PARTICIPANT FOLLOW-ALONG GUIDE | SIMPLIFIED TECHNICAL ENGLISH (ASD-STE100)

From Data to Insight

Use case: FY2025 Procurement Spend Review
Data Storytelling Using Excel & PowerPoint (Advanced) | GCAD

Step 1 Context | Step 2 Audit | Step 3 Foundation | Step 4 SCAN | Step 5 Validate | Insight formula

How to use this guide

- Do the steps with the trainer. Each numbered line is one action.
- After each part, compare your screen with the figure.
- Green **Check** boxes tell you what you must see. If your result is different, stop and ask the trainer.
- Orange **Your finding** boxes are for you. Write what you find, with the number and the source.

Files

File	Content
GCAD_UC01_Procurement_Spend_MIS_Report.xlsx	Monthly spend report in crosstab format
GCAD_UC02_PO_Register_2024_2025.xlsx	Purchase order register
GCAD_UC03_Vendor_Master.xlsx	Vendor master
GCAD_UC04_Budget_Approval_Users.xlsx	Budget, approval limits, users
GCAD_UseCase_FY2025_Procurement_Review.pdf	Use case and worksheet

All data is fictional and is for training only. Software: Microsoft Excel for Microsoft 365 (Windows) with Power Query. Menu names can be different in other versions.

Before you start

Item	Meaning
Data > Get Data	A menu path. Click each item from left to right.
Ctrl + T	Keys. Push them at the same time.
`Spend_Flat`	Text that you type, or a file or sheet name.
NOTE	Information that helps you.
CAUTION	A condition that can cause a wrong result. Read it before you continue.
CHECK	What you must see when the procedure is complete.
YOUR FINDING	Write your finding here.

Prepare your computer

1. Make a folder named `GCAD_Demo` on your desktop.
2. Copy the four Excel files into the folder.
3. Close all other Excel workbooks.
4. Make sure that Excel shows the **Data** tab with **Get Data**.

CAUTION Do not change or save the four source files. Power Query reads them. If you change a source file, your numbers will not agree with this guide.

Part	Content	Time
Step 1	Understand the context	10 min
Step 2	Audit the data	20 min
Step 3	Build the foundation (Power Query and PivotTables)	50 min
Step 4	Hunt for patterns with SCAN	40 min
Step 5	Validate and refine	25 min
Insight	Write the final insights	15 min

THE 5-STEP INSIGHT MINING FRAMEWORK | STEP 1

Understand the context

Objective: Know the question, the audience and the scope before you open the data.

1. Open `GCAD_UseCase_FY2025_Procurement_Review.pdf`.
2. Read section 1 (Background) and section 2 (Your task).
3. Answer the five questions in the context card below.
4. Write your answers in the worksheet in the use case file.

Question	Your answer
Business question	
Audience	
Decision	
Period	
Scope	

> **NOTE** The audience is the BAC. They want the risk, the amount in RM and the action. They do not want 24 months of tables.

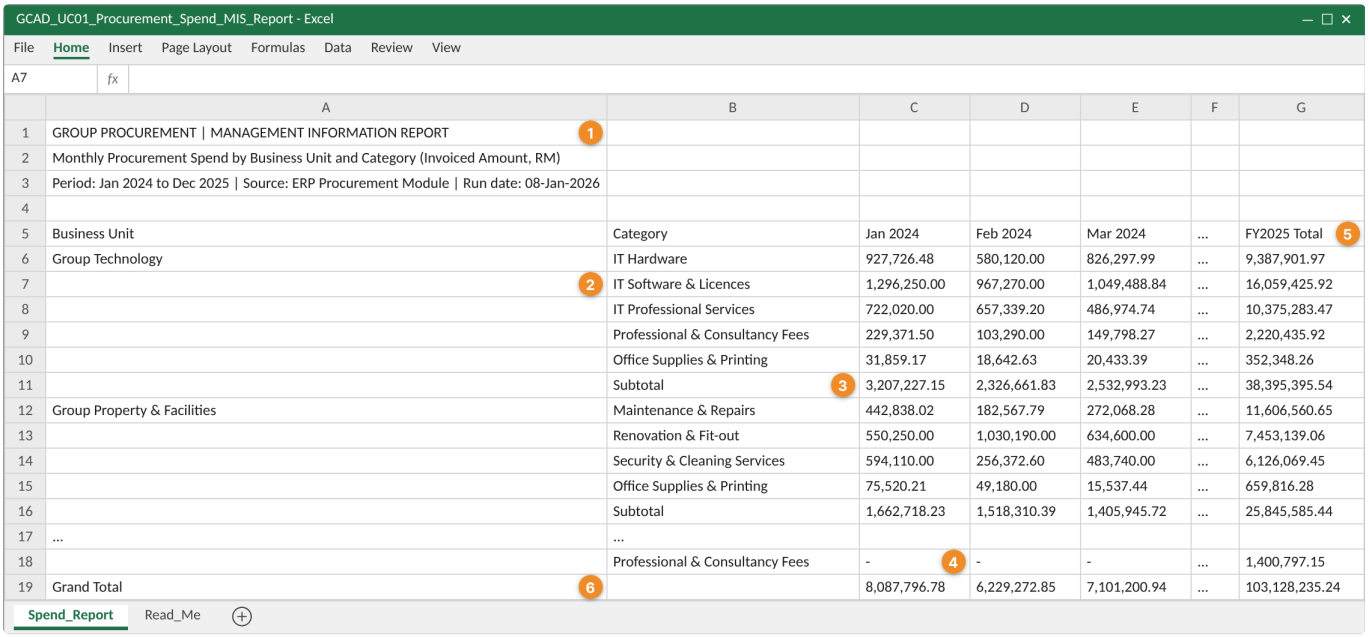
THE 5-STEP INSIGHT MINING FRAMEWORK | STEP 2

Audit the data

Objective: Find what is in each file and find the data quality issues before you calculate.

2.1 File 01: Procurement MIS report (crosstab)

1. Open `GCAD_UC01_Procurement_Spend_MIS_Report.xlsx`.
2. Click the sheet tab **Spend_Report**.
3. Examine rows 1 to 6.
4. Push **Ctrl + End** to go to the last cell (AB34).
5. Compare your screen with Figure 1. Find the six layout issues.



GCAD_UC01_Procurement_Spend_MIS_Report - Excel

File Home Insert Page Layout Formulas Data Review View

A7 fx

	A	B	C	D	E	F	G
1	GROUP PROCUREMENT | MANAGEMENT INFORMATION REPORT ①						
2	Monthly Procurement Spend by Business Unit and Category (Invoiced Amount, RM)						
3	Period: Jan 2024 to Dec 2025 | Source: ERP Procurement Module | Run date: 08-Jan-2026						
4							
5	Business Unit	Category	Jan 2024	Feb 2024	Mar 2024	...	FY2025 Total ⑤
6	Group Technology	IT Hardware	927,726.48	580,120.00	826,297.99	...	9,387,901.97
7	②	IT Software & Licences	1,296,250.00	967,270.00	1,049,488.84	...	16,059,425.92
8		IT Professional Services	722,020.00	657,339.20	486,974.74	...	10,375,283.47
9		Professional & Consultancy Fees	229,371.50	103,290.00	149,798.27	...	2,220,435.92
10		Office Supplies & Printing	31,859.17	18,642.63	20,433.39	...	352,348.26
11		Subtotal ③	3,207,227.15	2,326,661.83	2,532,993.23	...	38,395,395.54
12	Group Property & Facilities	Maintenance & Repairs	442,838.02	182,567.79	272,068.28	...	11,606,560.65
13		Renovation & Fit-out	550,250.00	1,030,190.00	634,600.00	...	7,453,139.06
14		Security & Cleaning Services	594,110.00	256,372.60	483,740.00	...	6,126,069.45
15		Office Supplies & Printing	75,520.21	49,180.00	15,537.44	...	659,816.28
16		Subtotal	1,662,718.23	1,518,310.39	1,405,945.72	...	25,845,585.44
17	...	...					
18		Professional & Consultancy Fees	- ④	-	-	...	1,400,797.15
19	Grand Total ⑥		8,087,796.78	6,229,272.85	7,101,200.94	...	103,128,235.24

Spend_Report Read_Me ⊕

Figure 1: File 01 in crosstab format. The orange numbers show the six layout issues.

No.	What do you see?	Why is it a problem for analysis?
1		
2		
3		
4		
5		
6		

1. Click cell AA34 (FY2024 Total, Grand Total row). Read the value.
2. Click cell AB34 (FY2025 Total, Grand Total row). Read the value.
3. Add the two values. This is the control total.

> **CHECK** AA34 = 89,786,928.28. AB34 = 103,128,235.24. Control total = **192,915,163.52**. Write it down. You use it in Step 5.

1. Close the file. Do not save.

2.2 File 02: PO register

1. Open `GCAD_UC02_PO_Register_2024_2025.xlsx`.
2. Click **File > Save As**. Save a copy in GCAD_Demo with the name `PO_Register_Work.xlsx`.
3. Make sure that the title bar shows PO_Register_Work. Do all work on file 02 in this copy.
4. Click the column heading **Q** (Invoice_Amount_RM).
5. Read **Sum** and **Count** in the status bar at the bottom of the window.
6. Click cell A1. Click **Data > Filter**.
7. Click the filter arrow on **PO_Date**. Read the years in the list. Click **Cancel**.
8. Do the same for **Three_Way_Match**, **Match_Override** and **Payment_Status**.
9. Read the **Read_Me** sheet.

CHECK Sum = **193,012,419.62**. This is not equal to the control total from 2.1. The PO_Date list shows 2023, 2024 and 2025.

YOUR FINDING Why is the register total different from the control total? What other data issues do you see?

2.3 Files 03 and 04

1. Open `GCAD_UC03_Vendor_Master.xlsx`. Read the Read_Me sheet. Then read the Vendor_Master sheet.
2. Open `GCAD_UC04_Budget_Approval_Users.xlsx`. Read the sheets FY2025_Budget, Approval_Limits and User_Directory.
3. Read the policy text under the approval limit table.
4. Close files 03 and 04. Do not save.

CHECK Vendor_Master has 106 vendors, one row for each vendor. FY2025_Budget has 22 rows. User_Directory has 59 users.

NOTE IDs connect the files: Vendor_ID (files 02 and 03), user IDs (files 02, 03 and 04), Business Unit and Category (files 01, 02 and 04).

Build the foundation

Objective: Make one flat table from the crosstab. Then make baseline views: by time, by segment, growth %, share %.

3.1 Connect Power Query to the crosstab

1. Open a new blank workbook. Save it in GCAD_Demo with the name `GCAD_Workbook.xlsx`.
2. Click **Data > Get Data > From File > From Excel Workbook**.
3. Select `GCAD_UC01_Procurement_Spend_MIS_Report.xlsx`. Click **Import**.
4. In the Navigator, click **Spend_Report**. Do not select Read_Me.
5. Click **Transform Data**. The Power Query Editor opens.

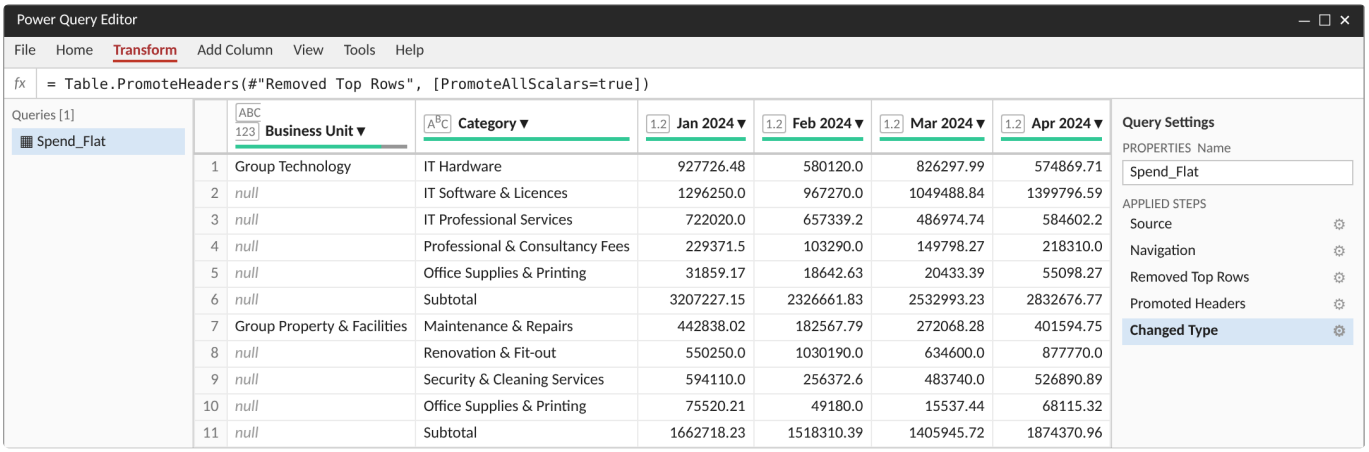
3.2 Remove the report layout

1. Click **Home > Remove Rows > Remove Top Rows**.
2. Type `4`. Click **OK**.



Figure 2: Remove Top Rows dialog.

3. Click **Home > Use First Row as Headers**.
4. Compare your preview with Figure 3.

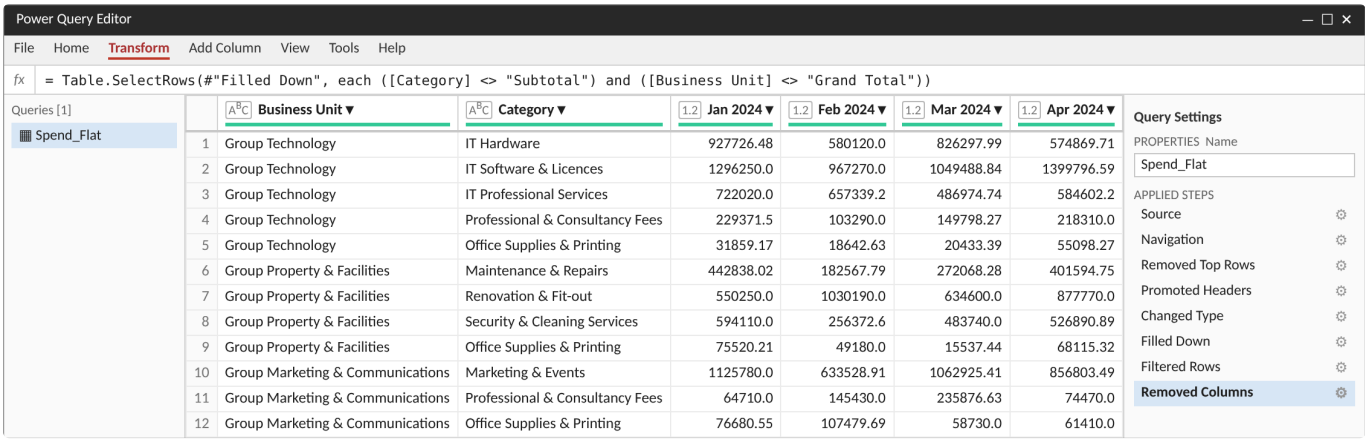


	Business Unit	Category	Jan 2024	Feb 2024	Mar 2024	Apr 2024
1	Group Technology	IT Hardware	927726.48	580120.0	826297.99	574869.71
2	null	IT Software & Licences	1296250.0	967270.0	1049488.84	1399796.59
3	null	IT Professional Services	722020.0	657339.2	486974.74	584602.2
4	null	Professional & Consultancy Fees	229371.5	103290.0	149798.27	218310.0
5	null	Office Supplies & Printing	31859.17	18642.63	20433.39	55098.27
6	null	Subtotal	3207227.15	2326661.83	2532993.23	2832676.77
7	Group Property & Facilities	Maintenance & Repairs	442838.02	182567.79	272068.28	401594.75
8	null	Renovation & Fit-out	550250.0	1030190.0	634600.0	877770.0
9	null	Security & Cleaning Services	594110.0	256372.6	483740.0	526890.89
10	null	Office Supplies & Printing	75520.21	49180.0	15537.44	68115.32
11	null	Subtotal	1662718.23	1518310.39	1405945.72	1874370.96

Figure 3: After Use First Row as Headers. Business Unit shows null on most rows.

> **CAUTION** If row 1 of the preview is not the header row, delete the step **Removed Top Rows** in APPLIED STEPS. Do it again with the correct number of rows.

5. Click the header of the **Business Unit** column.
6. Click **Transform > Fill > Down**.
7. Click the filter arrow on the **Category** column. Clear the **Subtotal** check box. Click **OK**.
8. Click the filter arrow on the **Business Unit** column. Clear the **Grand Total** check box. Click **OK**.
9. Click the header **FY2024 Total**. Hold **Ctrl** and click the header **FY2025 Total**.
10. Click **Home > Remove Columns**.



	Business Unit	Category	Jan 2024	Feb 2024	Mar 2024	Apr 2024
1	Group Technology	IT Hardware	927726.48	580120.0	826297.99	574869.71
2	Group Technology	IT Software & Licences	1296250.0	967270.0	1049488.84	1399796.59
3	Group Technology	IT Professional Services	722020.0	657339.2	486974.74	584602.2
4	Group Technology	Professional & Consultancy Fees	229371.5	103290.0	149798.27	218310.0
5	Group Technology	Office Supplies & Printing	31859.17	18642.63	20433.39	55098.27
6	Group Property & Facilities	Maintenance & Repairs	442838.02	182567.79	272068.28	401594.75
7	Group Property & Facilities	Renovation & Fit-out	550250.0	1030190.0	634600.0	877770.0
8	Group Property & Facilities	Security & Cleaning Services	594110.0	256372.6	483740.0	526890.89
9	Group Property & Facilities	Office Supplies & Printing	75520.21	49180.0	15537.44	68115.32
10	Group Marketing & Communications	Marketing & Events	1125780.0	633528.91	1062925.41	856803.49
11	Group Marketing & Communications	Professional & Consultancy Fees	64710.0	145430.0	235876.63	74470.0
12	Group Marketing & Communications	Office Supplies & Printing	76680.55	107479.69	58730.0	61410.0

Figure 4: After Fill Down, Filtered Rows and Removed Columns.

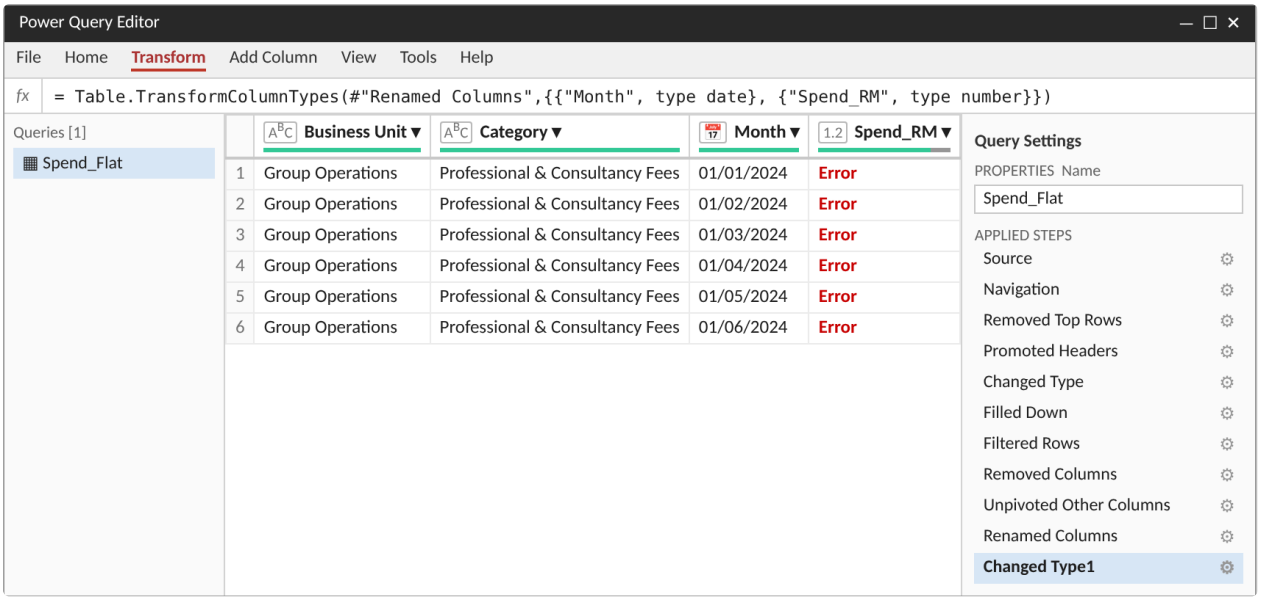
CHECK The status bar at the bottom left shows **26 columns, 22 rows**. Each row has a Business Unit. There are no Subtotal or Grand Total rows.

3.3 Unpivot the months

1. Click the header **Business Unit**. Hold **Ctrl** and click the header **Category**.
2. Click **Transform > Unpivot Columns > Unpivot Other Columns**.
3. Double-click the header **Attribute**. Type `Month`. Push **Enter**.
4. Double-click the header **Value**. Type `Spend_RM`. Push **Enter**.
5. Click the **Month** header. Click **Transform > Data Type > Date**.
6. Click the **Spend_RM** header. Click **Transform > Data Type > Decimal Number**.

NOTE Unpivot Other Columns keeps the two selected columns and turns all the other columns into rows. If the MIS report gets a new month, the query still works.

CAUTION If the Month column shows Error, delete the step **Changed Type1**. Right-click the Month header. Click **Change Type > Using Locale**. Select **Date** and **English (United States)**. Click **OK**.



	Business Unit	Category	Month	Spend_RM
1	Group Operations	Professional & Consultancy Fees	01/01/2024	Error
2	Group Operations	Professional & Consultancy Fees	01/02/2024	Error
3	Group Operations	Professional & Consultancy Fees	01/03/2024	Error
4	Group Operations	Professional & Consultancy Fees	01/04/2024	Error
5	Group Operations	Professional & Consultancy Fees	01/05/2024	Error
6	Group Operations	Professional & Consultancy Fees	01/06/2024	Error

Figure 5: The dash (-) cells show Error in Spend_RM. This is correct. You fix it in the next procedure.

7. Right-click the **Spend_RM** header. Click **Replace Errors**.

8. Type `0`. Click **OK**.
9. Click the **Month** header. Click **Add Column > Date > Year > Year**.
10. In **Query Settings > Name**, select the text. Type `Spend_Flat`. Push **Enter**.

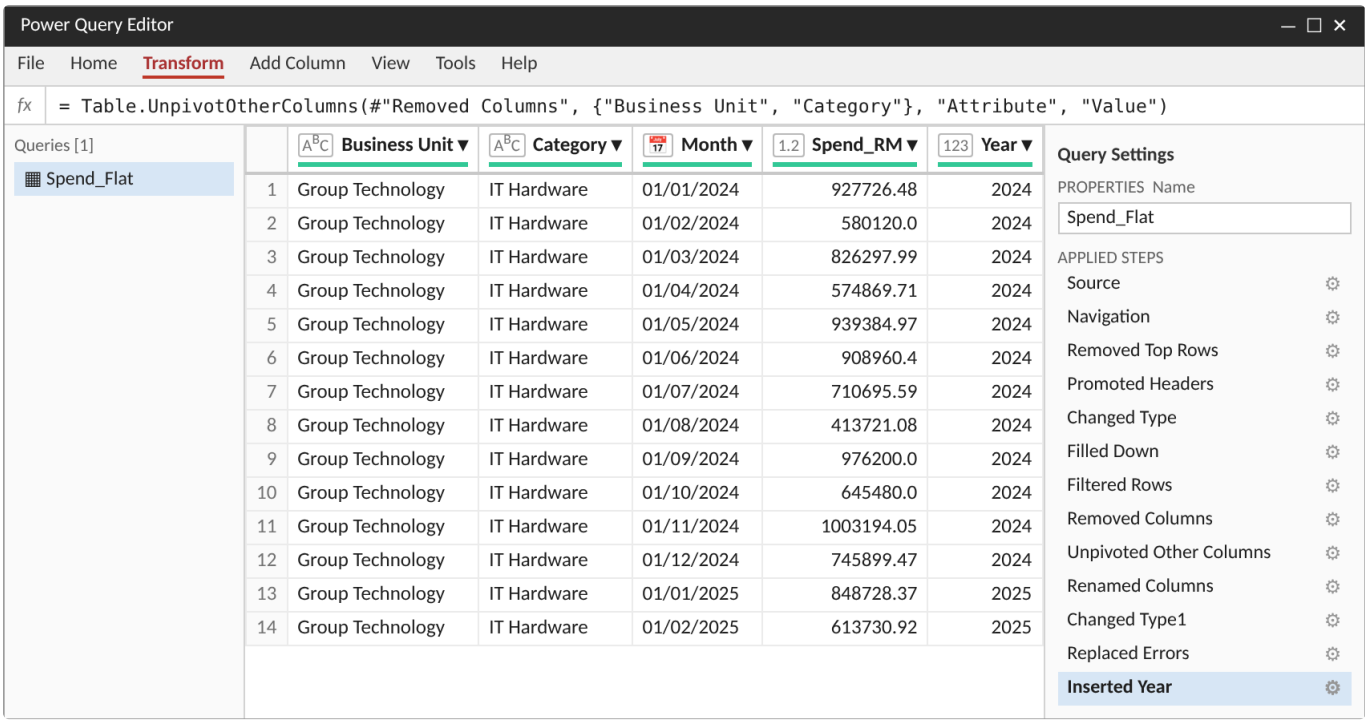


Figure 6: The final flat table. One row for each Business Unit, Category and Month.

> **CHECK** Spend_Flat has **5 columns, 528 rows** (22 × 24 months). APPLIED STEPS shows the same steps as Figure 6. Appendix A has the full M code.

3.4 Add the budget and calculate budget use

Do this procedure in the Power Query Editor. Do not close it.

1. Click **Home > New Source > File > Excel Workbook**.
2. Select `GCAD_UC04_Budget_Approval_Users.xlsx`. Click **Import**.
3. In the Navigator, click **FY2025_Budget**. Click **OK**.
4. Make sure that row 1 of the new query shows the column names Business_Unit, Category and FY2025_Budget_RM. If not, click **Home > Use First Row as Headers**.
5. In **Query Settings > Name**, type `Budget`.
6. In the Queries pane on the left, right-click **Spend_Flat**. Click **Reference**.
7. Rename the new query to `Budget_Use`.
8. Click the filter arrow on **Year**. Select only **2025**. Click **OK**.
9. Click **Home > Group By**. Select **Advanced**.
10. In the first list, select **Business Unit**. Click **Add grouping**. In the second list, select **Category**.
11. In **New column name**, type `Actual_2025`. Set **Operation** to **Sum** and **Column** to **Spend_RM**. Click **OK**.

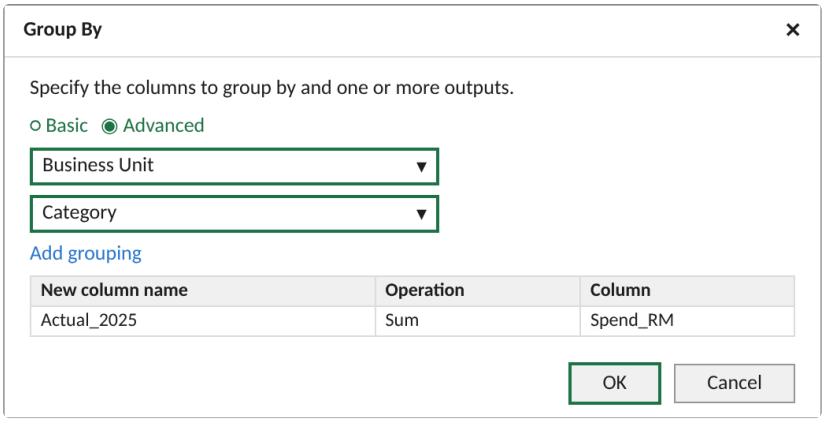


Figure 7: Group By dialog with two grouping columns.

12. Click **Home > Merge Queries**.
13. In the top table, click the header **Business Unit**. Hold **Ctrl** and click the header **Category**.
14. In the list under the top table, select **Budget**.
15. In the lower table, click **Business_Unit**. Hold **Ctrl** and click **Category**.
16. Make sure that **Join Kind** is **Left Outer**. Click **OK**.

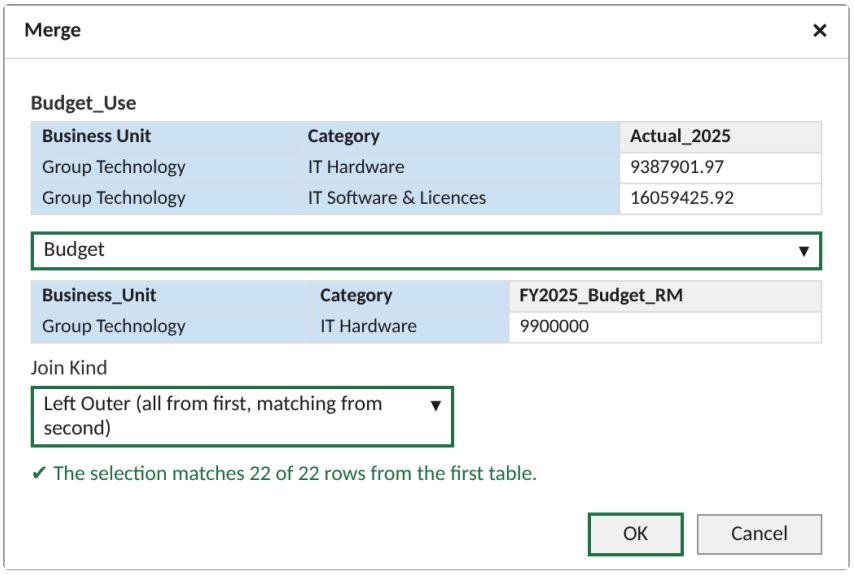
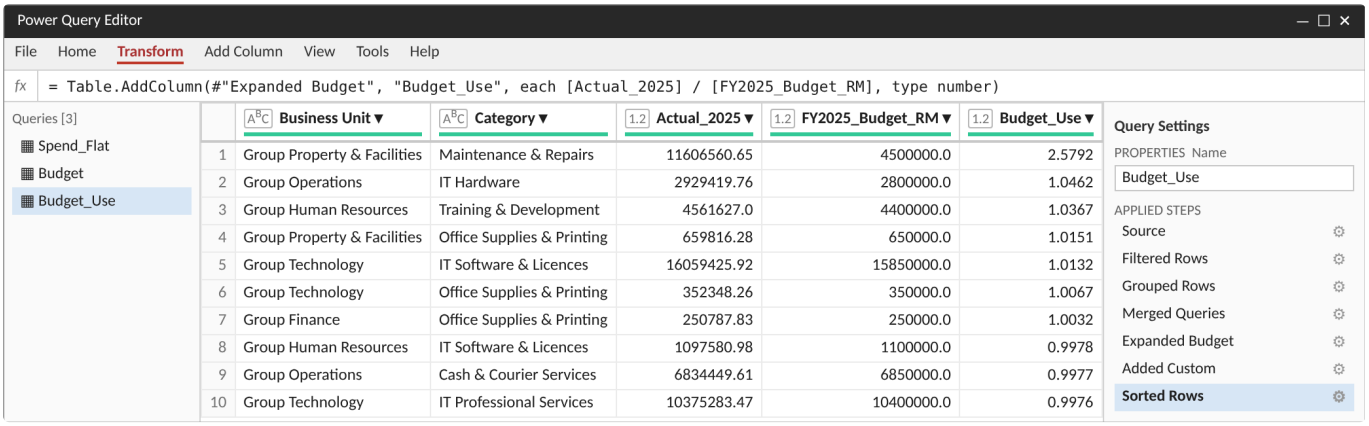


Figure 8: Merge dialog. Select the columns in the same sequence in both tables.

> **CHECK** The Merge dialog shows that the selection matches 22 of 22 rows. If it shows fewer, make sure that you selected the columns in the same sequence.

