Unit 2: Data and Spreadsheet Modelling

Delivery guidance

Approaching the unit

This unit covers different data manipulation methods that can be used to present information. The unit examines the role of data in organisations and how the quality of data can impact the decision-making process. Learners will use data processing methods to manipulate data and create a dashboard to present information and consider the effectiveness of the presentation method used in the dashboard, and its ability to provide information. Learners will be able to explore different data manipulation methods that can be used to present meaningful information.

When delivering the unit, you should use live example dashboards of varying quality to contextualise the content. The use of case studies and visiting speakers to provide insight into real-world application of the skills and knowledge in the unit, would be a valuable tool.

Delivering the learning aims

Learning aim A investigates the characteristics of data, and how it is processed into information. It is important for learners to understand that data from different sources can be used to provide information, and the factors that affect the quality of data. The learning aim focuses on the ability of data modelling to impact decision making. The delivery of this learning aim will rely on the use of good quality case studies. The unit content is also ideally suited to guest speakers, who can provide insight into how data is collected from different sources and its impact on the organisations' decision- making process.

Learning aim B focuses on the use of different data manipulation methods and the development of a dashboard. Providing examples of dashboards would help learners focus on different presentation methods and features that can be used to present the dashboard. You will need to spend time working with learners to develop skills and understanding of the different data manipulation methods that can be used and the different presentation methods and features that can be used to present clear and accurate information on the dashboard so that accurate conclusions can be made.

Learning aims C examines the effectiveness of the dashboard. Learners will be asked to review the presentation methods used, and the effectiveness of the dashboard to enable users to draw conclusions. You will need to provide learners with examples of trends, patterns, and anomalies, so that they can understand each concept. Examples of how different presentation methods impact the presentation of the dashboard information, and their overall interpretation, would also be useful.

Assessment model

Learning aim	Key content areas	Recommended assessment approach
A Understand the role of data and information in organisations	**A1** Processing information **A2** Data sources and characteristics **A3** Quality of data and its impact on decision making	This unit is assessed through a Pearson Set Assignment.
B Create a dashboard using data manipulation methods	**B1** Data processing methods **B2** Producing a dashboard	
C Review the effectiveness of the dashboard to provide information	**C1** Drawing conclusions **C2** Review dashboard and presentation methods	

Assessment guidance

The unit is assessed by a Pearson Set Assignment (PSA). The assessment is set by Pearson and must be taken under controlled conditions before it is marked by tutors.

The PSA will consist of a scenario and three main activities that reflect the three main learning aims. Learners will be expected to demonstrate their understanding of the specification content within the context of the given scenario.

There are 60 guided learning hours assigned to the unit, of which 20 hours will be required for assessment.

Set assignments are available from September each year and are valid for one year only.

Delivery must cover all the unit content and prepare learners to produce evidence to meet the assessment criteria and assessment guidance in preparation for taking the PSA. Sample Assessment Materials are available on the Pearson website. These can be used or adapted to help learners prepare for assessment.

Getting started

This gives you a starting place for one way of delivering the unit, based around the recommended assessment approach in the specification.

Introduction
Introduce this unit by showing the learners how different dashboards provide the user with different opportunities to understand information about different scenarios. It's important that learners understand the difference between data and information and the impact of the data processing process on the quality of information presented on the dashboard. Examples given may include: • web analytics dashboard • social media analytics dashboard • marketing and sales dashboard • customer support service dashboard • live chat dashboard.
Learning aim A:Understand the role of data and information in organisations
Learning aim A provides underpinning knowledge about the difference between the characteristics of data and of information. It explores ways in which data from different sources can provide different information, e.g. social media usage for user preferences and demographics, or shop loyalty schemes to collect and collate customer shopping habits. It would be a good opportunity to demonstrate real-life examples to the learners of how organisations use different data sources to provide information that they can explore further and utilise in their learning. **For A1**, explore the characteristics of data, and how it is processed into information. Examples of raw data in a different context would be useful to demonstrate that unprocessed raw data has no meaning, structure, or context. You should then show that data when processed into information has meaning, structure, context and can be used to make decisions, e.g. supermarkets use of data to identify bestselling products. **For A2**, to help the learners to understand how different sources of data are used to provide information, you could use a mixture of large- group discussions and small- group/individual activities exploring how different sources of data can provide information, e.g. social media usage for user preferences and demographics, or supermarket loyalty schemes to collect and collate customer shopping habits. **For A3**, a mixture of large- group discussions and small- group/individual activities will help learners to understand the concept of the quality of data, how data modelling is used, and its impact on decision making, e.g. the source and data collected from customer services and how it improves the service.

Learning aim B: Create a dashboard using data manipulation methods
In learning aim B, learners will apply data manipulation and other data processing methods, using spreadsheet software, to create a dashboard to present a range of information. **For B1**, learners must understand the different ways of presenting data, e.g. currency, cell formatting and chart types. Learners should explore how to use, and when to use, data manipulation methods such as formulae and lookup functions. Microsoft has a variety of Excel video training that learners might find useful. It is important that learners know how to manipulate and present data and providing the learners with examples of different ways of presenting data will help them identify the appropriate method to use. Provide learners with real-world examples of data manipulation and other data processing methods used in practice so that they can determine the most appropriate data manipulation methods to use to present data. **For B2**, learners should present the data in a dashboard explaining which data processing methods have been applied. Teachers should: • provide examples/demonstrations of dashboards that summarises data set in different ways, e.g. presenting data in a percentage • provide examples of the different ways of presenting data in the dashboard such as graphs or pivot tables. To reinforce learning, give learners a scenario outlining the requirements and needs of a specific dashboard, and a suitable data set, so that learners can apply data processing methods and produce a dashboard.
Learning aim C: Review the effectiveness of the dashboard to provide information
In learning aim C learners will explore how to review the effectiveness of the dashboard to provide information and draw conclusions. **For C1**, a mixture of large- group discussion and small- group/individual activities on the characteristics of different types of information and how information can be used to draw a conclusion, e.g. on trends or patterns. Providing real- life examples of different trends and patterns would be useful to learners. **For C2**, learners should judge the capacity of the dashboard to present information that enables a range of specific, relevant, and clear conclusions to be drawn, to ensure that the dashboard information is clear. • Learners should be given examples of dashboards where inaccurate conclusions have been made. • Examples of where dashboard information is unclear and could be misinterpreted and cause biased information. • Provide learners with access to different dashboards so that they can develop an understanding of the most effective way of using data manipulation methods to present data in a dashboard to enable decision making.

Details of links to other BTEC units and qualifications, and to other relevant units/qualifications

This unit links to:

- Unit 1: Using IT to Support Information and Communication in Organisations
- International GCSE/core curriculum in Information Technology.

Resources

In addition to the resources listed below, publishers are likely to produce Pearson-endorsed textbooks that support this unit of the BTEC International Level 2 Qualifications in Information Technology. Check the Pearson website at: (http://qualifications.pearson.com/endorsed-resources) for more information as titles achieve endorsement.

Textbooks

Smart, Ml – *Learn Excel 365 Essential Skills with The Smart Method*: Fifth Edition: updated for the Jan 2021 (Smart Method Enterprise Ltd, 2021) ISBN 1909253472

Alexander, M – *Excel Dashboards and Reports for Dummies*, 3rd Edition (John Wiley & Sons. Inc 2016) ISBN 1119076765

Videos

https://www.youtube.com/watch?v=ShBTJrdioLo provides an overview of the most important Excel formulas. These include the average function, autosum, Sum If, Count, Counta, Count If function, If logical function, Vlookup, and Drop Down Lists.

https://www.youtube.com/watch?v=9NUjHBNWe9M&t=546s provides an introduction to pivot tables, charts, and dashboards in Excel.

https://www.youtube.com/watch?v=cKkXtyjleX4 provides a good introduction on how to build Interactive Excel dashboards.

Websites

https://support.microsoft.com/en-us/office/excel-video-training-9bc05390-e94c-46af-a5b3-d7c22f6990bb This website provides valuable information on Excel basic data manipulation.

Pearson is not responsible for the content of any external internet sites. It is essential for teachers to preview each website before using it in class so as to ensure that the URL is still accurate, relevant and appropriate. We suggest that teachers bookmark useful websites and consider enabling learners to access them through the school/college intranet.