Data Visualisation for Business

ANL 201

Business Performance Dashboard
Study Unit 5

January 2024

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Recap

- Data visualisation for categorical data:
  - Bar chart, side-by-side bar chart, stacked bar chart
  - Pie chart
  - Heatmap
  - Treemap
  - Simple report, two measures report
- Data visualisation for time-series data:
  - Line chart, line chart with dual axis, stacked line chart
  - Stacked area chart
  - Gantt chart
  - Trend line and reference line

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Business Performance Dashboard

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What is Business Performance Dashboard

- Business performance indicators consolidated and arranged on a single screen
- Serves a critical performance reporting function- like a business report card
- Enables management to identify the strengths and weaknesses
- Acts like a magnifying glass to bring to focus an organisation's attention on deficiencies that impede the achievement of the overall strategy
- Can be classified into three main types- strategic dashboard, tactical dashboard, and operational dashboard

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Types of Business Performance Dashboard

The Strategic Dashboard

- Used by senior executives and managers to monitor the execution of strategic objectives
- Strategic objectives are derived from the balanced scorecard framework
- Key features are: simplicity and high visual impact
- Allows senior management to understand the company's performance at a glance, and drill down to the details of any indicator or the underlying Tactical Dashboard

Example of a Strategic Dashboard

Source: http://image.slidesharecdn.com/artandscienceofdashboarddesign-140313160137-phpapp01/95/art-and-science-of-dashboard-design-24-638.jpg?cb=1394726642

Types of Business Performance Dashboard

The Tactical Dashboard

- Used by managers and analysts to track the progress of departmental processes and projects against budget plans, forecasts or previous periods achievements

- It is one level lower in hierarchy to the Strategic Dashboard

- A financial dashboard is an example of a tactical dashboard used by the finance department to track revenue and expenses versus the budgeted numbers on a monthly or quarterly basis.

Example of a Tactical Dashboard

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Source: http://www.visualmining.com/wp-content/uploads/2012/10/Retail-Example-Dashboard.jpg

Types of Business Performance Dashboard

The Operational Dashboard

- Used by operational staff and their supervisors to monitor operational processes
- Is usually very specific to a particular operation or process
- In a sales department, the operational dashboard is used to monitor the performance of individual sales representatives in terms of sales achievement for a specific period of time
- It is one level lower in hierarchy to Tactical Dashboard

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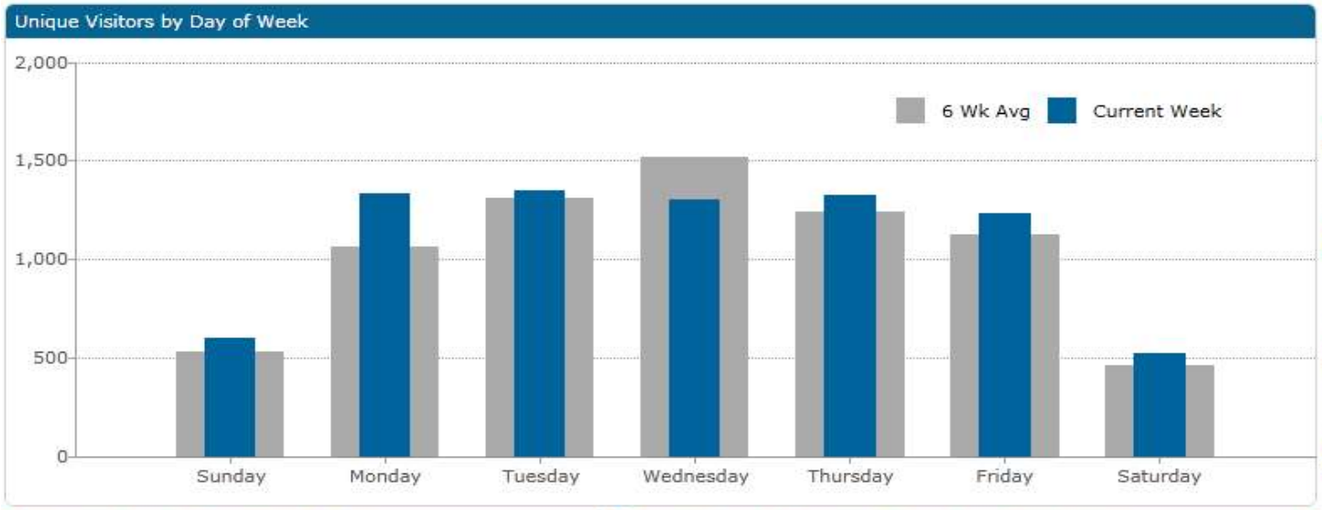
Example of an Operational Dashboard

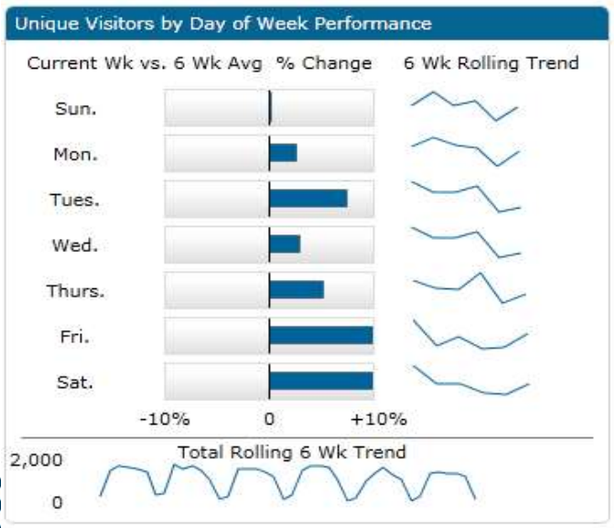


Bounce Rate		Change
Yesterday	66.90 %	0.27 %
6 Wk Avg	66.63 %	

Avg. Time On Site (Seconds)		Change
Yesterday	121	9.00
6 Wk Avg	112	

Avg. # of Pages per Visit		Change
Yesterday	2.24	-0.03
6 Wk Avg	2.27	

% of New Visitors		Change
Yesterday	77.21 %	-1.63 %
6 Wk Avg	78.84 %	



Google Keyword Search Rankings (as of Yesterday)

Keyword(s)	Current Month's Rank	Previous Month's Rank	Change
Data Management	1	2	↑
Data Federation	2	2	
Business Intelligence	3	12	↑
Data Warehouse	3	4	↑
Data Governance	4	2	↓
Data Analytics	4	1	↓
SOX Compliance	4	9	↑
mobile business intelligence	7	34	↑
Big Data	9	11	↑
analytics dashboard	10	23	↑
data in the cloud	12	6	↓

Yesterday's Activities

- Article - Data Governance Primer
- News Item - Next generation of data federation tools
- Article - Data Integration Challenges Rises
- Sent out June Newsletter - Visualizing Big Data

Planned Activities

Activity Date	Description
Jun 20, 2011	New Article - Common Data Management Pitfalls
Jun 23, 2011	Interview with Larry Hinds, President, Show Me the Numbers Inc.
Jun 25, 2011	New Research Paper - Why BI projects fail
Jun 26, 2011	New Article - Looking for the one version of the truth: the never ending search

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Source: http://www.dashboardinsight.com/CMS/bcd462ac-24a3-44af-ad1d-2cadc951ae0d/website-operational-dashboard.png

