



# COIT20253 *Business Intelligence using Big Data*

## Term 2 - 2019

Profile information current as at 13/12/2025 03:56 pm

All details in this unit profile for COIT20253 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

### General Information

#### Overview

Big data is a popular term used to describe the exponential growth and availability of structured and unstructured data. In this unit, you will explore big data within the context of business intelligence. In this unit, you will learn concepts of business intelligence, alignment of big data to business intelligence and how big data technologies can be used in building organisational business intelligence. You will learn how big data is changing businesses and how organisations can take advantage of big data in decision making. You will learn how organisations are integrating non-traditional unstructured data with the traditional structured enterprise data to do the business intelligence analysis. In order to understand these, you will learn big data analytical tools and technologies to help solve authentic business problems and make effective business decisions.

#### Details

Career Level: *Postgraduate*

Unit Level: *Level 9*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

#### Pre-requisites or Co-requisites

Prerequisites: COIT20250 e-Business Systems, COIT20245 Introduction to Programming and COIT20247 Database Design and Development. Anti-Requisites: If you have completed unit COIT20236 then you cannot take this unit.

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

#### Offerings For Term 2 - 2019

- Brisbane
- Melbourne
- Online
- Sydney

#### Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

#### Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

## Class and Assessment Overview

### Recommended Student Time Commitment

Each 6-credit Postgraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

### Class Timetable

#### [Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

#### [Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

### Assessment Overview

#### 1. **Written Assessment**

Weighting: 35%

#### 2. **Presentation**

Weighting: 25%

#### 3. **Project (applied)**

Weighting: 40%

### Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

## CQUniversity Policies

**All University policies are available on the [CQUniversity Policy site](#).**

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

## Previous Student Feedback

### Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

#### Feedback from Unit Evaluation Feedback

##### Feedback

Assignments requirements are unclear.

##### Recommendation

The assessment tasks will be described elaborately with breakdown of assessment tasks. Assessment templates will be provided to show students the structure and format of the assessments.

#### Feedback from Unit Evaluation Feedback

##### Feedback

The current IT infrastructure in the labs doesn't support many Big Data tools, but cloud-based services can definitely be a cheaper and better alternative.

##### Recommendation

Cloud-based service subscriptions for students will be explored.

## Unit Learning Outcomes

### On successful completion of this unit, you will be able to:

1. Apply concepts and principles of big data to evaluate and explain how large volume of structured and unstructured data are managed in an organisation
2. Analyse critically and reflect on how organisations are including non-traditional valuable data with the traditional enterprise data to do the business intelligence analysis
3. Critically analyse and evaluate different big data technologies used for decision making in an organisation
4. Develop big data strategy for data-centric organisations to meet client requirements
5. Apply big data architecture, tools, and technologies for decision making and problem solving in the organisational context.

Australian Computer Society (ACS) recognises the Skills Framework for the Information Age (SFIA). SFIA is in use in over 100 countries and provides a widely used and consistent definition of ICT skills. SFIA is increasingly being used when developing job descriptions and role profiles.

ACS members can use the tool MySFIA to build a skills profile at

<https://www.acs.org.au/professionalrecognition/mysfia-b2c.html>

This unit contributes to the following workplace skills as defined by SFIA. The SFIA code is included:

- Research(RSCH)
- Data Management (DATM)
- Emerging Technology Monitoring (EMRG)
- Data Analysis (DTAN)
- Application Support (ASUP)
- Analytics (INAN)

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Written Assessment - 35%	•	•			
2 - Presentation - 25%				•	•
3 - Project (applied) - 40%			•		•

## Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
1 - Knowledge	○	○	○	○	○
2 - Communication	○	○	○	○	○
3 - Cognitive, technical and creative skills	○	○	○	○	○
4 - Research	○	○	○	○	○
5 - Self-management				○	
6 - Ethical and Professional Responsibility	○	○	○	○	○
7 - Leadership					
8 - Aboriginal and Torres Strait Islander Cultures					

## Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes							
	1	2	3	4	5	6	7	8
1 - Written Assessment - 35%	○	○	○	○	○	○		
2 - Presentation - 25%	○	○	○	○	○	○		
3 - Project (applied) - 40%	○	○	○	○	○	○		

## Textbooks and Resources

### Textbooks

COIT20253

#### Prescribed

##### **Big Data: Understanding How Data Powers Big Business**

(2013)

Authors: Schmarzo, Bill

Wiley

Indianapolis , Indiana , USA

ISBN: 978-1-118-73957-0

Binding: Paperback

COIT20253

#### Prescribed

##### **Business Intelligence and Analytics: Systems for Decision Support**

Edition: 10th Global (2015)

Authors: Turban , Sharda & Delen

Pearson

Upper Saddle River , NJ , USA

ISBN: 9781292009209

Binding: Paperback

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#### Supplementary

##### **Next Generation Databases: NoSQL, NewSQL, and Big Data**

(2015)

Authors: Harrison, Guy

Apress Media

New York City , New York , USA

ISBN: 978-1-4842-1330-8

Binding: Paperback

COIT20253

#### Supplementary

##### **Scalable Big Data Architecture: A practitioner's guide to choosing relevant big data architecture**

(2016)

Authors: Azarmi, Bahaaldine

Apress Media

New York City , New York , USA

ISBN: 978-1-4842-1327-8

Binding: Paperback

#### Additional Textbook Information

Prescribed texts can be purchased from the CQUni Bookshop here: <http://bookshop.cqu.edu.au> (search on the Unit code)

Supplementary texts can be purchased as eBooks, directly from the Publisher's website here:

<https://www.apress.com/gp>

**[View textbooks at the CQUniversity Bookshop](#)**

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Hadoop (requires 8 GB RAM)
- Oracle VM Virtual Box
- Use Talend Platform for Big Data integration (30 days trial is free) <http://www.talend.com/products/big-data>

## Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)  
For further information, see the Assessment Tasks.

## Teaching Contacts

**Meena Jha** Unit Coordinator  
[m.jha@cqu.edu.au](mailto:m.jha@cqu.edu.au)

## Schedule

### Week 1 - 15 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
1. Introduction to Big Data	Chapter 1 from Business Intelligence and Analytics: Systems for Decision Support. Authors: R Sharda, D Delen, E Turban	
2. An Overview of Business Intelligence, Analytics, and Decision Support		

### Week 2 - 22 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
1. Big Data Business Opportunities	1. Chapter 1 from Big Data: Understanding How Data Powers Big Business. Author: B. Schmarzo	
2. Foundation and Technologies for Decision Making	2. Chapter 2 from Business Intelligence and Analytics: Systems for Decision Support. Authors: R Sharda, D Delen, E Turban	

### Week 3 - 29 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
1. Big Data Technologies: Overview of Hadoop; MapReduce; scripting language	1. Chapter 2 from Next Generation Databases: NoSQL, NewSQL, and Big Data. Author: G. Harrison	
2. Information Management and Business Reporting, Visual Analytics	2. Chapter 4 from Business Intelligence and Analytics: Systems for Decision Support. Authors: R Sharda, D Delen, E Turban	

### Week 4 - 05 Aug 2019

Module/Topic	Chapter	Events and Submissions/Topic
1. Next Generation Databases	1. Chapter 4, 5 & 6 from Next Generation Databases: NoSQL, NewSQL, and Big Data. Author: G. Harrison	
2. Predictive Modeling: classification versus regression; evaluating predictive models and cross validation; algorithms for predictive modelling	2. Chapter 6 from Business Intelligence and Analytics: Systems for Decision Support. Authors: R Sharda, D Delen, E Turban	

### Week 5 - 12 Aug 2019

Module/Topic	Chapter	Events and Submissions/Topic
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- |  |   |
|--|---|
| 1. Big Data Architectures  | 1. Online Resources   |
| 2. Business Analytics, Text Analytics, Text Mining, and Sentiment Analysis | 2. Chapter 7 from Business Intelligence and Analytics: Systems for Decision Support. Authors: R Sharda, D Delen, E Turban |

#### Vacation Week - 19 Aug 2019

Module/Topic	Chapter	Events and Submissions/Topic
Enjoy the break.		

