

The next level of seamless automation for Project Controls reporting



The Team



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The Need



Transpennine Route Upgrade

- Transpennine Route Upgrade (TRU) is a multi-billion pound upgrade of the rail infrastructure between York and Manchester
- Includes links to Huddersfield and Leeds
- TRU West is the largest alliance of companies comprising of:
 - Amey Rail
 - Arup
 - BAM Nuttall
- Following presentation focuses on project area W1 – Manchester Victoria area 16 day blockade, summer 2021



What is a Possession/Blockade?

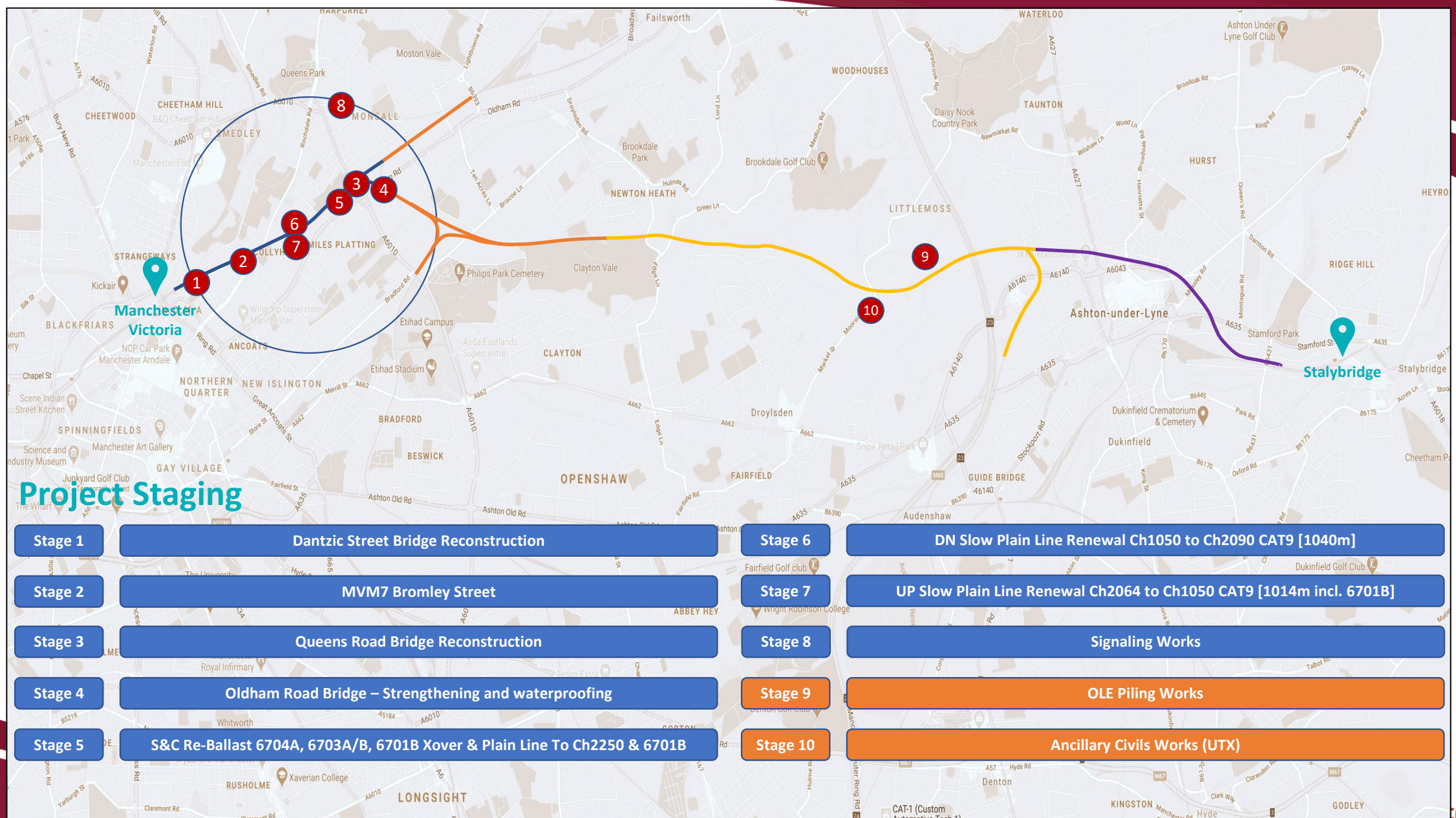
- A possession/blockade is when a section of railway infrastructure is removed from operational service for maintenance or engineering works
- Network Rail have a specific standard for the planning and management of possessions – ***Delivering Works Within Possession (DWWP)***
- *Within the DWWP there are clear stipulations on industry standard reporting based on the complexity of the work content*
- *Reporting is required internally within the programme and externally to Network Rail and train operators*

Current Blockade Reporting

- Rail industry reporting has changed very little in recent years
- An inconsistent mixture of phone calls, text messages, emails, Whatsapp etc.....
- Managed by multiple spreadsheets, requiring many people to plug in data
- Often, no clear lines of reporting, duplicate phone calls from different stakeholders, message often becomes distorted
- Agile decision making challenging
- Communication to the wider industry non standard, poor quality reports, often reproduced multiple times for different stakeholders

The W1 Summer Blockade





TRU

WEST

POSSESSION DETAILS



00:40 SATURDAY 31/07/21 - 04:40 MONDAY 16/08/21
Week 18 to 20

ENGINEERING TRAINS

26

PLAIN LINE TRACK RENEWALS (CAT 9&11)



