Deloitte Analytics
Data driven approach to a better business
Contents

Introduction

What is Data Analytics?

My CITS3200

Case study – Safety Analytics using a Self Organising Map
The Data Explosion


1988 could not fit in the picture – it was unsafe to stack that many books up.
My project

Carpooling system – in conjunction with Parking Services (client).

Goal was to encourage carpooling to and from the university, to help relieve parking space pressure.

• Allowed users to log in to a central system and input details
• Matched users together based on timing and location
• Emailed results of matching to users on a weekly basis
If we had our time again..

• Build a top down, end to end view of the project – right at the start

• Based on the above – identify any missing skill sets that need to be considered

• Stress test the application to see if it works as intended in a ‘live’ situation
Key learnings

• How to define a scope

• How to translate a technical subject to someone who isn’t ‘in the know’

• How to manage a client’s expectations

• Attention to detail

• Sanitise your database inputs!
Different ‘levels’ of delivery

Tools
- Development packages
- Coding languages
- Skill Sets

Output
- Executable program
- User interface
- Statistical analyses

Impact
- Business improvement
- Efficiency
- Clarity
Client Sophistication

- What they asked for
- What they need
- Why they want to do it
- What they want to do
What is different?

The traditional way

Organisational
Strategy

Data

Impact

Resourcing

Actions

Levers

Organisational
Strategy

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What is different?

Granular data to strategy

Data
Impact
Resourcing
Actions
Levers
Organisational Strategy

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Measuring the size of the problem, but then what
Self Organising Maps (SOMs)

- Multifunction
- Visual
- No assumptions
- Simultaneous
- Proximity = similarity

Number of events I was involved in
Two examples

**Group A – Residentials having events on arrival**

This group of employees in group A number ~40 and are part of a wider divisional mining team of ~250. However, their behaviour is markedly different from the rest of their team. Note that the results shown are much higher than one would generally see in traditional reporting; These results are not averaged by the ‘safer’ behaviour of the other ~210 employees.

Group A are almost **eight times** more likely to have suffered a safety event, and when they do have an event, the impact is 240% more severe than average. These employees are almost exclusively male, 20% older than average, unionised and residential to the mine site.

Surprisingly, they tend to get hurt in the beginning of their roster (1st or the 2nd day), generally through an object causing them harm. They have not completed a required safety training unit.

**Group B – Older FIFO males hurt at end of roster**

Group B number barely 30 employees and are spread across two separate (much larger) teams (same site and senior supervisor). Again, their behaviour is markedly different from the rest of their respective teams. Group A and Group B are on the same mine site.

These employees are exclusively male, 25% older than average, and mostly (two thirds) FIFO based. They appear to have lost work interest or work satisfaction as indicated by declining performance reviews.

Group B employees are **six times** more likely to have suffered a safety event, and when they do have an event, the impact is almost 300 % more severe than average (more severe than Group A). Their accidents are the very expensive kind. Injuries tend to be sprains or soft tissue damage. In contrast to group A, these employees generally get hurt on the 7th day of a 7 day roster – just before they roll off.
Barriers to insight

Experience

Security

Analytic skills

Data quality

Data mountain

Insight

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Links


• [www.deloitte.com](http://www.deloitte.com), search ‘Analytics’ – Deloitte Analytics information

• [www.iapa.org.au](http://www.iapa.org.au) – Institute of Analytics Professionals Australia

• [matambrose@deloitte.com.au](mailto:matambrose@deloitte.com.au) – drop me an email if you have other questions.
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