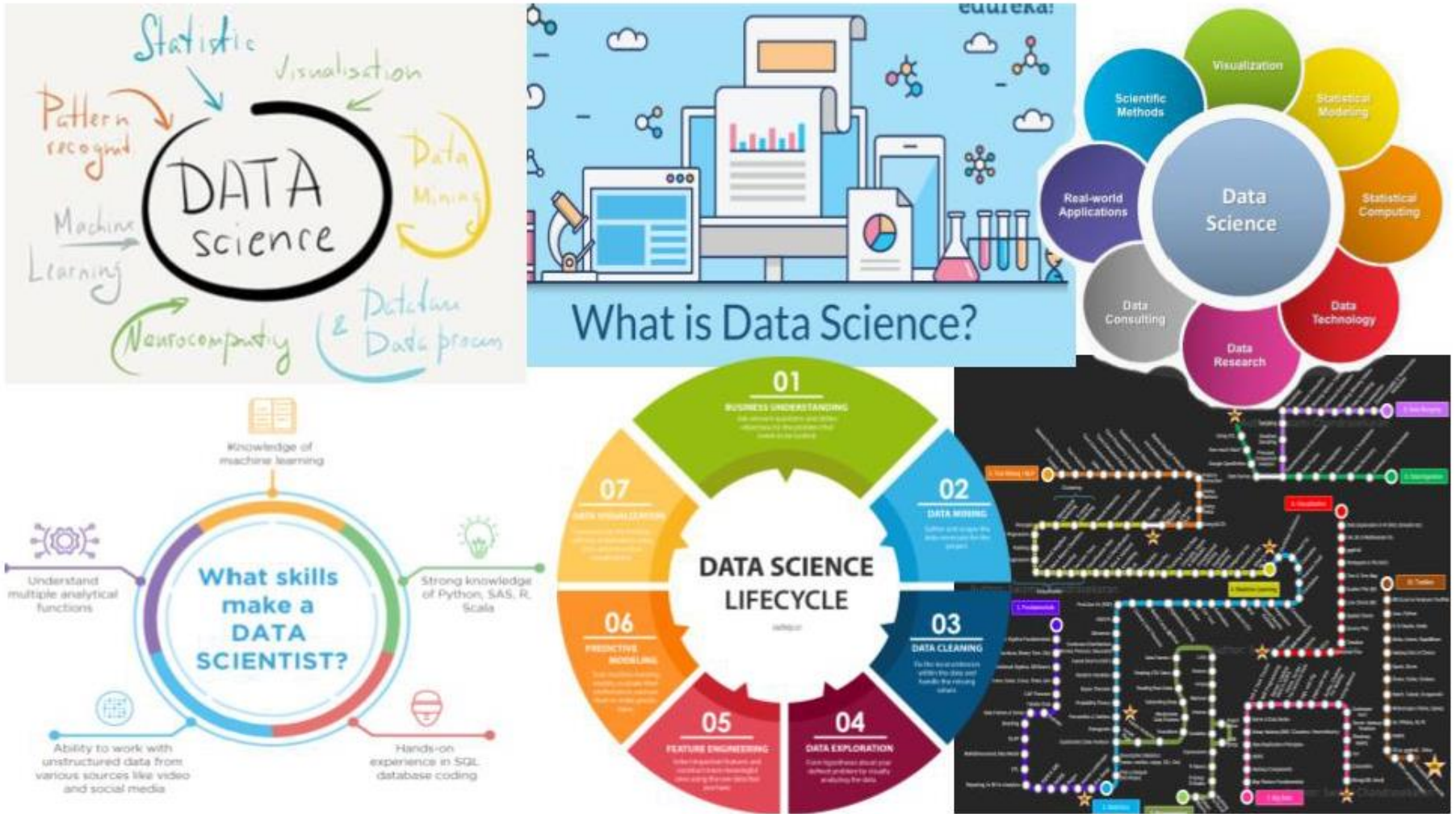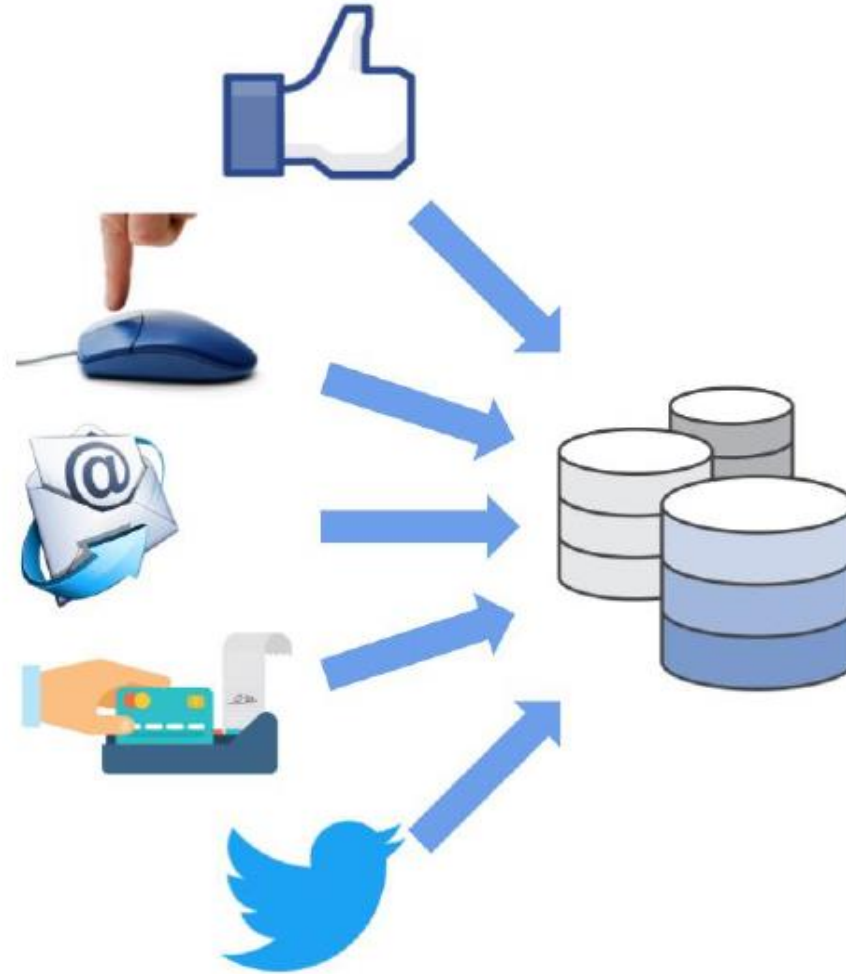# Data science for business