2400m

S&C HEAVY REFURBISHMENTS



4

PLAIN LINE TRACK RENEWALS (CAT 14)



880m

NEW SIGNALS



17

DROPPER CAGE REMOVAL

7

UNDERBRIDGE RECONSTRUCTIONS



2

{ DANTZIC STREET
QUEENS ROAD

SIGNAL BASES



3

HOLLOW BEARERS

40

DRIVER WALKWAYS



4

SPEED BOARDS



8

DURATION



16 DAYS

UNDERBRIDGE STRENGTHING & WATERPROOFING



2



BROMLEY STREET
OLDHAM ROAD

POINTS HEATING INSTALLATIONS



4

T - MINUS 10

BLOCKADE ON A PAGE

The Approach

Project Roadmap

Produce the Digital Transformation business for board acceptance

1

Formulate the requirements using MoSCoW – “they don’t know what they don’t know!”

3

Lean deployment – visual management, standardisation

5

2

Deliver the physical Digital Collaboration Hub infrastructure

4

Iterative development of the solution – fail fast, learn quick (AgilePM)

6

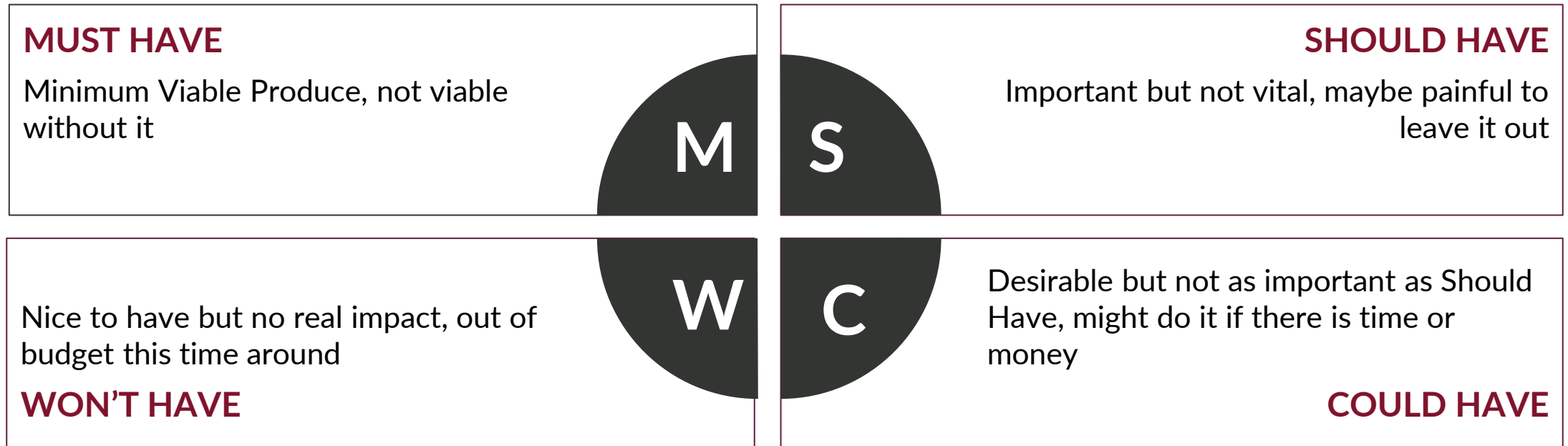
Plan, Do, Check, Act – rigorous cycle of self reflection



