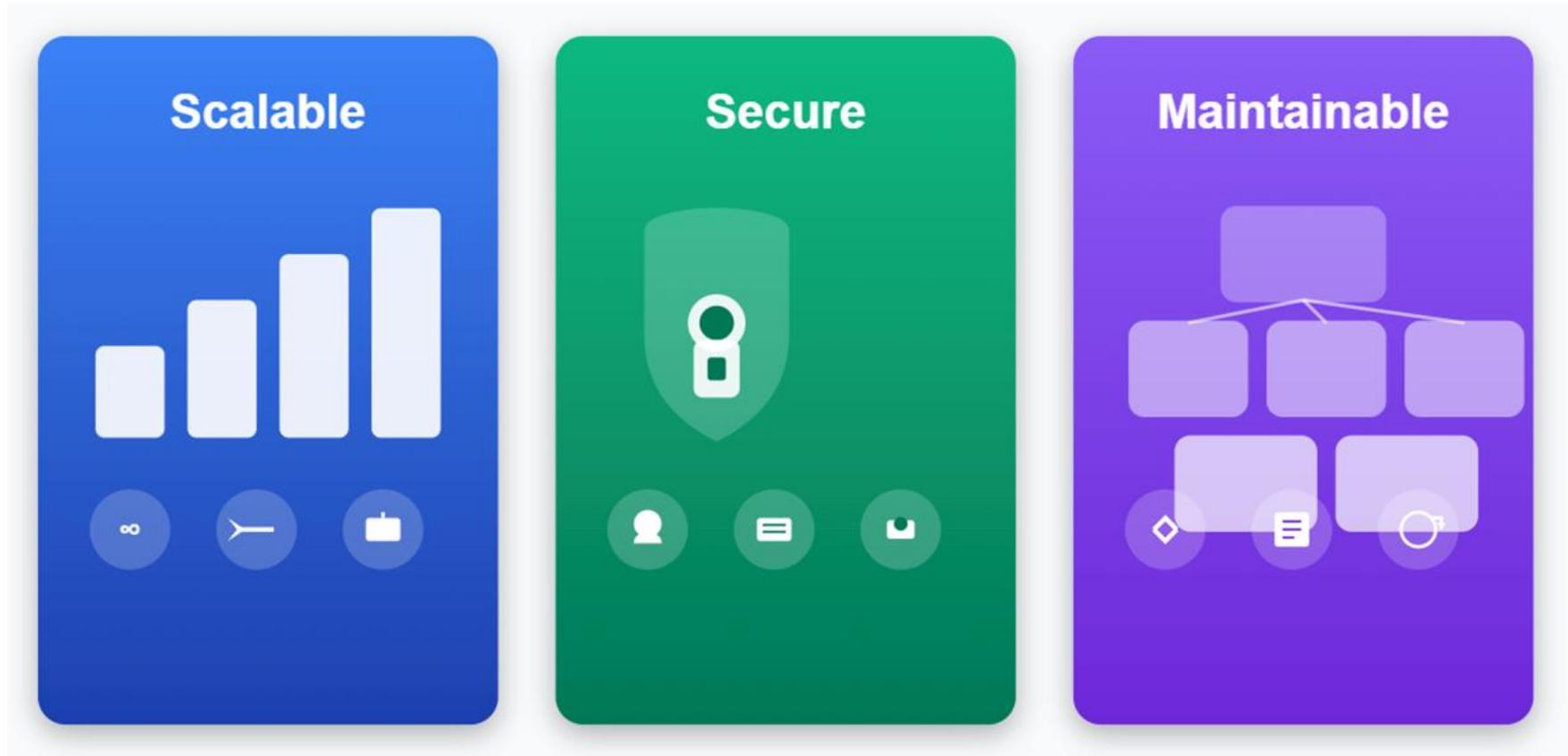
Focuses on Strategy

Insights Available on Demand

Consistent Metrics Across Departments



Build for Growth & Security



Summary

Summary

Why

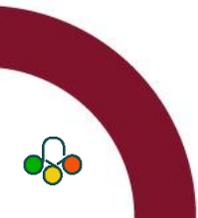
- Maximising value and linking the data silos

What & How

- Change Control Database
- Phase Readiness App
- Periodic Business Review Pack
- Commentary Collector
- Data Lake

So What...

- Impact & Benefits and Lessons Learned

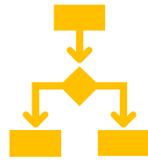


Impact & Benefits



Innovation
Ready

Speed &
Efficiency

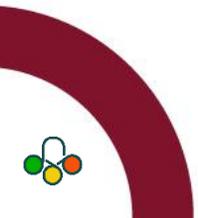


Better
Decisions

Cost
Savings



Passenger
Experience



Lessons Learned



Key Takeaways



Defining the right questions to ask



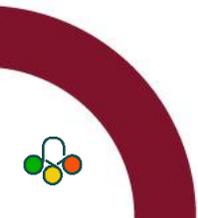
Deploying a series of trusted reports



Establishing a core technical team



Implementing training for independent analysis



Q&A

Thank
You