

# Marketing Analytics

**Lecture 1 Introduction to Marketing Analytics  
and Customer Analytics**

Dr. Bingqing Xiong

Senior Lecturer in Department of  
Information Systems and Business  
Analytics



# ABOUT ME

## Dr. Bingqing Xiong

- Senior Lecturer in Deakin University
- Ph.D. (Information Systems), City University of Hong Kong
- Ph.D. (Business Administration), University of Science and Technology of China
- Research Focus: Innovations in Digital Ecosystems & Data Analytics
- Email: b.xiong@deakin.edu.au



# Unit MIS784 Team: Lecturer & Tutors

---

## **Unit Chair & Lecturer:**

Dr. Bingqing Xiong <[b.xiong@deakin.edu.au](mailto:b.xiong@deakin.edu.au)>

## **GIFT City Lecturer and Tutor:**

Pro. Chandrasekhar Bhuvanagiri  
<[chandima.wickramatunga@deakin.edu.au](mailto:chandima.wickramatunga@deakin.edu.au)>

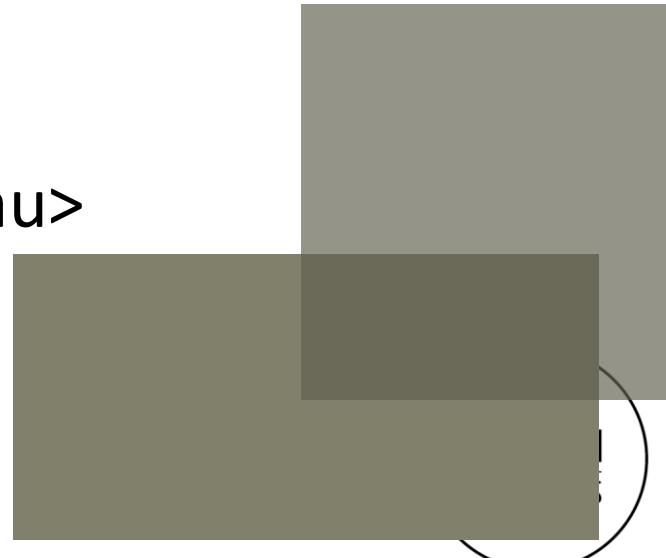
## **Tutors**

Dr. Kaushalya Nallaperuma <[k.nallaperuma@deakin.edu.au](mailto:k.nallaperuma@deakin.edu.au)>

Mr. Kesan Narangoda <[k.narangoda@deakin.edu.au](mailto:k.narangoda@deakin.edu.au)>

Ms. Ruyi Li <[ruyi.li@deakin.edu.au](mailto:ruyi.li@deakin.edu.au)>

Mr. Muhammad Tasleem <[m.tasleem@deakin.edu.au](mailto:m.tasleem@deakin.edu.au)>



# Unit Overview



# Unit Outline

Week	Lecture Topic
1	Unit Overview; Introduction to marketing analytics and customer analytics
2	Revolutionizing Marketing Data and Data-Driven Decisions
3	Transaction Analytics (I)
4	Transaction Analytics (II)
5	Web Analytics
6	Case Study
7	Digital Media Analytics
8	Mobile Analytics
9	Aligning Marketing Analytics with Business Strategy
10	Ethics and Special Considerations in Marketing Analytics
11	Review, Q&A and Future of Marketing Analytics



# Assessment

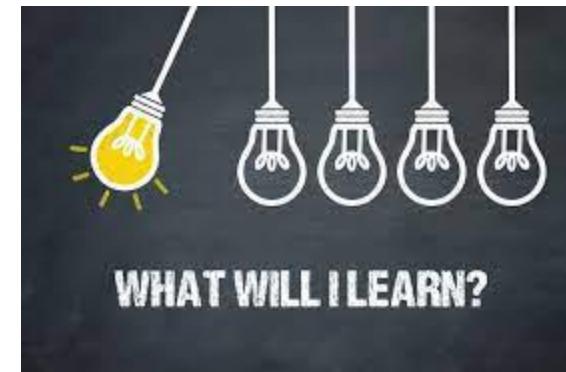
---

- **Assignment 1 (30%)**
    - This assignment requires students to analyse a given data set, interpret and draw conclusions from their analysis. (Individual - 30%)
  - **Assignment 2 (30%)**
    - This assessment task involves analysing the data using appropriate metrics/models, interpreting results, developing recommendations and writing a brief report. (Individual - 30%)
  - **Assignment 3 (40%)**
    - This is a group assignment. Three people per group.
- Please check the **unit guide** and the **unit schedule** available on CloudDeakin for key dates***



# Learning Objectives

---



- Propose appropriate data analytical methods for different data types
- Derive data-driven insights based on data analytics
- Propose appropriate data analytical methods for different data types
- Develop logical, feasible and creative marketing solutions for enhancing the performance of businesses
- Demonstrate an awareness of the possibilities and limitations for analysis through marketing data
- Explore ethical dimensions of marketing analytics



# Unit Overview

- Exploring the role of data, information systems and metrics in marketing practice.
- Covering the types of marketing data, the sources of marketing data, and the uses of marketing data.
- Exploring contextual issues including the role of marketing analytics in crisis management and ethical considerations of marketing analytics.



# Structure of Classes

## Lectures (Classes)

- In person: Monday 11:30 am – 12:50 pm (Recording & Live Streaming Provided)
- Provide you with a broad exposure to each topic discussed

## Labs (Tutorials)

In person:

- Tuesday, Wednesday and Thursday
- Online: Thursday 19:00 pm – 20:20 pm (Recording Provided)
- This is where you metaphorically roll up your sleeves and get your hands dirty with data analysis
- Google Cloud Platform

# Student Feedback

---

- During the teaching
  - After a lecture
  - Office hour or Email
  - Discussions on Cloud Deakin (Unit Site)
  - Teams

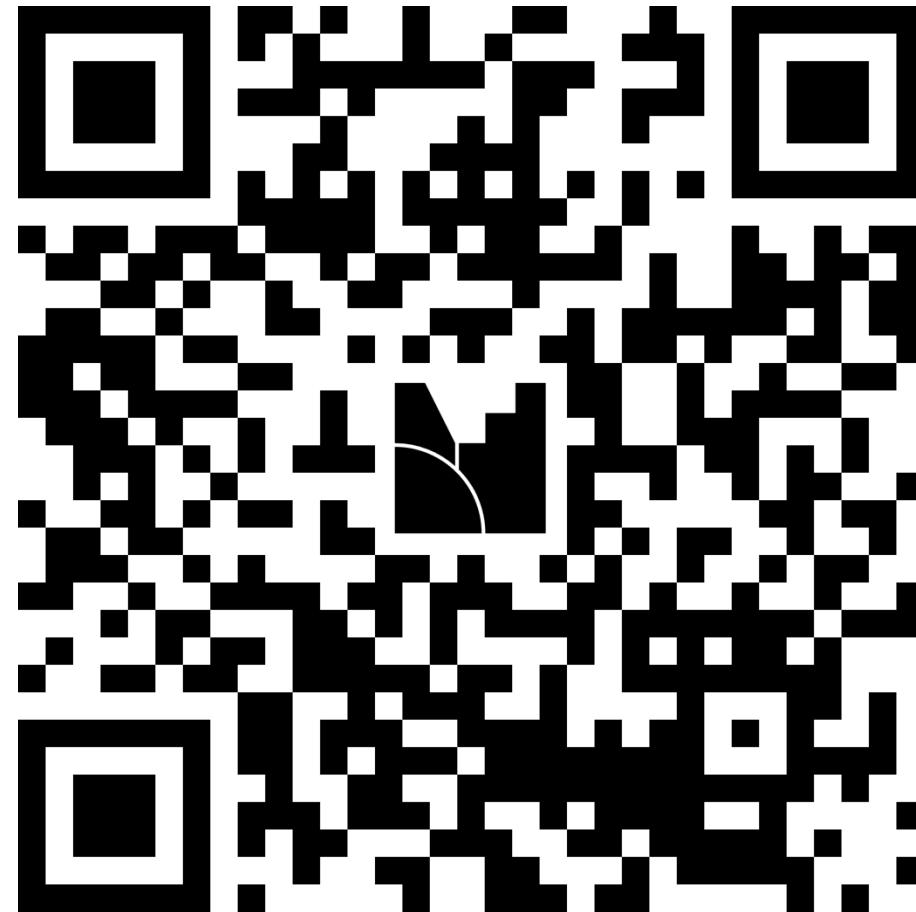


# SOCIAL TIME

- Introduce yourself
- [www.menti.com](https://www.menti.com)  
and use the code  
1957 6077