Digital Collaboration Hub

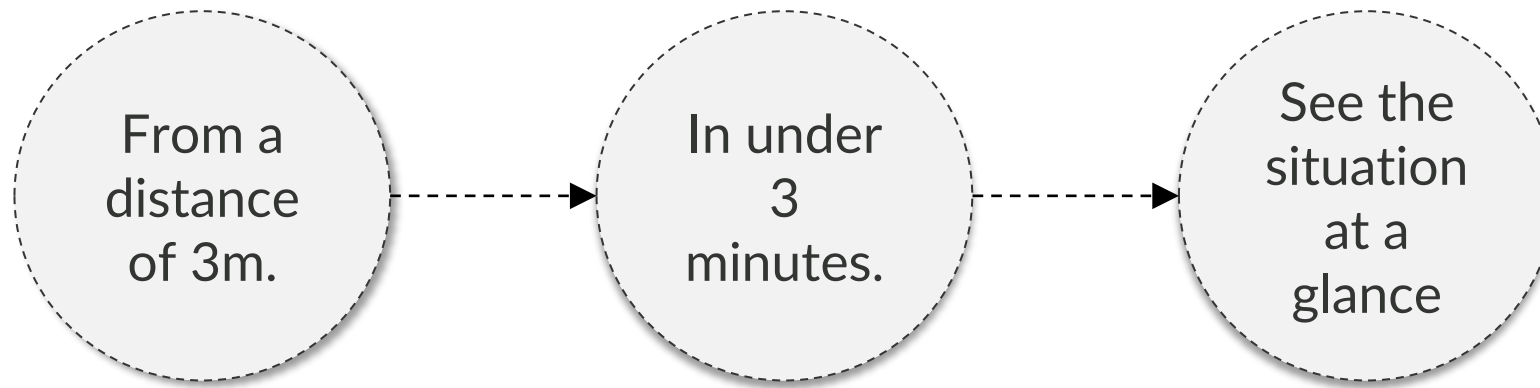


MoSCoW

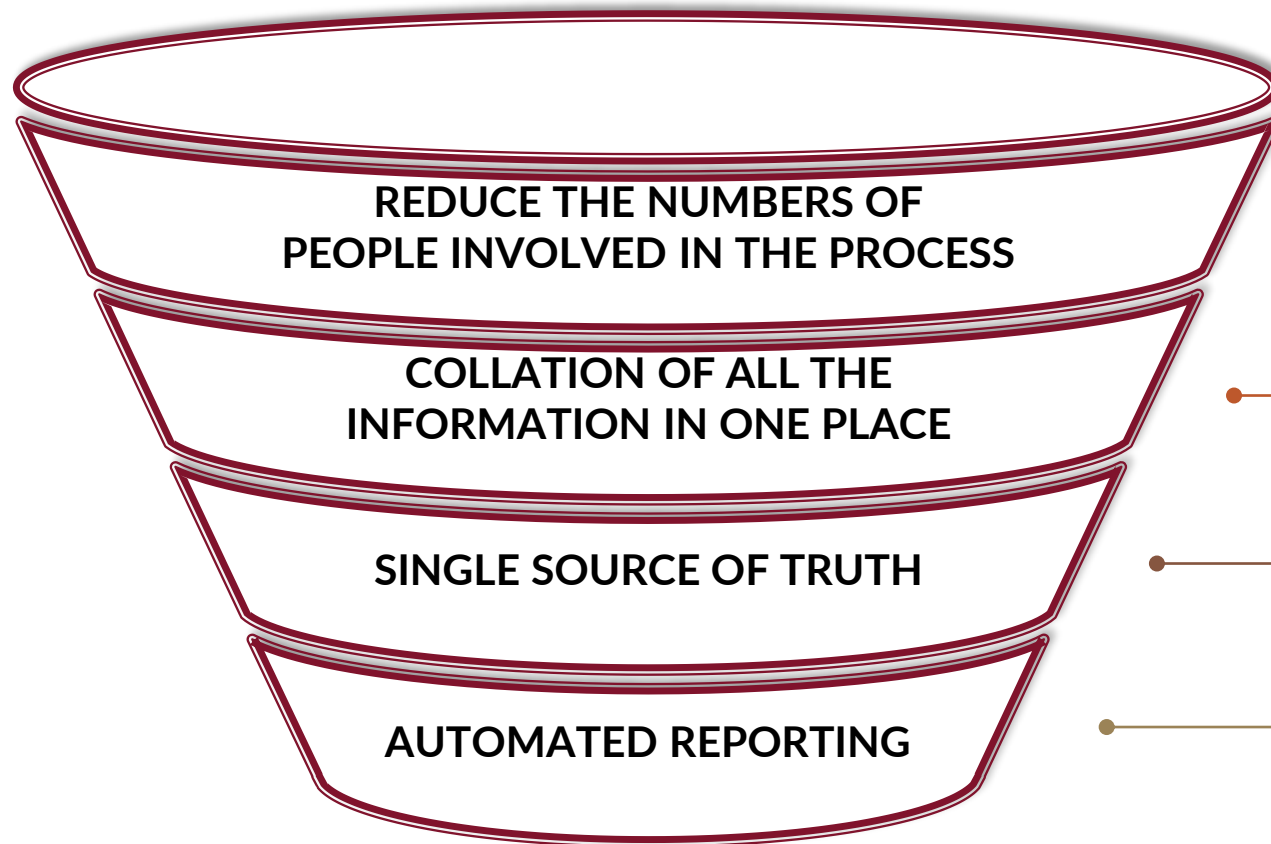


Visual Management Gold Standard

For any control room, the following test should be undertaken to determine effectiveness



4 Core Goals



Less opportunity for miscommunication

Information collected in the same way, in the same format, every time, no spreadsheets

Only one set of data, in one place, with the same message

Exploiting digital tools to seamlessly automate the reporting to the respective stakeholder, same quality, every time

Constraints

- The W1 team were delivering their first major construction activity, planned during COVID working constraints
- Uncertainty over government guidance around working practices meant that any solution needed to be flexible and accommodate all contingency arrangements
- Pushing a radical cultural change, the timescales involved did not lend to driving such a fundamental shift
- Ability of the project team to absorb change in an intensive operational environment