17. Click the expand icon on the right of the new **Budget** column header.
18. Select only **FY2025_Budget_RM**. Clear **Use original column name as prefix**. Click **OK**.
19. Click **Add Column > Custom Column**.
20. In **New column name**, type `Budget_Use`.
21. In **Custom column formula**, type `[Actual_2025] / [FY2025_Budget_RM]`. Click **OK**.
22. Click the **Budget_Use** header. Click **Transform > Data Type > Percentage**.
23. Click the filter arrow on **Budget_Use**. Click **Sort Descending**.



	Business Unit	Category	Actual_2025	FY2025_Budget_RM	Budget_Use
1	Group Property & Facilities	Maintenance & Repairs	11606560.65	4500000.0	2.5792
2	Group Operations	IT Hardware	2929419.76	2800000.0	1.0462
3	Group Human Resources	Training & Development	4561627.0	4400000.0	1.0367
4	Group Property & Facilities	Office Supplies & Printing	659816.28	650000.0	1.0151
5	Group Technology	IT Software & Licences	16059425.92	15850000.0	1.0132
6	Group Technology	Office Supplies & Printing	352348.26	350000.0	1.0067
7	Group Finance	Office Supplies & Printing	250787.83	250000.0	1.0032
8	Group Human Resources	IT Software & Licences	1097580.98	1100000.0	0.9978
9	Group Operations	Cash & Courier Services	6834449.61	6850000.0	0.9977
10	Group Technology	IT Professional Services	10375283.47	10400000.0	0.9976

Figure 9: Budget_Use query, sorted from the highest budget use.

3.5 Load the queries to Excel

1. Click **Home > Close & Load** (the arrow) **> Close & Load To**.
2. Select **Table** and **New worksheet**. Click **OK**.
3. Click **Data > Queries & Connections**. The pane opens on the right.
4. Right-click **Budget**. Click **Load To**. Select **Only Create Connection**. Click **OK**. If Excel asks to delete data, click **OK**.
5. Rename the sheet with the Spend_Flat table to `Spend_Flat`. Rename the sheet with the Budget_Use table to `Budget_Use`.
6. Save the workbook.

> **CHECK** Queries & Connections shows Spend_Flat (528 rows loaded), Budget (Connection only) and Budget_Use (22 rows loaded).

3.6 Baseline view 1: spend by Business Unit with growth %

1. Click any cell in the Spend_Flat table.
2. Click **Insert > PivotTable**. Select **New Worksheet**. Click **OK**.
3. Rename the new sheet to `P1_BU_YoY`.
4. In the PivotTable Fields pane, drag **Business Unit** to **Rows**.
5. Drag **Year** to **Columns**.
6. Drag **Spend_RM** to **Values**. Then drag **Spend_RM** to **Values** again.
7. In **Values**, click the first **Sum of Spend_RM**. Click **Value Field Settings**. In **Custom Name**, type `Spend`. Click **Number Format**, select **Number**, 0 decimal places, use 1000 separator. Click **OK** two times.
8. In **Values**, click the second field (**Sum of Spend_RM2**). Click **Value Field Settings**.
9. In **Custom Name**, type `YoY %`. Click the tab **Show Values As**.
10. Select **% Difference From**. Select Base field **Year** and Base item **(previous)**. Click **OK**.

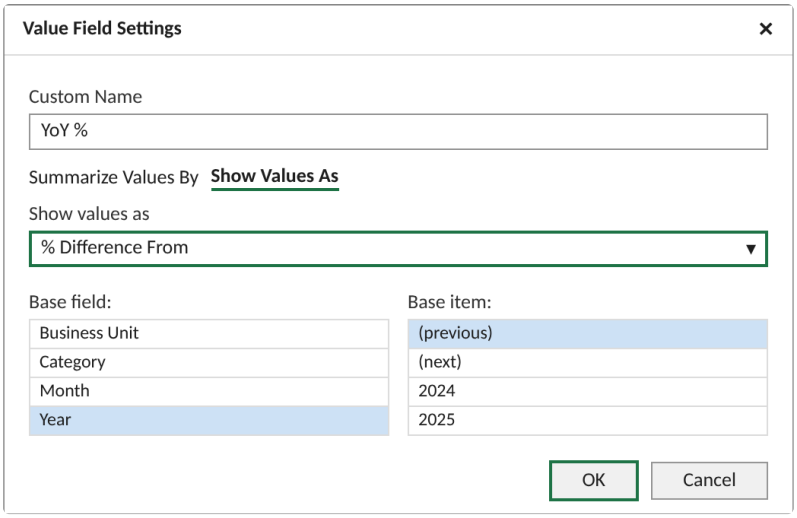
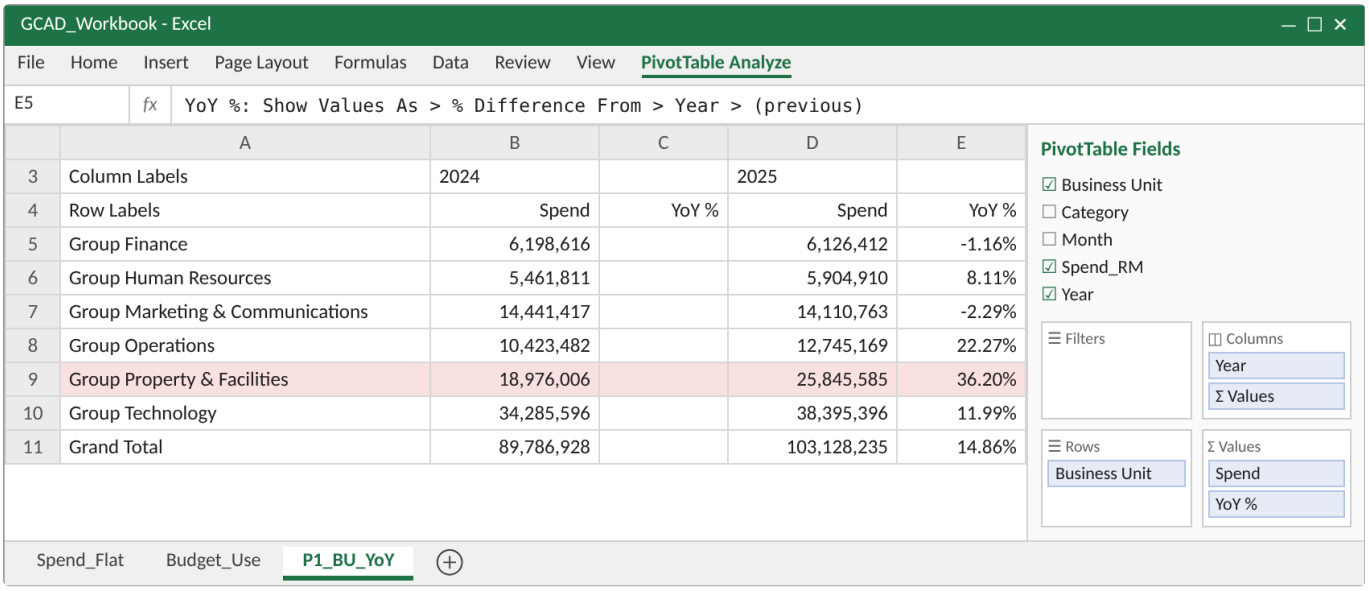


Figure 10: Value Field Settings for YoY %.

11. Click **Design > Grand Totals > On for Columns Only**.



	A	B	C	D	E
3	Column Labels	2024		2025	
4	Row Labels	Spend	YoY %	Spend	YoY %
5	Group Finance	6,198,616		6,126,412	-1.16%
6	Group Human Resources	5,461,811		5,904,910	8.11%
7	Group Marketing & Communications	14,441,417		14,110,763	-2.29%
8	Group Operations	10,423,482		12,745,169	22.27%
9	Group Property & Facilities	18,976,006		25,845,585	36.20%
10	Group Technology	34,285,596		38,395,396	11.99%
11	Grand Total	89,786,928		103,128,235	14.86%

Figure 11: Spend by Business Unit, 2024 vs 2025, with growth %. The 2024 YoY % column is empty because there is no year before 2024.

CHECK Grand Total: 2024 = 89,786,928. 2025 = 103,128,235. YoY % = 14.86%.

YOUR FINDING Which two Business Units grow faster than the bank total? Write the growth %.

3.7 Baseline view 2: monthly trend

1. Click any cell in the Spend_Flat table. Click **Insert > PivotTable**. Select **New Worksheet**. Click **OK**.
2. Rename the sheet to `P2_Trend`.
3. Drag **Month** to **Rows**. Drag **Spend_RM** to **Values**.
4. Right-click a date in the PivotTable. Click **Group**.
5. Select **Months** and **Years**. Clear all other items. Click **OK**.
6. Click **PivotTable Analyze > PivotChart**. Select **Line**. Click **OK**.

NOTE Excel can group the dates automatically when you drag Month to Rows. The Group dialog makes sure that you get Years and Months only.

CHECK The PivotTable shows 2024 and 2025, each with 12 months. The chart shows 24 points.

3.8 Prepare the PO register

1. Open `PO_Register_Work.xlsx` (the copy from Step 2.2).
2. Click cell A1. If the filter arrows show, click **Data > Filter** to remove them.
3. Push **Ctrl + T**. Make sure that **My table has headers** is selected. Click **OK**.
4. Click **Table Design**. In **Table Name**, type `tblPO`. Push **Enter**.
5. Click **Data > Remove Duplicates**. Make sure that all columns are selected. Click **OK**.

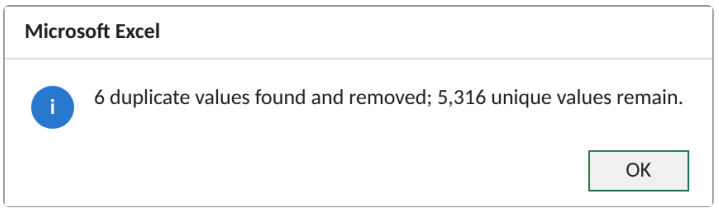


Figure 12: Excel removes the duplicate rows.

CHECK The message shows **6 duplicate values found and removed; 5,316 unique values remain**.

6. Click cell X1. Type `Overpaid_RM`. Push **Enter**. The table gets a new column.
7. In cell X2, type `=MAX(0, N([@Paid_Amount_RM]) - N([@GRN_Amount_RM]))`. Push **Enter**.
8. Click cell Y1. Type `Amount_Band`. Push **Enter**.
9. In cell Y2, type `=FLOOR([@PO_Amount_RM], 5000)`. Push **Enter**.
10. Save the workbook.

GCAD_UC02_PO_Register_2024_2025 - Excel

File Home Insert Page Layout Formulas Data Review View

X2 | fx | =MAX(0, N([@Paid_Amount_RM]) - N([@GRN_Amount_RM]))

	A	E	N	Q	R	S	T	V	X
1	PO_No	Vendor_ID	GRN_Amount_RM	Invoice_Amount_RM	Three_Way_Match	Match_Override	Override_By	Paid_Amount_RM	Overpaid_RM
2	PO25026794	V1181	45,750.00	47,971.06	Mismatch	Y	U0417	47,971.06	2,221.06
3	PO25027091	V1181	47,150.00	52,052.63	Mismatch	Y	U0417	52,052.63	4,902.63
4	PO25027137	V1181	46,100.00	51,467.13	Mismatch	Y	U0417	51,467.13	5,367.13
5	PO25027497	V1181	48,350.00	52,663.44	Mismatch	Y	U0417	52,663.44	4,313.44
6	PO25027510	V1181	47,350.00	50,446.27	Mismatch	Y	U0417	50,446.27	3,096.27
7	PO25027527	V1181	46,400.00	48,502.43	Mismatch	Y	U0417	48,502.43	2,102.43

PO_Register Read_Me

Figure 13: Overpaid_RM is the amount paid above the value of goods received.

NOTE The table copies each formula to all rows. Overpaid_RM is 0 when the payment is not more than the GRN value. Amount_Band puts each PO in a RM5,000 band. For example, 45000 means RM45,000 to RM49,999.99.

CHECK tblPO has 5,316 rows and 25 columns. The last two columns are Overpaid_RM and Amount_Band, with no #VALUE! errors.

Hunt for patterns: the SCAN method

Objective: Use the foundation to find the interesting facts. Examine each SCAN letter in sequence. Write each finding with a number and a source.

S Spikes and drops

Sudden changes

1. In GCAD_Workbook, click the sheet **P2_Trend**. Examine the line chart.
2. Find the highest month. Compare it with the other months and with the same month of the previous year.

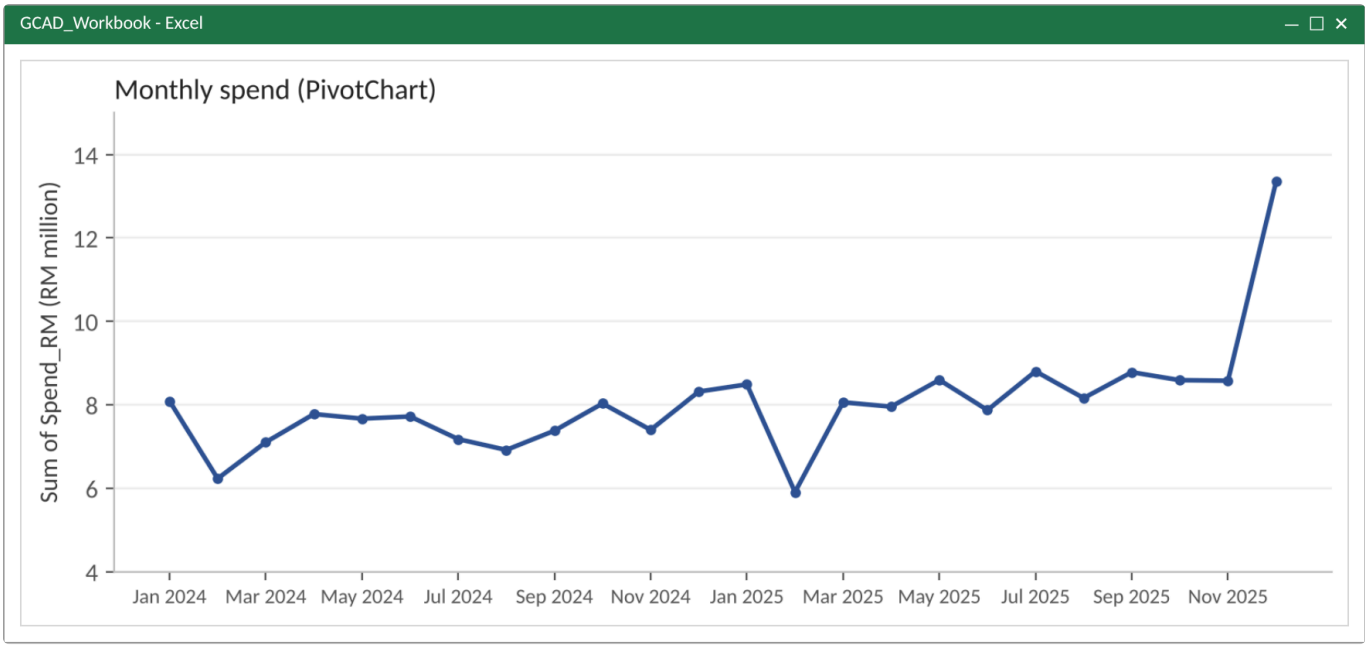
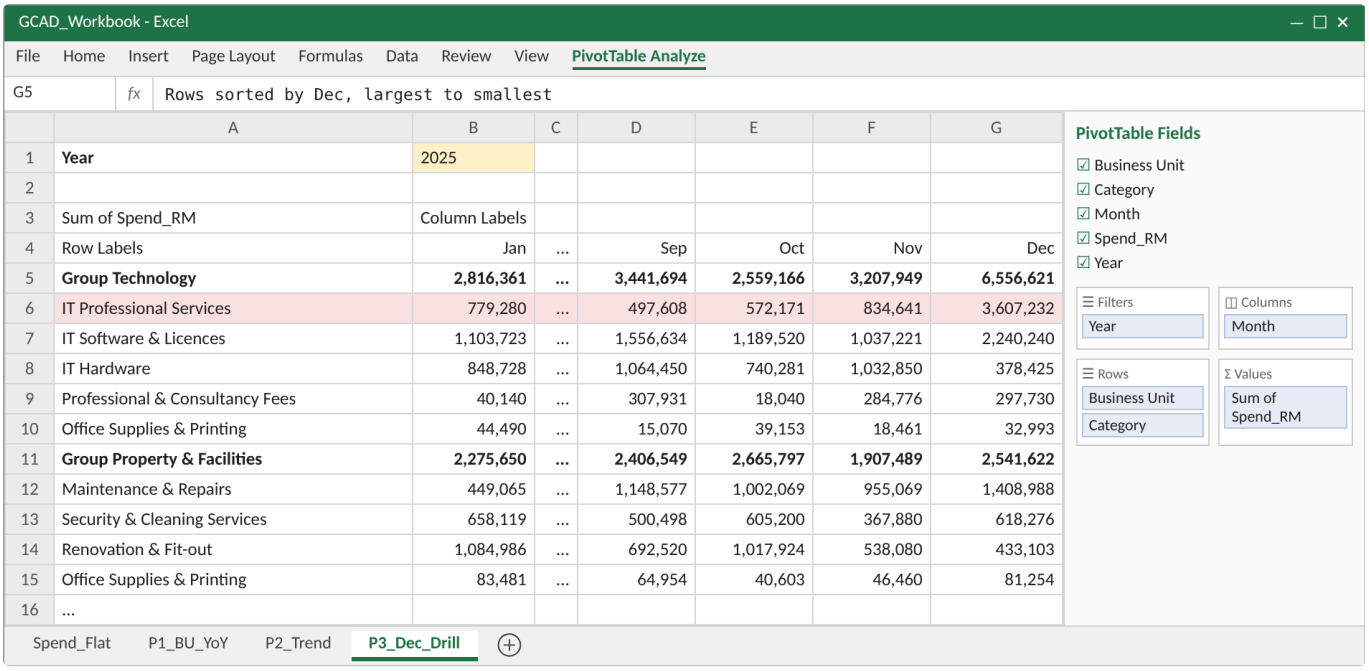


Figure 14: Monthly spend, January 2024 to December 2025.

Now find which Business Unit and Category cause the change.

3. Click any cell in the Spend_Flat table. Make a new PivotTable on a new sheet. Name the sheet `P3_Dec_Drill`.
4. Drag **Year** to **Filters**. Open the filter in cell B1. Select **2025**. Click **OK**.
5. Drag **Business Unit** to **Rows**. Then drag **Category** to **Rows**, below Business Unit.
6. Drag **Month** to **Columns**. Right-click a column date. Click **Group**. Select **Months** only. Click **OK**.
7. Drag **Spend_RM** to **Values**.
8. Click any value in the **Dec** column. Click **Data > Sort Largest to Smallest**.



	A	B	C	D	E	F	G
1	**Year**	2025					
2							
3	Sum of Spend_RM	Column Labels					
4	Row Labels	Jan	...	Sep	Oct	Nov	Dec
5	**Group Technology**	**2,816,361**	**...**	**3,441,694**	**2,559,166**	**3,207,949**	**6,556,621**
6	IT Professional Services	779,280	...	497,608	572,171	834,641	3,607,232
7	IT Software & Licences	1,103,723	...	1,556,634	1,189,520	1,037,221	2,240,240
8	IT Hardware	848,728	...	1,064,450	740,281	1,032,850	378,425
9	Professional & Consultancy Fees	40,140	...	307,931	18,040	284,776	297,730
10	Office Supplies & Printing	44,490	...	15,070	39,153	18,461	32,993
11	**Group Property & Facilities**	**2,275,650**	**...**	**2,406,549**	**2,665,797**	**1,907,489**	**2,541,622**
12	Maintenance & Repairs	449,065	...	1,148,577	1,002,069	955,069	1,408,988
13	Security & Cleaning Services	658,119	...	500,498	605,200	367,880	618,276
14	Renovation & Fit-out	1,084,986	...	692,520	1,017,924	538,080	433,103
15	Office Supplies & Printing	83,481	...	64,954	40,603	46,460	81,254
16	...						

Figure 15: 2025 spend by month. Rows are sorted by December.

YOUR FINDING Which month is a spike? How much is it? Which Business Unit and Category cause most of it?

C Comparisons

Vs last year, vs target, vs others

1. Click the sheet **P1_BU_YoY**. Compare the YoY % of each Business Unit with the Grand Total.
2. Click the sheet **Budget_Use**. Read the top three rows.
3. Find the Business Unit and Category with the highest budget use.

YOUR FINDING Which Business Unit grows much faster than the bank? Which Category is far above budget? Write the numbers.

A Anomalies

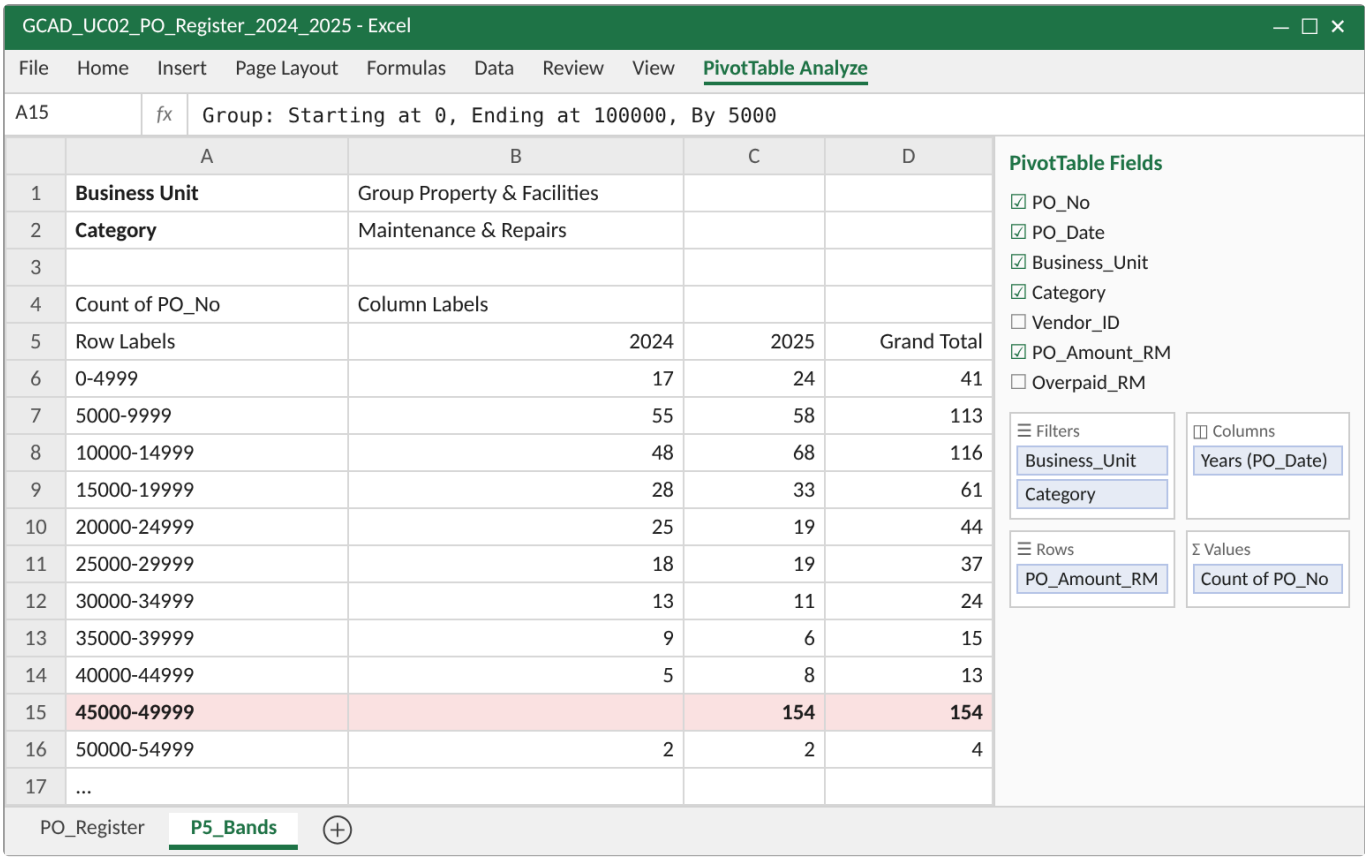
Outliers, unexpected behaviour

The comparison shows where to look. Now examine the size of each PO in that Business Unit and Category.

1. Open `PO_Register_Work.xlsx`. Click any cell in tblPO.
2. Click **Insert > PivotTable**. Select **New Worksheet**. Click **OK**. Name the sheet `P5_Bands`.
3. Drag **Business_Unit** to **Filters**. Drag **Category** to **Filters**.
4. Set the filters to **Group Property & Facilities** and **Maintenance & Repairs**.
5. Drag **Amount_Band** to **Rows**.
6. Drag **PO_Date** to **Columns**.

7. Right-click a date heading. Click **Group**. Select **Years** only. Click **OK**.
8. Drag **PO_No** to **Values**. Make sure that it shows **Count of PO_No**.
9. Click **PivotTable Analyze > PivotChart**. Select **Clustered Column**. Click **OK**.

> **NOTE** The columns can include 2023. Some POs from late 2023 have invoices in 2024. You can ignore the 2023 column.



	A	B	C	D
1	**Business Unit**	Group Property & Facilities		
2	**Category**	Maintenance & Repairs		
3				
4	Count of PO_No	Column Labels		
5	Row Labels	2024	2025	Grand Total
6	0-4999	17	24	41
7	5000-9999	55	58	113
8	10000-14999	48	68	116
9	15000-19999	28	33	61
10	20000-24999	25	19	44
11	25000-29999	18	19	37
12	30000-34999	13	11	24
13	35000-39999	9	6	15
14	40000-44999	5	8	13
15	**45000-49999**		**154**	**154**
16	50000-54999	2	2	4
17	...			

Figure 17: Count of POs by RM5,000 band, GPF Maintenance & Repairs.

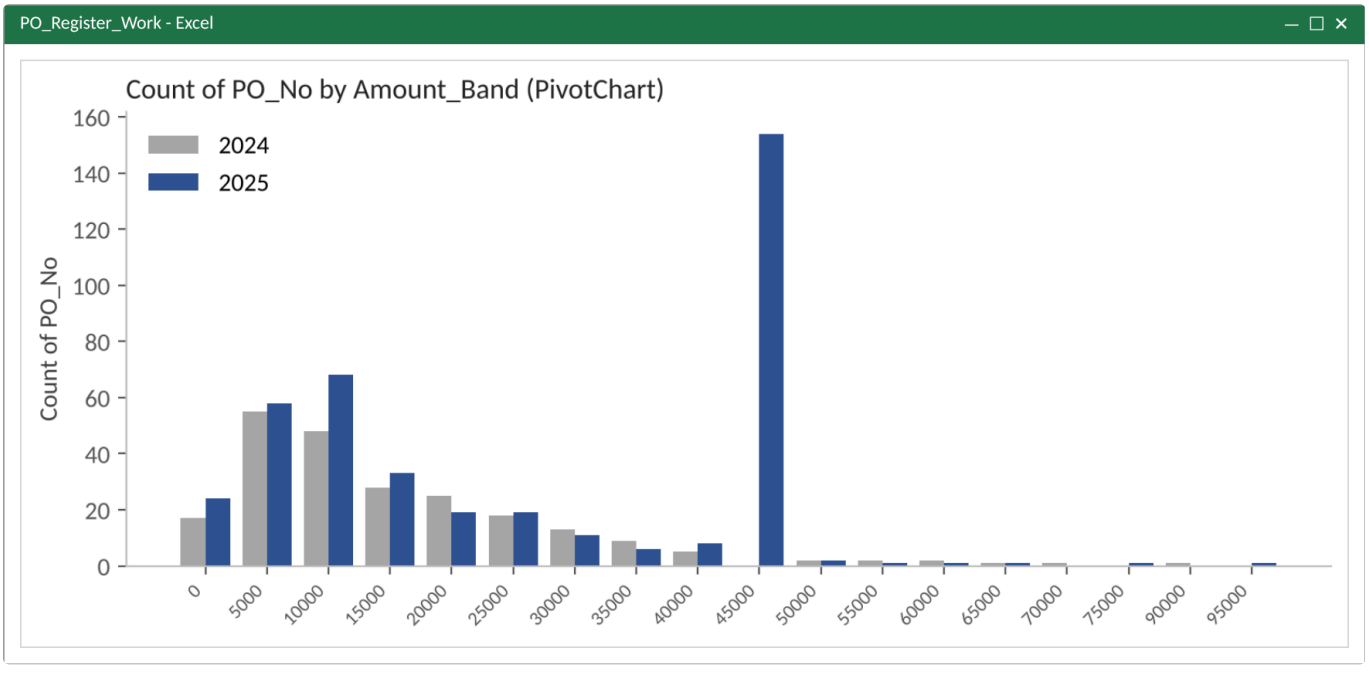
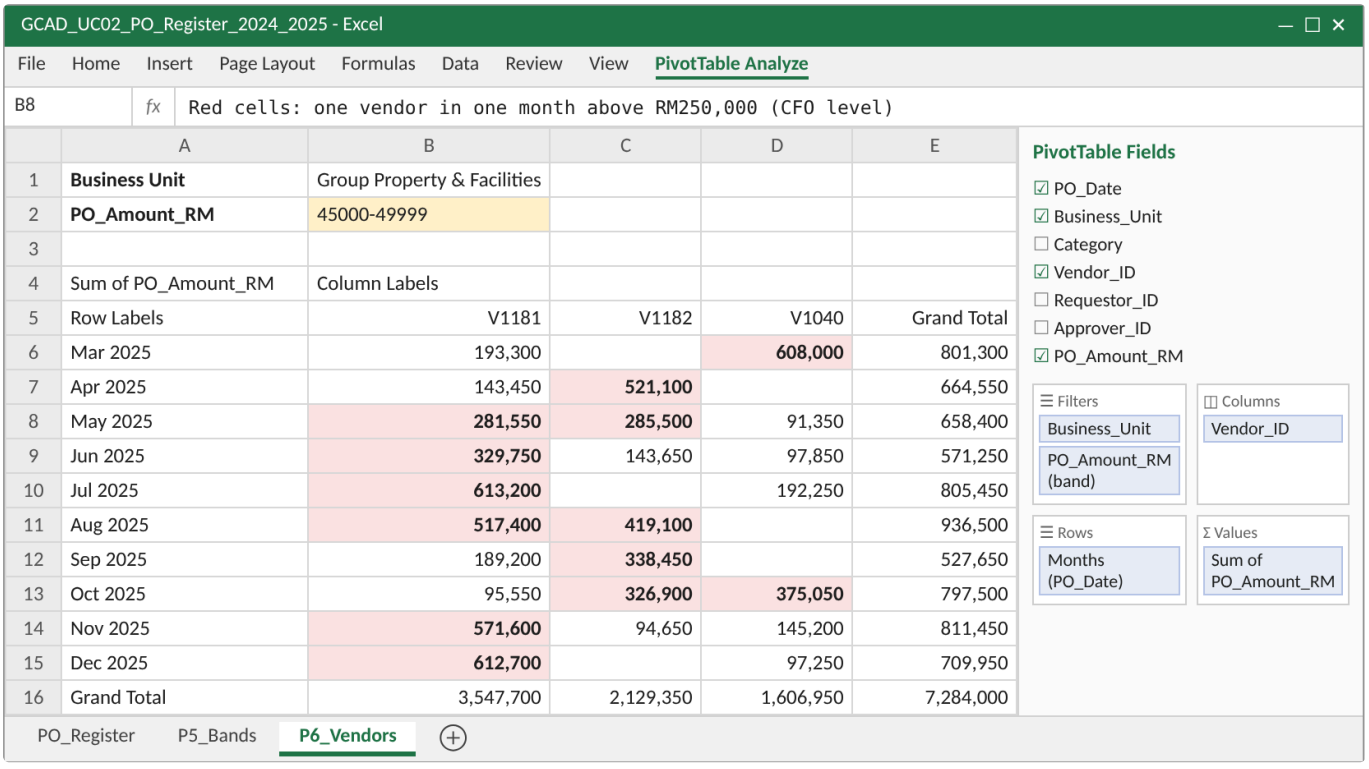


Figure 18: PivotChart of the bands, 2024 vs 2025.

YOUR FINDING Which band is unusual? How many POs are in it in 2024 and in 2025? What is the approval limit near this band? (See file 04.)

Now find who raised the POs and who received the money.

10. Right-click the sheet tab P5_Bands. Click **Move or Copy**. Select **Create a copy**. Click **OK**. Rename the copy to `P6_Vendors`.
11. In P6_Vendors, drag **Amount_Band** from Rows to **Filters**. Set the filter to **45000** only.
12. Drag **PO_Date** from Columns to **Rows**. Right-click a date. Click **Group**. Select **Months** and **Years**. Click **OK**.
13. Drag **Vendor_ID** to **Columns**.
14. Remove **Count of PO_No** from Values. Drag **PO_Amount_RM** to **Values** (Sum).
15. Drag **Requestor_ID** to **Filters**. Open its filter and read the list of values. Do the same for **Approver_ID**.



	A	B	C	D	E
1	**Business Unit**	Group Property & Facilities			
2	**PO_Amount_RM**	45000-49999			
3					
4	Sum of PO_Amount_RM	Column Labels			
5	Row Labels	V1181	V1182	V1040	Grand Total
6	Mar 2025	193,300		**608,000**	801,300
7	Apr 2025	143,450	**521,100**		664,550
8	May 2025	**281,550**	**285,500**	91,350	658,400
9	Jun 2025	**329,750**	143,650	97,850	571,250
10	Jul 2025	**613,200**		192,250	805,450
11	Aug 2025	**517,400**	**419,100**		936,500
12	Sep 2025	189,200	**338,450**		527,650
13	Oct 2025	95,550	**326,900**	**375,050**	797,500
14	Nov 2025	**571,600**	94,650	145,200	811,450
15	Dec 2025	**612,700**		97,250	709,950
16	Grand Total	3,547,700	2,129,350	1,606,950	7,284,000

Figure 19: Value of POs in the RM45,000 band, by vendor and month.

YOUR FINDING How many vendors, requestors and approvers are in this band? Policy 4.3 says POs to one vendor within 30 days are one requirement. Which approval level did each vendor-month need?

N **No-change**

Where you expected change but did not see it

The ERP payment block for 3-way mismatch started on 1-Jul-2025. We expect overpayments to fall after that date.

1. Click any cell in tblPO. Make a new PivotTable on a new sheet. Name the sheet `P7_Overpaid`.
2. Drag **Payment_Date** to **Rows**. Right-click a date. Click **Group**. Select **Quarters** and **Years**. Click **OK**.
3. Open the **Row Labels** filter. Clear **(blank)**. Click **OK**.
4. Drag **Business_Unit** to **Columns**. Drag **Overpaid_RM** to **Values** (Sum).
5. Click **PivotTable Analyze > PivotChart**. Select **Line**. Click **OK**.

> **NOTE** (blank) is the group of POs with no payment yet. Remove it from the view.

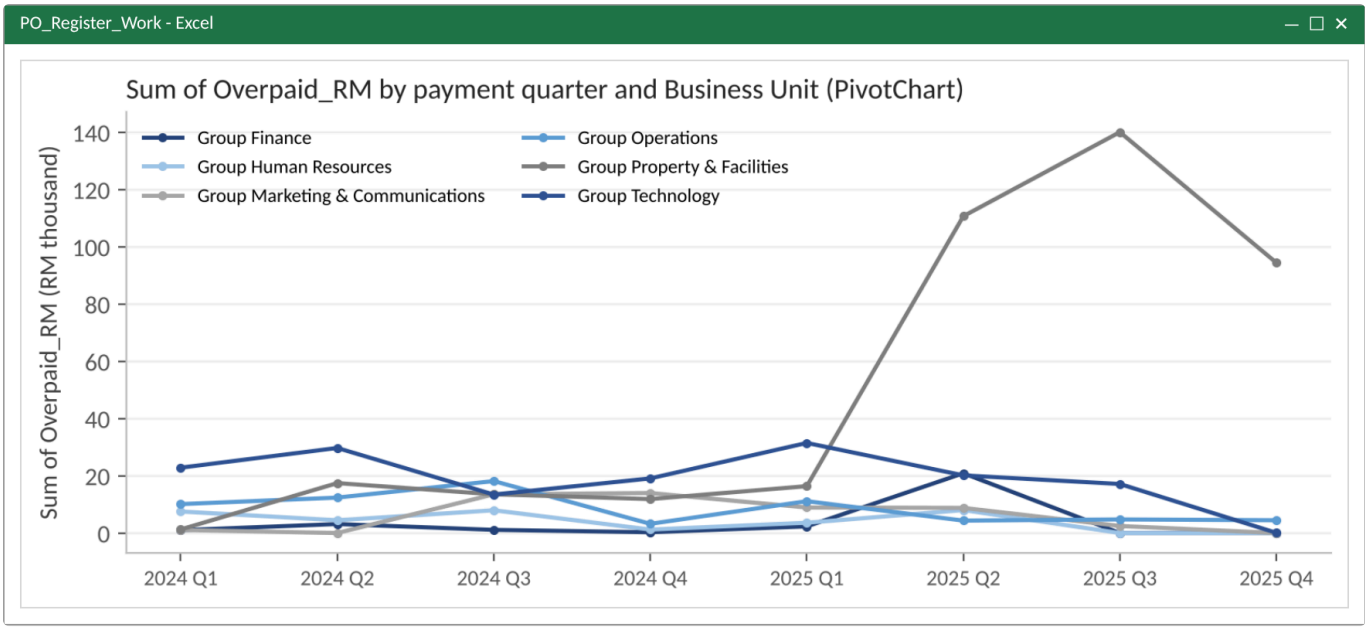


Figure 20: Overpaid amount by payment quarter. One line for each Business Unit.

YOUR FINDING After Q3 2025, which Business Units show a fall in overpayment? Which Business Unit does not? Write the Q2 and Q4 2025 values.

Validate and refine

Objective: Test each finding before you write it. Answer four questions: Does the math check out? Is the pattern consistent? What is the cause? So what?

5.1 Does the math check out?

1. In PO_Register_Work, click **+** next to the sheet tabs to add a new sheet.
2. In cell A1 of the new sheet, type `=SUM(tblPO[Invoice_Amount_RM])`. Push **Enter**. Write down the value.
3. In GCAD_Workbook, add a new sheet. Name it `Tie_Out`.
4. Type the labels in column A and the values in column B, as in Figure 21:
5. B2: the control total from Step 2.1. B3: `=SUM(Spend_Flat[Spend_RM])`. B4: the register total from Step 2.2. B5: the value from instruction 2.
6. In B6, type `=B2-B3`. In B7, type `=B2-B4`. In B8, type `=B2-B5`.

GCAD_Workbook - Excel

File | Home | Insert | Page Layout | Formulas | Data | Review | View

B6 | fx | =B2-B3

	A	B	C
1	**Check**	**Value (RM)**	**Result**
2	A. Crosstab Grand Total (FY2024 + FY2025), file 01	192,915,163.52	
3	B. Spend_Flat total (Power Query output)	192,915,163.52	
4	C. PO register before Remove Duplicates (5,322 rows)	193,012,419.62	
5	D. PO register after Remove Duplicates (5,316 rows)	192,915,163.52	
6	A - B	0.00	Match
7	A - C	-97,256.10	Duplicates
8	A - D	0.00	Match

Spend_Flat | Tie_Out

Figure 21: Tie-out of the flat table and the PO register to the MIS report.

CHECK B6 = 0.00 and B8 = 0.00. B7 = -97,256.10. The duplicate rows caused the difference in B7.

5.2 Is the pattern consistent across segments?

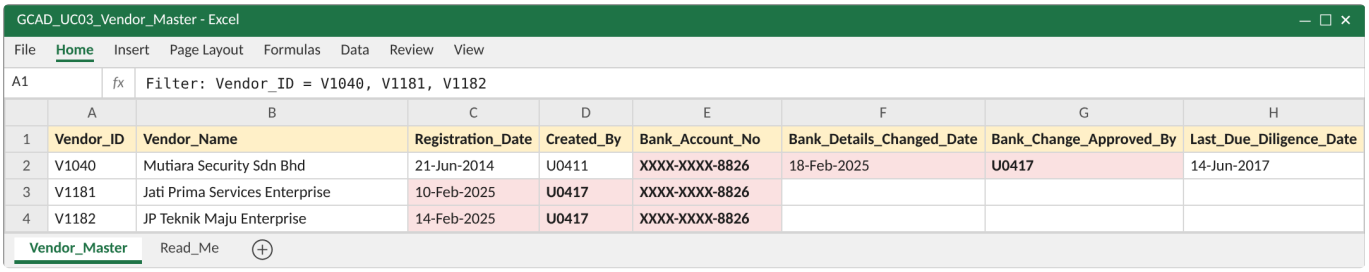
1. Click the sheet **P5_Bands**.
2. Set the **Business_Unit** filter and the **Category** filter to **(All)**.
3. Right-click any count. Click **Show Values As > % of Column Total**.
4. Read the value in row 45000, column 2025.
5. Set the filters to **Group Property & Facilities** and **Maintenance & Repairs**. Read row 45000, column 2025 again.
6. Change the Category filter to each other GPF category. Read row 45000 each time.

CHECK All BUs and categories, 2025: **8.6%**. GPF Maintenance & Repairs, 2025: **37.8%**.

YOUR FINDING Is the pattern in all Business Units, or in one segment only? What does this tell you?

5.3 Find the cause: link the files

1. Open `GCAD_UC03_Vendor_Master.xlsx`. Click **Data > Filter**.
2. Filter **Vendor_ID** for the three vendors that you found in Step 4 (A).
3. Compare the columns Registration_Date, Created_By, Bank_Account_No, Bank_Details_Changed_Date and Bank_Change_Approved_By.
4. Close the file. Do not save.



	A	B	C	D	E	F	G	H
1	Vendor_ID	Vendor_Name	Registration_Date	Created_By	Bank_Account_No	Bank_Details_Changed_Date	Bank_Change_Approved_By	Last_Due_Diligence_Date
2	V1040	Mutiara Security Sdn Bhd	21-Jun-2014	U0411	XXXX-XXXX-8826	18-Feb-2025	U0417	14-Jun-2017
3	V1181	Jati Prima Services Enterprise	10-Feb-2025	U0417	XXXX-XXXX-8826			
4	V1182	JP Teknik Maju Enterprise	14-Feb-2025	U0417	XXXX-XXXX-8826			

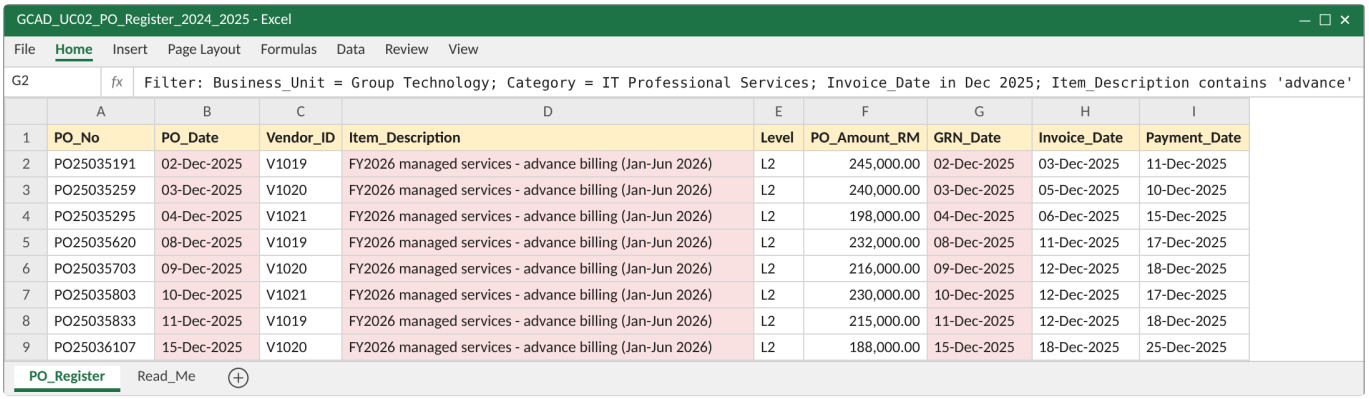
Figure 22: Vendor master rows for the three vendors.

5. Open `GCAD_UC04_Budget_Approval_Users.xlsx`, sheet **User_Directory**. Find the user ID from Created_By. Read the System_Rights.
6. In PO_Register_Work, click the filter arrow on **Override_By** in tblPO. Select that user ID only. Read the row count in the status bar.
7. Make a note of the vendors in the filtered rows. Then clear the filter.
8. Filter tblPO for the three vendors. Compare **Invoice_Date** with **GRN_Date** on each row.

YOUR FINDING What do the three vendors have in common? Who created them? What system rights does that user have? How many payment blocks did that user release?

5.4 Test the spike and the other comparison

1. In PO_Register_Work, click any cell in tblPO. Click **Data > Clear** to remove all filters.
2. In tblPO, filter **Business_Unit** = Group Technology and **Category** = IT Professional Services.
3. Filter **Invoice_Date** for December 2025.
4. Read **Item_Description**. Compare **GRN_Date** with **PO_Date**.
5. Click the sheet **Budget_Use** in GCAD_Workbook. Find Group Operations, Professional & Consultancy Fees.
6. Open `GCAD_UC04_Budget_Approval_Users.xlsx`, sheet FY2025_Budget. Read the **Budget_Note** for that row.



GCAD_UC02_PO_Register_2024_2025 - Excel

File Home Insert Page Layout Formulas Data Review View

G2 fx Filter: Business_Unit = Group Technology; Category = IT Professional Services; Invoice_Date in Dec 2025; Item_Description contains 'advance'

	A	B	C	D	E	F	G	H	I
1	PO_No	PO_Date	Vendor_ID	Item_Description	Level	PO_Amount_RM	GRN_Date	Invoice_Date	Payment_Date
2	PO25035191	02-Dec-2025	V1019	FY2026 managed services - advance billing (Jan-Jun 2026)	L2	245,000.00	02-Dec-2025	03-Dec-2025	11-Dec-2025
3	PO25035259	03-Dec-2025	V1020	FY2026 managed services - advance billing (Jan-Jun 2026)	L2	240,000.00	03-Dec-2025	05-Dec-2025	10-Dec-2025
4	PO25035295	04-Dec-2025	V1021	FY2026 managed services - advance billing (Jan-Jun 2026)	L2	198,000.00	04-Dec-2025	06-Dec-2025	15-Dec-2025
5	PO25035620	08-Dec-2025	V1019	FY2026 managed services - advance billing (Jan-Jun 2026)	L2	232,000.00	08-Dec-2025	11-Dec-2025	17-Dec-2025
6	PO25035703	09-Dec-2025	V1020	FY2026 managed services - advance billing (Jan-Jun 2026)	L2	216,000.00	09-Dec-2025	12-Dec-2025	18-Dec-2025
7	PO25035803	10-Dec-2025	V1021	FY2026 managed services - advance billing (Jan-Jun 2026)	L2	230,000.00	10-Dec-2025	12-Dec-2025	17-Dec-2025
8	PO25035833	11-Dec-2025	V1019	FY2026 managed services - advance billing (Jan-Jun 2026)	L2	215,000.00	11-Dec-2025	12-Dec-2025	18-Dec-2025
9	PO25036107	15-Dec-2025	V1020	FY2026 managed services - advance billing (Jan-Jun 2026)	L2	188,000.00	15-Dec-2025	18-Dec-2025	25-Dec-2025

PO_Register Read_Me

Figure 23: Group Technology POs with invoices in December 2025.

YOUR FINDING What do the December POs pay for? Is the GRN date possible? Does the Group Operations growth have a valid business reason?

NOTE Validation can remove a pattern. A real change with a valid business reason and a budget is not an audit finding.

5.5 So what? Say it in one sentence

1. For each finding, ask: "Why must the Board Audit Committee care?"
2. Write the finding as one sentence. If you cannot, the finding is not clear yet.
3. Use the insight formula in the next section.

Write your insights

[WHAT happened] + [WHY it matters] + [WHAT to do about it]

Insight 1 (from your A, C and N findings)	
WHAT happened	
WHY it matters	
WHAT to do	
One sentence:	

Insight 2 (from your S finding)	
WHAT happened	
WHY it matters	
WHAT to do	
One sentence:	

Test your insight

Question	Yes / No
Does WHAT happened include a number in RM or a count?	
Does WHY it matters name a risk or a control that failed?	
Does WHAT to do name an action that management can do?	
Can you say the insight in one sentence?	
Can you show the source of each number (file, sheet, filter)?	

Bad vs good

Bad: only information	Good: actionable insight
"Sales in Q2 were $2.3M."	"Q2 sales dropped 18% due to inventory shortages in our top 3 SKUs. Restocking could recover about $400K."
"Customer count increased by 150."	"New customers grew by 150 but retention fell to 45%. Onboarding is broken, not acquisition."

NOTE Next session: turn Insight 1 into one slide. Headline = the one sentence. Visual = one chart from Step 4. Action box = WHAT to do.

Appendix A: Power Query M code (backup)

Use this code if a step does not work. In the Power Query Editor, click **Home > Advanced Editor**. Select all the text and replace it with the code. Change the file path to your folder. Click **Done**.

Query: Spend_Flat

```
let
    Source =
Excel.Workbook(File.Contents("C:\Users\\Desktop\GCAD_Demo\GCAD_UC01_Procurement_Spend_MIS_Report.xlsx"),
null, true),
    Spend_Report_Sheet = Source{[Item="Spend_Report",Kind="Sheet"]}[Data],
    #"Removed Top Rows" = Table.Skip(Spend_Report_Sheet, 4),
    #"Promoted Headers" = Table.PromoteHeaders(#"Removed Top Rows", [PromoteAllScalars=true]),
    #"Filled Down" = Table.FillDown(#"Promoted Headers", {"Business Unit"}),
    #"Filtered Rows" = Table.SelectRows(#"Filled Down", each [Category] <> "Subtotal" and [Business
Unit] <> "Grand Total"),
    #"Removed Columns" = Table.RemoveColumns(#"Filtered Rows", {"FY2024 Total", "FY2025 Total"}),
    #"Unpivoted Other Columns" = Table.UnpivotOtherColumns(#"Removed Columns", {"Business Unit",
"Category"}, "Month", "Spend_RM"),
    #"Changed Type" = Table.TransformColumnTypes(#"Unpivoted Other Columns", {{"Month", type date},
{"Spend_RM", type number}}, "en-US"),
    #"Replaced Errors" = Table.ReplaceErrorValues(#"Changed Type", {{"Spend_RM", 0}}),
    #"Inserted Year" = Table.AddColumn(#"Replaced Errors", "Year", each Date.Year([Month]),
Int64.Type)
in
    #"Inserted Year"
```

Query: Budget_Use (the Budget query must exist)

```
let
    Source = Spend_Flat,
    #"Filtered Rows" = Table.SelectRows(Source, each [Year] = 2025),
    #"Grouped Rows" = Table.Group(#"Filtered Rows", {"Business Unit", "Category"},
        {{"Actual_2025", each List.Sum([Spend_RM]), type number}}),
    #"Merged Queries" = Table.NestedJoin(#"Grouped Rows", {"Business Unit", "Category"},
        Budget, {"Business_Unit", "Category"}, "Budget", JoinKind.LeftOuter),
    #"Expanded Budget" = Table.ExpandTableColumn(#"Merged Queries", "Budget", {"FY2025_Budget_RM"}),
    #"Added Custom" = Table.AddColumn(#"Expanded Budget", "Budget_Use", each [Actual_2025] /
[FY2025_Budget_RM], Percentage.Type),
    #"Sorted Rows" = Table.Sort(#"Added Custom", {{"Budget_Use", Order.Descending}})
in
    #"Sorted Rows"
```

Appendix B: Formulas

Purpose	Formula
Overpaid amount (tblPO)	`=MAX(0, N([@Paid_Amount_RM]) - N([@GRN_Amount_RM]))`
RM5,000 band (tblPO)	`=FLOOR([@PO_Amount_RM], 5000)`
Flat table total	`=SUM(Spend_Flat[Spend_RM])`
Register invoice total	`=SUM(tblPO[Invoice_Amount_RM])`

Appendix C: Problems and fixes

Problem	Fix
Power Query shows the title text as column names	Delete the step Removed Top Rows. Do Remove Top Rows again with 4 rows.
Month column shows Error	Delete Changed Type1. Use Change Type > Using Locale > Date > English (United States).
Spend_RM shows Error	Right-click Spend_RM > Replace Errors > 0.
Merge matches fewer than 22 rows	Select Business Unit first, then Category, in both tables. Use Ctrl to select the second column.
Spend_Flat total is not equal to the control total	Make sure that you filtered out Subtotal and Grand Total, and removed the two FY Total columns.
Register total is not equal to the control total	Remove Duplicates in tblPO (Step 3.8).
The formula in tblPO shows the formula text	The cell format is Text. Change it to General and type the formula again.
PivotTable does not show the new columns of tblPO	Click PivotTable Analyze > Refresh.
The Group command is not available	The column has blank or text values. Remove blanks from the filter, or make sure the column is Date or Number.