Business Performance Dashboard

Benefits

- Communication — facilitate the translation of corporate strategy into measures with their corresponding targets
- Increase insight — Empower management with greater insights into the business performance in a timely manner
- Increase motivation — With the measures and the corresponding targets displayed side to side, the motivation to excel in the measured areas is increased
- Increase coordination — Objectivity, openness and transparency in business performance dashboards helps promote effective coordination among departments

Business Performance Dashboard- Benefits

Benefits

- Consistent view of business —consolidate and integrate business performance information using a common platform

- Reduce cost and redundancy — Standardising information and reporting based on business performance dashboards can eliminate the duplication of reports

- User sufficiency and empowerment —Allow users to be self-sufficient in creating, organising, and presenting information on business performance

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Dashboard Design Principles

- Keep it simple- avoid fancy formatting
- Don’t display everything – keep it to a single page
- Use layout and placement
- Format numbers effectively
- Use titles and labels effectively

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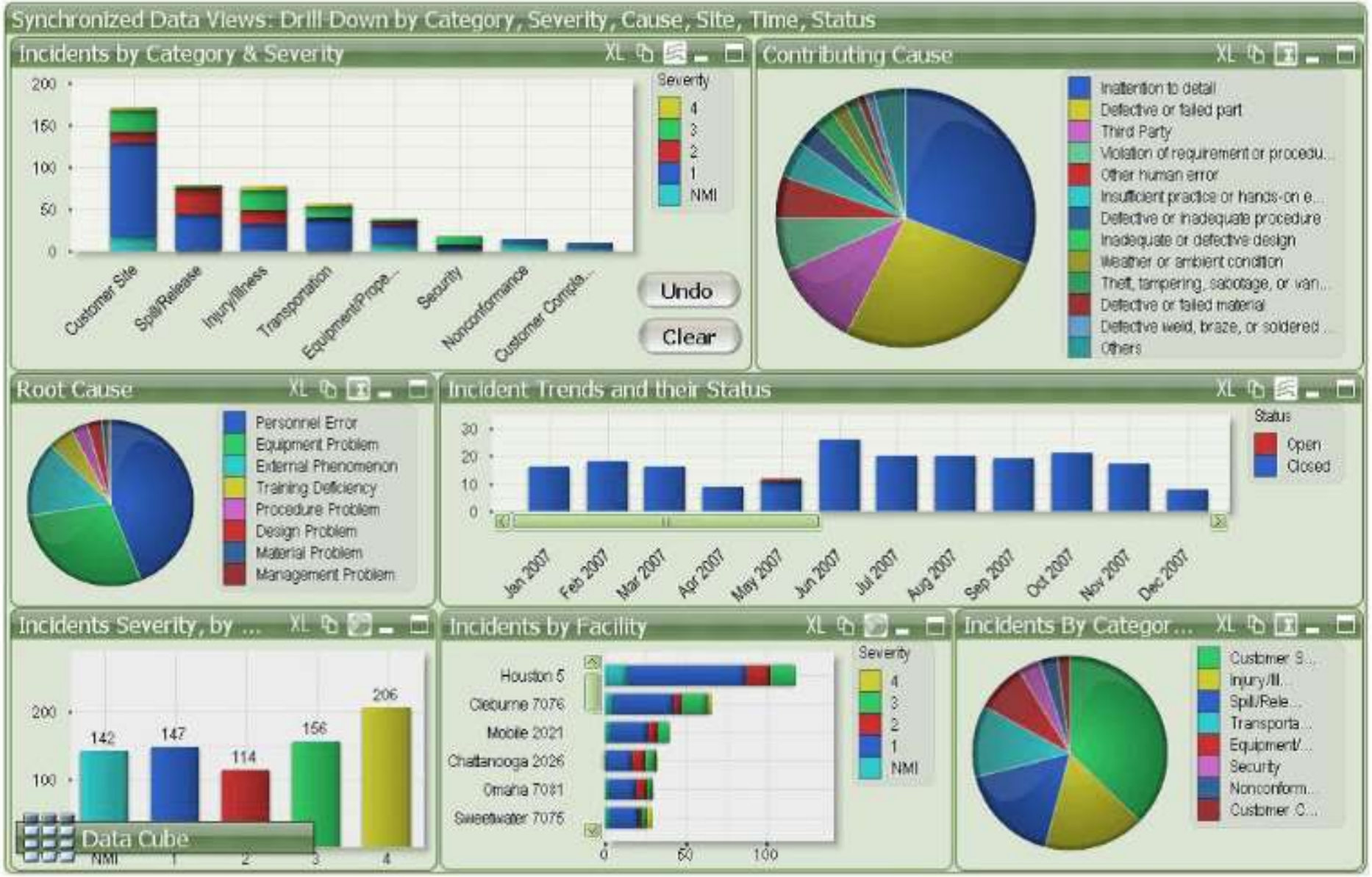

What is wrong with this dashboard?

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Source: https://www.geckoboard.com/blog/5-terrible-dashboard-designs-and-how-to-fix-them/#.WD1IHYVOKuU

Discussion

Overuse of color - The number of color used in this dashboard is distracting and makes it difficult to understand This creates a huge cognitive barrier for the brain when trying to process the data quickly

Pie charts - The large data set (“Contributing Cause”) makes the pie chart impossible to determine the percentage of each item

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What is wrong with this dashboard?

Source: https://www.geckoboard.com/blog/5-terrible-dashboard-designs-and-how-to-fix-them/#.WD1IHYV0KuU

Discussion

Don’t display everything - this dashboard is too cluttered and poorly structured, making it difficult to navigate

Variation in font sizes - there doesn’t appear to be any hierarchy to the extreme range in font sizes

Metrics hard to interpret - the window size for each metric varies arbitrarily, making it more difficult to process

Creating Business Performance Dashboards

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Creating Business Performance Dashboards

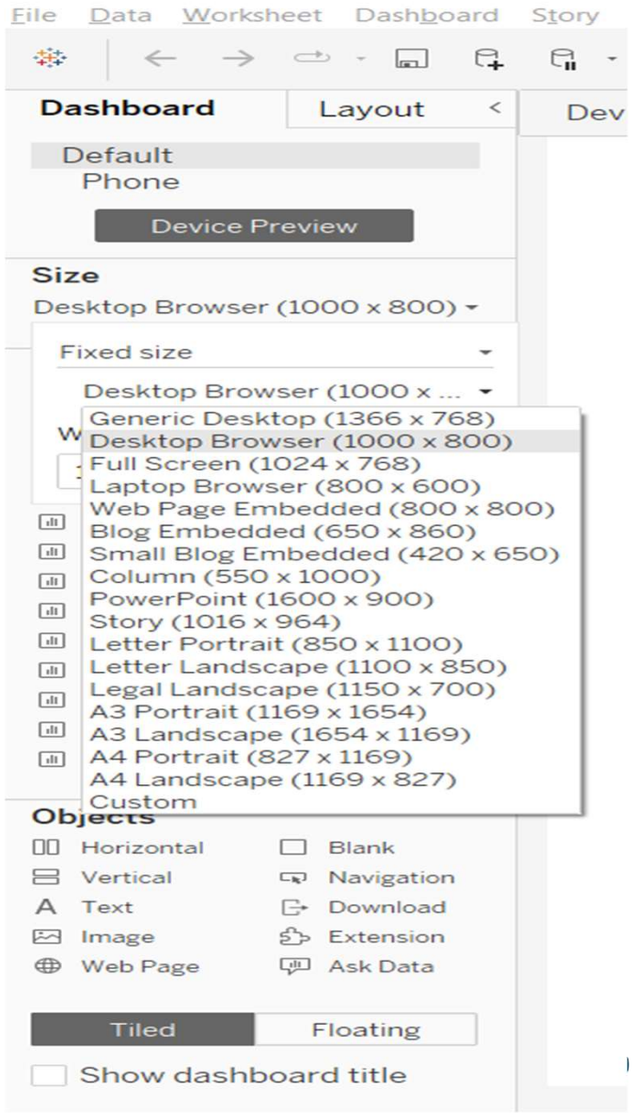
Tableau Demonstration

- Choose the Display Option
- Define the Visualisation Task
- Position Objects in the Dashboard Workspace

Creating Business Performance Dashboards

Choose the Display Option

- First thing to consider when assembling worksheets in a dashboard is the available space that our viewers have to view them
  - Overhead projector
  - Personal computer
  - Smart devices
- Click “size shelf”
  - automatic option expands the dashboard to fill up the available screen space
  - exact option allows us to lock the dashboard width and height
  - range option enables us to define minimum and maximum limits



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Creating Business Performance Dashboards

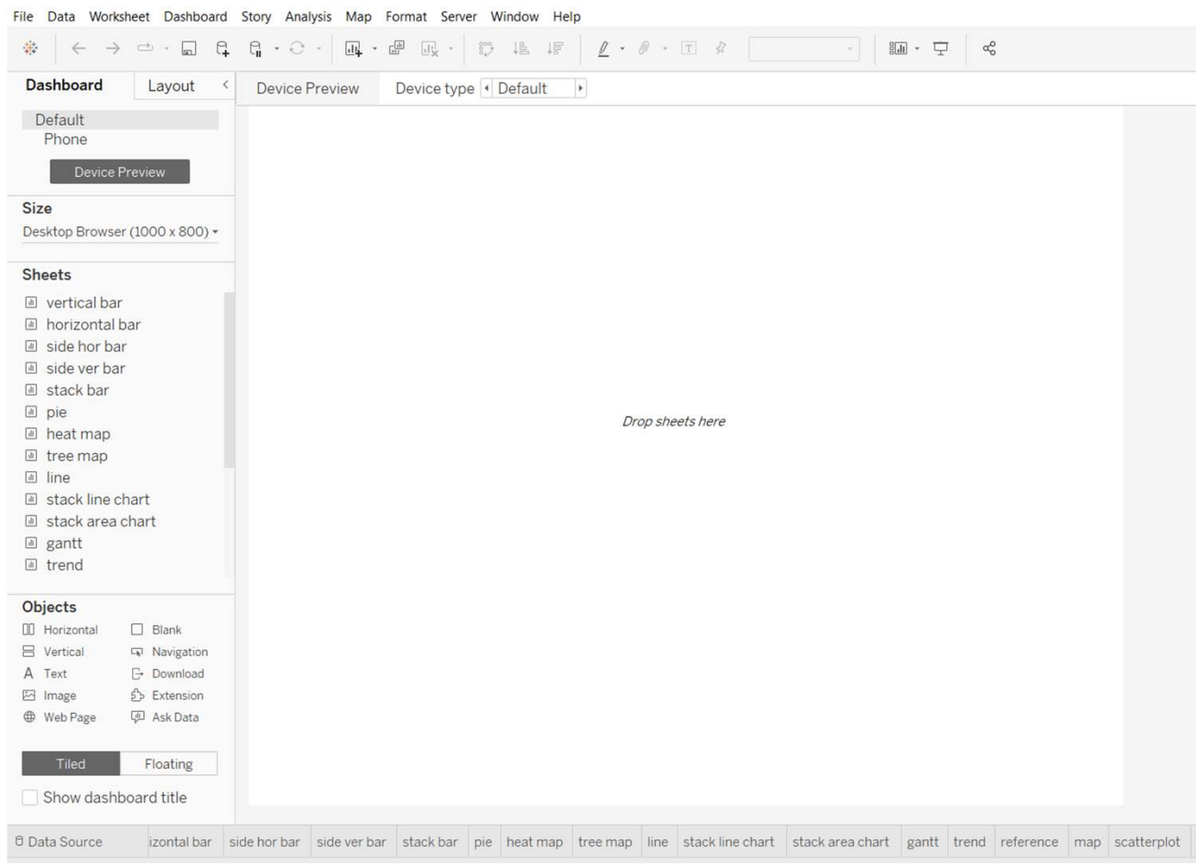
Define the Visualisation Task

- Important question- Who will be looking at the dashboard and at what frequency?
- The answer defines the visualisation task- type and amount of information that will go in the dashboard.
- Scenario: the sales manager for a global superstore has to do monthly reporting of his KPIs— number of customers, sales and profit achieved per month.
- The sales dashboard should include monthly breakdown of total number of transactions, sales and profit for the year until the current month.
- Start with three bar graphs— one each for number of transactions, sales and profit per month.
- The next layer should be a line graph that compares sales and profit per transaction across months for each product category.

Creating Business Performance Dashboards

Position Objects in the Dashboard Workspace

- In Tableau, you can combine the worksheets to give an integrated view
- Two ways to add objects into the dashboard.
  - Either drag the selected object into the “Drop sheet here” area, or
  - Double click the worksheet objects on the top-left hand corner.
- To control the placement of an individual object more precisely, drag the object into the view. Once we lift up the left-click button, Tableau will provide a preview of the area that the object will occupy by shading it in grey.



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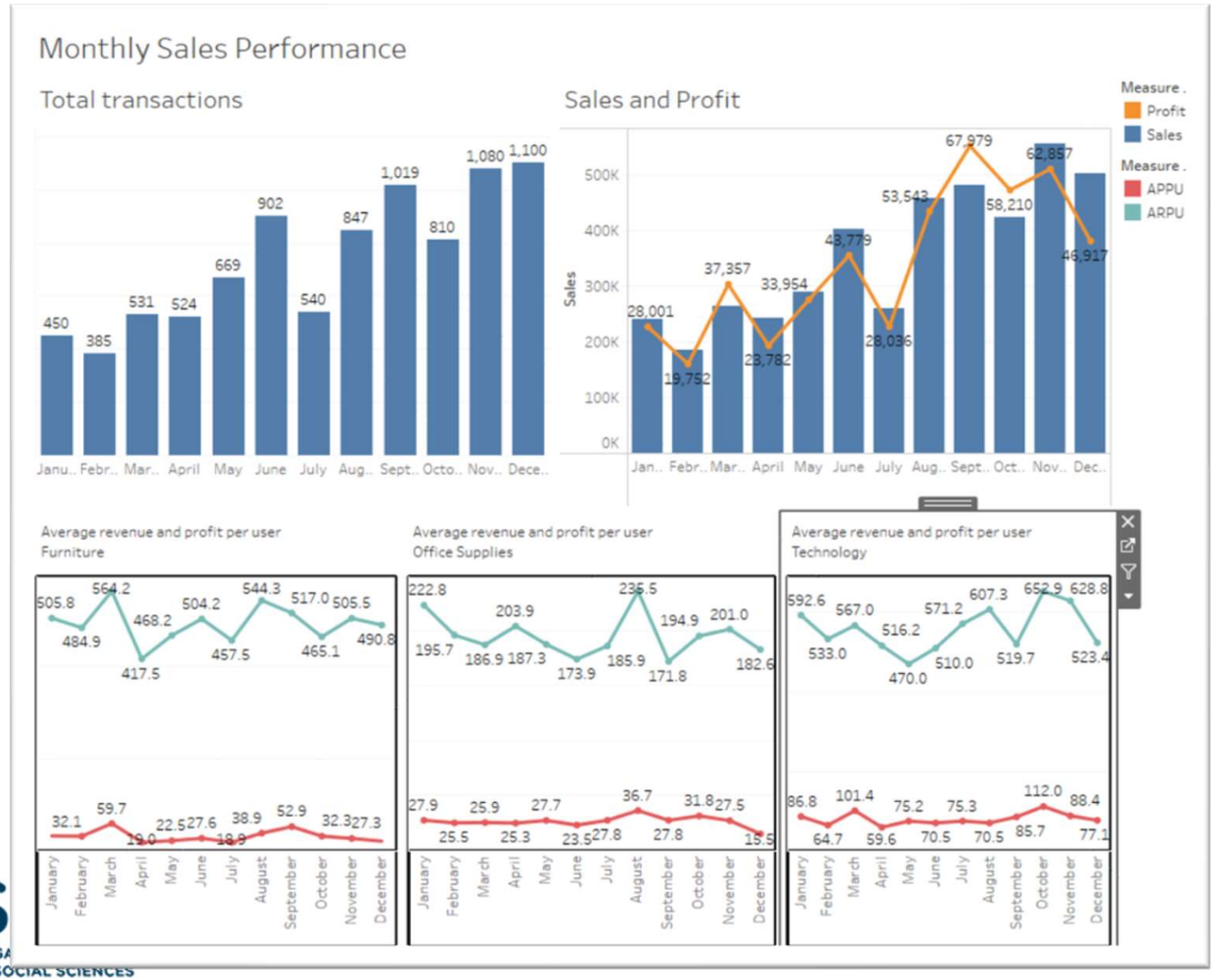
Creating Business Performance Dashboards

Position Objects in the Dashboard Workspace



As per visualisation task defined

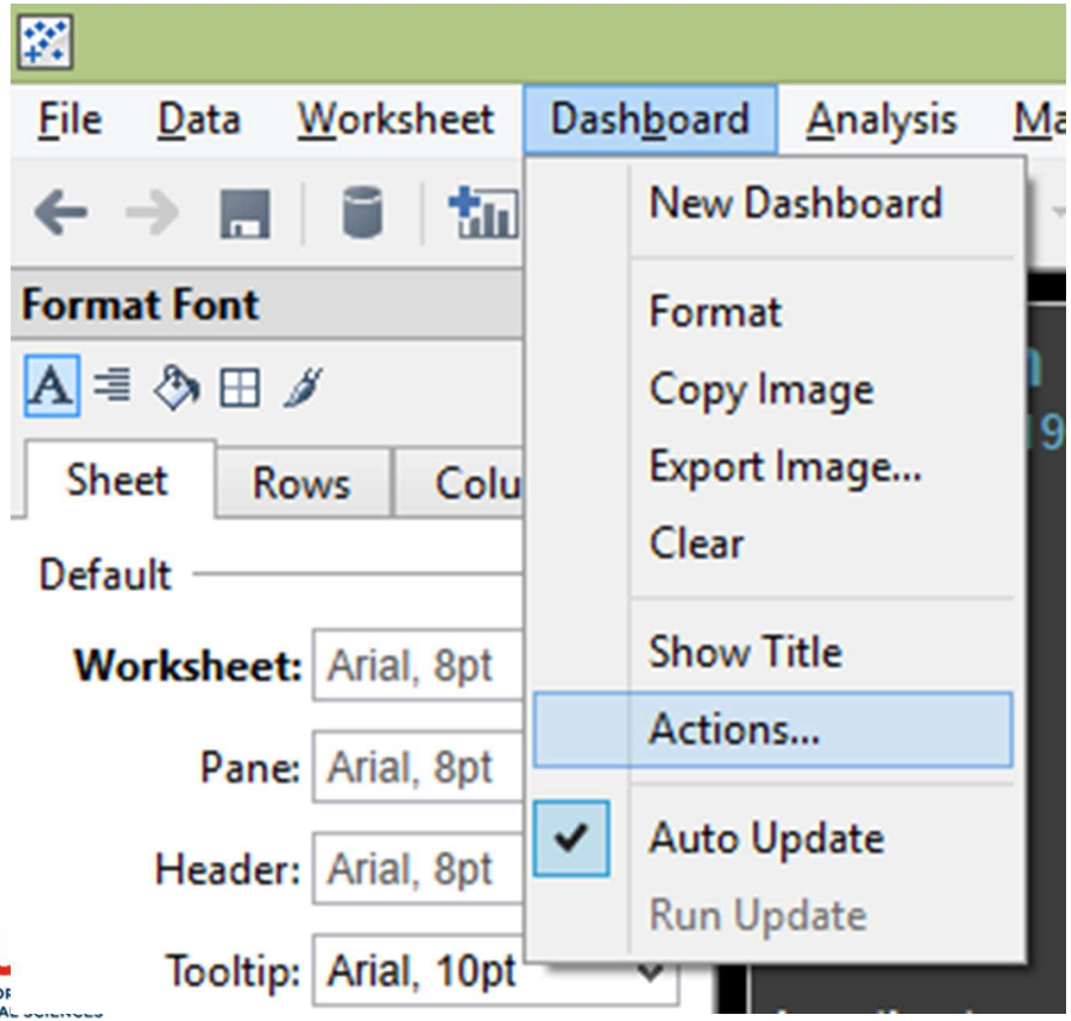
- It makes sense for the bar charts showing the number of transactions and sales and profit to be displayed in the first row, followed by category-wise split of average revenue and profit per transaction

- Add a title to the dashboard by selecting the “Show Title” option on the bottom left of the dashboard shelves.

- The default title will be the name of the dashboard worksheet. Edit the title text by double clicking on the default name and type in the new title.

Creating Business Performance Dashboards

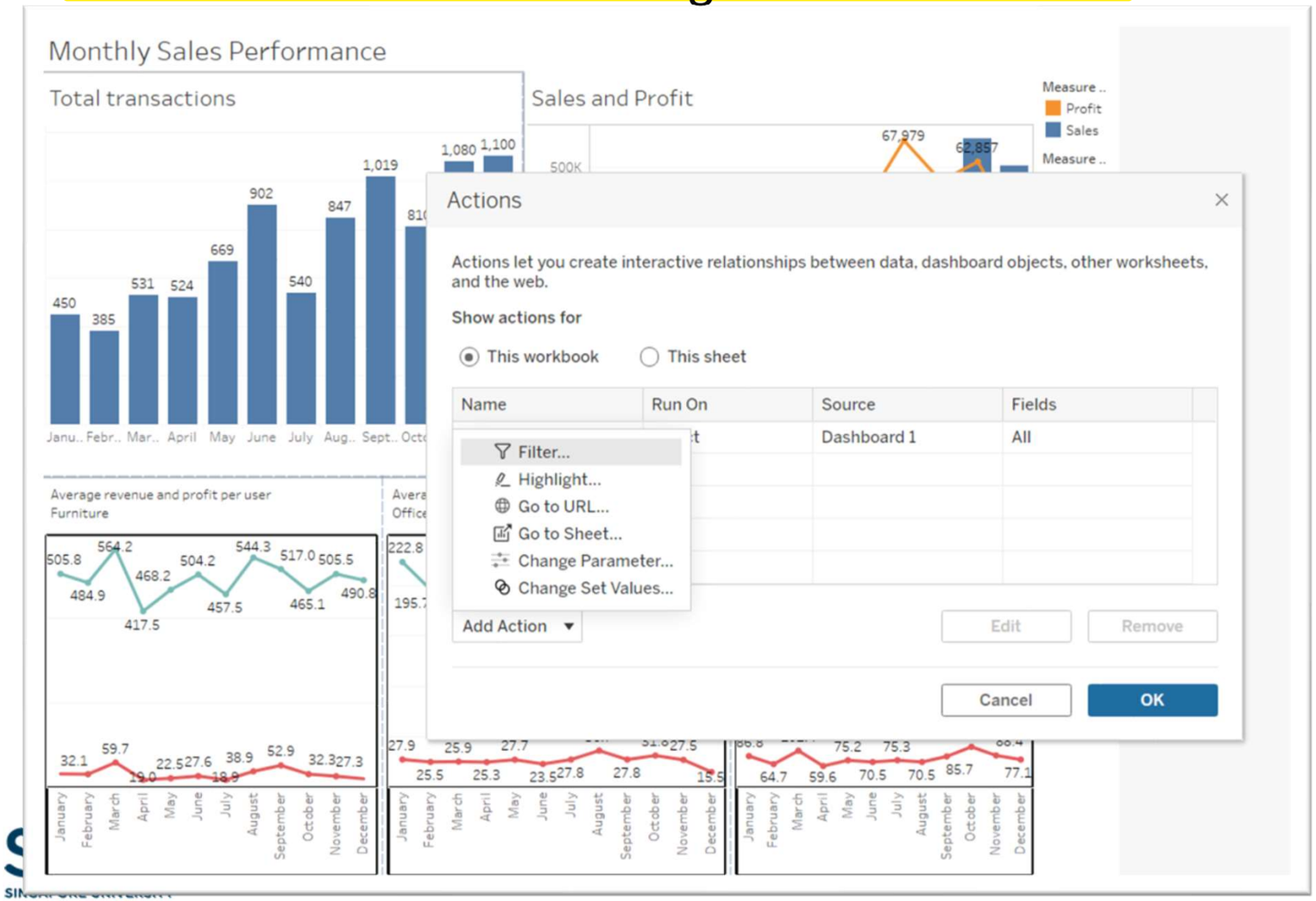
Advanced Dashboard Navigation



- Actions facilitate insight discovery by altering the context of the dashboard based on selections made by the dashboard viewers.
- We can build actions that filter and highlight the main dashboard.
- To create advanced navigation options— filter, highlight, go to url and others— we need to access the dashboard's menu option, then select the actions menu to expose the actions dialogue box.

Creating Business Performance Dashboards

Advanced Dashboard Navigation- Filter Action

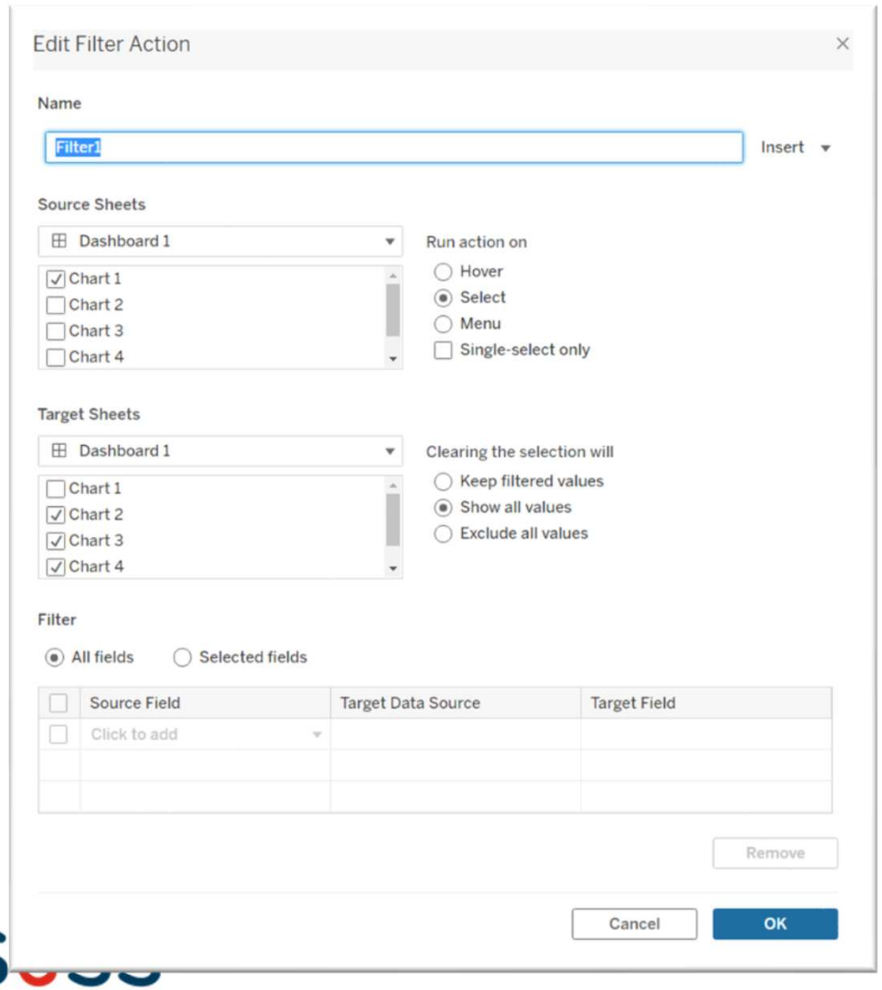


- Filter action filters the display area in target sheet based on the selection made in the source sheet.

- We want to filter the states only in one particular region corresponding to the region clicked on the pie chart, so we use the “Filter action” to achieve this.

