

Quality Endorsed Unit

This unit does not form part of a regulated qualification.

Unit Title: Practical Power BI and DAX

Unit Reference Number: CP1/3/WR/001

Level: 3

Credit Value: 8

Minimum Guided Learning Hours: 80

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand the underlying technology of the Power BI application	1.1 Identify features of the Power BI workspace
	1.2 Identify the range of visuals available in the Visualisations Pane
	1.3 Identify the various components of each available chart
	1.4 Identify an appropriate chart to suit a given requirement
2. Be able to use advanced charts in their appropriate circumstances	2.1 Build and customise a treemap chart from the available data
	2.2 Build and customise timeline charts using the date table
	2.3 Design, build, and customise a variety of tables and matrices
	2.4 Implement conditional formatting on the complete range of visuals
	2.5 Create KPI cards with important data
	2.6 Create filters and slicers to refine data visualisations
	2.7 Design and create a dashboard with a variety of different charts and slicers
3. Be able to use more sophisticated charts and demonstrate when to deploy them	3.1 Create appropriate funnel charts for a given purpose

	3.2	Create a tornado, a waterfall, and a bullet chart for appropriate deployment
	3.3	Insert a map into a report, customising it with a variety of parameters
	3.4	Create Gantt and Sankey charts for a given purpose
	3.5	Create advanced KPI cards with multiple targets
4. Be able to create the range of 'risky' charts requiring complex implementation	4.1	Create a range of gauges
	4.2	Create and customise a scatterplot with a zoom slider
	4.3	Create and customise a word cloud chart and use it as a filter
	4.4	Create and customise decomposition trees
	4.5	Implement radar and aster plots to create a chord diagram
5. Be able to use the DAX syntax, basic expressions, and popular functions	5.1	Understand relationships between tables to differentiate between fact and dimension tables
	5.2	Create simple DAX expressions on tables and other visuals
	5.3	Create calculated columns using a range of DAX expressions
	5.4	Create simple content-aware measures using a range of DAX functions
	5.5	Use a range of iterator functions on all table rows
6. Be able to use the most important DAX functions	6.1	Create table functions
	6.2	Create more complex versions of the 'calculate' function
	6.3	Implement the 'all' function and its variations
	6.4	Implement the range of DAX time intelligence functions
	6.5	Use a range of functions to deal with blank or zero values
7. Be able to use advanced DAX expressions and functions	7.1	Incorporate variables into DAX expressions
	7.2	Select and combine specific values using different functions

8. Be able to use DAX table expansion capabilities and the range of security features	7.3	Create advanced relationships between tables using different functions
	7.4	Implement context transition to aggregate and group data
	8.1	Understand virtual relationships through using different functions
	8.2	Use table expansion capabilities for greater efficiency in coding
	8.3	Implement row-level security for a specific purpose
	8.4	Implement hierarchy security using the range of 'path' functions
	8.5	Implement object-level and value-level security for a specific purpose

Indicative Content

LO1	This learning outcome includes the requirement of learner understanding of Power BI's graphical user interface, and its range of charts. AC1.1 Learners must list a variety of features. They must know how to use the toolbar ribbons, the View Mode Selector, and the various panes. AC1.2 Learners must know how to create the range of visuals available in the Visualizations Pane. AC1.3 Learners must understand the various components of each available chart (all charts should be listed) and be able to use these for a specific purpose – as in AC1.4 to identify and choose the most appropriate chart to suit the requirements.
LO2	For this learning outcome, learners must know when it is appropriate circumstances to use the more advanced charts and be able to demonstrate this. AC2.1 Learners must be able to both build and customise a treemap chart from given data and demonstrate or discuss in which circumstances they would use this. AC2.2 Learners must both build and customise timeline charts using the date table. They must demonstrate how to activate data markers on both line and area charts. AC2.3 An appropriate variety of tables and matrices can be given to the learner for them to demonstrate these criteria. AC2.4 Learners must implement conditional formatting on the complete range of visuals given. AC2.5 Examples of important data could include annual sales or total payroll. AC2.6 These must be appropriate filters and slicers to refine data visualisations, specific to a task. AC2.7 The dashboard must show a variety of at least 3 different charts and slicers.
LO3	For this learning outcome (esp ACs 3.1, 3.2 & 3.4), learners must be able to demonstrate when to deploy all of the charts that they have been asked to create (Funnel, Tornado, Waterfall, Bullet, Gantt and Sankey). This must be clear for each chart used and the circumstances that they are used in. AC3.3 Learners must insert a map into a report (either given or chosen) and be

	able to customise it with a variety of parameters. A 'variety' must be 3 or more. AC3.5 Learners must create two advanced KPI cards with multiple targets, after downloading them from the Microsoft AppSource library. 'Multiple targets' must be 3 or more.
LO4	For this learning outcome, learners must complete each AC within the context of where and when each 'item' should be used (its appropriateness). This could be a chosen or given context. AC4.1 Learners must be able to create 3 or more to show a 'range' of gauges. AC4.3 Learners must create more than one word cloud chart and demonstrate use of their function as a filter. AC4.4 Learners must both create and customise decomposition trees, by demonstrating when to use them. This would need to be more than one 'tree'.
LO5	For this outcome, learners must be able to understand and demonstrate use of the DAX syntax, basic DAX expressions, and some of the most 'often used' DAX functions. They must demonstrate more than one example for each assessment criterion and work across a full range of functions within this subject. AC5.1 Learners must demonstrate creating relationships between tables in the first instance and they will then differentiate between fact and dimension tables specifically here. AC5.2 Simple DAX expressions should be shown on both tables and other visuals. AC5.3 Learners must create 3 or more calculated columns to show usage of a 'range' of DAX expressions. AC5.4 Learners must create simple content-aware measures by using a range of 3 or more DAX functions, which must include both SUM and CALCULATE in the first instance. AC5.5 Learners must use a range of (3 or more) iterator functions on all table rows – which must include SUMX and AVERAGEX in the first instance.
LO6	For this outcome, learners must demonstrate their ability to use the most important DAX functions to carry out the requested criteria AC6.1 This must include the important FILTER function. AC6.3 The ALL function and its variations must include ALLEXCEPT and ALLSELECTED. AC6.5 To deal with blank or zero values, learners must use the BLANK, ISBLANK, and COALESCE functions.
LO7	Moving on from LO6, learners must now be able to use more advanced DAX expressions and functions to demonstrate the criteria: AC7.1 To do this, learners must use the VAR and RETURN keywords. AC7.2 To do this, learners must use the VALUES, SELECTEDVALUE, and TOPN functions and they must combine values using the CONCATENATEX function. AC7.3 To do this, learners must use the CROSSFILTER, SUMMARISE, and USERRELATIONSHIP functions AC7.4 To do this, learners must use the MAX, AVERAGE, and SUMMARISE for aggregation and grouping of data.
LO8	To meet this learning outcome, learners need to understand virtual relationships, table expansion, and the range of DAX security features and must demonstrate each of these via: AC8.1 Creating virtual relationships using the TREATAS and LOOKUPVALUE functions. AC8.2 Using DAX's table expansion capabilities for greater efficiency in DAX coding. AC8.3 Implementing row-level security so that users can only access authorised rows of data in a table. AC8.4 Implementing hierarchy security using the range of PATH functions,

including the PATHLENGTH and PATHITEM functions.

AC8.5 Implementing both object-level **and** value-level security to restrict access to specific tables or specific values in a table, explaining why this might be necessary