Traditional cycle

Understanding the problem

Traditional project controls cycle

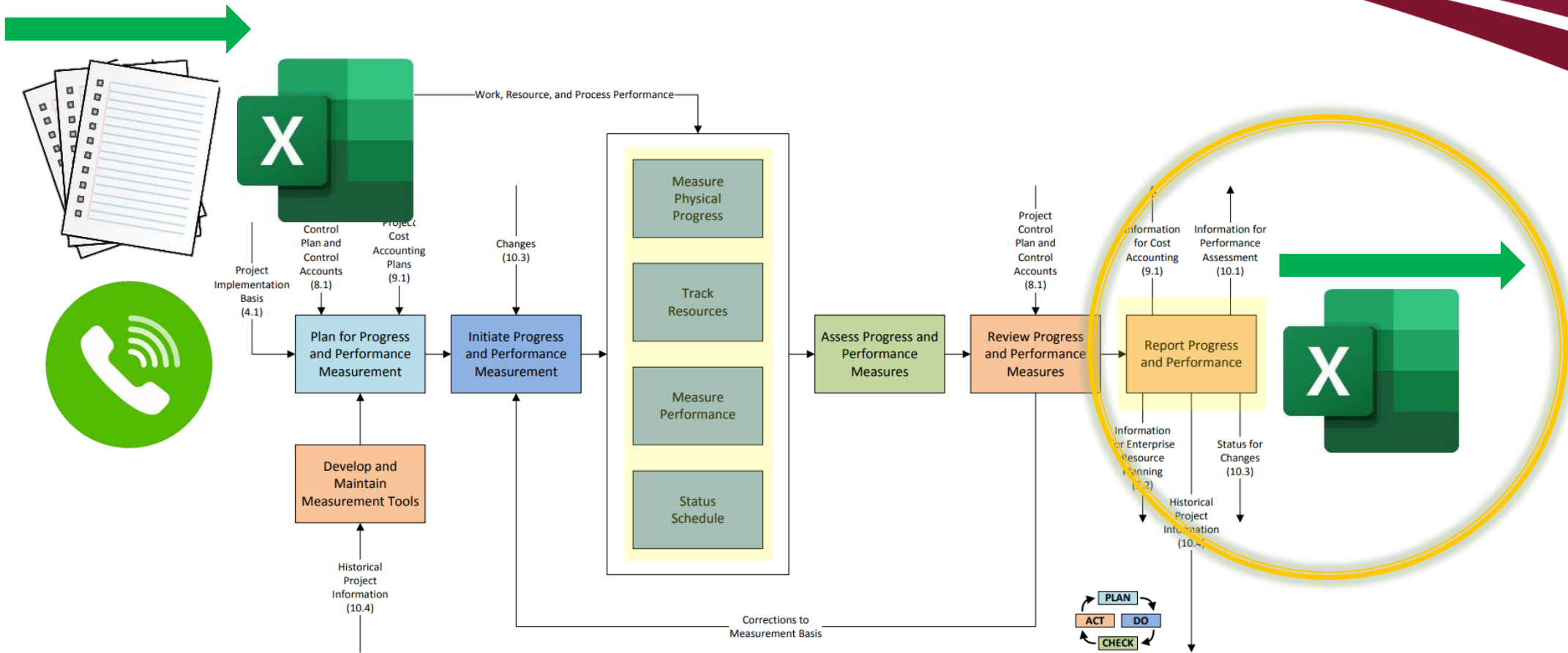


Figure 9.2-1 Process Map for Performance Measurement

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The Solution

Primavera P6



six large wall-mounted touch screens



Live time-lapse pictures



Solution



MS Sharepoint



Power Automate



Microsoft Forms



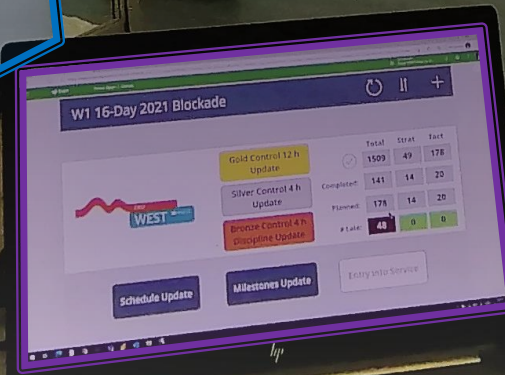
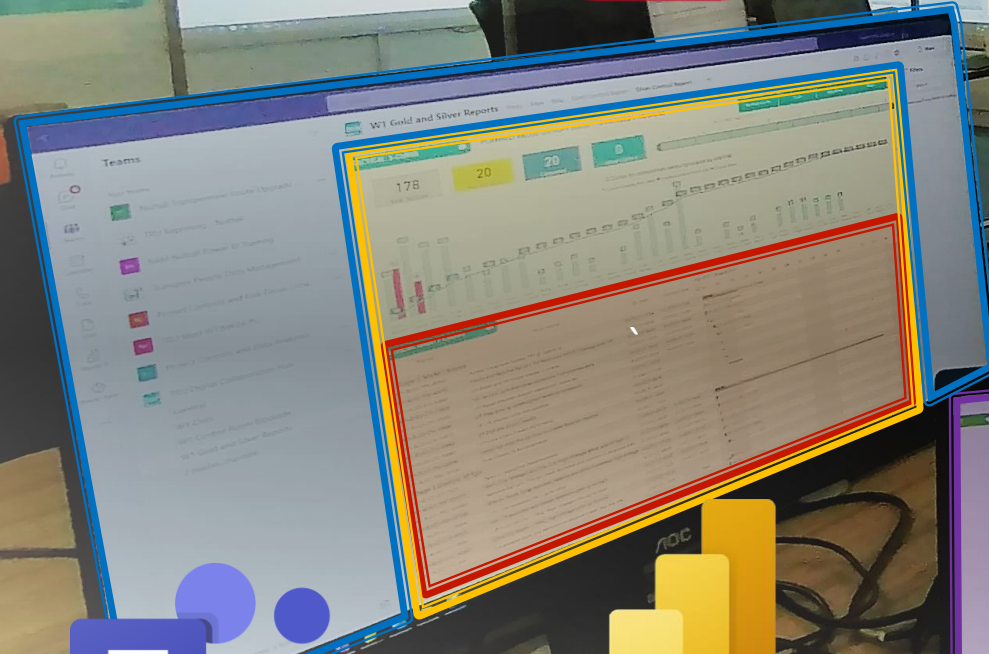
Power Apps