<https://www.menti.com/algpszz297zm>



# Introduction to Marketing Analytics – Week 1



# Learning Objectives

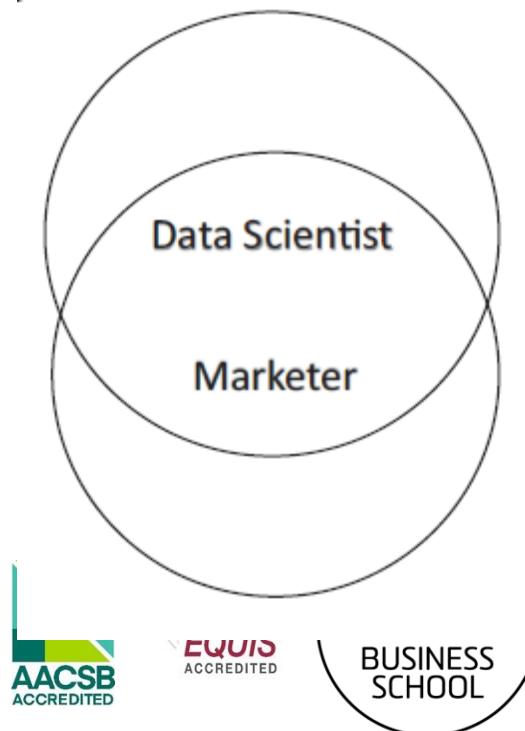
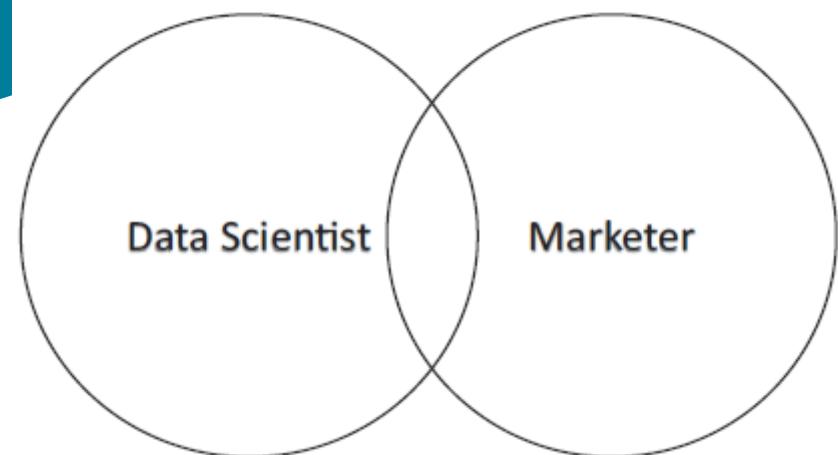
- ❖ Definition and importance of marketing analytics
- ❖ Principles and philosophy of analytics
- ❖ AI in Marketing Analytics

# What is Marketing Analytics, Anyway?

- ❖ Marketing analytics involves the **collection, management, and analysis** of **data** to obtain **insights** into marketing performance, maximize the **effectiveness of investment** (Wedel & Kannan, 2016)
- ❖ Marketing analytics is the process of **identifying metrics** that are **valid indicators** of marketing's performance in **pursuit of its objectives**, **tracking those metrics over time**, and using the results to improve **how marketing does its work** (Rackley, 2015)
  - Metrics are standards of measurement by which efficiency, performance, process, or quality of a plan, process, or product can be assessed

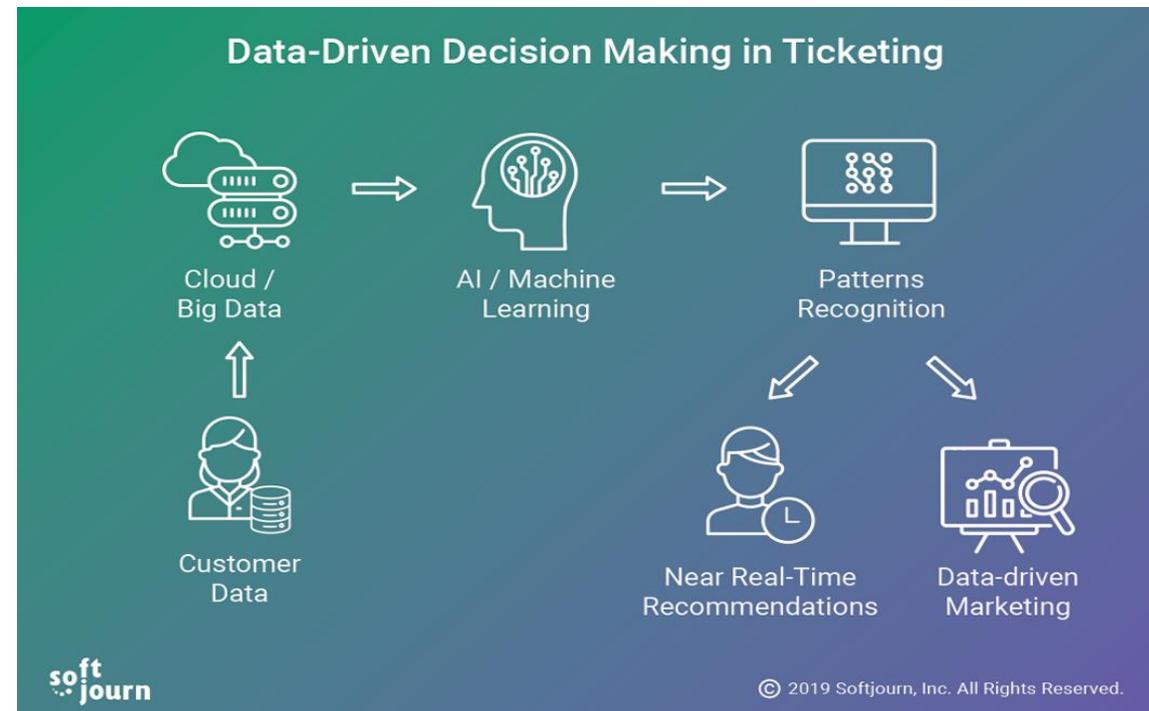
# Why Marketing Analytics?