Hamid Zehtab

Let's ask Google!

Making data work for you

What can data do?

- Describe the current state of an organization or process

- Detect anomalous events

- Diagnose the causes of events and behaviors
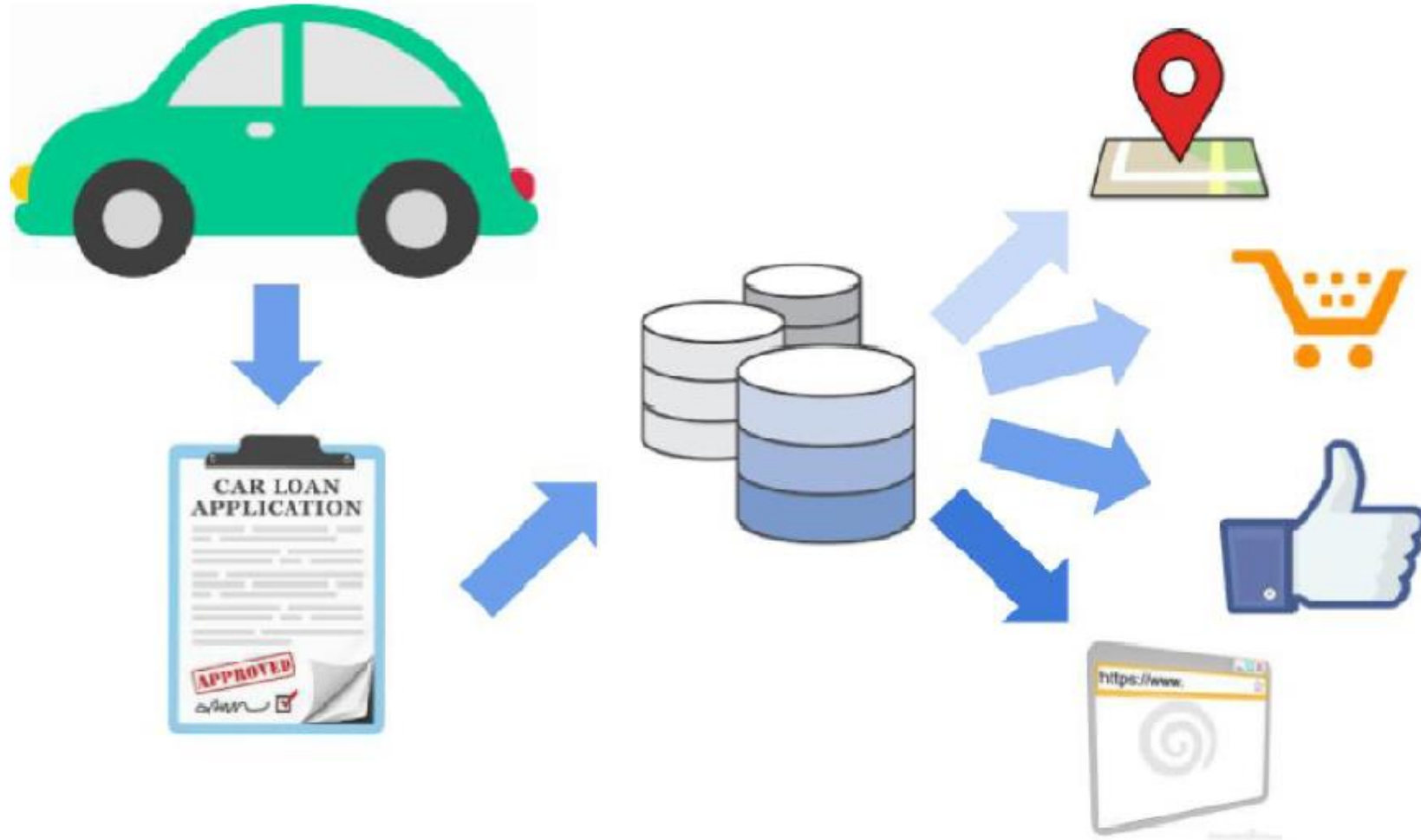
- Predict future events

Why now?

Why now?
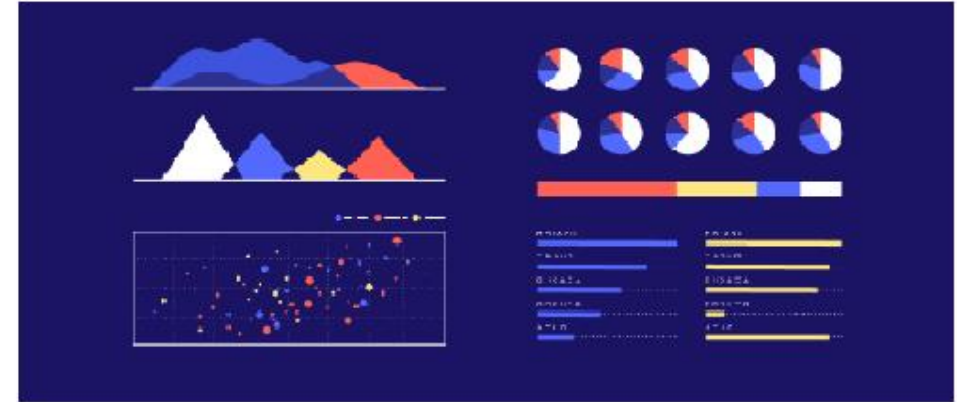
Why now?

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The data science workflow

Data collection

Exploration and visualization

Experimentation and prediction

Applications of Data science

Hamid Zehtab

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More case studies

- Traditional machine learning

- Internet of Things (IoT)

- Deep Learning

Case study: fraud detection
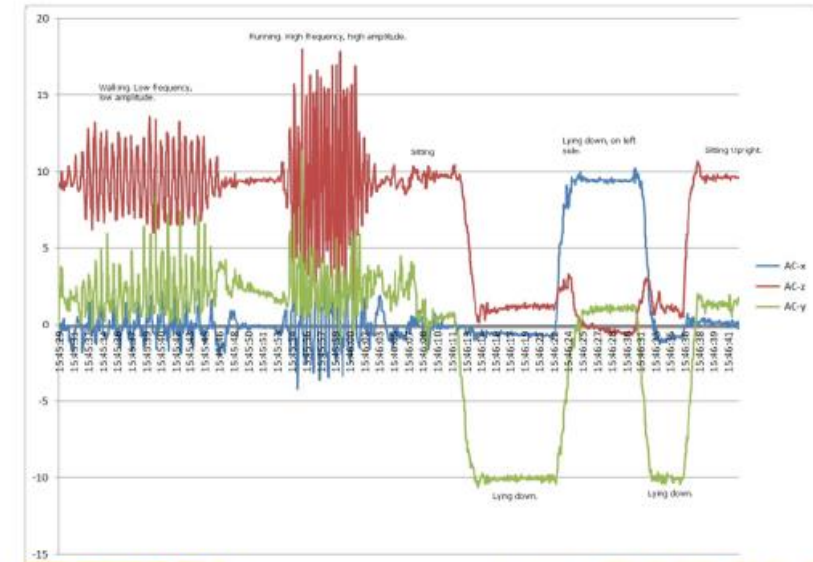
Case study: fraud detection

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What do we need for machine learning?

- A well-defined question
  - *"What is the probability that this transaction is fraudulent?"*

- A set of example data
  - *Old transactions labeled as "fraudulent" or "valid"*

- A new set of data to use our algorithm on
  - *New credit card transactions*

Case study: smart watch

Internet of Things

- Smart watches

- Internet-connected home security systems

- Electronic toll collection systems

- Building energy management systems

- Much, much more!

Case study: image recognition

Case study: image recognition

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Deep learning

- Many neurons work together

- Requires much more training data

- Used in complex problems
  - Image classification
  - Language learning/understanding

Resources

1. Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking by Tom Fawcett

2. Harvard Business School at online.hbs.edu

3. Harvard Business Review at hbr.org

4. wikipedia.org

5. ibm.com/cloud/learn/data-science-introduction

6. coursera.org/browse/data-science

7. Data Science for Business and Decision Making by Luiz Favero and Patrícia Belfiore