

Using Power BI for Data & Metrics Visualisation

A Case Study

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PDA Aseptic Manufacturing Excellence Conference 2024

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SCIENCE^{AND}
REGULATION[®]

Why do we need Data Visualisation?



Our Opportunity

- Lack of standardization in reporting
- Excessive time spent manually preparing data



Our Solution

- Power BI to handle data preparation
- Can use one report for multiple metrics
- Standardization across the process through automation



Our learning journey

Importance of Data Integrity, Data Governance and Data Quality

What is Power BI?

- Data Visualisation tool
- Microsoft Application
- Used for Business Intelligence

Essentially, Power BI allows us to make strong visualizations that can enable people in business to display and understand complex data

Number	Title	Owner	Column1	Date Due	Value Stream / Department	Lifecycle State	Batch Impacting?	Column2	Batch Number
Deviation 1	This is an example of a deviation Title	Owner 1	58	31/10/2024	Department 1	Opened	Yes	7350	B7350
Deviation 2	This is an example of a deviation Title	Owner 2	4	7/09/2024	Department 1	In Investigation	Yes	7831	B7831
Deviation 3	This is an example of a deviation Title	Owner 3	14	17/09/2024	Department 1	In Approval	Yes	7174	B7174
Deviation 4	This is an example of a deviation Title	Owner 4	65	7/11/2024	Department 1	Opened	Yes	7134	B7134
Deviation 5	This is an example of a deviation Title	Owner 5	-17	17/08/2024	Department 1	In Investigation	Yes	7519	B7519
Deviation 6	This is an example of a deviation Title	Owner 6	-7	27/08/2024	Department 1	In Approval	No	7749	B7749
Deviation 7	This is an example of a deviation Title	Owner 7	-16	18/08/2024	Department 1	Opened	No	7954	B7954
Deviation 8	This is an example of a deviation Title	Owner 8	31	4/10/2024	Department 1	In Investigation	No	7025	B7025
Deviation 9	This is an example of a deviation Title	Owner 9	2	5/09/2024	Department 1	In Approval	No	7241	B7241
Deviation 10	This is an example of a deviation Title	Owner 10	27	30/09/2024	Department 1	Opened	No	7472	B7472
Deviation 11	This is an example of a deviation Title	Owner 11	69	11/11/2024	Department 1	In Investigation	Yes	7085	B7085
Deviation 12	This is an example of a deviation Title	Owner 12	22	25/09/2024	Department 2	In Approval	No	7725	B7725
Deviation 13	This is an example of a deviation Title	Owner 13	45	18/10/2024	Department 2	Opened	No	7976	B7976
Deviation 14	This is an example of a deviation Title	Owner 14	51	24/10/2024	Department 2	In Investigation	Yes	7178	B7178
Deviation 15	This is an example of a deviation Title	Owner 15	42	15/10/2024	Department 2	In Approval	Yes	7158	B7158
Deviation 16	This is an example of a deviation Title	Owner 16	1	4/09/2024	Department 2	Opened	Yes	7461	B7461
Deviation 17	This is an example of a deviation Title	Owner 17	4	7/09/2024	Department 2	In Investigation	Yes	7060	B7060
Deviation 18	This is an example of a deviation Title	Owner 18	40	13/10/2024	Department 2	In Approval	Yes	7855	B7855
Deviation 19	This is an example of a deviation Title	Owner 19	35	8/10/2024	Department 2	Opened	No	7044	B7044
Deviation 20	This is an example of a deviation Title	Owner 20	26	29/09/2024	Department 2	In Investigation	No	7448	B7448
Deviation 21	This is an example of a deviation Title	Owner 21	33	6/10/2024	Department 2	In Approval	Yes	7770	B7770
Deviation 22	This is an example of a deviation Title	Owner 22	-30	4/08/2024	Department 2	Opened	No	7480	B7480
Deviation 23	This is an example of a deviation Title	Owner 23	63	5/11/2024	Department 2	In Investigation	Yes	7779	B7779
Deviation 24	This is an example of a deviation Title	Owner 24	58	31/10/2024	Department 2	In Approval	No	7964	B7964
Deviation 25	This is an example of a deviation Title	Owner 25	66	8/11/2024	Department 2	Opened	No	7520	B7520
Deviation 26	This is an example of a deviation Title	Owner 26	0	3/09/2024	Department 2	In Investigation	No	7064	B7064
Deviation 27	This is an example of a deviation Title	Owner 27	9	12/09/2024	Department 2	Opened	Yes	7646	B7646
Deviation 28	This is an example of a deviation Title	Owner 28	66	8/11/2024	Department 2	In Investigation	No	7766	B7766

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Opportunity

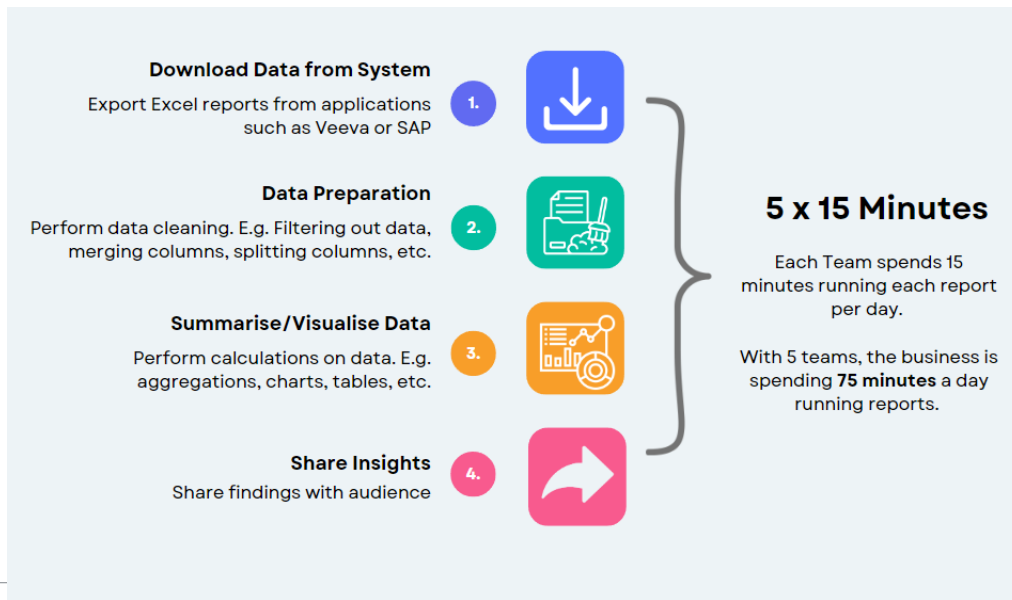
Awesome Pharmaceutical Company (APC) has five teams, each managing a different product and its raw materials.

Managers spend at least 15 minutes daily collating data from their Quality Management System for the Site Leadership Team.









One of the managers calculates that the company is spending 75 minutes a day running these reports and wants to find a solution to make it more efficient.

Implement a solution that:

- Reduces time spent preparing data
- Is a low-cost solution
- Increases accuracy and reliability of the data
- Is flexible in adding/adjusting metrics/KPIs



Comparisons of Data Visualisation Tools

 <p>I.T RESOURCES</p> 	 <p>EXCEL</p> 	 <p>OTHER DATA VISUALISATION SOFTWARE</p> 	 <p>POWER BI</p> 
<ul style="list-style-type: none"> • High costs • Long wait times • Inflexible when it comes to changing/adding metrics or features • Can provide a robust solution with low data integrity issues • Requires experts 	<ul style="list-style-type: none"> • Low costs • Data prep can be quick, but the process can be difficult to automate • Data integrity issue. Data entry must be done manually which can lead to mistakes • Does not require a high level of expertise • Excel is a reliable and well-known tool with excellent user interaction and ease of use 	<ul style="list-style-type: none"> • High costs • Timelines can be very long and changing metrics or adding new features will add to timelines as the process/software is owned by a specific team that are the experts • Can provide a robust solution with low data integrity issues • Less online resources/discussion available 	<ul style="list-style-type: none"> • Low costs. Report creation is free. Sharing requires a license. • Timelines can be short as the data manipulation is the responsibility of the data owners • Can provide a robust solution with low data integrity issues • Requires some level of expertise • Integration with Microsoft Ecosystem

Our Solution

Without Power BI

- 1. Download Data from System**
 Export Excel reports from applications such as Veeva or SAP
- 2. Data Preparation**
 Perform data cleaning. E.g. Filtering out data, merging columns, splitting columns, etc.
- 3. Summarise/Visualise Data**
 Perform calculations on data. E.g. aggregations, charts, tables, etc.
- 4. Share Insights**
 Share findings with audience

5 x 15 Minutes

Each Team spends 15 minutes running each report per day.

