Using analytics to generate business insights

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QED Actuaries & Consultants

Overview

Access to Data  Business Intelligence  Skills

Full Picture  The power of Advanced Analytics
**Data: Mountains of it**

- Health
- Telematics
- Motor
- Social Media

Who benefits from this data?

**Data: growth and value**

- 2016 study by IBM Marketing Cloud
  - 90% of the world’s data created in the previous 2 years
- Most valuable global companies
  - Alphabet, Amazon, Apple, Facebook and Microsoft
  - Q1 2017: $25 billion Net Profit
    - The Economist

Data is the oil of the next generation

Are we using the data we have effectively?
The connected world

• 2017 Global review by Hootsuite and We Are Social
  – Half the world now uses the internet
  – 4.9 billion unique mobile users
  – 2.5 – 2.7 billion social media users

• If you are connected you are generating data

Access to Data

Customers
• Policy or contract details
• Limited contact points

Policy Information
• Hard copy documents / files
• Some electronic capturing / SQL database

Excel spreadsheets
• Used for data storage
• Models and data visualisation
Access to Data

- 360° view of customer
  - Numerous contact points
  - Vast amounts of data

- Data warehouse
  - Structured datasets

- Dashboards
  - Better data visualisation
  - Faster access to data

Overview

- Access to Data
- Business Intelligence
- Full Picture
- The power of Advanced Analytics
Business Intelligence

• BI is evolving
• Moving to include predictive aspects
• Tools have largely remained unchanged
• Require speed of access

Business Intelligence trends

• BI-survey.com analysis of 2770 BI professionals
  – 2018 saw increase in importance of data and data quality
  – Reduced importance for all other topics from 2016 survey
• The increasing use of AI (machine learning)
• The increasing importance of data visualisation
• Data protection and regulation (cost of data)
  – POPI Act’s in many countries
  – Facebook in news recently
  – New risks arising through use of technology
Business Intelligence: The story

- Increasing pressure to make decisions faster
- Current reporting is largely outdated
- Easier to understand a story than to read a technical report
- BI professionals evolving to become story tellers through dashboards
Advanced Analytics

Describe
- Data visualisation
- Automated descriptive statistics

Diagnose
- AvE analysis
- Interactive data visualisation

Prescribe
- Lead prioritisation
- Resource allocation

Predict
- Parameterised forecasting
Cross-sell models

Data on existing customers

Target market

Lead prioritisation

Sales process

Retrain model
Sales analytics

The Problem

- Large financial institution
- High response rate
- Low take-up rate
- Time and money

Solution

- Using business modelling and advanced analytics
- Split into High, Medium and Low
- Focus on High likelihood leads

Results

- Increased take-up rate by 20%
- Increased average revenue by 6%
- 10x return on investment
- Understood drivers
- Rapid iterative design

Main Dashboard

### Financial position

<table>
<thead>
<tr>
<th>Assets</th>
<th>Current Year (’000)</th>
<th>Previous Year (’000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total assets</td>
<td>3,022,470</td>
<td>3,385,176</td>
</tr>
<tr>
<td>Noncurrent assets</td>
<td>19,512</td>
<td>3,509</td>
</tr>
<tr>
<td>Liabilities</td>
<td>2,877,947</td>
<td>3,181,847</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>1,288,117</td>
<td>1,486,940</td>
</tr>
<tr>
<td>Total liabilities</td>
<td>2,759,330</td>
<td>2,471,917</td>
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<tr>
<td>Net assets/owners equity</td>
<td>263,140</td>
<td>903,260</td>
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</tbody>
</table>

Capital adequacy requirements: 149,561

### Customers expected to churn next month

<table>
<thead>
<tr>
<th>Name</th>
<th>Distribution channel</th>
<th>Product</th>
<th>Policy type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbey West</td>
<td>DC II</td>
<td>Product C</td>
<td>P0005335703</td>
</tr>
<tr>
<td>Adam Clark</td>
<td>DC IV</td>
<td>Product C</td>
<td>P0005356240</td>
</tr>
<tr>
<td>Andrea Johnson</td>
<td>DC II</td>
<td>Product B</td>
<td>P0006356700</td>
</tr>
<tr>
<td>Ronald Foster</td>
<td>DC III</td>
<td>Product D</td>
<td>P0006537041</td>
</tr>
<tr>
<td>Ronaldo Ronaldo</td>
<td>DC III</td>
<td>Product D</td>
<td>P0005841253</td>
</tr>
<tr>
<td>Amy Francis</td>
<td>DC II</td>
<td>Product A</td>
<td>P0005336597</td>
</tr>
<tr>
<td>Amy Martinez</td>
<td>DC III</td>
<td>Product C</td>
<td>P0006454789</td>
</tr>
</tbody>
</table>

### Agent value added last month

<table>
<thead>
<tr>
<th>Agent</th>
<th>Value added last 12 months (’000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent 1</td>
<td>9,560.00</td>
</tr>
<tr>
<td>Agent 2</td>
<td>2,050.00</td>
</tr>
<tr>
<td>Agent 3</td>
<td>2,000.00</td>
</tr>
<tr>
<td>Agent 4</td>
<td>1,500.00</td>
</tr>
<tr>
<td>Agent 5</td>
<td>1,250.00</td>
</tr>
<tr>
<td>Agent 6</td>
<td>1,000.00</td>
</tr>
<tr>
<td>Agent 7</td>
<td>750.00</td>
</tr>
<tr>
<td>Agent 8</td>
<td>500.00</td>
</tr>
<tr>
<td>Agent 9</td>
<td>250.00</td>
</tr>
<tr>
<td>Agent 10</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Projected premium chart

<table>
<thead>
<tr>
<th>Product</th>
<th>Premium ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product A</td>
<td>2,000.00</td>
</tr>
<tr>
<td>Product B</td>
<td>1,500.00</td>
</tr>
<tr>
<td>Product C</td>
<td>1,000.00</td>
</tr>
<tr>
<td>Product D</td>
<td>750.00</td>
</tr>
<tr>
<td>Product E</td>
<td>500.00</td>
</tr>
</tbody>
</table>
Overview

Access to Data

- Full Picture

Business Intelligence

- Constantly evolving
- Predict components

Skills

- Describe
- Diagnose
- Prescribe
- Predict

Constantly evolving
Predict components

Advanced Analytics
Skills

• No clear definition of a data scientist
• 2014 Article by Linda Burtch, Burtch Works
  – Technical Skills: Analytics
  – Technical Skills: Computer Science
  – Non-Technical Skills
• Difference between Business Intelligence and Data Science

Skills: Where is the demand?

59% of all Data Science and Analytics job demand is in Finance and Insurance, Professional Services and IT.

- “The Quant crunch” by IBM, Burning Glass Technologies, Business Higher Education Forum

Primary goal of explaining and predicting patterns.

- Sean McClure

Revenues for big data and business analytics spend will reach $210 billion by 2020

- International Data Corporation (2017)

Demand for both Data Scientists and Data Engineers expected to grow 39% by 2020.

- “The Quant crunch” by IBM, Burning Glass Technologies, Business Higher Education Forum

Big difference between using data to create charts and graphs and actually combining and transforming data

- Seth Demsey

Computer scientists and programmers combined with engineers and business professionals.

- Accenture Institute for High Performance
Skills

- Specific skills required
- Shortage of deep analytics skills globally
- Require a mix of skills both analytical and domain specific
- Increasing demand for skills
- The value of Actuaries

Overview

Access to Data
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  - Predict components

Skills
- Shortage: 20 million analysts
  - Actuaries
  - Statisticians
  - Developers
  - Computer Science

Full Picture
- Describe
- Diagnose
- Prescribe
- Predict

Advanced Analytics
The full picture

• IT systems are constantly evolving and improving
• Ability to collect and access data
• Automation of data processing
  – Data regulation, regulatory reporting
  – Management of data
  – Data ownership
• Automation of processes to view information (robotic process automation)
• Data and result visualisation

Overview

Access to Data
• Efficient access to information
• Faster decision making
• Increased available time of key individuals

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• Predict components

Skills
Shortage: 20 million analysts
Actuaries
Statisticians
Developers
Computer Science

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