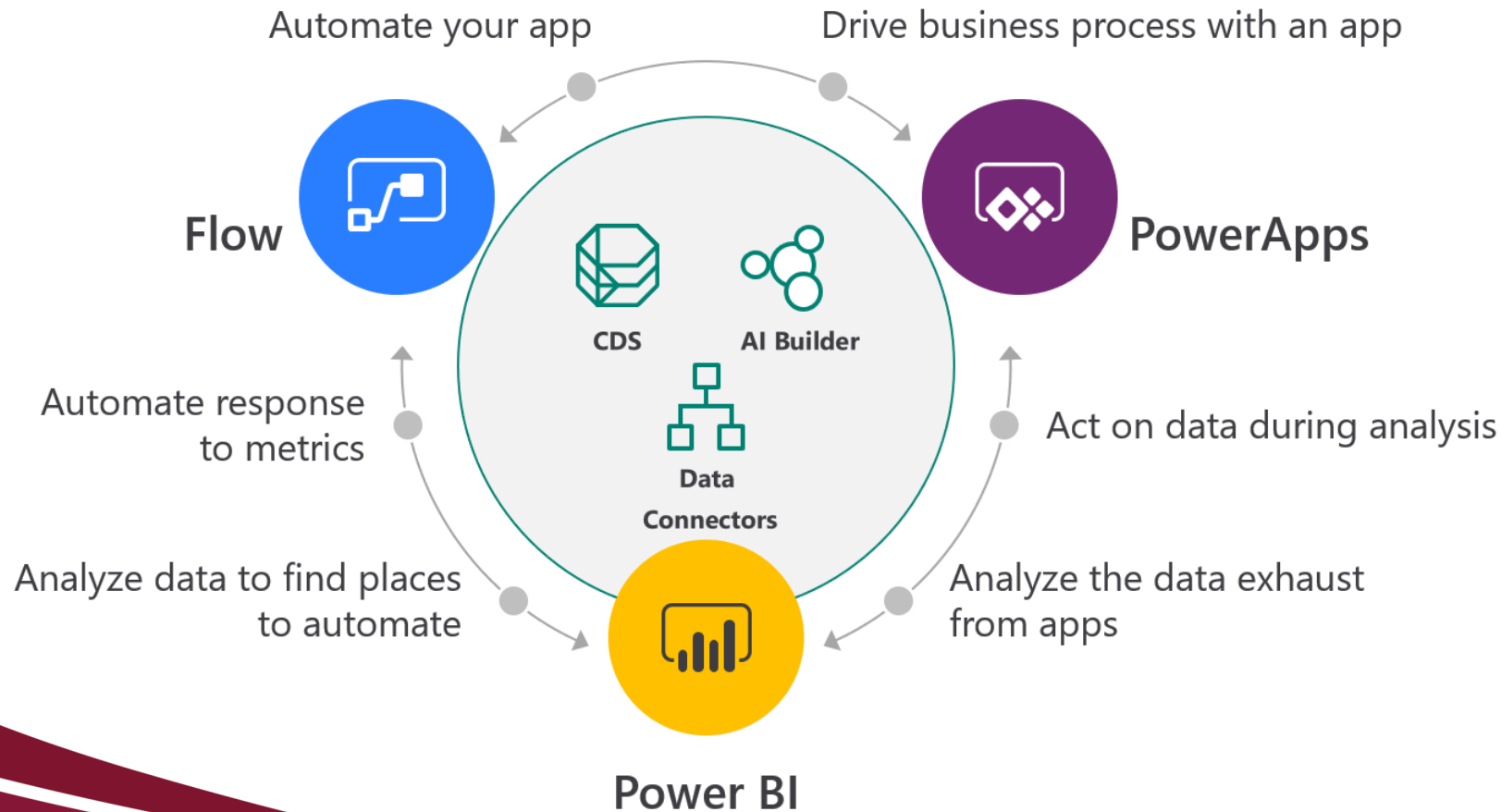
Embedded
Power BI
Reports



MS Teams



DIY: Power Platform



❖ The Microsoft Power Platform is a **low-code platform / business application** that enables project teams to create and deploy tailored apps, reports and workflows.