With 5 teams, the business is spending **75 minutes** a day running reports.

With Power BI

- 1. Download Data from System**
 Export Excel reports from applications such as Veeva or SAP
- 2. Data Preparation**
 Perform data cleaning. E.g. Filtering out data, merging columns, splitting columns, etc.
- 3. Summarise/Visualise Data**
 Perform calculations on data. E.g. aggregations, charts, tables, etc.
- 4. Share Insights**
 Share findings with audience

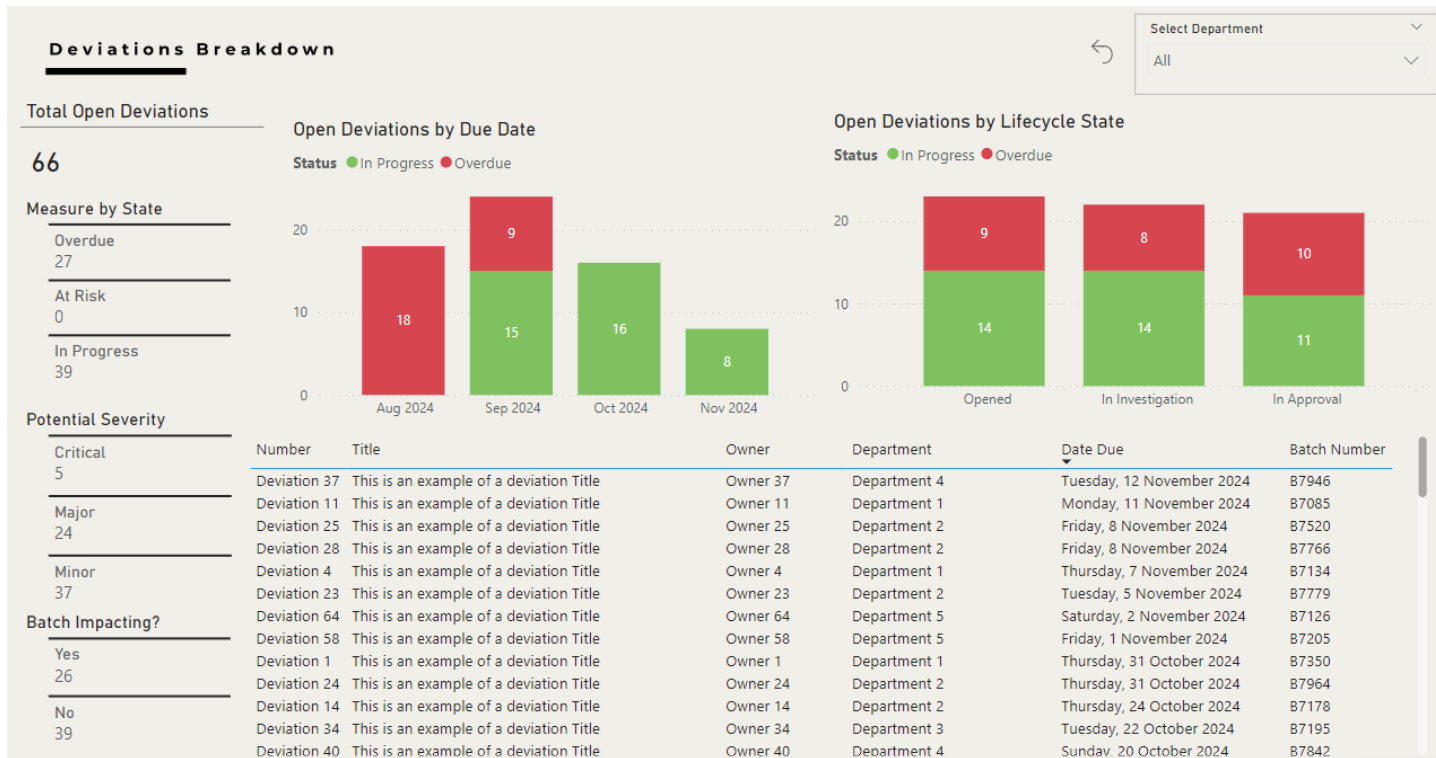
2 Minutes

Once setup, data preparation steps, summarising and visualising becomes automated.