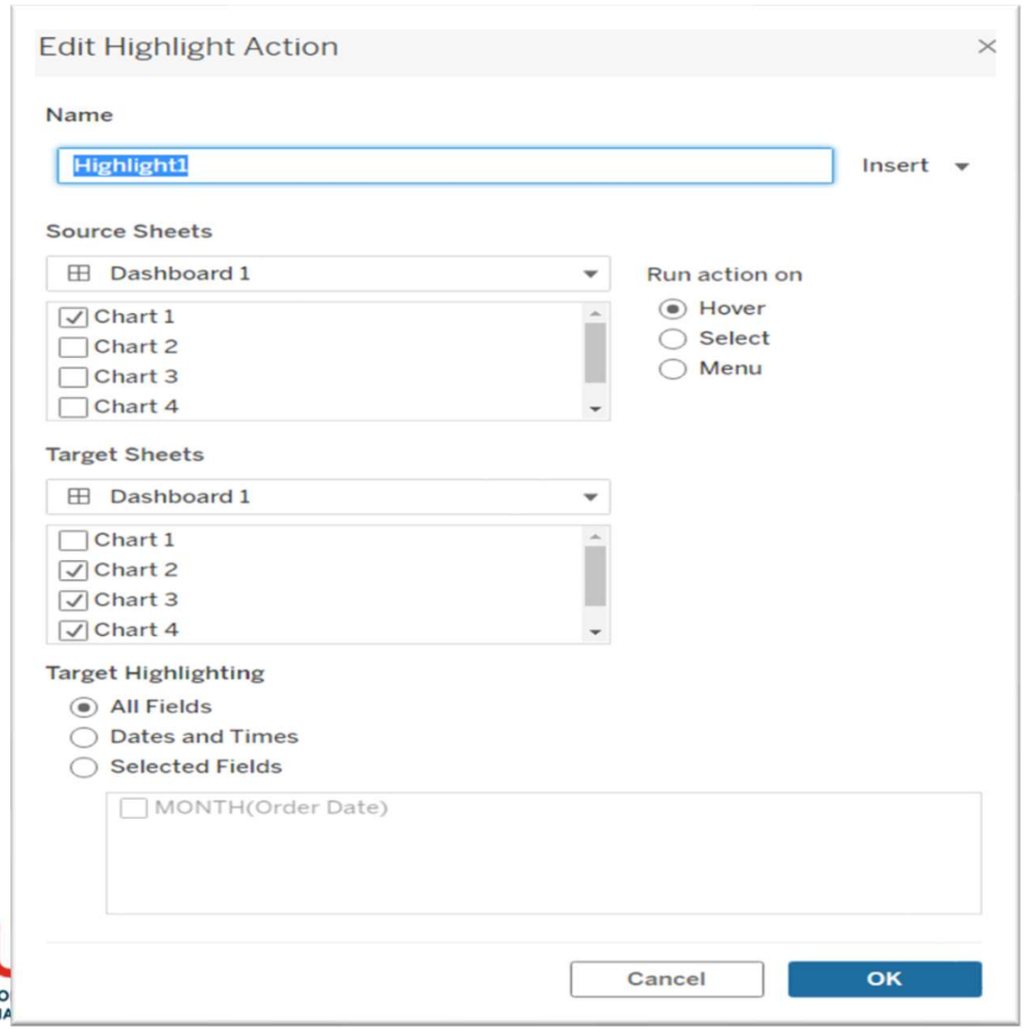
Creating Business Performance Dashboards

Advanced Dashboard Navigation- Filter Action



Creating Business Performance Dashboards

Advanced Dashboard Navigation- Highlight Action



- Highlighting helps dashboard viewers to see related information more easily.
- For example, in the dashboard created, we intend to highlight any one particular month based on the selection made in the bar chart.
- This can be achieved using the “Highlight Action”.

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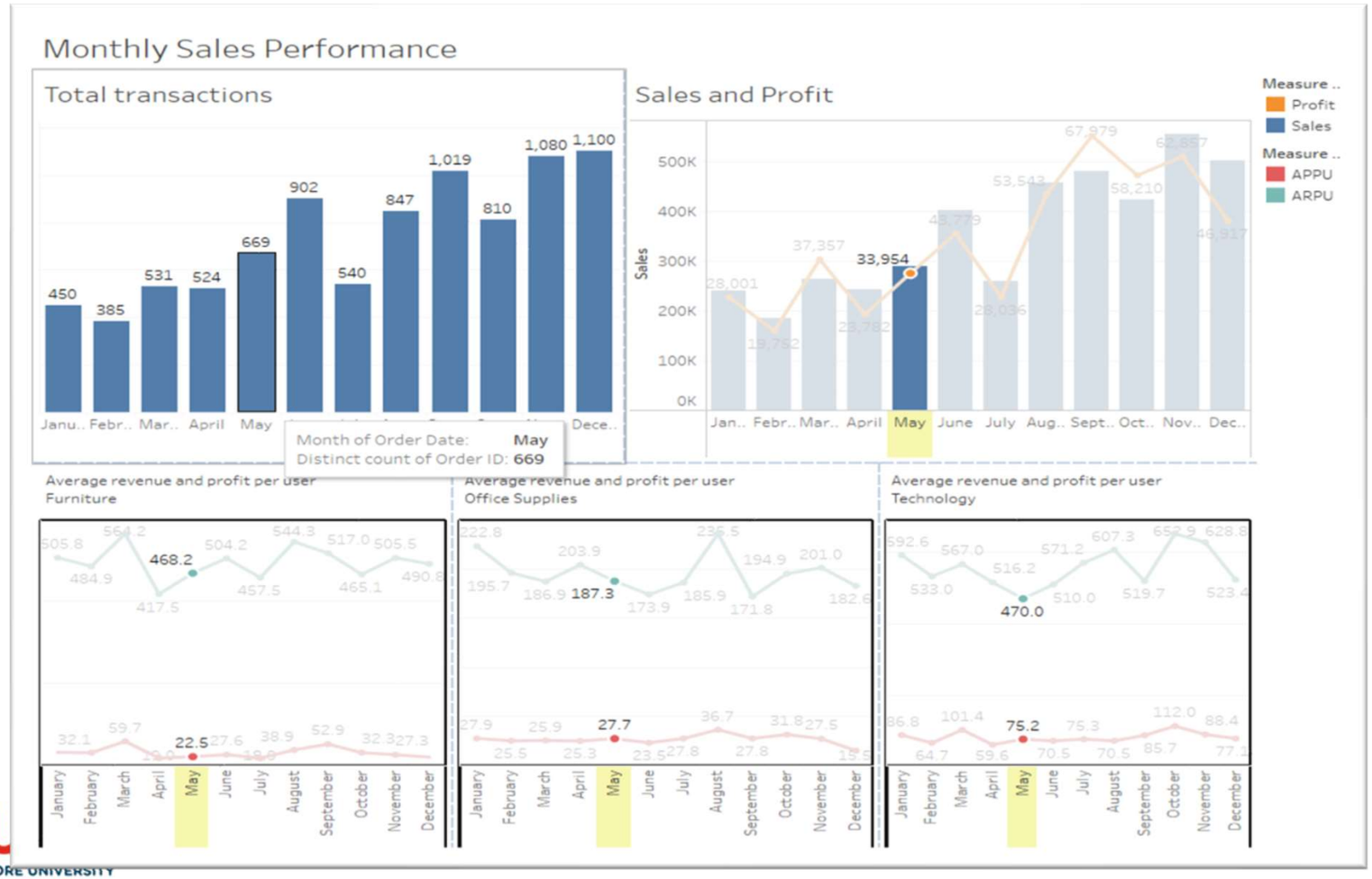
Advanced Dashboard Navigation- Highlight Action



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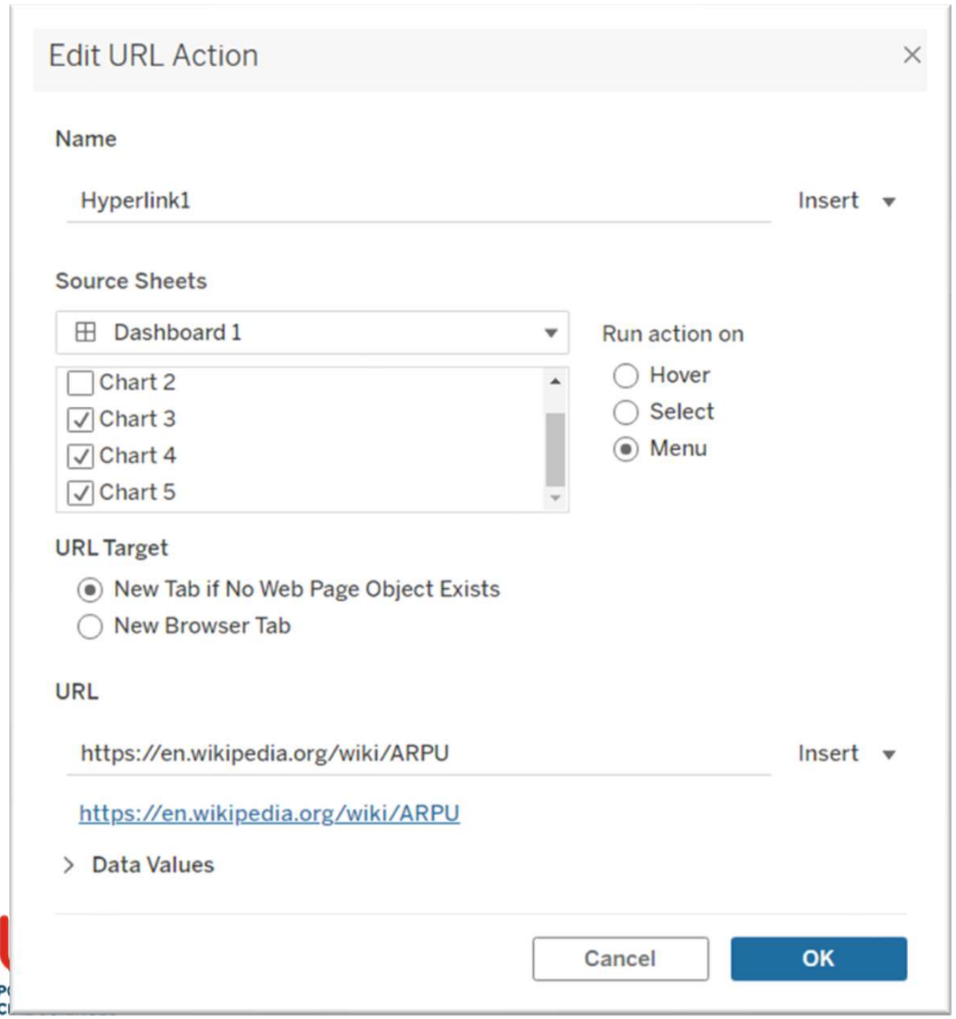
Creating Business Performance Dashboards

Advanced Dashboard Navigation- Go to URL

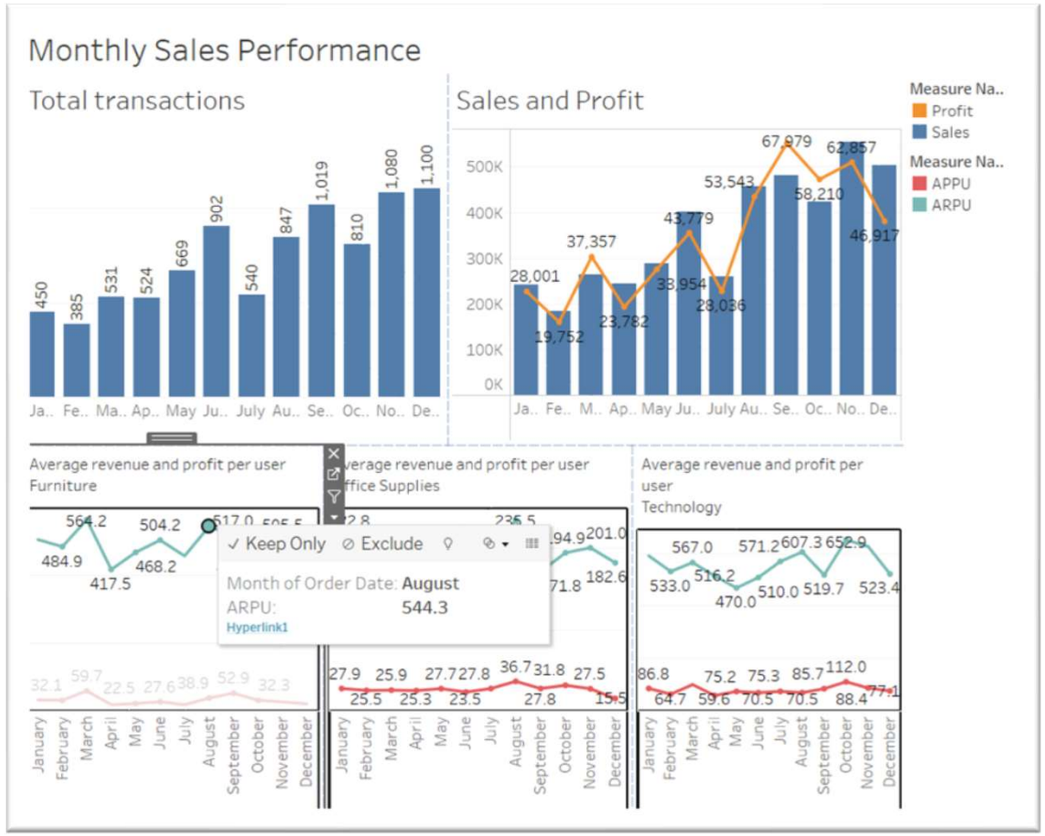


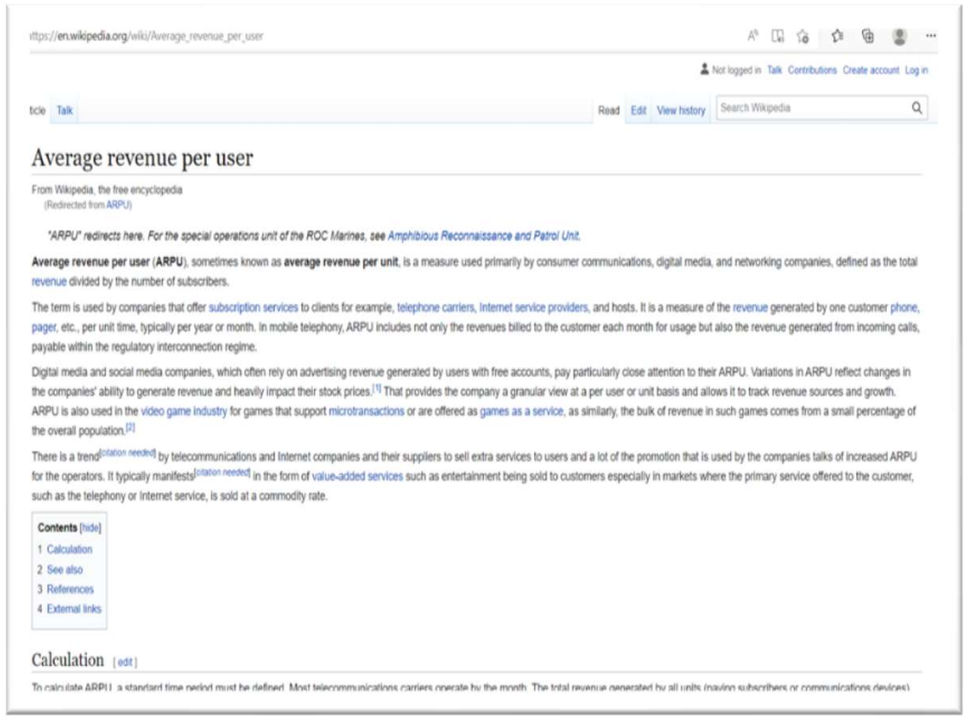
- The “Go to URL” action is used when we want to access additional information/references with respect to a field selected on one of the charts in the dashboard.

- For example, if we want to read up on any of the measures— for example, ARPU and APPU— in the charts, we can add a “Go to URL” action for users to select the hyperlink from the menu that directs them to the URL/Wikipedia link.

Creating Business Performance Dashboards

Advanced Dashboard Navigation- Go to URL





Storyboard

- Makes your case more compelling by showing how facts are connected, and how decisions relate to outcomes
- Decide whether you want to present data points that lead up to a conclusion **OR** start with a conclusion and then show the supporting data points.
- Each story point can be based on a different chart within a dashboard, or different time within a single chart.

More information about storyboard:

https://help.tableau.com/current/pro/desktop/en-us/stories.htm

https://help.tableau.com/current/pro/desktop/en-us/story_create.htm

https://help.tableau.com/current/pro/desktop/en-us/story_example.htm

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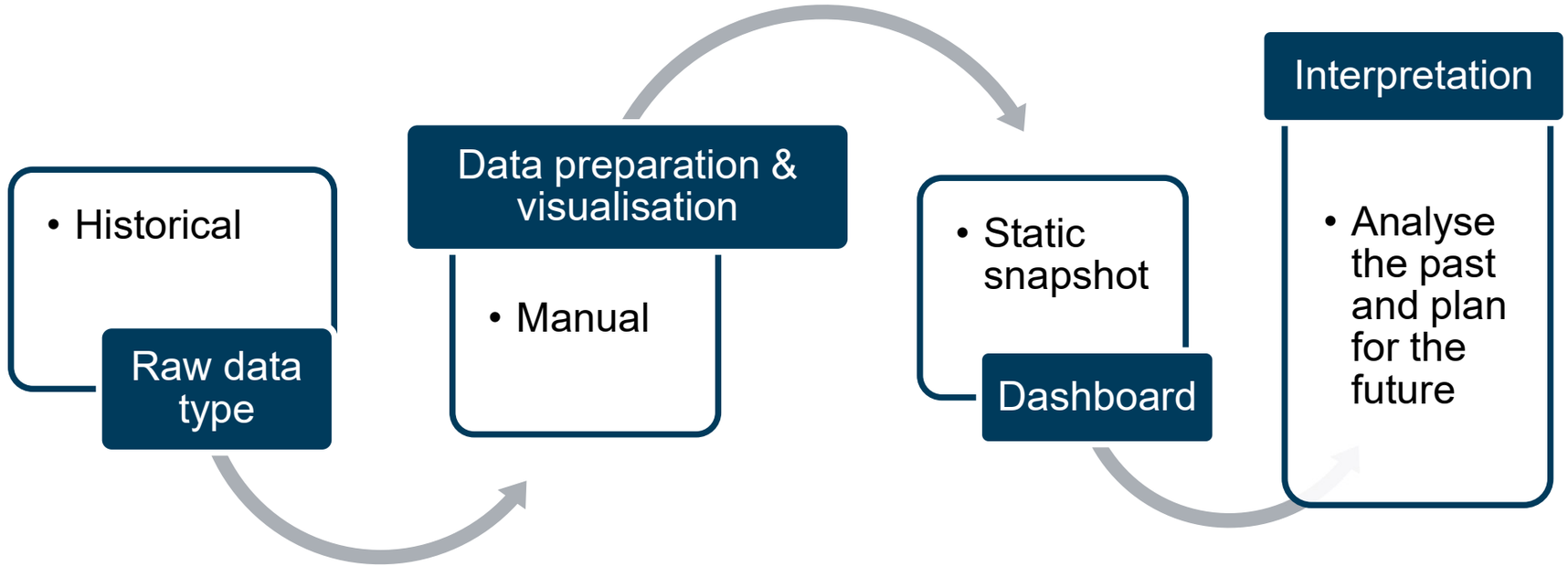
Business Performance Dashboard- Historical data

- The dashboard discussion so far has been based on historical data— data based on past performance or results
- This is the most common type of data that is available and prevalent in organisations for performance analysis and visualisation
- The process of visualisation and interpretation from historical data that has been covered in the current course is as below:



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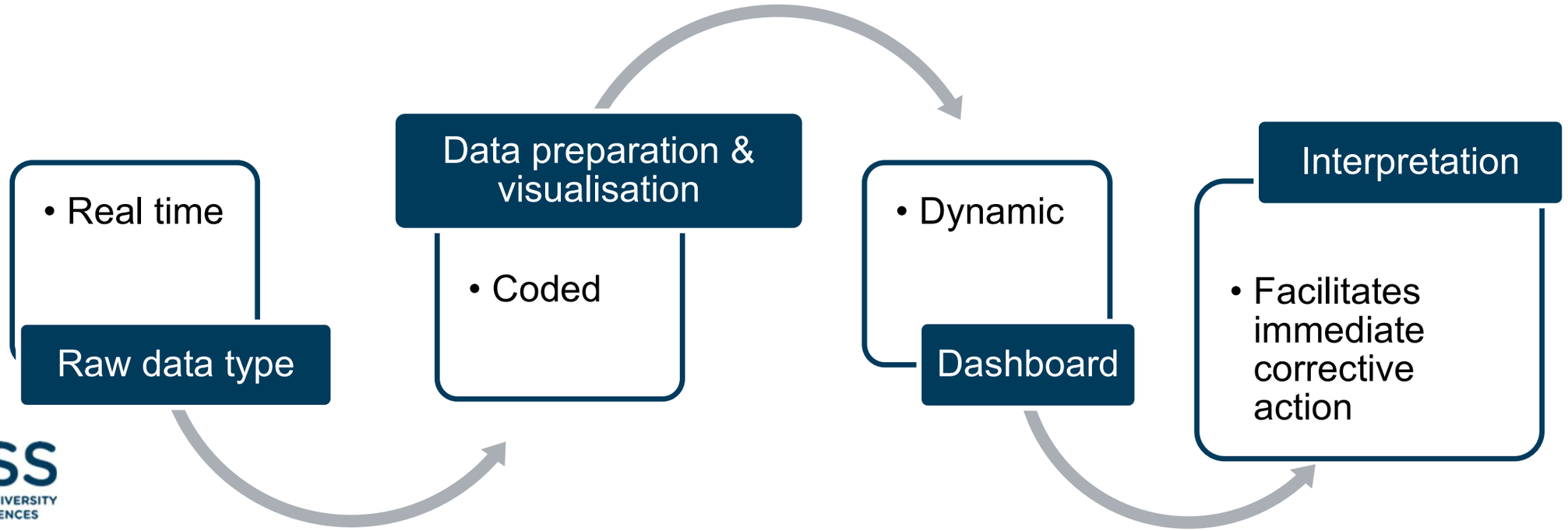
Business Performance Dashboard- Real-time data

- There is another type of data that is collected at a higher frequency- real time data
- Data preparation and visualisation with real time data requires automated or programmed loop that runs at the same frequency at which the data is collected
- This is often executed with the aid of programming languages (MATLAB, Python or R) and advanced statistical packages (SPSS, STATA).



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