

A decorative graphic consisting of blue lines and circles, resembling a circuit board or data flow, extending horizontally across the middle of the slide. The lines are composed of straight segments and right-angle turns, with small circles at various points along the paths.

# RESPONSIBLE DATA SCIENCE

## INTRODUCTION TO LEGAL ISSUES

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# WELCOME

- **Week 6:** Introduction to legal issues in data science
  - What is law?
  - Where do laws come from?
  - How are legal judgements made?
  - How does law relate to data science?
- **Week 7:** Intellectual property and contract law
- **Week 8:** Privacy and cybersecurity law

# WELCOME

- Readings posted on Blackboard. Main and additional (optional) readings
- Quiz (10%) on 21/09/2021, covering lecture content
- Questions encouraged - in lectures, tutorials, and on the Discussion Board
- Consultations on request ([h.macdonald1@uq.edu.au](mailto:h.macdonald1@uq.edu.au))

# THE IMPORTANCE OF LAW

- Involved in many human interactions
- Regulates institutional operation (including universities, governments, and businesses)
- Influences how data can be collected, used, and commercialised
- Creates legal rights, obligations, and responsibilities

# WHAT IS LAW?

- How should we define law?
- What separates law from other systems of rules?
- How does law relate to ethics and morality?
- [padletuq.padlet.org/hamishmacdonald/832rkc614yqnrono](https://padletuq.padlet.org/hamishmacdonald/832rkc614yqnrono)

# WHAT IS LAW?

- Natural law: Rules deriving from morality, God, nature, or reason
  - An unjust law is no law at all (Augustine of Hippo, 4<sup>th</sup> century AD)
- Commands issued by a sovereign, backed by threats (John Austin, ~1830)
- A system of primary and secondary rules, including rules of recognition, change and adjudication (H. L. A. Hart, 1961)
- A “basic norm” from which all laws derive their legal validity (Hans Kelsen, 1934)

Commonwealth of Australia Constitution Act.

A N A C T

TO

Constitute the Commonwealth of Australia.

*cap. 12.*

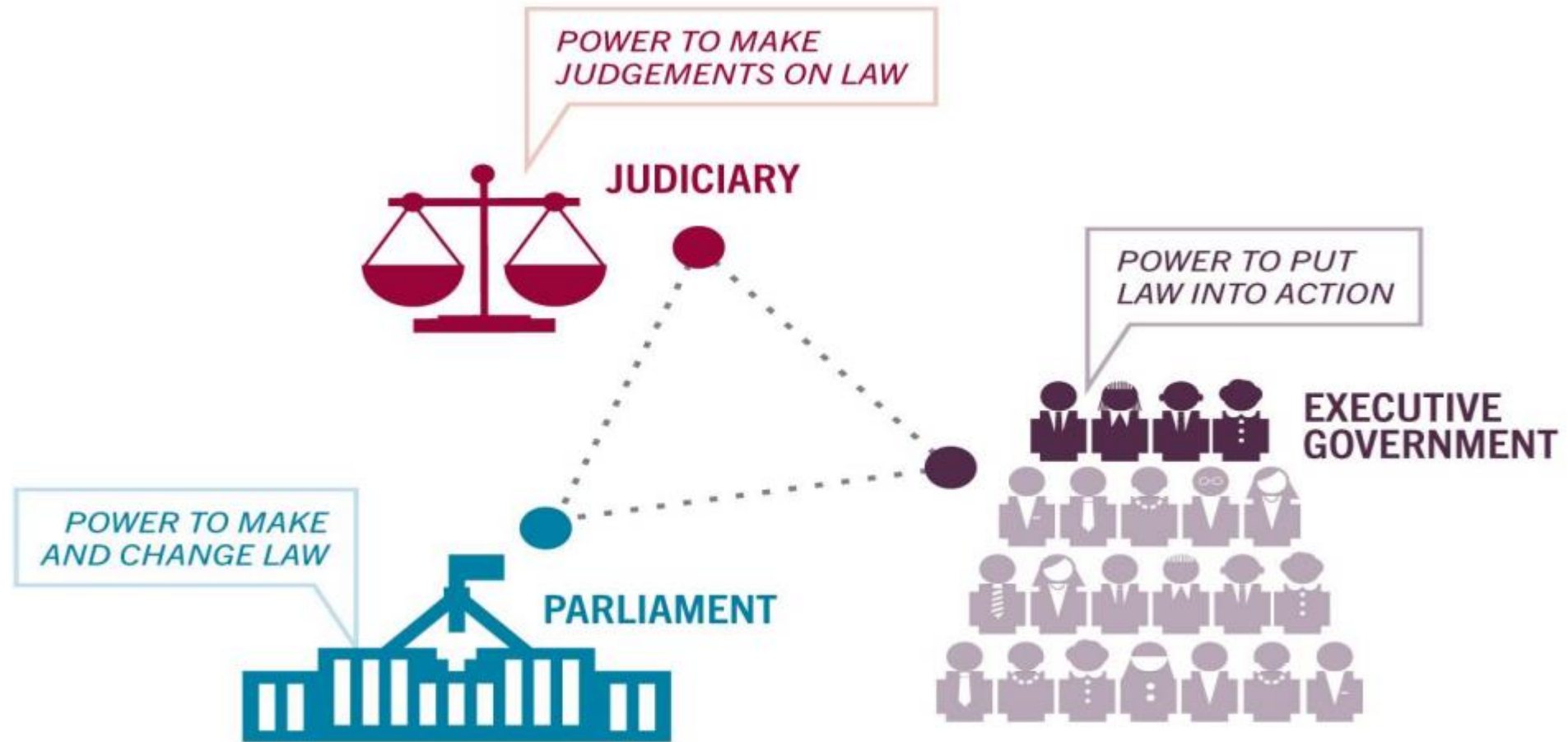
*[9<sup>th</sup> July 1900]*

# WHERE DOES LAW COME FROM?

- Constitution is usually the ultimate legal authority of a country.
- Legal systems are often classified as either **civil law** or **common law** systems.
- Civil law: based on codification (**statutes** are the only source of law).
- Common law: (law comes from **statutes** and also from **past decisions**).
- Australia has a common law legal system, derived from English common law.



# SEPARATION OF POWERS



# STATUTE/LEGISLATION

- Written law passed by a legislative body
- Introduced as a “Bill”, becomes an “Act” once passed by Parliament
- Primary source of law (can override case law)
- Intended to reflect social values and morality, through democratic elections
- Principle of **Parliamentary sovereignty**

# COMMON LAW

- Also referred to as **case law**, or **precedent**.
- All past legal decisions are legally binding
- Can only be changed or overturned by legislation, or by a decision of a higher court
- Case law often influences the interpretation of legislation

# COMMON LAW

- If a proposition has been accepted by a majority of judges, it is called **ratio decidendi** (the reasons for the decision), and is legally binding
- Otherwise is it called **obiter dictum** (that which is said in passing), and is not legally binding
- Courts must follow the **ratio decidendi** of previous cases (unless the previous case was in a lower court)

# APPEALS

- If a person involved in a legal dispute is not satisfied with the outcome, they can appeal the decision to a higher court
- This higher court must accept the appeal before it can be heard

# LAW AND FEDERALISM

- Australia has a **federalist** system of government, which means that law is made at two levels: by the country (the Commonwealth), and by the states within the country
- The hierarchy of courts is different depending on whether the law in question is a state or Commonwealth law

# COMMON LAW EXAMPLE: HUMAN GENE PATENTS

- The *Patents Act 1990* was passed by legislation
- It allows inventors to obtain a patent for inventions which are new, inventive, and useful
- Patents were obtained over human genes obtained through analysis of genetic data
- These were used for diagnostic purposes, such as predicting breast cancer with the BRCA1 and BRCA2 gene mutations

# COMMON LAW EXAMPLE: HUMAN GENE PATENTS

- These patents were challenged on the basis that that isolated nucleic acids were not “a manner of manufacture”, which is what the *Patents Act 1990* required
- Opponents argued that the genes in question already existed (in human beings)
- The company argued that the genes had been chemically isolated and were therefore a manner of manufacture
- You are the judge deciding this case. Are the isolated nucleic acids patentable?



# COMMON LAW EXAMPLE: HUMAN GENE PATENTS

- The Federal Court and Full Federal Court upheld the patent, on the basis that the isolated genes did not exist in nature and were therefore artificial
- The High Court reversed this decision, finding that the important part of the invention was the information contained in the genes, which was the same as in the human body
- This is the **ratio decidendi** of the decision, and becomes legal **precedent**
- Isolated genes are no longer patentable in Australia (but the government could pass an Act to change this)

# LAW IN PRACTICE



# LAW IN PRACTICE



# INTERNATIONAL LAW

- Law from Treaties, Conventions and Protocols
- Is not legally binding until implemented within a particular jurisdiction
- In some jurisdictions, it can be used as an interpretive guide for judges



# LEGAL JUDGEMENT

- Cases are decided by judges
- This is how legal interpretation occurs
- Judgement is needed because rules always have some uncertainty, and cannot cover every possibility
- Judgement allows the law to respond flexibly to specific cases

# LEGAL JUDGEMENT – LIFEBOAT CASE

- Five men are trapped in a lifeboat. After weeks of drifting, their food supplies run out
- They decide that one of them must be eaten so that the rest can survive
- Criminal legislation makes it a crime to kill another person, except in self defence
- You are the judge in this case. Do you find the remaining men guilty of murder? Why or why not?

# LEGAL JUDGEMENT

- Legal formalism: laws should be interpreted as literally as possible, to avoid having judges make laws
- Purposive interpretation: laws should be interpreted in the context of what they were intended to achieve

# LEGAL JUDGEMENT – RAILWAY SLEEPING CASE

- Hypothetical legal rule: “it is illegal to sleep at a railway station”. Consider two situations:
  1. A businesswoman falls asleep, sitting upright, while sitting and waiting for her train
  2. A homeless person has settled down for the night with blankets and a pillow, but has not yet actually fallen asleep
- As the judge, how do you decide each case? Why?



# LEGAL JUDGEMENT

- Australia has an **adversarial** justice system:
  - Associated with common law legal systems
  - Parties raise and make all legal arguments
  - Courts (judges) are passive and impartial, do not investigate case themselves
- **Inquisitorial** justice systems also exist:
  - Associated with civil law legal systems
  - Courts (judges) actively investigate the facts of the case

# LAW AND TECHNOLOGICAL CHANGE

- Common perspective that law lags behind technology
- Property height (United States v. Causby):
  - “That doctrine has no place in the modern world [...] Common sense revolts at the idea.” Justice William Douglas
  - “It is the special genius of a common law system [...] that the law adjusts to the technologies of the time.” Lawrence Lessig, in *Free Culture*

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# LAW AND TECHNOLOGICAL CHANGE

- Technologies for copying have forced intellectual property laws to adapt
- Roadshow Films Pty Ltd v iiNet Ltd
- Copyright owners argued that Internet Service Providers had authorised copyright infringements by allowing customers to use torrenting services
- Judges found that iiNet had no technical power to prevent copyright infringements

# LAW AND TECHNOLOGICAL CHANGE

- Contract signatures
- Online defamation
- Domain phishing
- Jurisdiction can be problematic when trying to regulate online activities