Requirement to run multiple reports is no longer needed as one report can service all teams.

Can even be fully automated if Power BI is connected directly to the data source in real-time.

- Reports found in one consolidated space



- Reports are highly interactive

Deviations Breakdown

↶

Select Department

All

↷

Total Open Deviations

27

Measure by State

- Overdue
27
- At Risk
0
- In Progress
39

Potential Severity

- Critical
2
- Major
9
- Minor
16

Batch Impacting?

- Yes
8
- No
18

Open Deviations by Due Date

Month	Count
Aug 2024	18
Sep 2024	9

Open Deviations by Lifecycle State

State	Count
Opened	9
In Investigation	8
In Approval	10

Number	Title	Owner	Department	Date Due	Batch Number
Deviation 17	This is an example of a deviation Title	Owner 17	Department 2	Saturday, 7 September 2024	B7060
Deviation 2	This is an example of a deviation Title	Owner 2	Department 1	Saturday, 7 September 2024	B7831
Deviation 45	This is an example of a deviation Title	Owner 45	Department 4	Thursday, 5 September 2024	B7604
Deviation 9	This is an example of a deviation Title	Owner 9	Department 1	Thursday, 5 September 2024	B7241
Deviation 16	This is an example of a deviation Title	Owner 16	Department 2	Wednesday, 4 September 2024	B7461
Deviation 26	This is an example of a deviation Title	Owner 26	Department 2	Tuesday, 3 September 2024	B7064
Deviation 29	This is an example of a deviation Title	Owner 29	Department 2	Sunday, 1 September 2024	B7721
Deviation 46	This is an example of a deviation Title	Owner 46	Department 4	Sunday, 1 September 2024	B7157
Deviation 62	This is an example of a deviation Title	Owner 62	Department 5	Sunday, 1 September 2024	B7138
Deviation 59	This is an example of a deviation Title	Owner 59	Department 5	Saturday, 31 August 2024	B7692
Deviation 32	This is an example of a deviation Title	Owner 32	Department 3	Friday, 30 August 2024	B7503
Deviation 6	This is an example of a deviation Title	Owner 6	Department 1	Tuesday, 27 August 2024	B7749
Deviation 31	This is an example of a deviation Title	Owner 31	Department 3	Saturday, 24 August 2024	B7863

Deviations Breakdown

Total Open Deviations

5

Measure by State

- Overdue
5
- At Risk
0
- In Progress
6

Potential Severity

- Minor
5

Batch Impacting?

- Yes
2
- No
3

Open Deviations by Due Date

Status ● Overdue

Month	Overdue
Aug 2024	3
Sep 2024	2

Open Deviations by Lifecycle State

Status ● Overdue

Lifecycle State	Overdue
Opened	1
In Investigation	2
In Approval	1

Select Department

Department 1

- Department 1
- Department 2
- Department 3
- Department 4
- Department 5

Number	Title	Owner	Department	Date Due	Batch Number
Deviation 2	This is an example of a deviation Title	Owner 2	Department 1	Saturday, 7 September 2024	B7831
Deviation 9	This is an example of a deviation Title	Owner 9	Department 1	Thursday, 5 September 2024	B7241
Deviation 6	This is an example of a deviation Title	Owner 6	Department 1	Tuesday, 27 August 2024	B7749
Deviation 7	This is an example of a deviation Title	Owner 7	Department 1	Sunday, 18 August 2024	B7954
Deviation 5	This is an example of a deviation Title	Owner 5	Department 1	Saturday, 17 August 2024	B7519