- ❖ Marketing is increasingly analytics-driven and data-driven.
- ❖ Although data processing can be increasingly automatic, humans oversee the configuration of data processing, the interpretation of output, and the subsequent tactical and strategic decisions that this data processing informs.
- ❖ Modern marketers need to be able to see things through the lens of data scientists.



# Why Data-Driven?

- ❖ Richer data, easier capture and storage of data at lower cost
  - why waste all that data?
- ❖ Data is huge, complex, and time-sensitive.
- ❖ It is important to find out what people actually do before we attempt to explain it or influence it.
- ❖ Data helps identify consumers.



# Why Data-Driven?

- ❖ Data are artefacts that have the potential to be information, insight and knowledge.
- ❖ There are numerous ways of classifying data...

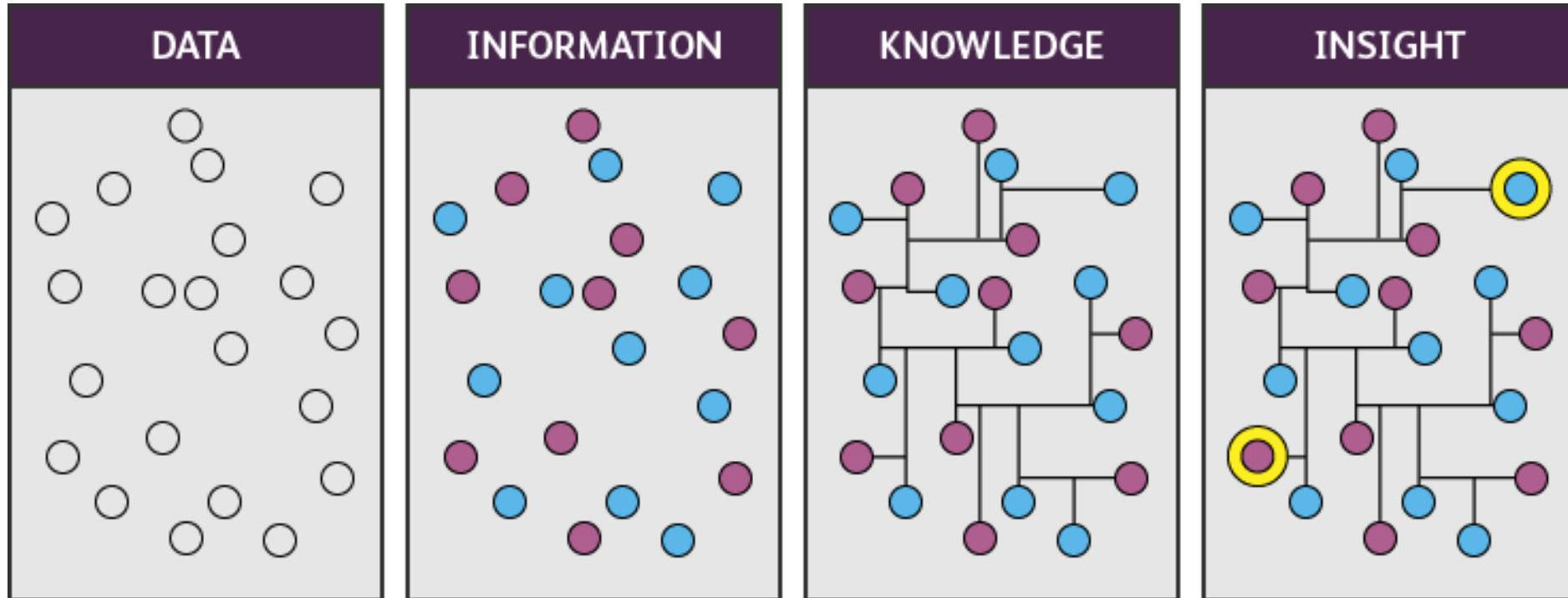
Week	Lecture Topic
1	Unit Overview; Introduction to marketing analytics and customer analytics
2	Revolutionizing Marketing Data and Data-Driven Decisions
3	Transaction Analytics (I)
4	Transaction Analytics (II)
5	Web Analytics
6	Case Study
7	Digital Media Analytics
8	Mobile Analytics
9	Aligning Marketing Analytics with Business Strategy
10	Ethics and Special Considerations in Marketing Analytics
11	Review, Q&A and Future of Marketing Analytics



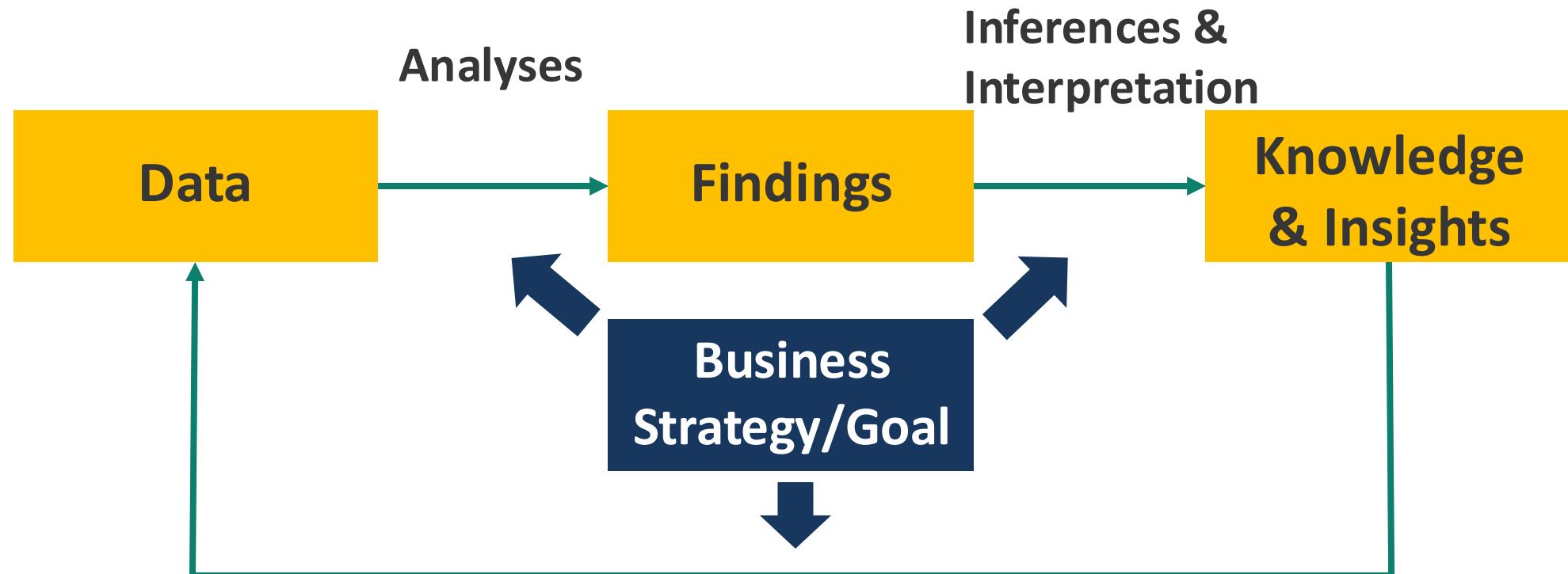
# From Data to Insight

- ❖ The picture of consumer is often partial and the data artefacts are fragmented
- ❖ The notion of ‘truth’ is elusive and fraught with epistemological (theory of knowledge) pitfalls
- ❖ Inference is a more useful and workable objective; data is evidence
- ❖ Analysts are like the archaeologists of the near past
- ❖ Consumers are ‘knowable’ to some extent both individually and collectively via intelligent inference.

# From Data to Insight



# From Data to Insight



Designing metrics and processes; Improving STP & 4Ps  
(or 7Ps in Services Marketing); Updating Strategies, etc



# From Data to Insight



- ❖ Different types of data & various approaches to perform analyses
- ❖ Many skills are transferrable!!

Week	Lecture Topic
1	Unit Overview; Introduction to marketing analytics and customer analytics
2	Revolutionizing Marketing Data and Data-Driven Decisions
3	Transaction Analytics (I)
4	Transaction Analytics (II)
5	Web Analytics
6	Case Study
7	Digital Media Analytics
8	Mobile Analytics
9	Aligning Marketing Analytics with Business Strategy
10	Ethics and Special Considerations in Marketing Analytics
11	Review, Q&A and Future of Marketing Analytics

# From Data to Insight



- ❖ Measure what an organization wants to measure
- ❖ Evaluate the process under question - is it functioning? Is it effective?
- ❖ Provide a base for suggesting improvements
- ❖ Creating an analytics process that measures and tracks meaningful things can be complicated and difficult

Week	Lecture Topic
1	Unit Overview; Introduction to marketing analytics and customer analytics
2	Marketing Data and Data-Driven Decisions
3	Transaction Analytics (I)
4	Transaction Analytics (II)
5	Web Analytics
6	Case Study
7	Digital Media Analytics
8	Mobile Analytics
9	Aligning Marketing Analytics with Business Strategy
10	Ethics and Special Considerations in Marketing Analytics
11	Review, Q&A and Future of Marketing Analytics

# However... Concerns in the Practitioner Sphere

- ❖ People are concerned about their privacy... they worry about their data being collected and abused...
- ❖ Is analytics-driven marketing dehumanizing the consumers and over-influencing them?

Week	Lecture Topic
1	Unit Overview; Introduction to marketing analytics and customer analytics
2	Revolutionizing Marketing Data and Data-Driven Decisions
3	Transaction Analytics (I)
4	Transaction Analytics (II)
5	Web Analytics
6	Case Study
7	Digital Media Analytics
8	Mobile Analytics
9	Aligning Marketing Analytics with Business Strategy
10	Ethics and Special Considerations in Marketing Analytics
11	Review, Q&A and Future of Marketing Analytics

# What Can Marketing Analytics Do?

- ❖ Allow monitoring of marketing campaigns, marketing actions and their respective outcomes
- ❖ Provide insights into customer preferences and trends, adapt marketing actions to specific needs of customers, increase customer satisfaction
- ❖ Connect the analysis with launched and future actions
- ❖ Enable effective use of marketing resources
- ❖ Improve return on investment

# Components of Analytics

From information to optimisation

## PREScriptive ANALYTICS What should we do?

- Prescribes the best decision
- Consider all potential outcomes
- Benefits from the rise of Artificial Intelligence
- Tools used: optimization models



## PREDICTIVE ANALYTICS What will happen?

New Technology  
+ More & better Data

- Predicts chance of future event happening
- Based on historical data & further calculations
- Tools used: statistical models, simulation, machine learning

amazon

Frequently Bought Together

You Bought

Customers Also Bought



Waring CTT200BK  
Professional Cool...  
by Waring



The Dark Knight Rises

Blu-ray ~ Christian Bale

★★★★★ (1,538 reviews)

