University of
South Australia

Big Data – Benefits and Challenges

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Benefits of Big Data for organisations

- Enterprise agility
- Real/right time
- Unified view
- Revenue optimisation
- Products/services optimisation
- Customer satisfaction
- Customer retention
- People (talent) acquisition, retention and satisfaction

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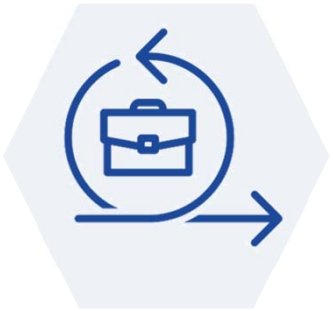
Enterprise agility

- Ability to sense environmental change and respond efficiently and effectively to that change.
- Leveraged use of technology, supported by their enterprise architecture and IT infrastructure.



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Process simplification

- New ways to streamline business processes to achieve speed and flexibility required to satisfy new or evolving market conditions.
- For example, using Big Data to support automated personalisation.

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Real time / ‘right time’

- Real-time integration and on-demand analytics.
- For example:
  - Real-time analytics of inventory levels to feed upstream replenishment applications for just-in-time manufacturing
- Right time – depending on decision cycle times.

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Customer retention

- Customer churn – much more choice!
- Customers likely to move to the next new thing.
- Growth in customer loyalty programs supported by Big Data.

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Banking on Knowing Your Customers Better

- Opportunity:
  - Actively engaging a greater number of customers to ensure their satisfaction and retention.
- Data and Analytics:
  - Capturing and centralizing customer activity of 12 million customers, including bank website browsing history, ATM usage, call center and others.
  - Matching behavior versus dozens of offerings and potential acceptance using SAS.
- Results:
  - Launched "KnowMe" system to engage customers.
  - Grew customer engagement (offers presented) from less than 1% to 25% of customers. Goal is to reach 80%.
  - Recommends nearby Westpac ATMs to save money when customer regularly uses another ATM.

Westpac

Gartner

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Challenges – organisational readiness

- How will Big Data help achieve the organisation's business goals?
- How can Big Data help improve decision making process?
- How will Big Data governance be managed to ensure accountability?
- Fear of privacy and confidentiality violations.

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Challenges - infrastructure

- Support workload performance, capacity, availability, recoverability, security and monitoring
- Describe what is needed, ensure performance or availability levels are being met
- Constantly evolving technology: vendor locked solutions vs. open frameworks

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Other challenges

- Data quality and governance
- Privacy and security
- 'Algorithmic accountability'
- Uncertainty and errors
- Not using data we have

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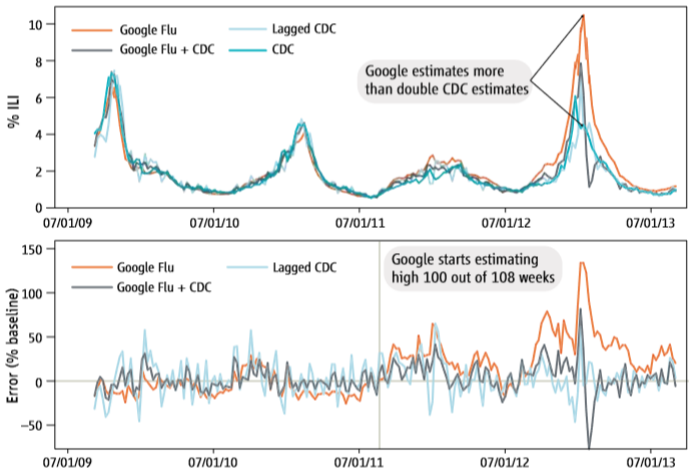
Challenges with analytics – Google Flu Trends

'The Parable of Google Flu: Traps in Big Data Analysis', David Lazer, ScienceMag, 14 March 2014



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Microsoft Tay experiment disaster (2016)

Source: Wikipedia

- An experiment at the intersection of machine learning, natural language processing, and social networks.
- Let Tay the chatbot discover patterns of language through its interactions online.
- More than 95,000 tweets in 16 hours, increasingly abusive and offensive due to concerted trolling.

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Top hurdles with Big Data

- Determining value
- Skills and capabilities
- Risk and governance
- Funding

[Gartner 2016 surveys]

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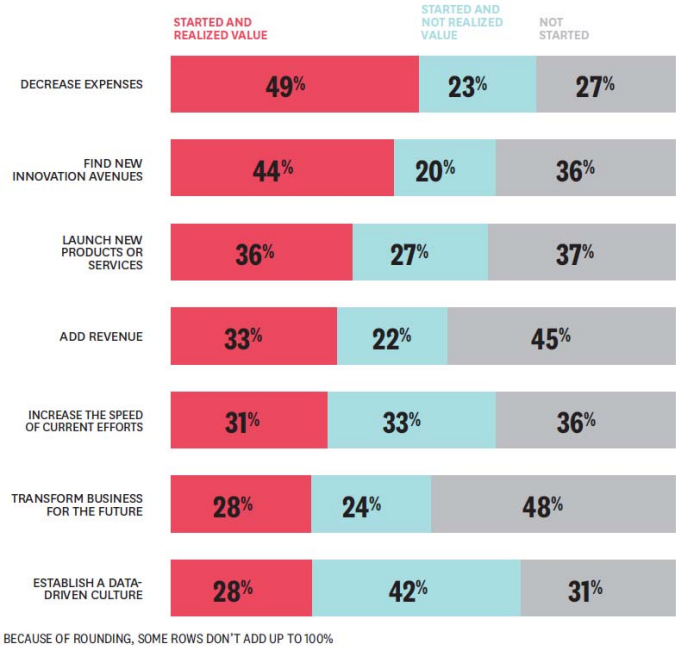
How companies really use data

Fortune 1000 companies



NewVantage Partners Big Data Executive Survey 2017
Source: Harvard Business Review

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NewVantage Partners 2021 Survey

Fortune 1000 companies

99% investing in data initiatives	65% appointed a Chief Data Officer	96% report measurable business outcomes
39% are managing data as an asset	24% have forged a data culture	24% have created a data-driven organization

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What's next for Big Data?

- Variety becoming the single biggest driver of Big Data investments
- From Big Data to small, wide and synthetic data

[Gartner report no. 3996980]

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