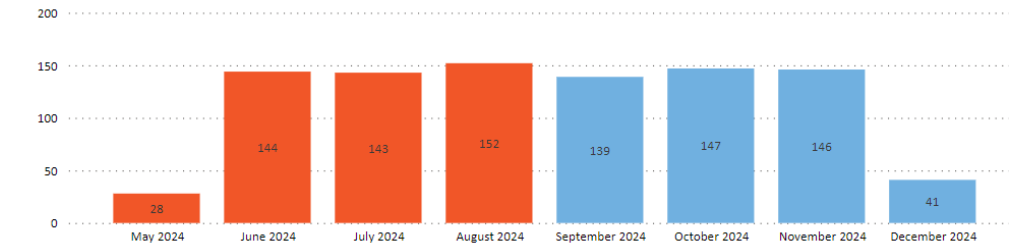
- Great for condensing large datasets into actionable insights



TRAINING DASHBOARD

Learner	Overdue	Pending
Learner 1	13	7
Learner 10	13	7
Learner 11	12	8
Learner 12	8	12
Learner 13	11	9
Learner 14	12	8
Learner 15	7	13
Learner 16	9	11
Learner 17	5	15
Learner 18	9	11
Learner 19	12	8
Learner 2	8	12
Learner 20	8	12
Learner 21	10	10
Learner 22	11	9
Learner 23	11	9
Learner 24	11	9
Learner 25	12	8
Learner 27	11	9
Learner 28	11	9
Learner 29	11	9
Learner 3	9	11
Total	467	473

Status ● Overdue ● Pending



467 **473**
OVERDUE PENDING

ILT PRACTICAL ASSESSMENT

Manager	Overdue	Pending
Manager 1	40	40
Manager 2	34	46
Manager 3	67	53
Manager 4	182	178
Manager 5	79	81
Manager 6	65	75
Total	467	473

Item Type	Days Remaining	Status
DOCUMENT	100	Pending
DOCUMENT	99	Pending
PRACTICAL ASSESSMENT	99	Pending
DOC	98	Pending
DOCUMENT	98	Pending
PRACTICAL ASSESSMENT	98	Pending
DOCUMENT	97	Pending
ELEARN	97	Pending
DOCUMENT	96	Pending
FI FARN	96	Pending

Item Type	Overdue
DOC	47
DOCUMENT	611
ELEARN	94
ILT	94

▶ Send Training Email Reminder



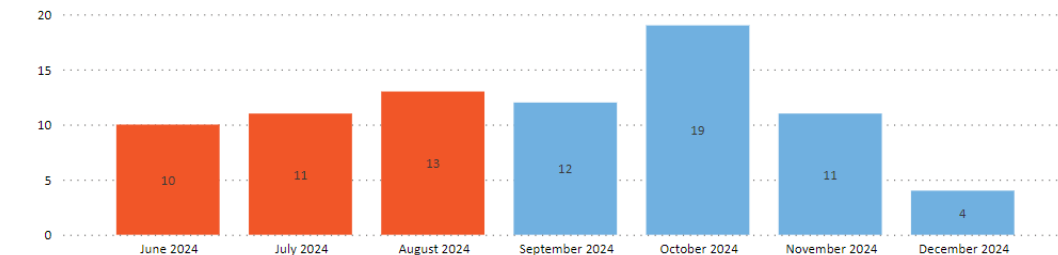
TRAINING DASHBOARD

34 **46**
OVERDUE PENDING

ILT PRACTICAL ASSESSMENT

Learner	Overdue	Pending
Learner 5	9	11
Learner 6	5	15
Learner 7	9	11
Learner 8	11	9
Total	34	46

Status ● Overdue ● Pending



- Integration with other Microsoft Applications such as Power Automate

Manager	Overdue	Pending
Manager 1	40	40
Manager 2	34	46
Manager 3	67	53
Manager 4	182	178
Manager 5	79	81
Manager 6	65	75
Total	467	473

Item Type	Days Remaining	Status
DOCUMENT	97	Pending
ILT	96	Pending
DOCUMENT	93	Pending
DOCUMENT	91	Pending
DOCUMENT	87	Pending
DOCUMENT	83	Pending
DOCUMENT	77	Pending
DOCUMENT	74	Pending
DOCUMENT	70	Pending
DOC	66	Pending