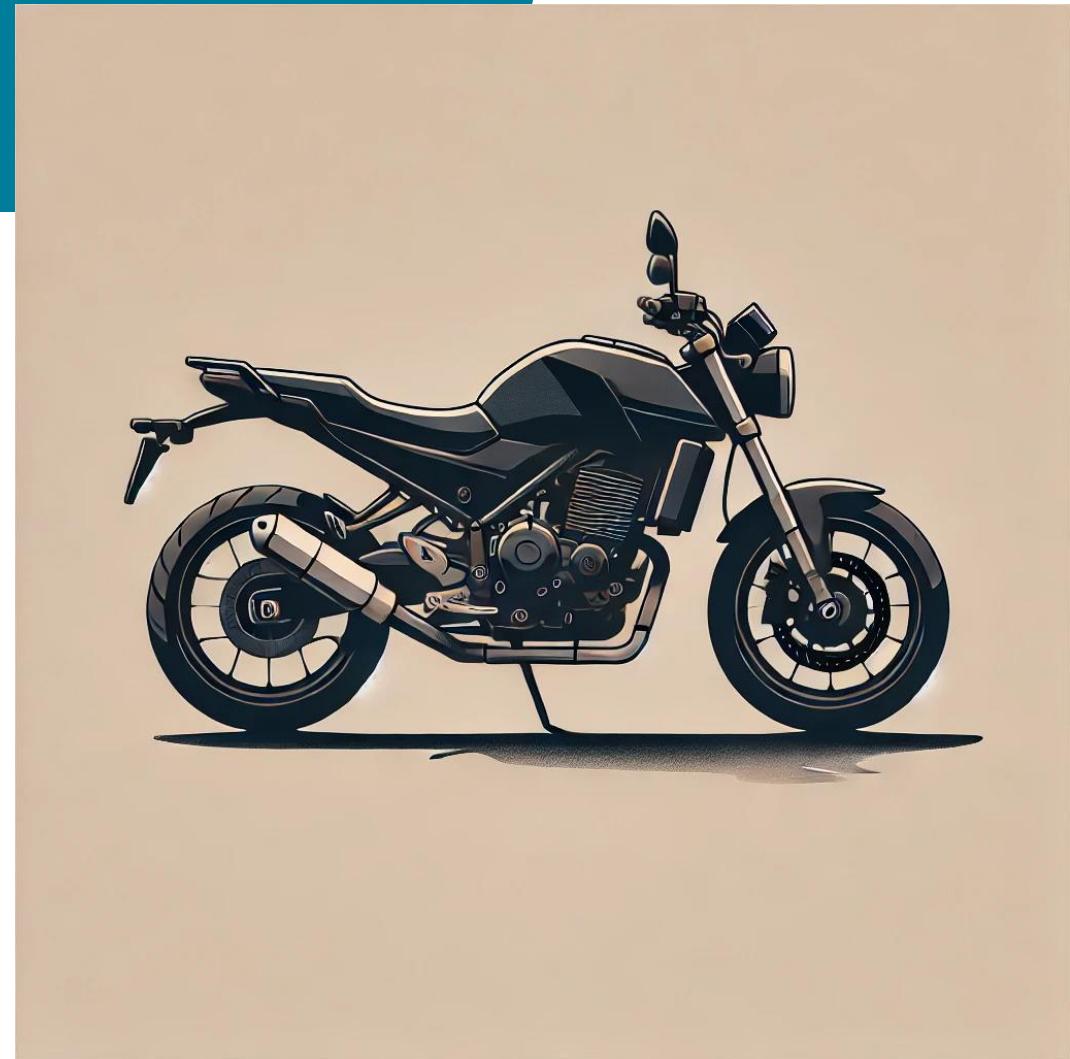
\$24.96

Learn more

## DESCRIPTIVE ANALYTICS What happened?

- Describes events that already happened (past events)
- Represents the majority of analytics available, will likely continue to be popular even with the availability of more advanced analytics
- Analysts need to step in and fill the gap of missing knowledge between data and insights.
- Tools used: data aggregation, data mining





How are they related?

Timer

How are they related?



What is your guess?...

Sour Cream & Motorcycle

Sour cream = Ride fast?

...

## Sour Cream Consumption & Motorcycle Deaths in Non-Collision Transport Accidents



# Insights from the correlation

- Similarity between these two factors: Goes up in Summer
- Summer → More Sour Creams
- Summer → More accidents in Motorcycles



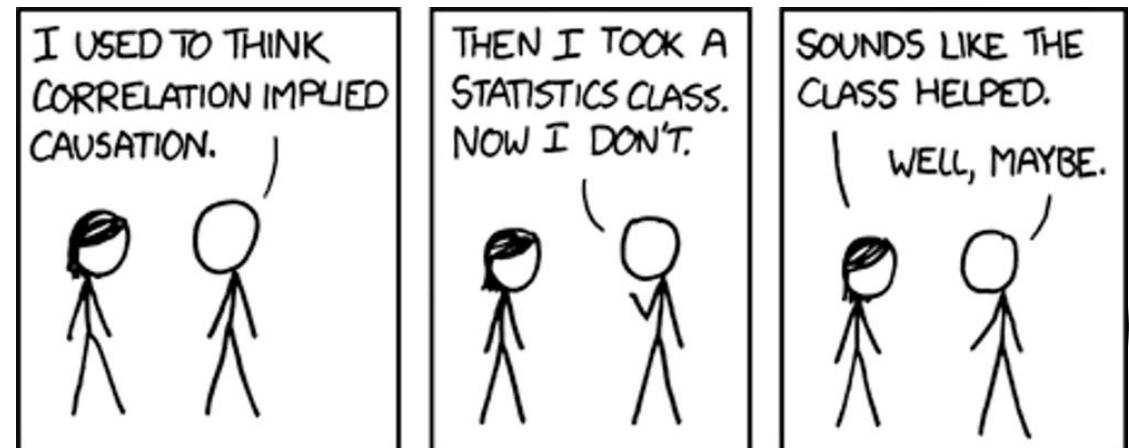
# Correlation ≠ Causality

## ❖ Correlation is a measure of how two things are related

- Data can throw up associations by chance
- May not have causal relationship
- E.g., Ice Cream --- Hot Weather

## ❖ Causality is a measure of whether one thing causes another thing to happen

- Logical connection / explanation?
- Be cautious about interpreting data and attributing causality
- E.g., Conducting an experiment:  
Eating Ice Cream --- Happier

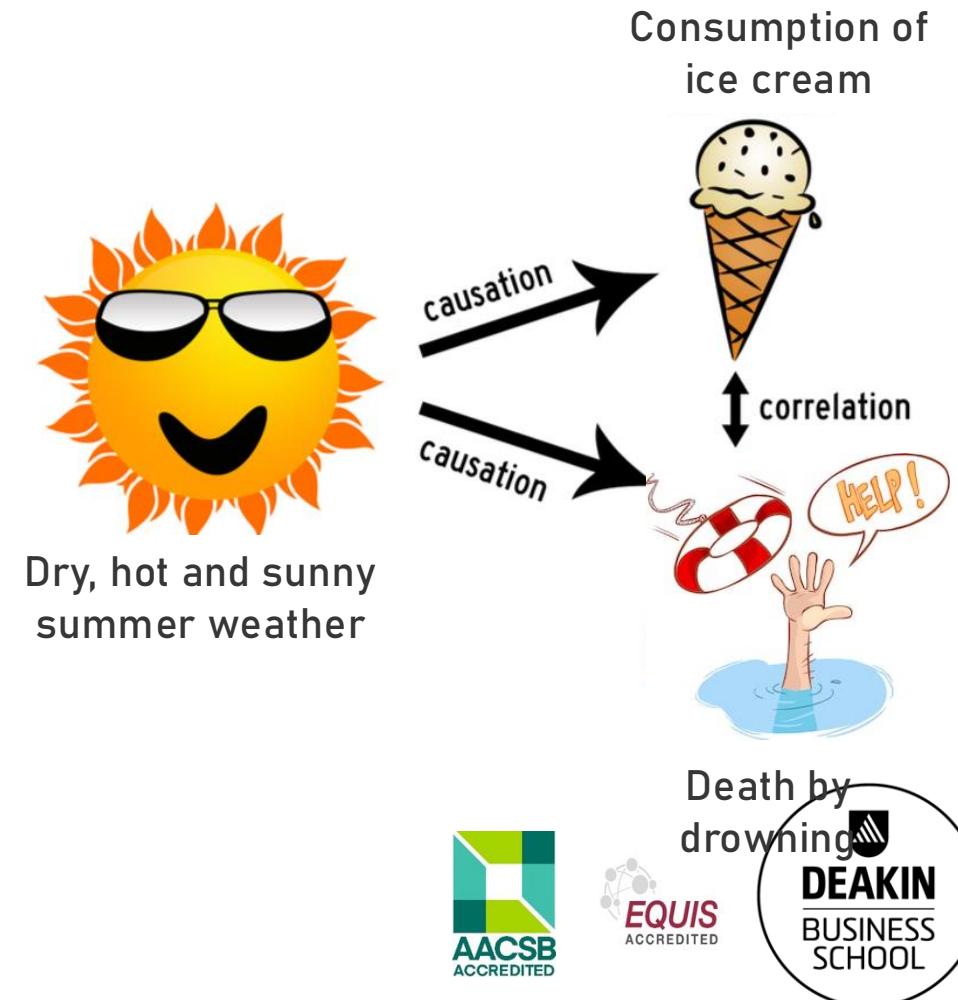


# Correlation vs Causation



# However, Correlation Can Be More Than Mere Coincidence

- ❖ Correlation might be due to a reason, rather than mere coincidence
- ❖ Exploring the correlation can give insights into the true root causes



# Sometimes, Correlation is Good Enough



Babies love  
drinking beer?

- ❖ Beer-and-Diapers Correlation
- ❖ Some proposed explanations

- Harried dads rewarding themselves with impulse buys
- Men can't go out with their friends any more
- Diapers are too heavy for recently pregnant women so they ask their husbands to pick them up coming home from work
- A diaper emergency occurs fairly late in the evening and the husband is sent out while the new mother cares for the baby

# Sometimes, Correlation is Good Enough – Is it really?

- ❖ Context matters
- ❖ “It’s not the insight, but what you do with it, that matters as a manager”
- ❖ You wouldn’t do anything without some idea of cause or context, correlation is not enough
- ❖ Telling (selling) the story is as important as conducting appropriate analyses



# Narrative by Numbers: How to Tell Powerful & Purposeful Stories with Data



# AI in Marketing Analytics

## What is AI in Marketing Analytics?

AI in marketing analytics refers to the application of artificial intelligence technologies, including machine learning algorithms and natural language processing, to analyze and interpret complex marketing relevant data sets.

## Why is AI in Marketing Analytics?

- Faster Insights: near real time analytics
- Capability in dealing with different types & volumes data
- Informed choices: data driven
- Personalization & Customization: understand each one
- Streamlined Operations: automate routine and repetitive tasks
- .....

# AI in Marketing Analytics

## How is AI used in Marketing Analytics?

- ML algorithms
- Natural Language Processing (NLP)
- Image/video processing
- Big data

# AI in Marketing Analytics

Is AI going to replace or complement marketing analytics?

- Discussion
- AI Won't Replace Humans — But Humans With AI Will Replace Humans Without AI

# To Sum Up

- ❖ What is marketing analytics
- ❖ Why is marketing analytics important
- ❖ Correlation does not imply causation
- ❖ Think critically with the associations / patterns you find in your data

# Thank you!

