ACTIONABLE DATA ANALYTICS

End to End Analytics

Power BI Foundations

www.actionabledataanalytics.com

About Us

Annie Leung

I am a data architect, data analytics engineer and manager who is experienced in establishing and enhancing data analytics platforms in organisations.

I have worked across a variety of industries, including higher education, government departments, not for profits, charities and private enterprises.

I am passionate about enabling organisations to use data to make impactful decisions in order to improve their business.
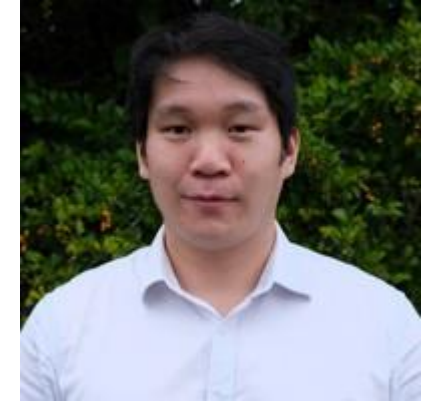
Minh Pham

I am an engineer, finance, and data professional with experience across the mining, utility, government, higher education, and not for profits sectors.

I am passionate about enabling organisations to use data to make impactful decisions to improve their businesses.

As an experienced manager and individual contributor, I enjoy working with professionals at all levels of the business .

Workshop Outline

1 Introduction to Data Analytics

2 Ingestion and Transformation of Data

3 Creating Simple Power BI Reports

4 Take it to the next level with Data Modelling

5 Summary and Recap

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Key Takeaways

1 Gain a solid understanding in Data Analytics to drive organisational decisions

2 Using real life examples, learn how to transform raw data into an analysis-optimised dataset

3 Discover how to communicate data stories by crafting compelling visuals

4 Gain a foundational understanding of the capabilities of Power BI

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Getting the most out of this workshop

1 Basic Computer Literacy

Familiarity with standard computer operations and basic software usage.

2 Basic Understanding of Data

While deep knowledge is not required, a basic understanding of what data is and why it's valuable can be beneficial

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Workshop Agenda

Time	Duration	
9:00am - 10:00am	1 Hour	Introduction to Data Analytics Prepare laptops for exercises
10:00am – 10:30am		Morning Tea
10:30am – 12:00pm	1.5 Hours	Exercise 1: My First Power BI Report
12:00pm – 1:00pm		Lunch
1:00pm to 3:00pm	2 Hours	Exercise 2: Workforce Demographic The Basics of Data Modelling
3:00pm to 3:30pm		Afternoon Tea
3:30pm to 5:00pm	1.5 Hours	Exercise 3: Workforce Summary Bonus Exercise: Employee Trend Final Questions and Recap

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Introduction to Data Analytics
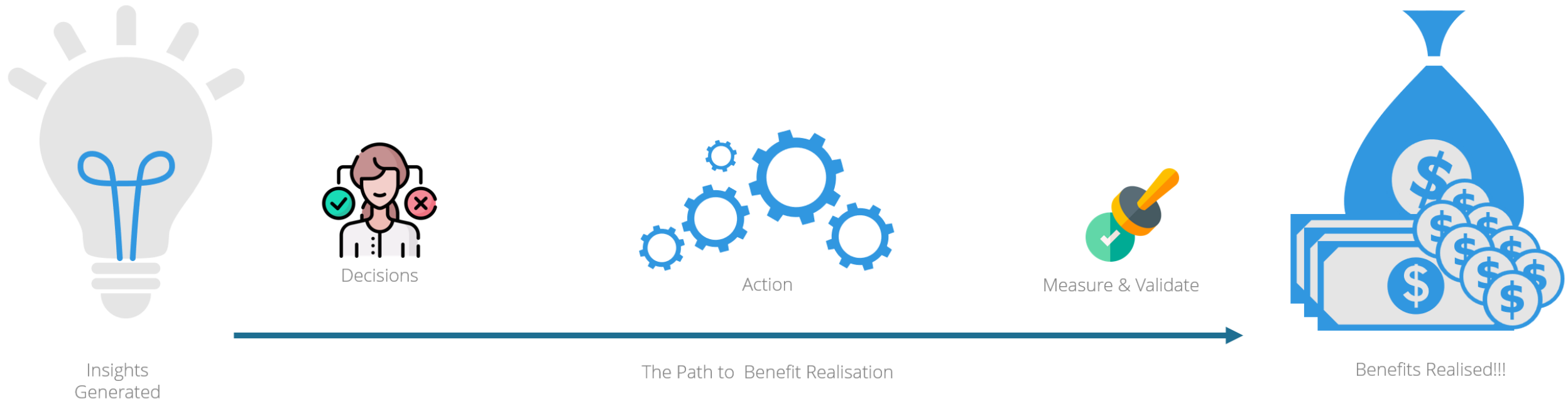
Level Up Your Data

What is Data Analytics

❖ Three main types of analytics:

  o Descriptive: What has happened?

  o Predictive: What could happen?

  o Prescriptive: What should we do?

The Value of Data Analytics

❖ Analytics and insights drive action

○ Increase Revenue / Reduce Costs

Insights
Generated

Decisions

Action

Measure & Validate

The Path to Benefit Realisation

Benefits Realised!!!

Where do you begin?

1. What is the problem you are trying to solve?

2. What is the benefit of solving this problem?

3. What questions should be asked to solve this problem?

4. What data is needed to answer the question?

5. Where is the data captured?

6. Can this data be extracted?

Anatomy of a Data Analytics Solution

❖ Extract Data

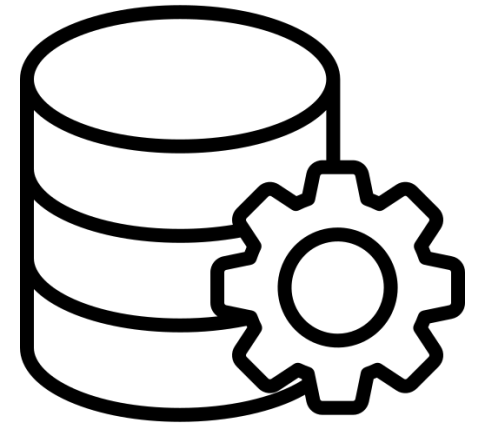❖ Load Data into Power BI

❖ Clean and Transform Data

❖ Visualise the Data

Extract Data

Considerations for data extraction

❖ Where is the data currently entered from?

❖ Is the data complete?

❖ Can the data be extracted out?
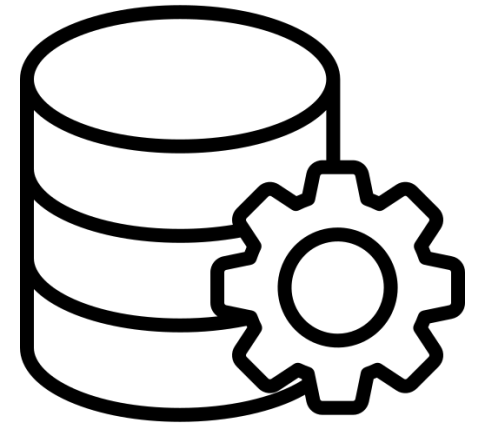
❖ Do we need to change our business processes

Extract Data

Some common data sources

❖ Flat Files (Excel, CSV)

❖ Database (Microsoft SQL, Oracle, MySQL, PostgreSQL)

❖ REST API (Flat File, JSON, XML)

❖ SharePoint Folder, List or Files
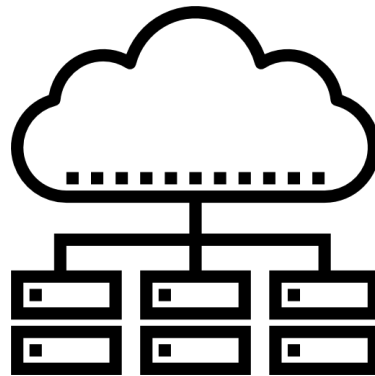
Load Data into Power BI

[Data sources in Power BI Desktop - Power BI | Microsoft Learn](#)

❖ The less structured the source, the more transforms that will need to be done

❖ Bulk data can be ingested, but format needs to be the same

❖ Power BI file may not work in other people's computers if your data is a local file

Clean and Transform Data

Common Transformations done to Power BI Datasets

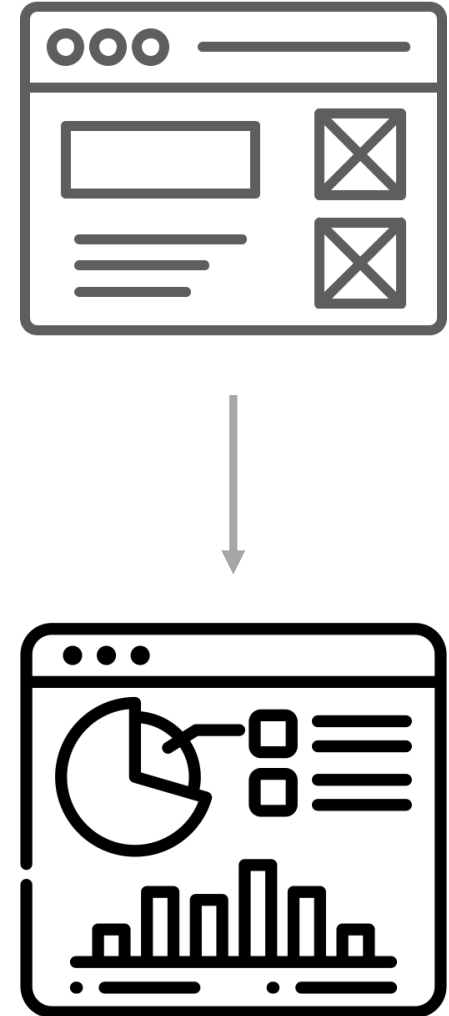❖ Changing Data Types

❖ Logical grouping and mapping of data

❖ Fixing incomplete or incorrect data

❖ Split or combine data to suit visualisation requirements

Visualise the Data

❖ Keep the outcome in mind

❖ Take into account the audience

❖ Wireframe

My First Power BI Report

Learning Outcomes

❖ Components of a Power BI Report – Dataset vs Visualisations.

❖ How to import data into Power BI for visualisation

❖ Basic cleaning and transformation of data

❖ Type of visualisations and insights that can be created with minimal data manipulation

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2

Workforce Demographic

Learning Outcomes

❖ Add external sources to enrich your dataset

❖ Use Power Query to add grouping for generation (age) and salary range

❖ Create relationships in Power BI

❖ Create more visualisations using the new data model

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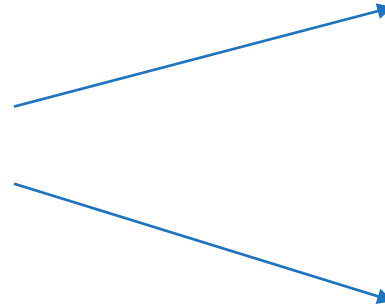# The Basics of Data Modelling

Level Up Your Data

Data Modelling Principles

❖ Dimensional Modelling Basics

     o Facts – Typically describes an event that has happened

     o Dimensions – Provides the who/what/where/when

❖ Lowest Grain – You can always roll up, but not roll down

Trans #	Item	Quantity	Unit Price
1	Apple	3	$1
1	Cereal	1	$5
2	Apple	2	$1
2	Shampoo	2	$6

Trans #	Total $
1	$8
2	$14

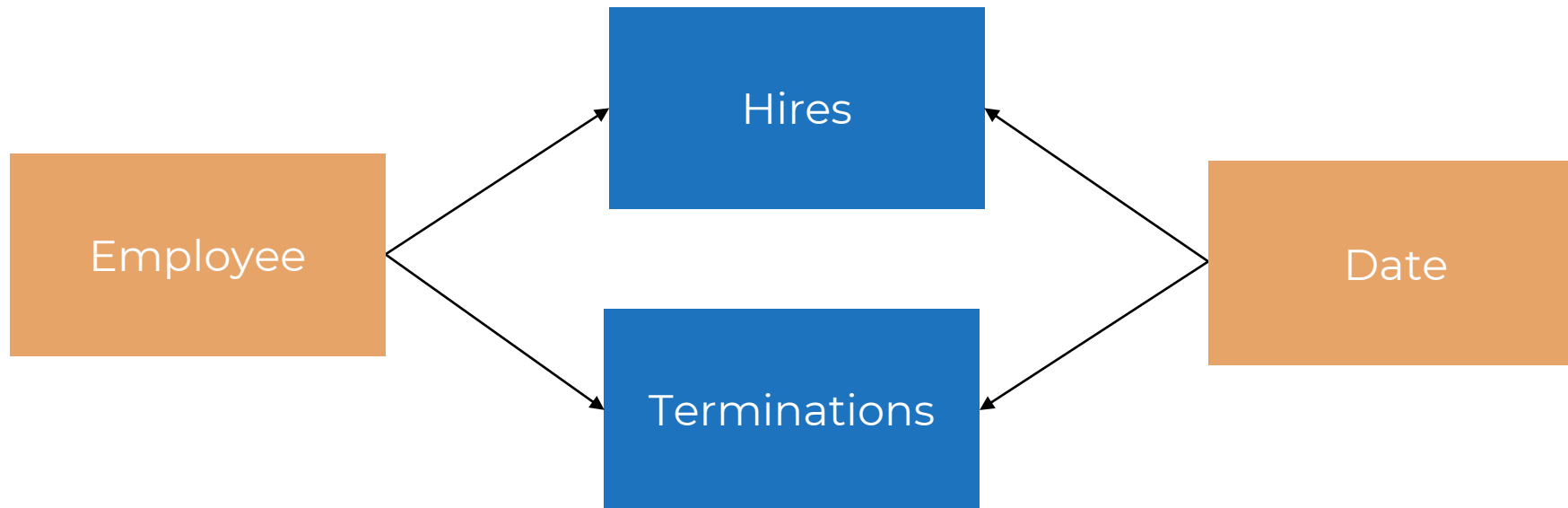| Items	Total $
Apple	$5
Cereal	$5
Shampoo	$6

❖ Start Simple – Expand when you have further requirements

How to create a simple model

How many hires do we have for a department on a selected month?

terminations

position demographic

year date range

Why Bother with Data Modelling?

❖ Easier to understand and maintain

❖ Reduces complex DAX

❖ More flexible in adding context to data

❖ Supports more complex analysis like time-intelligence

❖ Allow easier slicing and dicing data across different data points

3

Exercise

Workforce Summary

Learning Outcomes

❖ Design a basic data model

❖ Use Power Query to transform the flat file into a data model

❖ Create relationships in Power BI

❖ Create more visualisations using the new data model

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Sharing your Power BI Report

❖ Desktop Files

❖ One Drive for Business or SharePoint

❖ Power BI Workspaces

❖ ~~Publish to Web~~

Pricing & Product Comparison | Microsoft Power BI

Review and Recap

❖ What is Data Analytics

❖ What makes up a Data Analytics Solution

❖ Building a simple Power BI report

❖ Enhancing with external data

❖ Structure the data in Power BI to make the most of it

❖ Sharing your Power BI Report

Recommended Resources

❖ Microsoft Learn
https://learn.microsoft.com/en-us/training/powerplatform/power-bi

❖ Storytelling with Data
https://www.storytellingwithdata.com/

❖ The Data Warehouse Toolkit, 3rd Edition
https://www.kimballgroup.com/data-warehouse-business-intelligence-resources/books/data-warehouse-dw-toolkit/