Item Type	Overdue
DOC	4
DOCUMENT	52
ELEARN	8
ILT	8

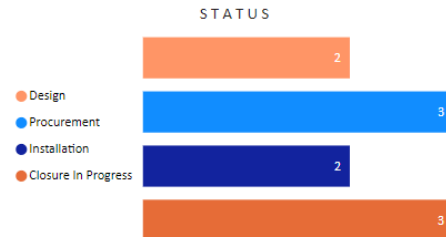
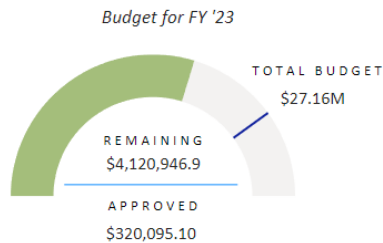
▶ Send Training Email Reminder

- Can use datasets from various sources such as Microsoft Lists

PROJECTS DASHBOARD

CLEAR

25 ACTIVE 6 PAUSED 0 UNASSIGNED 0 ARCHIVED



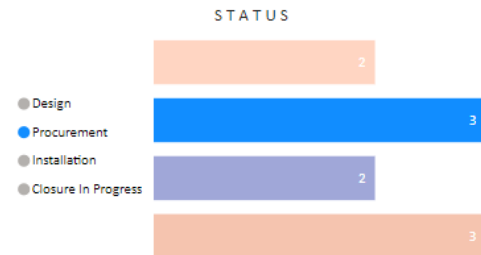
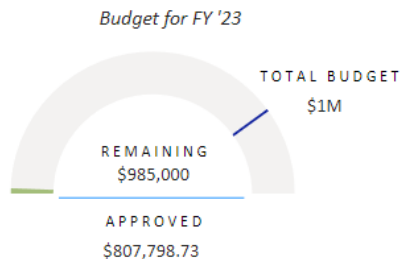
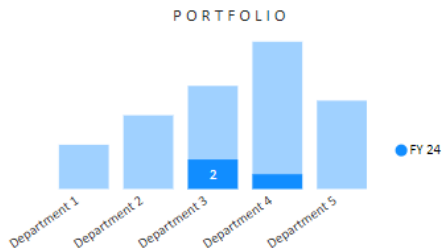
Fiscal Year	Title	Project Status	Point of Contact	Total approved project cost	Project Justification
FY 24	Project 1 , provide the title of the project	Design	Person 1	\$65,344.50	Comment 1 Provide any commentary about the project. The project comment is taken from Microsoft List
FY 24	Project 10 , provide the title of the project	Commissioning	Person 10	\$976,744.40	Comment 10 Provide any commentary about the project. The project comment is taken from Microsoft List
FY 24	Project 11 , provide the title of the project	Initiation	Person 11	\$1,723,429.20	Comment 11 Provide any commentary about the project. The project comment is taken from Microsoft List
FY 24	Project 12 , provide the title of the project	Paused	Person 12	\$251,058.40	Comment 12 Provide any commentary about the project. The project comment is taken from Microsoft List
FY 24	Project 13 , provide the title of the project	Commissioning	Person 13	\$410,042.80	Comment 13 Provide any commentary about the project. The project comment is taken from Microsoft List
FY 24	Project 14 , provide the title of the project	Procurement	Person 14	\$1,565,563.90	Comment 14 Provide any commentary about the project. The project comment is taken from Microsoft List
FY 24	Project 15 , provide the title of the project	Procurement	Person 15	\$383,231.70	Comment 15 Provide any commentary about the project. The project comment is taken from Microsoft List
FY 24	Project 16 , provide the title of the project	Procurement	Person 16	\$474,600.60	Comment 16 Provide any commentary about the project. The project comment is taken from Microsoft List