Project controls cycle: Seamless automation

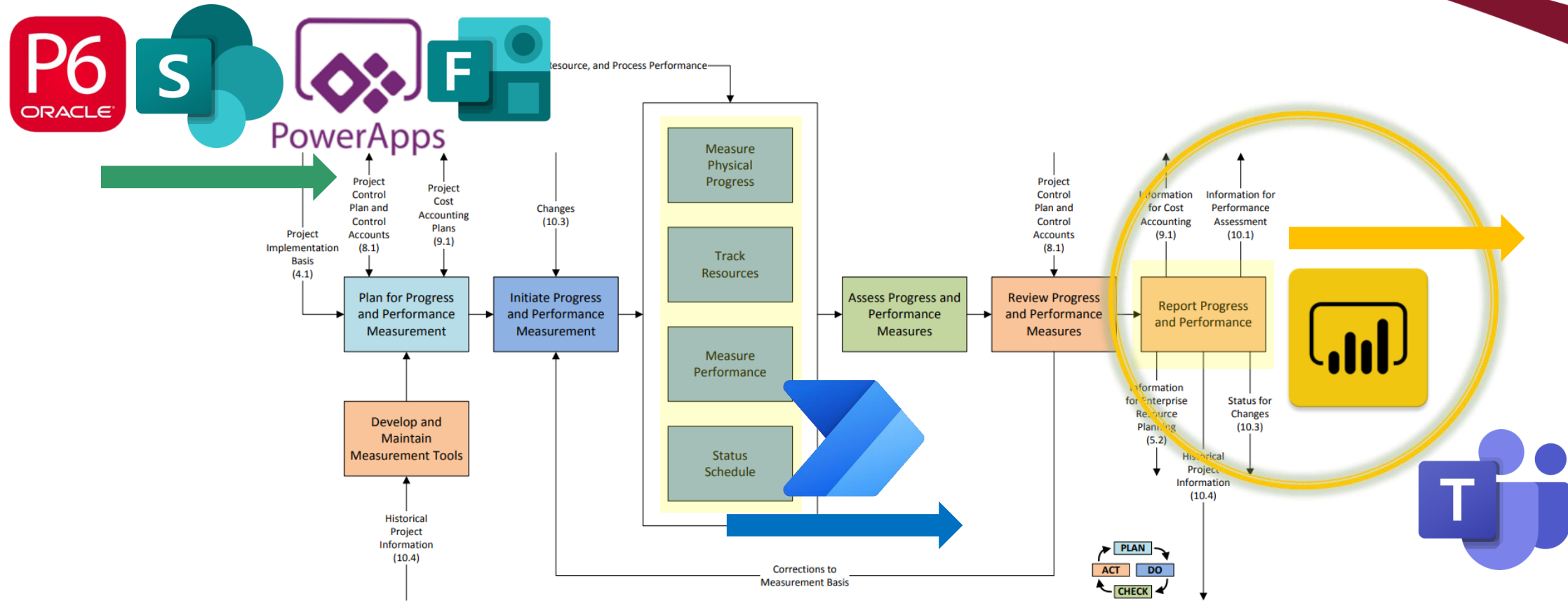


Figure 9.2-1 Process Map for Performance Measurement

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An aerial photograph of a railway yard and construction site. In the upper left, two large yellow tower cranes are positioned on a construction area. Below them, several trains are visible on tracks, including a blue and white passenger train and a yellow and black freight train. The yard is filled with various equipment, materials, and tracks. The background shows some industrial buildings and a parking lot with cars.

1514 activities to track

Accomplishments...

78%
activities
completed
ahead plan

90%
completed
within 3h
difference

0 / 685
Accidents
Close Calls

130+
Automated
BI reports
~8/day

98%
BI Reports
delivered
on time

3hrs
All works
complete
ahead RTHB

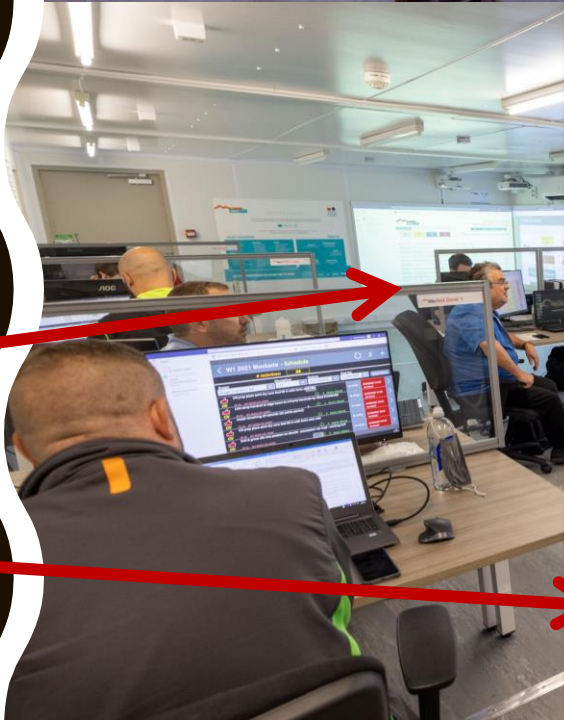
Collaboration Hub

The main objectives of the Collaboration Hub are to improve collaboration, communication and coordination.

Live data are streamed from the construction site to the Collaboration Hub

The Hub was organized in:

- A 3 display walls focus on Live data feed (Power Apps) and Live Reporting (Power BI)
- B 3 display walls focus on Live time-lapse, people on-site data
- C 3 display walls (BIM Cave) focus on 4D planning reviews and briefings.





Immersive
experience

A Live reporting

< W1 2021 Blockade - Milestones

A

Live reporting



Activities:

16

Lookahead

Planned to date

Reset Filters

Stage:

No Filter ▾

Discipline:

No Filter ▾

Status:

Not Started ▾

Due by:

17/08/2021

Milestone:

STRAT ▾



Weekend 19 Signalling Complete

TRK

P6 ID: W1-BLKD-PCP-2450

Stage 9 Signalling Work



-3 hours delayed

BL Finish :

08/08/2021 23:00

Not Started



PC Handover to Amey

TRK

P6 ID: W1-BLKD-TRK-5000

Stage 3 Queens Rd



-1 hours delayed

BL Finish :

09/08/2021 01:00

Not Started



Stage 7 Track Works Complete

TRK

P6 ID: W1-BLKD-PCP-2410

Stage 7 UP Slow PLR Ch2064-



23 hours ahead

BL Finish :

10/08/2021 01:50

Not Started



Span 31 Civils Complete

TRK

P6 ID: W1-BLKD-PCP-2340

Stage 1 Dantzie St Span 31



73 hours ahead

BL Finish :

12/08/2021 03:00

Not Started



< W1 2021 Blockade - Planned to Date



Activities:

35

A

Live reporting

Stage:

No Filter



Discipline:

No Filter



Milestone:

STRAT



Reset Filters

*This is a list to visualise only - No action on select



TRK

PC Handover to Amey

P6 ID: W1-BLKD-TRK-5000

Stage 3 Queens Rd



-2 hours delayed

BL Finish :

09/08/2021 01:00

Not Started

Comments!



CIV

STAGE 3 > Queens Road Bridge - Civils Construction Complete

P6 ID: W1-BLKD-KEY-1010

Stage 3 Queens Rd



-3 hours delayed

BL Finish :

09/08/2021 00:00

Started



SIG

Wheels Free [Stage 5] [MN709, MN811] / [MN707 MN809] / [MN709, MN811]

P6 ID: W1-BLKD-SIG-3490

Stage 9 Signalling Work

0 hours

Act Finish :

08/08/2021 23:00

Completed



TRK

Weekend 19 Signalling Complete

P6 ID: W1-BLKD-PCP-2450

Stage 9 Signalling Work

0 hours

Act Finish :

08/08/2021 23:40

Completed

Comments!



TRK

Fire Break ** HANDBACK CHECKS ON METRO LINES SUN 22:00 - MON 02:00 **

Act Finish :

08/08/2021 01:30

Completed

P6 ID: W1-BLKD-TRK-70500

Stage 7 UP Slow PLR Ch2064

1 hours

< W1 2021 Blockade - Look back / Look ahead



Stage:

No Filter ▾

Discipline:

No Filter ▾

Milestone:

TACT ▾

Reset Filters

*This is a list to visualise only - No action on select

Look back Activities:

Last 12 hours

16

Look ahead Activities:

Next 12 hours

2

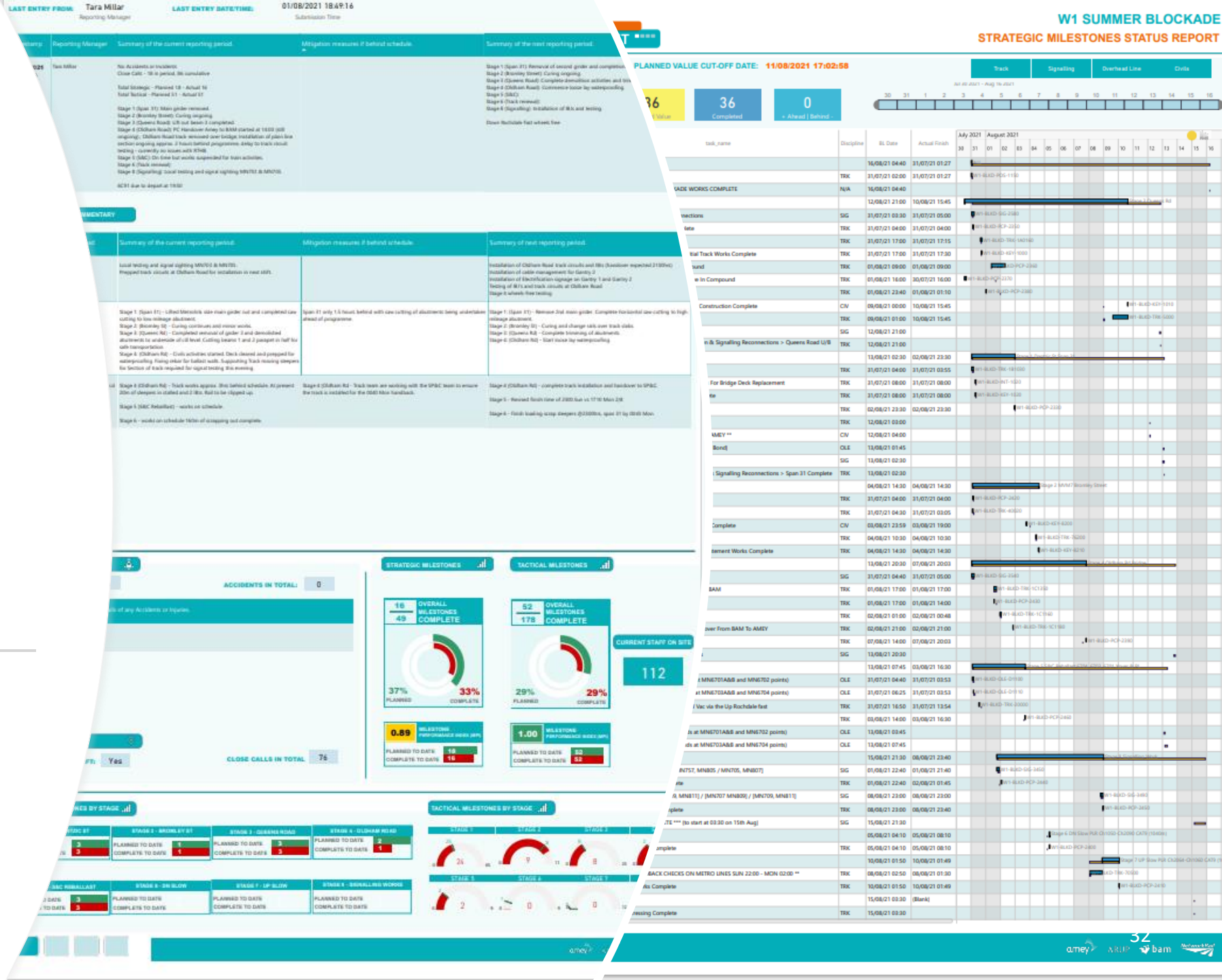
	SIG	Stage 9 Signalling Work P6 ID: W1-BLKD-SIG-3760	7 hours	Act Finish :	08/08/2021 12:30 Completed
	CIV	Attach bonding to Metro check continuity (by others) Stage 1 Dantzic St Span 31 P6 ID: W1-BLKD-CIV-39220	7 hours	Act Finish :	08/08/2021 10:00 Completed
	CIV	Install and dowel new ballast retention units on NW, SW and SE corners Stage 1 Dantzic St Span 31 P6 ID: W1-BLKD-CIV-76430	-6 hours	Act Finish :	08/08/2021 23:15 Completed
	CIV	Comments! Gun up all bolts on Southern side of the structure Stage 1 Dantzic St Span 31 P6 ID: W1-BLKD-CIV-76370	-11 hrs delayed	BL Finish :	08/08/2021 16:30 Started
		Reconnection IMN709 MN8111			

	CIV	Ballast (place bottom ballast - approx 360t bring up by conveyor from road) Stage 1 Dantzic St Span 31 P6 ID: W1-BLKD-CIV-2390	2 hrs ahead	BL Finish :	09/08/2021 05:30 Not Started
	TRK	Shift 1 (CH2250-1000) Tandem Tamp Both Roads and Complete Pass 1 (High to Low) Eng. Stage 7 UP Slow PLR P6 ID: W1-BLKD-TRK-76090	8 hrs ahead	BL Finish :	09/08/2021 11:20 Not Started

Outputs

A

Live reporting



B

Timelapse





4D Planning





ARUP



BONUS: Your first Power App (no-code)



The project controls cycle: Initial scenario

Produce Site
Layouts

200

Produce
Equipment

150

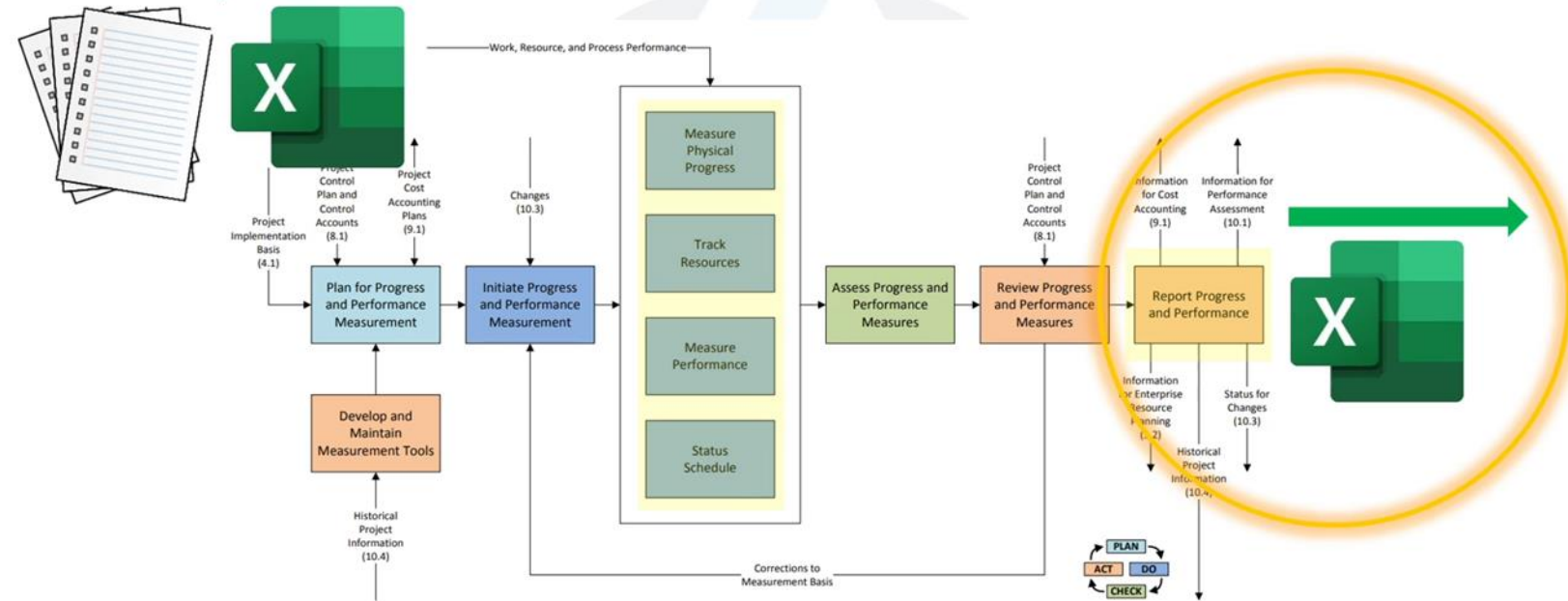


Figure 9.2-1 Process Map for Performance Measurement

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Takeaways

With the use of Power Platform, a readily available technology by Microsoft, you could...

- Automate your entire reporting cycle and tremendously reduce the amount of time in consolidating data and producing reports
- Prevent errors associated with manual data consolidation
- Provide real-time visibility into your projects' status
- Quickly identify project performance problems at the desired granularity level
- Spend more time in data analysis and flagging project issues

THANK YOU



Q & A

