ITAC 2017

# Is Big Data the next big thing in Aged Care?

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# The Purpose Driven Group

Management consulting dedicated to the for-purpose sector.

We apply corporate strategies to help you grow in a sustainable way whilst fulfilling your purpose.

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# What is big data?

- Large data sets that may be analysed computationally to reveal patterns, trends, and associations.
- Data is the new raw material of information age.

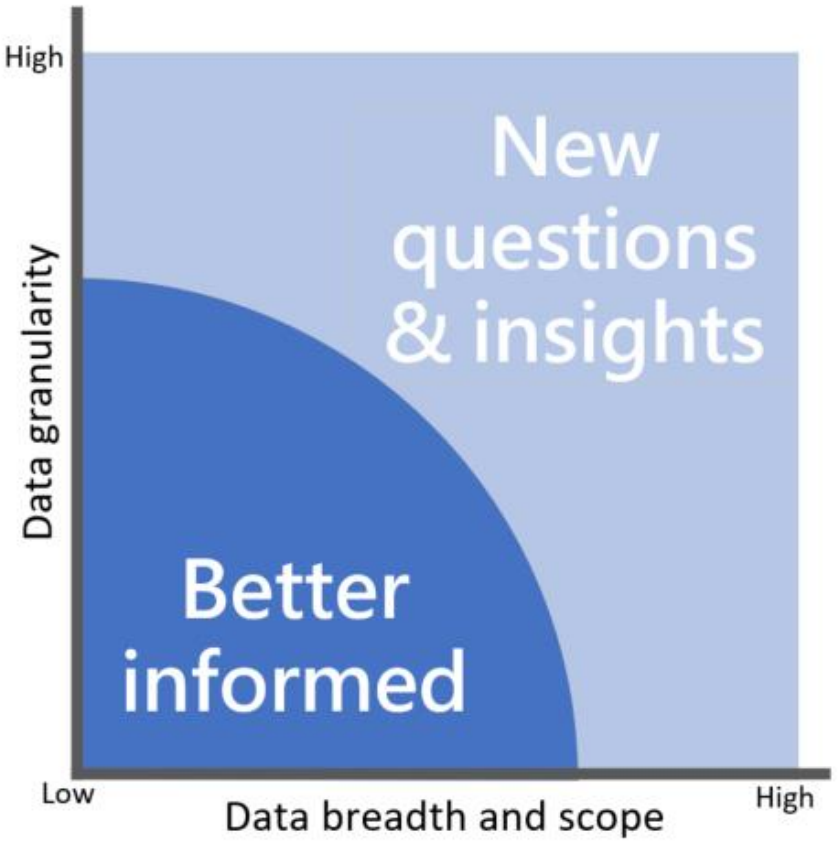
| CHARACTERISTICS | DECISION TIME | ANALYTICS | TECHNIQUES |
|---|---|---|---|
| Volume | Real Time | Visualise | Statistical |
| Variety | Close to Real Time | Discover | Machine Learning |
| Velocity | Hourly | Explain | Econometrics |
| Variability | Daily | Describe | Simulation |
| Veracity | Weekly | Predict | Optimisation |
| | Monthly | | |
| | Yearly | | |

- Does data always have to be *big* to give benefits?

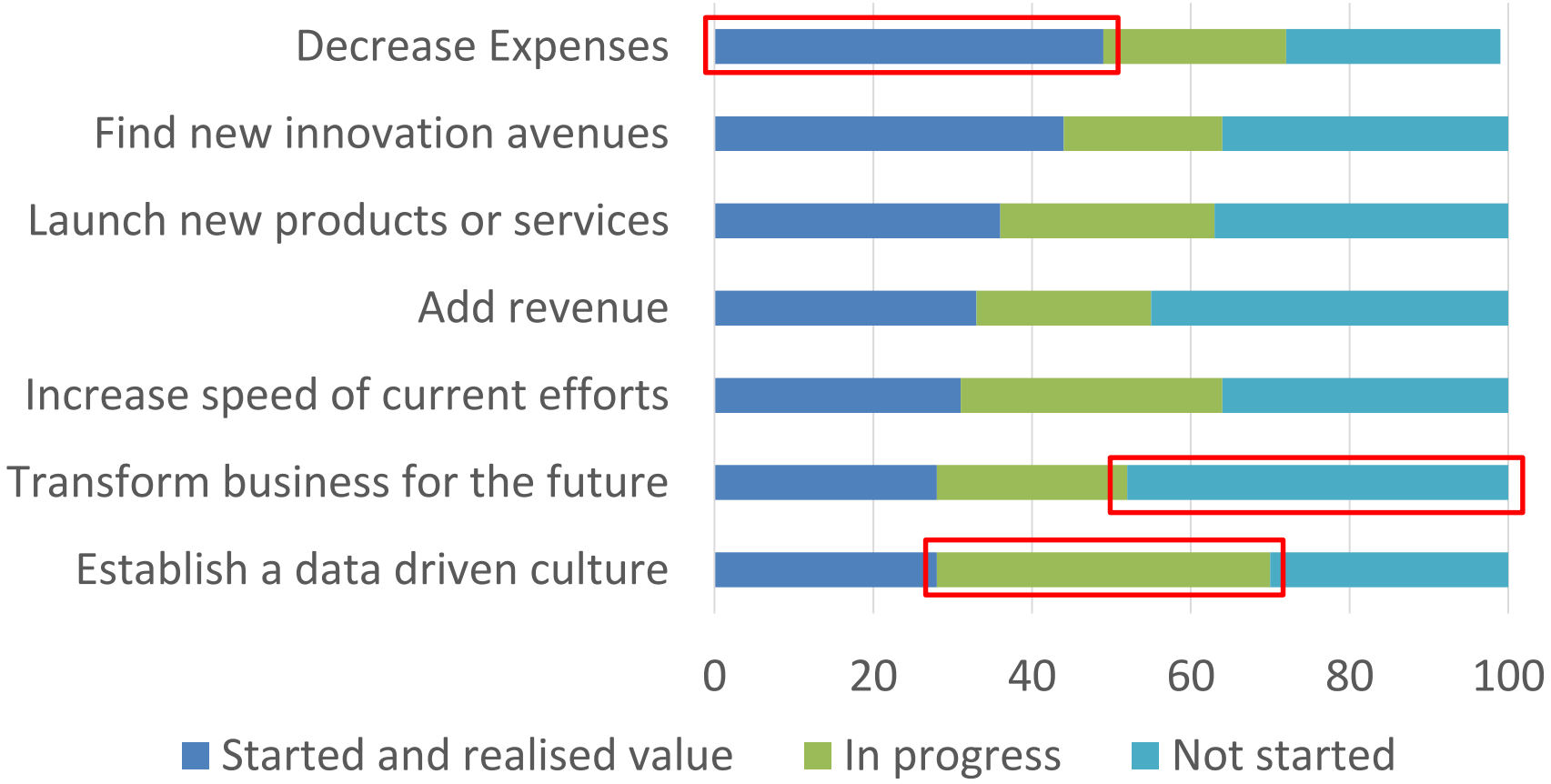
# Why now?

## Significant technology improvements in recent years:

- More digital data is now available.
- Computer processing power is faster.
- Analytical tools and algorithms are more sophisticated and rapidly advancing.



# Current use of big data




*Source: New Vantage Partners Big Data Executive Survey 2017 (US data)*

ITAC 2017 INFORMATION TECHNOLOGY IN AGE CARE

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# 2017 Big data projects

Heart Foundation

| Big Data Projects<br>*Keeping it simple* | | | | | |
|---|---|---|---|---|---|
| **Sector** | **Organisation** | **Project** | **Technology** | **Status** | **Description** |
| Public - Federal | Human Services | Roxy | MS Cortana | Production | Internal resource that digests departmental policies and procedures for claims processing officers |
| Public - Federal | Human Services | Nadia | Eeva AI's FaceMe, 11 undisclosed techs | Development | Help National Disability Insurance Agency handle 8000 calls a week. |
| Public - Federal | ATO | Analytics | Unknown | Unknown | Improving its bespoke analytics platform for making real-time decisions on tax returns and fraud. |
| Education | Deakin University | Unknown | Unknown | Pilot | Intelligent virtual agent that connects students to everything they need for campus life. |
| Education | Western Sydney University | Unknown | Unknown | Trial | Robotic Process Automation and prototyped an intelligent chatbot. |
| HealthCare | Icon Group | Cancer Treatment Plans | IBM Watson for Oncology | In Training | Augment oncologists' knowledge, suggest treatment options based on patient's individual circumstances. |
| HealthCare | Pfizer | Decision Support | Complexica | Unknown | Simulate impact of sales and marketing strategies (and changes to underlying levers/variables. |
| Public – State/Local | Vic Health | Analytics | Unknown | Unknown | Analytics tools to guard against bioterrorism (originally developed by Department of Defence). |
| Public – State/Local | Service NSW | Knowledge Management | Google cloud, Genesys, IBM Watson | Planning | Adaptive ML/AI to suggest or predict what a customer wants based on their life journey with agency. |
| Public – State/Local | Transport for NSW | Digital virtual assistant | Unknown | Unknown | My Next Service' (Bus, Train, Ferry, Light Rail) Chatbot on Facebook Messenger. |

*Source: IT News - Why Australis Enterprises have leapt on Artificial Intelligence 2017 (Australia data)*

# Case Study

The Heart Foundation reaches millions of Australians each year through appeals, research and heart health services. Their primary customer data systems include social media, websites, customer relationship management and donation management systems. But amongst these systems are a plethora of unstructured data stores and 3rd party data sources.

# One big data journey

Shane Riddle, CIO, will now share how The Heart Foundation are building a single, persistent, unified customer view aggregating both structured and unstructured data that will be accessible to other systems to provide personalisation, customer insights and real benefits to fund-raisers and heart health service teams.

Shane will also introduce the notion of BIG vs THICK data which is an interesting concept, and very useful.

Over to you Shane!

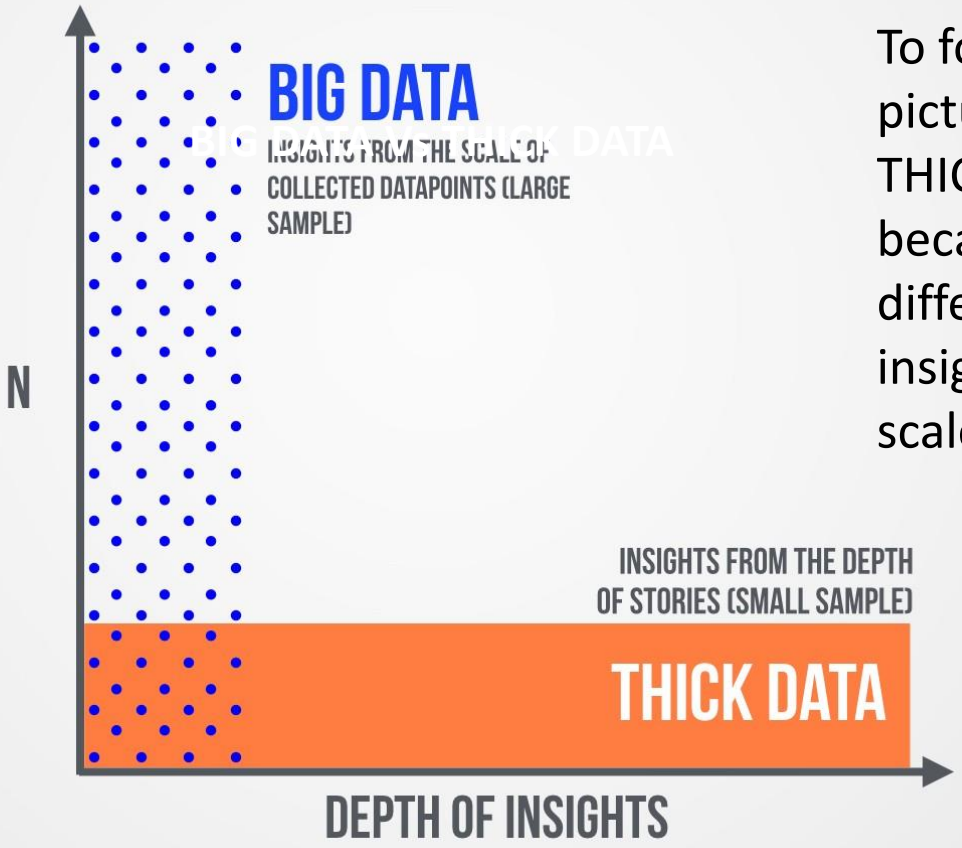
# What's the holy grail of big data?

It's the promise of "knowing the now." If your business can gain insight from data-logging sensors, you can distil that knowledge into timely, intelligent decisions and trigger the right action at the right time. The possibilities are endless.

Ref: https://www.entrepreneur.com/article/226340

# BIG DATA Vs THICK DATA

## TO FORM A COMPLETE PICTURE, BOTH BIG AND THICK DATA ARE CRITICAL BECAUSE THEY PRODUCE DIFFERENT TYPES OF INSIGHTS AT VARYING SCALES AND DEPTHS




To form a complete picture, both BIG and THICK data are critical because they produce different types of insights at varying scales and depths

# Difference between BIG data & THICK data

**BIG Data**

- Relies on machine learning
- Reveals insights with a particular range of quantified data points
- Loses resolution

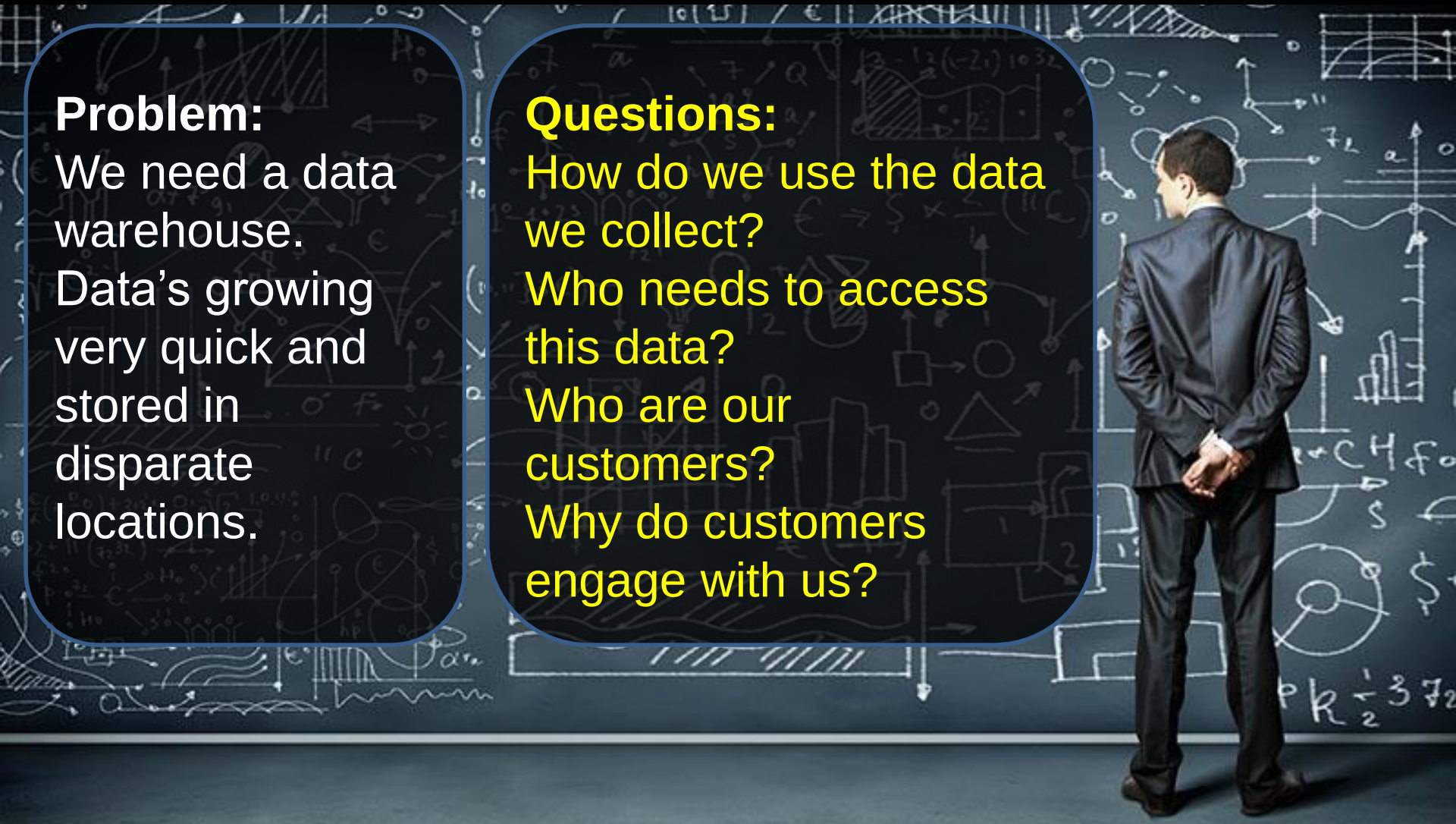
**THICK Data**

- Relies on human learning
- Reveals the social context of connections between data points
- Loses scale

# What's the business question we are trying to answer?

**Problem:**
We need a data warehouse.
Data's growing very quick and stored in disparate locations.

**Questions:**
How do we use the data we collect?
Who needs to access this data?
Who are our customers?
Why do customers engage with us?



# Using BIG & THICK data to guide a user journey

*Dynamically engage with a Heart Attack Survivor Support subscriber – understanding their current stage in the support cycle*

**Dave's Journey**

- Heart Attack sufferer
- HASS Subscriber
- Proactive Survivor Status
- SMS Encouragement
- Viewed HASS Videos
- MYML App download
- Most recent emotion: Happy
- Tally of all medicines updated

Completes HASS Booklet sign-up form

HelpLine initiates contact and identifies Dave as a Frozen Survivor

Email content is personalised to Frozen Survivor

No activity registered after 5 days. SMS sent to remind Helpline is there

Calls Helpline and gets further support

Views Videos on Website from email

Reads website articles from links in email

Downloads App and updates health stats & wellbeing in App

CRM is updated with all behaviors and content viewed
Status updated to Proactive Survivor

# Points to leave you with……

- Thick data -small sample with great depth - qualitative
- Don’t loose sight of the human element
- Big data doesn't mean lots. It's the types.
- Data doesn't need to be complete to start understanding your customer.

# Limits of big data

Big data premise is to apply data science techniques to optimise the status quo. You need to figure out what you can[1], and cannot, control for.

You cannot control that a consumer always receives services in their home via a home visit. Use big data to optimise this situation with work-force planning and scheduling techniques.

Where you can change – what you are changing ***to*** may not exist. You may wish to offer a new type of service or enter a new market. Big data may not drive these types of decisions. Use metaphors and narratives to describe possible futures. You need to experiment and prototype to create the data sets you need to evaluate your choices.

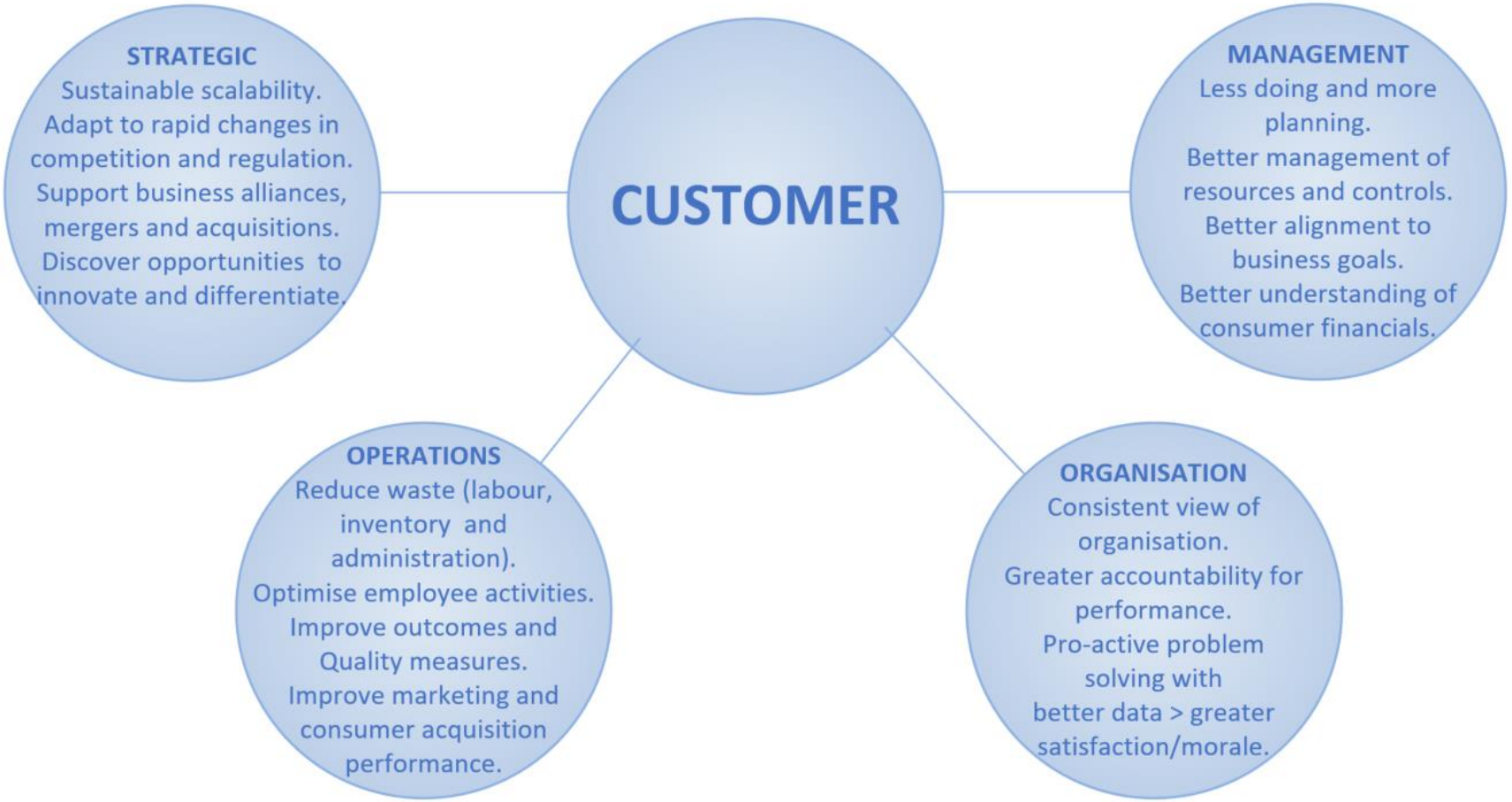
[1] *Further reading: Management is much more than a science by Roger L Martin and Tony Golsby-Smith, HBR October 2017*

# Limits of big data

- It is not creative - you are
- It is not interpersonal - you are
- Machines can learn an inherent unconscious bias
  - Potential to learn existing rules that may discriminate
- Heightened privacy and cyber security risks

- In an organisational sense, big data uses are limited by your imagination!

# Big data uses



# Next big thing? Yes!

1. Start small. Experiment with different types of technologies to assess their usefulness and applicability to your situation.
2. Use this learning to build up your internal teams and their capability. Demand for data scientists tipped to increase by 39% by 2020[1].
3. Decide where to use big data and why. Start with a theme to focus business areas: 2018 is the year of Expense Reduction.
4. Like any new technology, give your business areas the freedom to assess its value and benefits through constant feedback.
5. New found visibility of executive performance will have obvious human consequences. Better that you know now, what you did not know before. You can then make better decisions.

[1] *Further reading: The Quant Crunch: How the demand for data science skills is disrupting the jobs market. Burning Glass Technologies, 2017. US data.*

# Thank you!

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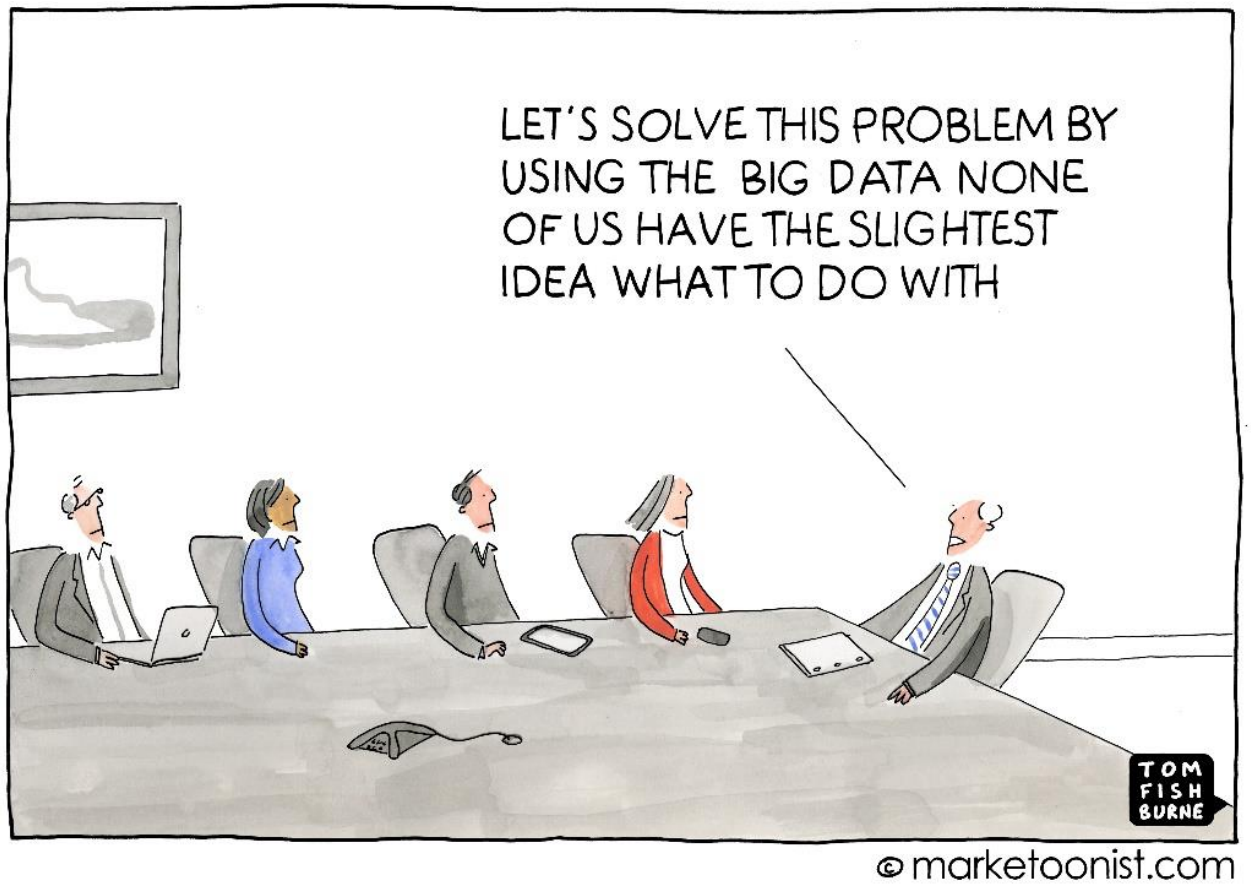
# Questions

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