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PROJECTS DASHBOARD

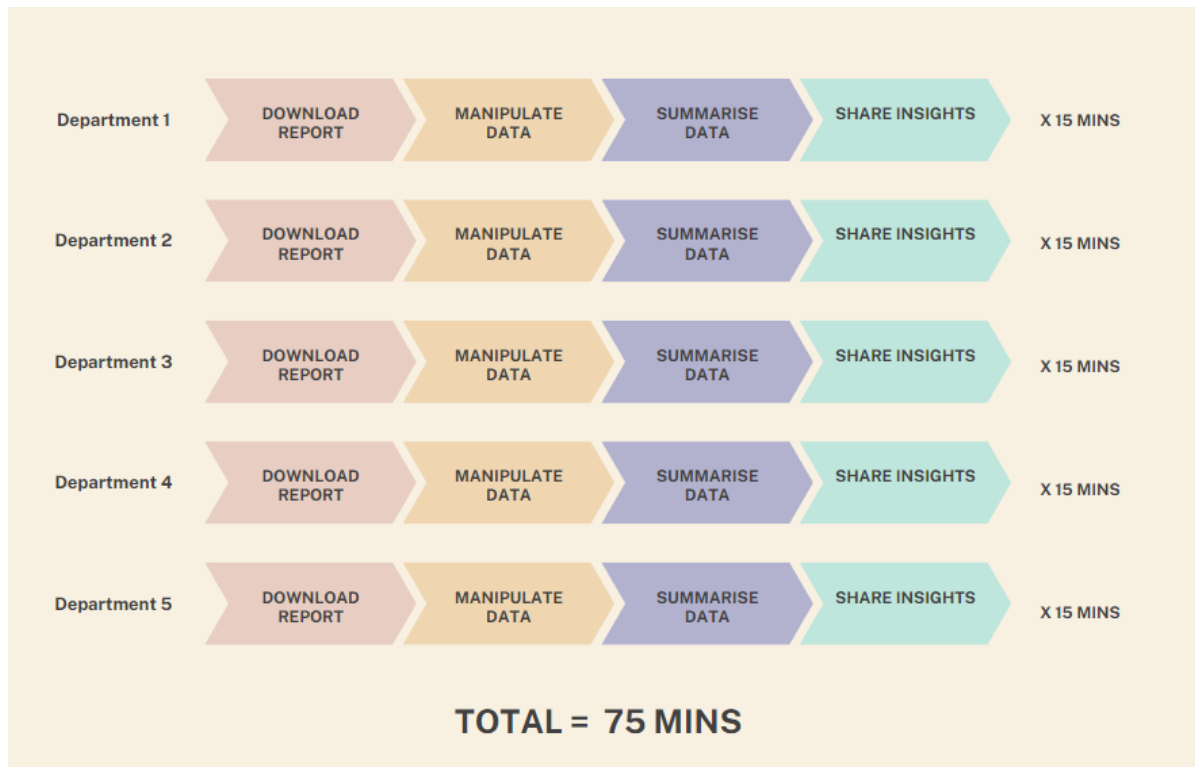
CLEAR

3 ACTIVE 0 PAUSED 0 UNASSIGNED 0 ARCHIVED

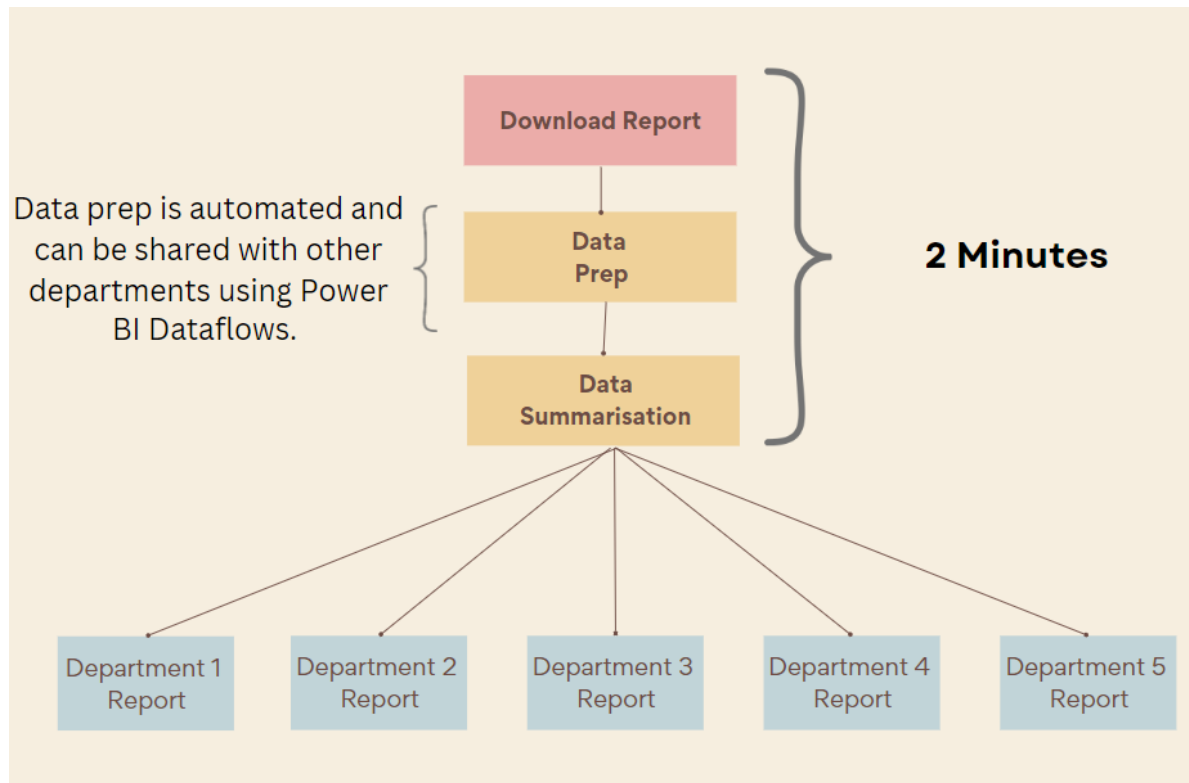


Fiscal Year	Title	Project Status	Point of Contact	Total approved project cost	Project Justification
FY 24	Project 14 , provide the title of the project	Procurement	Person 14	\$1,565,563.90	Comment 14 Provide any commentary about the project. The project comment is taken from Microsoft List
FY 24	Project 15 , provide the title of the project	Procurement	Person 15	\$383,231.70	Comment 15 Provide any commentary about the project. The project comment is taken from Microsoft List
FY 24	Project 16 , provide the title of the project	Procurement	Person 16	\$474,600.60	Comment 16 Provide any commentary about the project. The project comment is taken from Microsoft List

- Datasets can also be shared

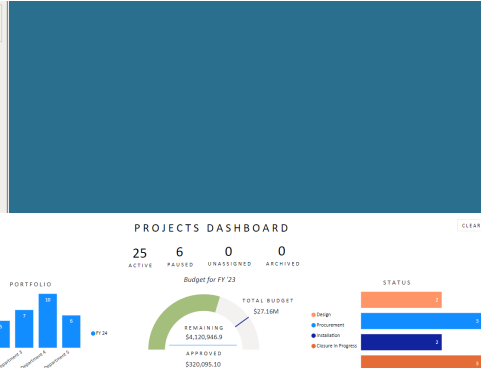
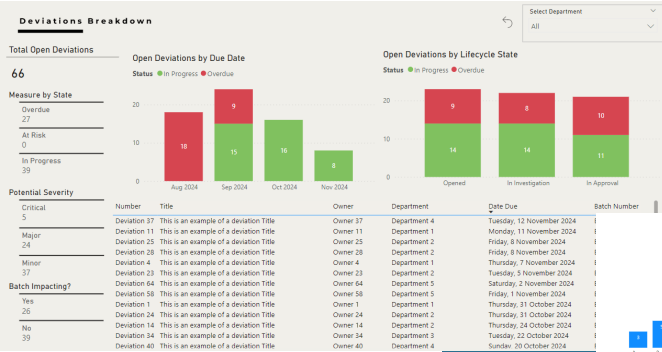


- Datasets can also be shared



Our Outcome

- Reduced Workloads
- Increases data transparency
- Reliable data as data reporting is now being standardised



Our Learning Journey and Reflections



What worked well?

- Easy visualisation creation
- Low cost of implementation
- Ease in capturing standards



Where did we get stuck?

- Forming proper Data governance
- Ensuring Data Quality



What would we do differently?

- Establish data pipelines and create “one source of truth”
- Maintain projects in-development to ensure there is no project overlap

What next? Give it a go!

Here are some resources to get started:

- Official Microsoft Resources: [Power BI documentation - Power BI | Microsoft Learn](#)
- Youtuber, Guy in a Cube: [Welcome to Guy in a Cube! \(youtube.com\)](#)
- Ask ChatGPT/CoPilot,
Prompts
 - How can I import excel data into Power BI?
 - How can I combine two excel datasets in Power BI?
 - What is the formula to concatenate two columns in Power BI?
 - How can I publish my report in Power BI?

Thank You!