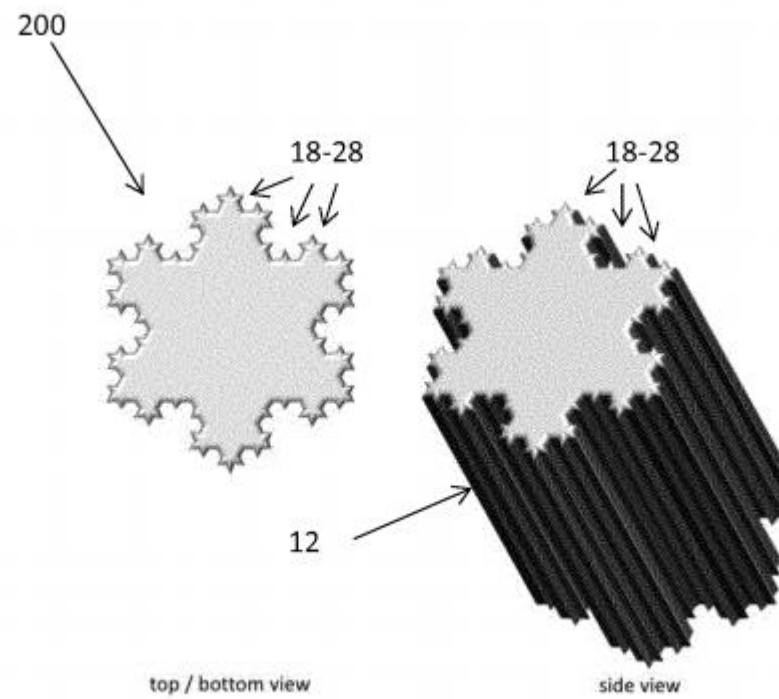
# LAW AND TECHNOLOGICAL CHANGE

- Law also influences science and technology (**coproduction**)
- Law regulates drug development, food chains, energy generation, data science
- Patent rights influenced the development of agricultural, chemical, genetic, and software patents
- Corporate law shapes companies, and therefore the technology they create
- Corporate law, contract law, trademark law and others facilitated the development of global capitalism

# EXAMPLE – ARTIFICIAL INVENTORS

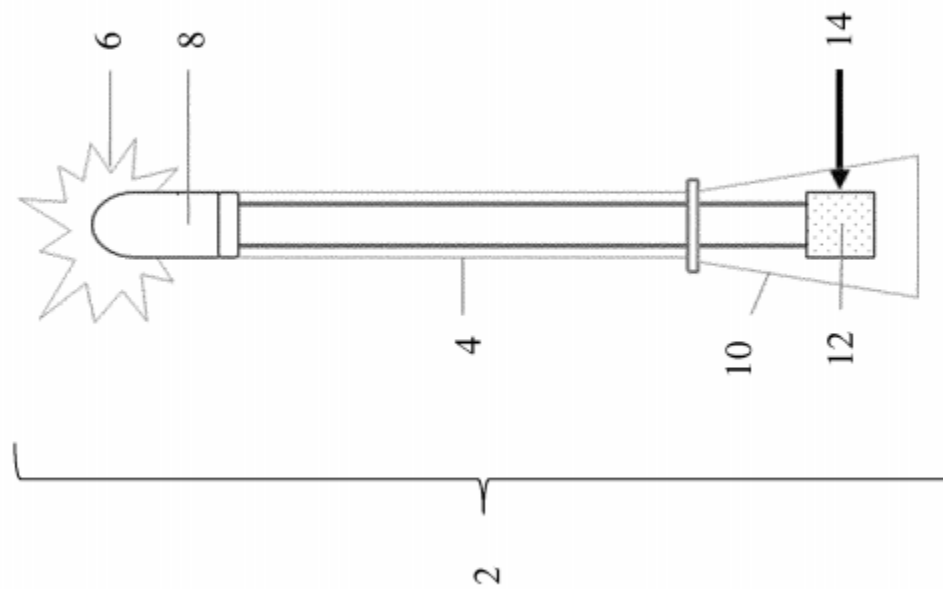
- In Australia, patents are granted to “inventors”
- The word inventor is not defined in the *Patents Act*
- A person recently submitted a patent for a new food container, listing a machine learning algorithm as the inventor
- Should an AI system be able to be a patent inventor? Why or why not?





Container based on fractal geometry (ideal shape for being stacked by robots)





Device and method for attracting enhanced attention

# LAW AND DATA SCIENCE

- Contract law regulates agreements
  - Employment contracts
  - Commercial contracts
  - Open source licensing
  - Data use agreements
  - Sales

# LAW AND DATA SCIENCE

- Intellectual property law creates property rights over intangible things
  - Patents over data-related inventions
  - Copyright over some expressions of data
  - Database rights (not in Australia)

# LAW AND DATA SCIENCE

- Cybersecurity laws criminalise computer-based offences, and set rules for how data should be protected
  - The Criminal Code makes hacking a crime, along with other computer-related offences
  - The Security of Critical Infrastructure Act is intended to protect electricity, gas, water, and ports

# LAW AND DATA SCIENCE

- Privacy and transparency laws regulates how data should be stored, used, and accessed
  - Australian Privacy Principles govern how large organisations handle data
  - Data Availability and Transparency Bill will regulate access to government data, if passed

# THANK YOU!

- Tutorial: case study of a legal process
- Next week: intellectual property law and contract law