#### Week 6 - 26 Aug 2019

Module/Topic	Chapter	Events and Submissions/Topic
1. Understanding Value Creation Process	1. Chapter 7 from Big Data: Understanding How Data Powers Big Business. Author: B. Schmarzo	
2. Web Analytics, Web Mining, and Social Analytics	2. Chapter 8 from Business Intelligence and Analytics: Systems for Decision Support. Authors: R Sharda, D Delen, E Turban	

#### Week 7 - 02 Sep 2019

Module/Topic	Chapter	Events and Submissions/Topic
Creating the Big Data Strategy	Chapter 6 from Big Data: Understanding How Data Powers Big Business. Author: B. Schmarzo	<b>Assessment 1: Written Assessment</b> Due: Week 7 Friday (6 Sept 2019) 11:45 pm AEST

#### Week 8 - 09 Sep 2019

Module/Topic	Chapter	Events and Submissions/Topic
Big Data User Experience Ramification	Chapter 8 from Big Data: Understanding How Data Powers Big Business. Author: B. Schmarzo	

#### Week 9 - 16 Sep 2019

Module/Topic	Chapter	Events and Submissions/Topic
Identifying Big Data Use Cases	Chapter 9 from Big Data: Understanding How Data Powers Big Business. Author: B. Schmarzo	<b>Presentation</b> starts

#### Week 10 - 23 Sep 2019

Module/Topic	Chapter	Events and Submissions/Topic
		<b>Presentation</b> continues
Big Data Reference Architectures	Online Resources	<b>Assessment 2: Presentation</b> Due: Week 10 Friday (27 Sept 2019) 11:45 pm AEST

#### Week 11 - 30 Sep 2019

Module/Topic	Chapter	Events and Submissions/Topic
Solution Engineering	Chapter 10 from Big Data: Understanding How Data Powers Big Business. Author: B. Schmarzo.	<b>Presentation</b> continues

#### Week 12 - 07 Oct 2019

Module/Topic	Chapter	Events and Submissions/Topic
Cloud Computing and Business Intelligence: emerging trends and future impacts of business analytics	Chapter 14 from Business Intelligence and Analytics: Systems for Decision Support. Authors: R Sharda, D Delen, E Turban	<b>Presentation</b> ends <b>COIT20253 Assessment 3: Practical and Written Assessment</b> Due: Week 12 Friday (11 Oct 2019) 11:45 pm AEST

**Review/Exam Week - 14 Oct 2019**

Module/Topic	Chapter	Events and Submissions/Topic
No exam for this unit		

**Exam Week - 21 Oct 2019**

Module/Topic	Chapter	Events and Submissions/Topic
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## Term Specific Information

Contact information for Meena Jha: Email: m.jha@cqu.edu.au Office: Level 2, 400 Kent Street, Sydney Campus; P +61 2 9324 5776 | X 55776. Please submit questions about the unit through the 'Q&A' discussion forum in Moodle - that way, everyone can benefit from the questions and answers. If you have any individual queries, please email me and I'll try to get back to you within a day or so

## Assessment Tasks

### 1 Assessment 1: Written Assessment

**Assessment Type**

Written Assessment

**Task Description****COIT20253 Assessment 1: Written Assessment**

**Due Date** Week 7 Friday 11:45 PM AEST

**Weighting:** 35%

**Assessment Task:**

In this assessment, you are required to choose one of the following businesses: Healthcare, Insurance, Retailing, Marketing, Finance, Human resources, Manufacturing, Telecommunications, or Travel. You are required to prepare a report on how Big Data could create opportunities and help value creation process for your chosen business.

In this report, you will describe what new business insights you could gain from Big Data, how Big Data could help you to optimise your business, how you could leverage Big Data to create new revenue opportunities for your business, and how you could use Big Data to transform your business to introduce new services into new markets.

Moreover, you will need to elaborate how you can leverage four big data business drivers- structured, unstructured, and low latency data and predictive analytics to create value for your business.

You are also required to use Porter's Value Chain Analysis model and Porter's Five Forces Analysis model to identify how the four big data business drivers could impact your business initiatives.

The length of the report should be around 2500 words. You are required to do extensive reading of more than 10 articles relevant to Big Data business impacts, opportunities and value creation process. You need to provide in-text referencing of chosen articles.

**Assessment Due Date**

Week 7 Friday (6 Sept 2019) 11:45 pm AEST

**Return Date to Students**

Week 9 Friday (20 Sept 2019)

Within two weeks of submission

**Weighting**

35%

**Assessment Criteria**

You will be assessed based on your ability to analyse and reflect on how organisations are leveraging non-traditional



valuable data (unstructured, real-time) with the traditional enterprise data (structured) for business intelligence and value creation. The marking criteria for this assessment are as follows.

Executive Summary - 3 marks

Table of Contents - 2 marks

Introduction - 3 marks

Big Data Opportunities - 6 marks

Value Creation using Big Data - 6 marks

Porter's Value Chain Analysis - 5 marks

Porter's Five Forces Analysis - 5 marks

Conclusion - 2 marks

References - 3 marks

### **Referencing Style**

- [Harvard \(author-date\)](#)

### **Submission**

Online

### **Submission Instructions**

You must upload the written report to Moodle as a Microsoft Office Word file by the above due date.

### **Learning Outcomes Assessed**

- Apply concepts and principles of big data to evaluate and explain how large volume of structured and unstructured data are managed in an organisation
- Analyse critically and reflect on how organisations are including non-traditional valuable data with the traditional enterprise data to do the business intelligence analysis

### **Graduate Attributes**

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility

## **2 Assessment 2: Presentation**

### **Assessment Type**

Presentation

### **Task Description**

#### **COIT20253 Assessment 2: Presentation**

**Due Date** Week 10 Friday 11:45 PM AEST

**Weighting:** 25%

### **Assessment Task:**

In this assessment, you are required to choose an application of Big Data in one of the following industries: Healthcare, Insurance, Retailing, Marketing, Finance, Human resources, Manufacturing, Telecommunications, or Travel. You will develop a strategy document for the business application of your choice and deliver a presentation based on this strategy document.

In the first step, you will come up with a targeted business strategy. You will then break down the business strategy into

associate key business initiatives, followed by outcomes and critical success factors to support those business initiatives. Afterwards you will identify the specific tasks that need to be executed to support the targeted business initiatives. Next you will identify the data sources required to support your business initiatives.

Once you have completed the strategy document, you will turn the strategies into actions by identifying the Big Data analytics, business intelligence requirements. You will also specify how these data will be collected, transformed, stored and analysed using Big Data architecture to gain actionable insights that would help your business initiatives.

The process of creating the strategy document, and turning those strategies into actions and the outcomes of the process should be clearly illustrated in your presentation.

The presentation will start from week 9 and continue till week 12. The mode and time of presentation for DISTANCE students will be determined by the Unit Coordinator.

**Assessment Due Date**

Week 10 Friday (27 Sept 2019) 11:45 pm AEST

**Return Date to Students**

Week 12 Friday (11 Oct 2019)

**Weighting**

25%

**Assessment Criteria**

You will be assessed based on your ability to develop Big Data strategies for data-centric organisations to meet client requirements and to apply Big Data architecture, tools, and technologies for decision making and problem solving. The marking criteria for this assessment are as follows.

Demonstrated Understanding of Strategy Document - 6 marks

Turning Strategies into Actions - 6 marks

Clarity, Consistency and Structure of Presentation - 3 marks

Use of Quality References - 3 marks

Visual Aids - 3 marks

Time Management - 2 marks

Quality Response to Questions - 2 marks

**Referencing Style**

- [Harvard \(author-date\)](#)

**Submission**

Online

**Submission Instructions**

You must upload the presentation file as ppt to Moodle by the above due date.

**Learning Outcomes Assessed**

- Develop big data strategy for data-centric organisations to meet client requirements
- Apply big data architecture, tools, and technologies for decision making and problem solving in the organisational context.

**Graduate Attributes**

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility

### 3 COIT20253 Assessment 3: Practical and Written Assessment

**Assessment Type**

Project (applied)

**Task Description****COIT20253 Assessment 3: Practical and Written Assessment**

**Due Date** Week 12 Friday 11:45 PM AEST

**Weighting:** 40%

**Assessment Task:**

This is an individual assessment. In this assessment, you are required to produce a report based on the Big Data strategy document you developed for Assessment 2.

At the beginning of the report, you will identify some Big Data use cases based on the Big Data strategies you developed for Assessment 2. In the following part, you will critically analyse different Big Data technologies, data models, processing architectures and query languages and discuss the strengths and limitations of each of them. You will also discuss different Big Data analytics and business intelligence tools that enable businesses to gain actionable insights from Big Data. Moreover, you will discuss the Big Data technologies that you could use for data collection, storage, transformation, processing and analysis to support your use cases.

You will also illustrate the Big Data technology stack and processing architecture required to support your use cases. You have to provide the rationale behind each of the choices you make. Finally, you will specify what user experiences you are going to provide to aid in decision making. Your target audience is executive business people who have extensive business experience but limited ICT knowledge. They would like to be informed as to how new Big Data technologies might be beneficial to their business. Please note that a standard report structure, including an executive summary, must be adhered to.

The main body of the report should include but not limited to the following topics:

1. Big Data Use Cases
2. Critical Analysis of Big Data Technologies
3. Big Data Architecture Solution
4. Big Data User Experiences

The length of the report should be around 3000 words. You are required to do an extensive reading of more than 10 articles relevant to the chosen Big Data use cases, technologies, architectures and data models. You will need to provide in-text referencing of the chosen articles. Your assessment must have a Cover page (Student name, Student Id, Unit Id, Campus, Lecturer and Tutor name) and Table of Content (this should be MS word generated).

**Assessment Due Date**

Week 12 Friday (11 Oct 2019) 11:45 pm AEST

**Return Date to Students**

Exam Week Monday (21 Oct 2019)

On certification date

**Weighting**

40%

**Assessment Criteria**

You will be assessed based on your ability to critically analyse and evaluate different Big Data technologies and to apply Big Data architecture, tools, and technologies to support Big Data use cases. The marking criteria for this assessment are as follows.

Executive Summary - 3 marks

Table of Contents - 2 marks

Introduction - 3 marks

Big Data Use Cases - 5 marks

Critical Analysis of Big Data Technologies - 8 marks

Big Data Architecture Solution - 8 marks

Big Data User Experiences - 5 marks

Conclusion - 3 marks

References - 3 marks

**Referencing Style**

- [Harvard \(author-date\)](#)

**Submission**

Online

**Submission Instructions**

You must upload the written report to Moodle as a Microsoft Office Word file by the above due date.

**Learning Outcomes Assessed**

- Critically analyse and evaluate different big data technologies used for decision making in an organisation
- Apply big data architecture, tools, and technologies for decision making and problem solving in the organisational context.

**Graduate Attributes**

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility

## Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

### What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

### Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

### Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

### What can you do to act with integrity?



#### Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



#### Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



#### Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem