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Using analytics to generate business insights

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QED Actuaries & Consultants

04 May 2018

Overview

Access to Data

Business Intelligence

Skills
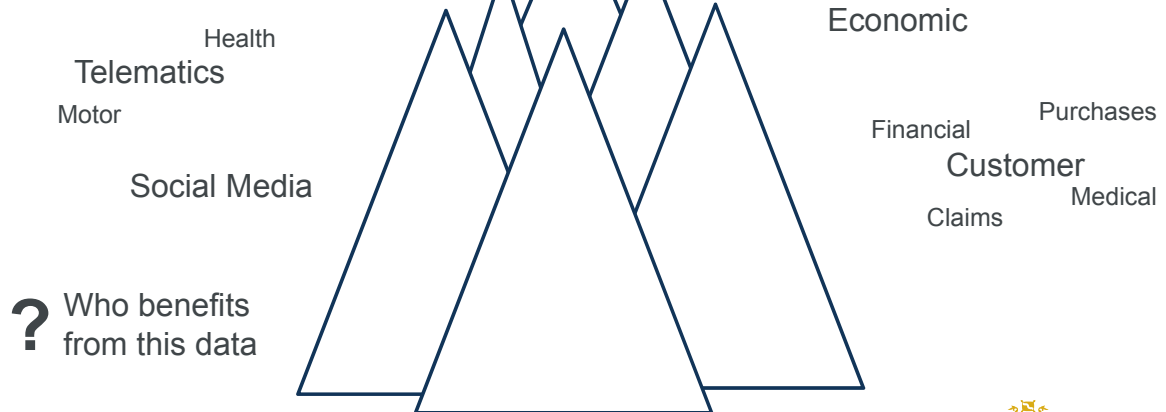
Full Picture

The power of Advanced Analytics

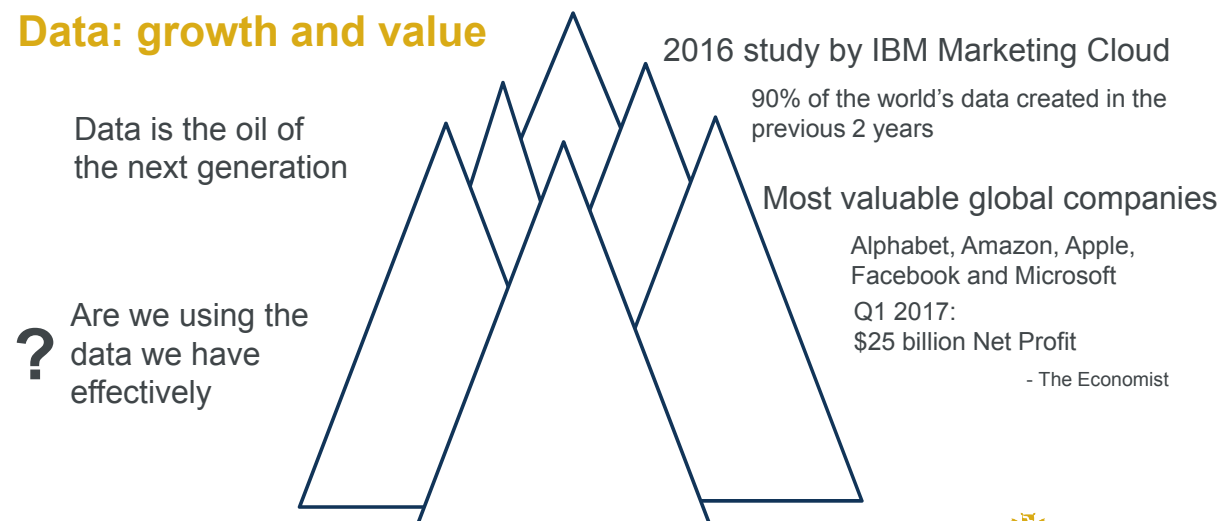Institute and Faculty of Actuaries

Data: Mountains of it

Health

Telematics

Motor

Social Media

Economic

Purchases

Financial

Customer

Medical

Claims

? Who benefits from this data

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Data: growth and value

Data is the oil of the next generation

? Are we using the data we have effectively

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

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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

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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
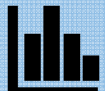
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Access to Data

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

Data warehouse
- Structured datasets

Dashboards
- Better data visualisation
- Faster access to data

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Overview

Access to Data

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Skills

Full Picture

The power of Advanced Analytics
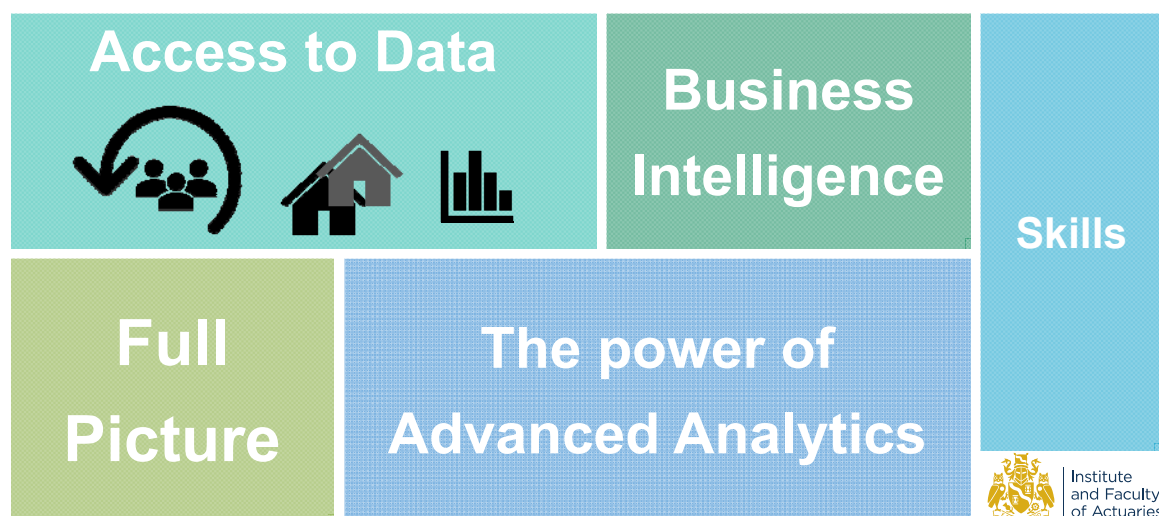
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Business Intelligence
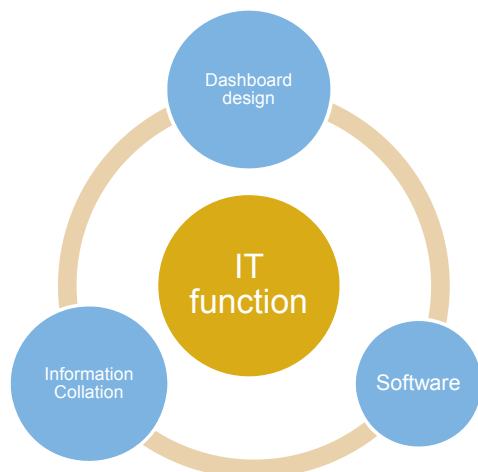
- BI is evolving
- Moving to include predictive aspects
- Tools have largely remained unchanged
- Require speed of access

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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

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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

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Overview

Access to Data	Business Intelligence	Skills
	• Constantly evolving • Predict components	

Full Picture

The power of Advanced Analytics

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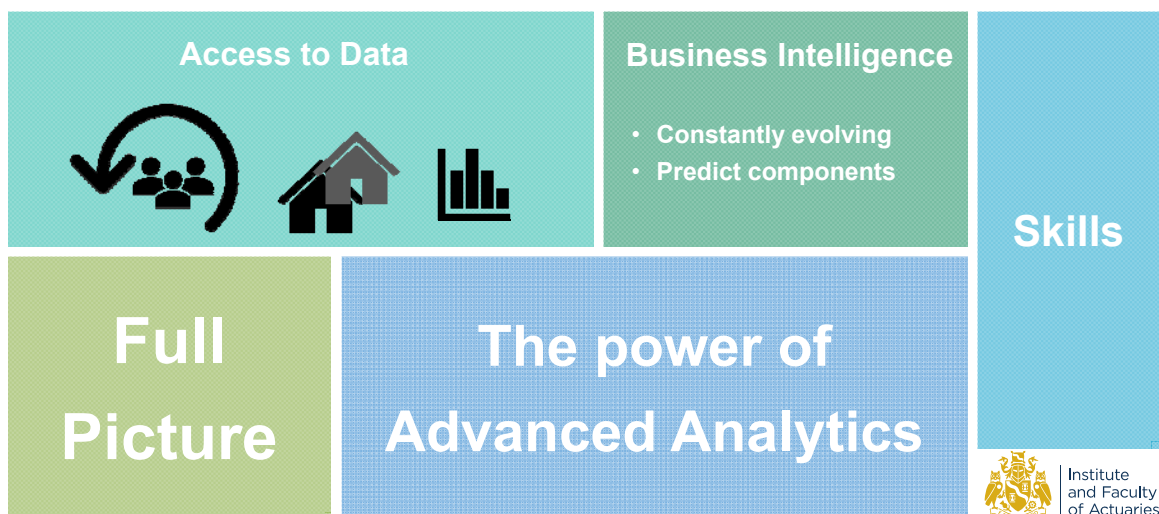
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Advanced Analytics

Describe	Diagnose
Advanced Analytics	
Prescribe	Predict
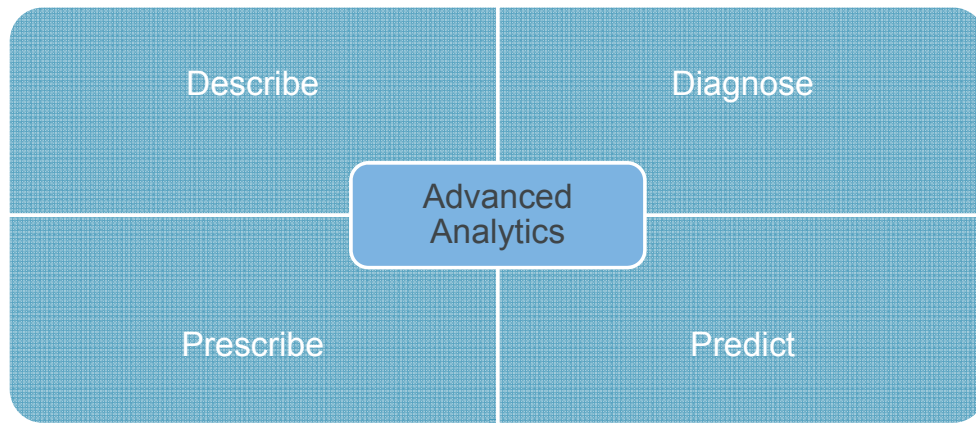
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Advanced analytics

Describe	Diagnose	Prescribe	Predict
• Data visualisation • Automated descriptive statistics	• AvE analysis • Interactive data visualisation	• Lead prioritisation • Resource allocation	• Parameterised forecasting

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Main Dashboard

Financial position, Customers expected to churn next month, Agent value added last month, Projected premium chart

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Cross-sell models

Data on existing customers

Target market

Lead prioritisation

Sales process

Retrain model

Medium · Low · High

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Sales analytics

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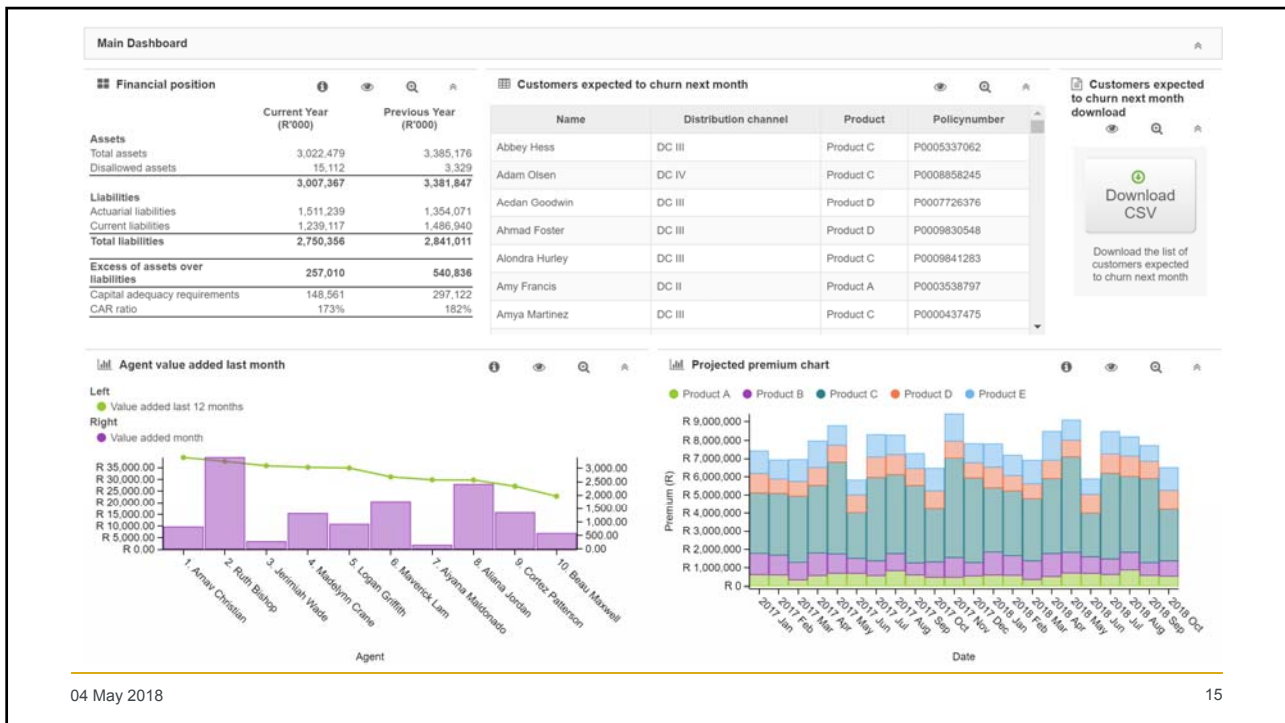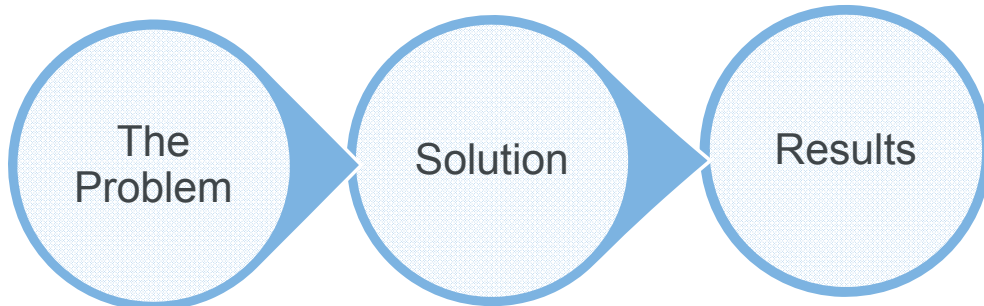
- Large financial institution
- High response rate
- Low take-up rate
- Time and money

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

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Main Dashboard

Financial position

	Current Year (R'000)	Previous Year (R'000)
Assets		
Total assets	3,022,479	3,385,176
Disallowed assets	15,112	3,329
	3,007,367	3,381,847
Liabilities		
Actuarial liabilities	1,511,239	1,354,071
Current liabilities	1,239,117	1,486,940
Total liabilities	2,750,356	2,841,011
Excess of assets over liabilities	257,010	540,836
Capital adequacy requirements	148,561	297,122
CAR ratio	173%	182%

Customers expected to churn next month

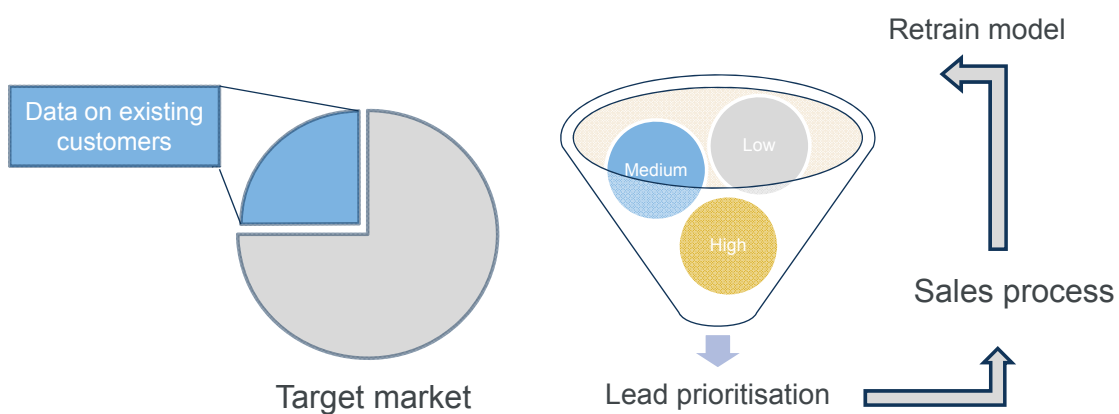| Name	Distribution channel	Product	Policynum
Abbey Hess	DC III	Product C	P0005337062
Adam Olsen	DC IV	Product C	P0008858245
Acdan Goodwin	DC III	Product D	P0007726376
Ahmad Foster	DC III	Product D	P0009830548
Alondra Hurley	DC III	Product C	P0009841283
Amy Francis	DC II	Product A	P0003538797
Amya Martinez	DC III	Product C	P0000437475

Parameters

Recalculate

Projection date range
2018-01-01 - 2018-12-01

Distribution channels
- All
  - DC I
  - DC II
  - DC III
  - DC IV

Products
- All
  - Product A
  - Product B
  - Product C
  - Product D
  - Product E

Agent value added last month

Left
- Value added last 12 months

Right
- Value added month

Projected premium chart

Product A Product B Product C Product D

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Main Dashboard

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Name	Distribution channel	Product	Policynum
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Amy Francis	DC II	Product A	P0003538797
Andreas Austin	DC I	Product E	P0002848719
Annabelle Wheeler	DC I	Product E	P0005417323
Aydin Morris	DC I	Product C	P0006922612
Brennen Duarte	DC I	Product E	P0008492176
Case Ramos	DC II	Product E	P0009016712

Parameters

Recalculate

Projection date range
2018-01-01 - 2018-12-01

Distribution channels
- All
  - ☑ DC I
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Left
● Value added last 12 months
Right
● Value added month

Agent

Projected premium chart

● Product A ● Product C ● Product E

Premium (R)

Date

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Overview

Access to Data

Business Intelligence
- **Constantly evolving**
- **Predict components**

Skills

Full Picture

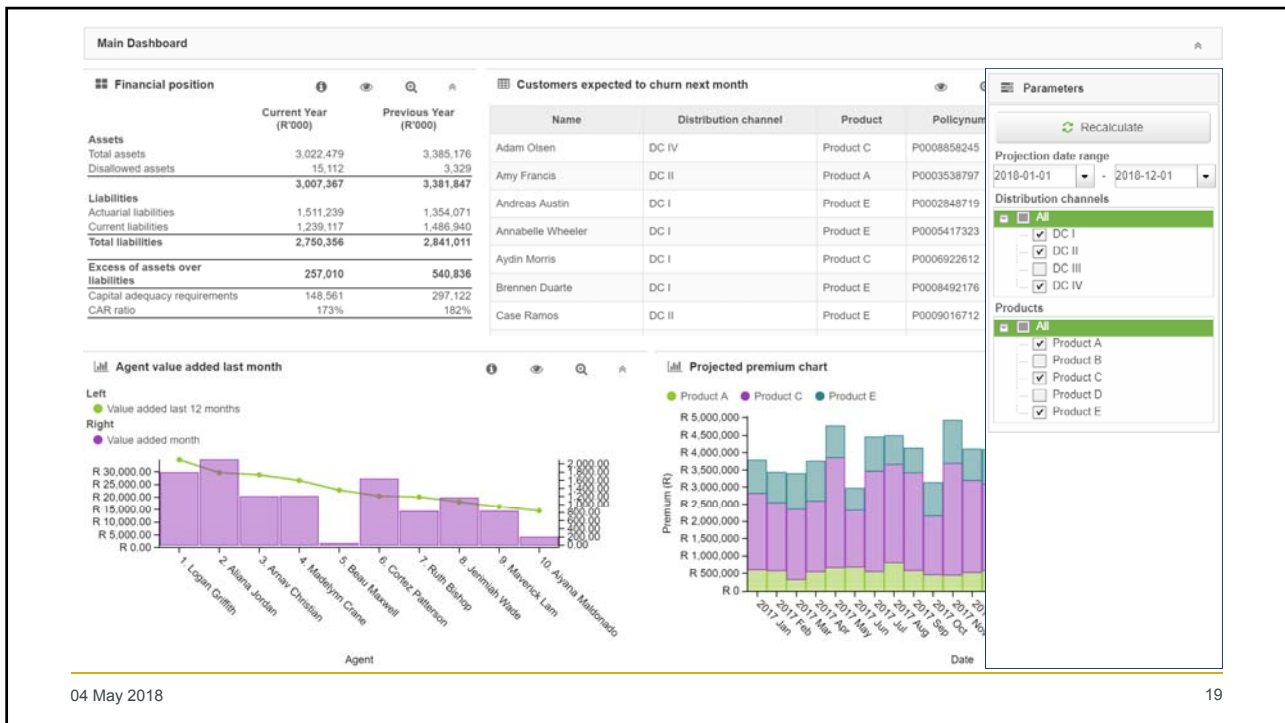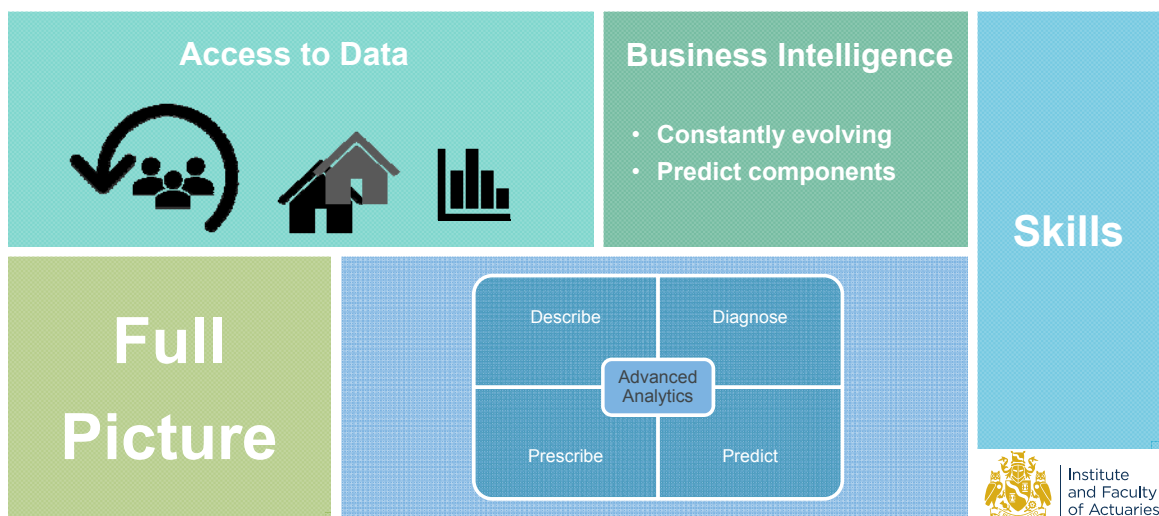| Describe	Diagnose
	Advanced Analytics
Prescribe	Predict

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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

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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)

Skills: Where is the demand?

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

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Skills

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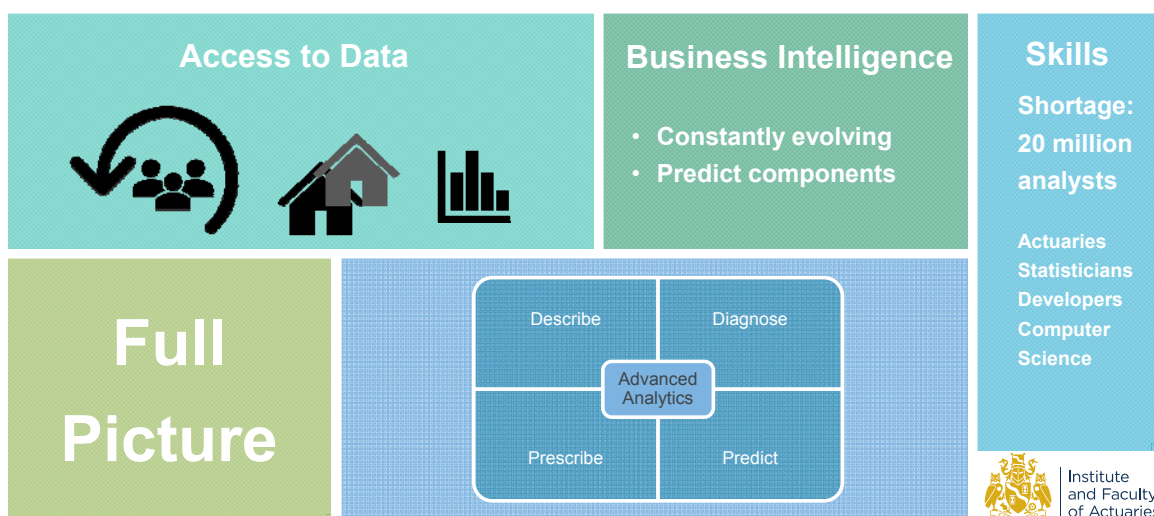- