Unit 45: Business Data Analytics and Insights

Unit code	**M/618/5126**
Unit level	**5**
Credit value	**15**

Introduction

The value of data to organisations is driving data management and governance to top-level priority in most business organisations and is generating a wealth of career opportunities and employer demand in this growing sector. Core competences in using technical knowledge to mine, inspect and interpret data before transforming it into useful information that will influence business decision making is highly valued, as is being able to design, develop, and implement data-collection databases and processes.

This unit aims to give students an understanding of how organisations in different contexts improve their efficiency through the use of effective data management techniques. Students will look at the importance of data analysis and interpretation in informing business decision-making processes to enable organisations to stay current and competitive in a volatile macro environment. Students will learn how key decision makers, at various levels, are able to improve strategic outcomes by utilising more effective processes to gain an insight into the most appropriate data and information available to a business. This, in turn, informs effective business strategy.

On completion of this unit, students will have greater understanding and awareness of fundamental data analysis processes, data mining and data transformation. Broader topics such as data management ethics, legislation relating to data and using data in strategic choices will also be explored. This will enable students to develop a career that focuses on the analysis, interpretation and effective use of data.

Learning Outcomes

By the end of this unit a student will be able to:

LO1 Analyse the contribution of effective data analytics and insight in business decision-making processes

LO2 Apply various data analysis methods and techniques that could inform business decisions

LO3 Examine the importance of ethics and conduct in data analytics and management

LO4 Develop data management processes that allow for improved decision making in ever-changing business environments.

Essential Content

LO1 **Analyse the contribution of effective data analytics and insight in business decision-making processes**

Defining concepts:

Defining data analytics and data management.

Key tasks in data analytics, e.g. generating summary accounts, creating reports with summary descriptive statistics, and application of 'data visualisation' tools to create graphics that convey information contained within data.

Terminology in data management, e.g. data mining, raw data, file formats, repositories, data modelling, data visualisation, meta data, intellectual property, access rights.

Key tasks in data management, e.g. building databases, uploading data to these data stores, creating backup and historical copies of files, and providing 'permissions' to access data files.

Data management process and stages, online analytical processing (OLAP).

Data types and strategy:

Different types of data – quantitative and qualitative, structured vs unstructured.

Levels of strategy – operational, tactical and strategic decision making.

Appropriateness of data types to business decision making.

Contribution in decision making:

Relationships between 'effective or poor data analytics' and strategic decision making.

Advantages and disadvantages, impact analysis, Return on Investment (ROI).

LO2 **Apply various data analysis methods and techniques that could inform business decisions**

Gaining business insight through data interpretation:

Data analysis tools and techniques, e.g. decision-tree analysis, cluster analysis, regression analysis, cross-correlations and machine learning.

Data quality assessment:

Data sources, assessing credibility, reliability and validity.

Representative data, sample size, research populations.

Contextualised data sets for improved evidence-based determinations.

Data presentation:

Data formats, e.g. raw, processed, statistical data.

Appropriateness of visual support aids – graphs, charts, tables, narratives, drawings, scatter charts and graphics.

Stakeholder analysis for presentation formats.

LO3 **Examine the importance of ethics and conduct in data analytics and management**

Topical data management issues and trends:

Data manipulation, bias in data interpretation, privacy and personal data, access and storing of data, intellectual property, use of artificial intelligence in data processing.

Corporate social responsibility and compliance:

Government expectations of data management responsibilities, e.g. information technology, security techniques and information security management systems requirements (ISO/IEC 27001:2013).

Compliance and associated regulations, including worldwide data protection and privacy legislation, e.g. General Data Protection Regulation 2018 (GDPR).

Poor data management implications:

Organisational values and ethics, expectations of stakeholders, public image and branding, legal consequences.

LO4 Develop data management processes that allow for improved decision making in ever-changing business environments

Data analytics process implementation:

Creating data management process – stages, data collection, data quality assessments, data business models, piloting and testing, process implementation, execution and monitoring and review.

Infrastructure analysis for data processing, IT competences, SWOT.

Data flow charts and communication channels.

Creating accountability and transparency:

Roles in data management – processors, controllers, users.

Producing data management structures.

Use of responsibility assignment matrices (RAM), communication platforms to enhance transparency.

Data governance:

Business benefits associated with data governance.

Creating success metrics aligned to organisational strategy.

Quality assurance of monitoring process, Information Commissioner's Office (ICO) guidance.

Producing data management system proposals:

Strategic, tactical, and operational recommendations.

SMART (Specific, Measurable, Achievable, Relevant and Timebound) implementation plans.

Learning Outcomes and Assessment Criteria

Pass	Merit	Distinction
LO1 Analyse the contribution of effective data analytics and insight in business decision-making processes		
P1 Explain key concepts and processes that underpin data management processes and systems in an organisational context. **P2** Analyse benefits and limitations of data management for organisational decision making.	**M1** Critically analyse the use of data management processes and systems, in an organisational context for effective decision making.	**D1** Justify recommendations for improving data management processes and systems for effective decision making.
LO2 Apply various data analysis methods and techniques that could inform business decisions		
P3 Use a range of different approaches for analysing information and data available to business. **P4** Assess the appropriateness of selected data analysis methods and techniques to inform business decisions in a specific business context.	**M2** Critically evaluate strengths and limitations of a range of data analysis methods and techniques for informing decision making.	**D2** Justify how different approaches to data analysis influence decision making and an organisation's ability to achieve its strategic objectives.
LO3 Examine the importance of ethics and conduct in data analytics and management		
P5 Examine examples of effective or poor ethical behaviours and conduct with regard to data management and the potential consequences this may have.	**M3** Critically examine the impact of poor ethical behaviours and conduct in a specific context and the implications this has in business.	**D3** Critique ethics and conduct in a specific context, to determine both legal and business consequences of unethical to data analytics and management.

Pass	Merit	Distinction
LO4 Develop data management processes that allow for improved decision making in ever-changing business environments.		
P6 Develop appropriate data management processes that can be applied in an organisational context to improve decision making.	**M4** Devise a range of data management processes in a specific context that create accountability and transparency to improve decision-making processes.	**D4** Create tactical data management processes that specifically align with organisational strategic decisions and objectives.

Recommended Resources

Textbooks

BARENDS, E. and ROUSSEAU, D. (2018) *Evidence-Based Management: How to use evidence to make better organizational decisions*. London: Kogan Page.

BOCIJ, P., GREASLEY, A. and HICKIE, S. (2018) *Business Information Systems: Technology, Development and Management for the Modern Business.* Pearson Education Ltd., London.

GESIER, E. (2021) *Beyond Business Analytics*. Palgrave Macmillan UK.

MARR, B. (2017) *Data Strategy: How to Profit from a World of Big data, Analytics and the Internet of Things* Kogan Page Ltd.

MARZ, N. and WARREN, J. (2015) *Big Data: Principles and practices of scalable realtime data systems.* Manning Publications Co.

O'KEEFE, K. and O'BRIEN, D. (2018) *Ethical Data and Information Management: Concepts, Tools and Methods.* Kogan Page Ltd.

TURBAN, E. and POLLARD, C. and WOOD, G. (2018) *Information Technology for Management*. Hoboken: John Wiley & Sons.

Websites

www.searchdatamanagement.techtarget.com	Search Data Management
	(News and articles)
www.tableau.com	Tableau
	(General reference)
www.ukdataservice.ac.uk	UK Data Service
	UK Data
	Student resources
	(General reference)

Links

This unit links to the following related units:

Unit 11: Business Data and Numerical Skills

Unit 33: Marketing Insights and Analytics

Unit 44: Information Technology Systems.

Unit 57: Business Intelligence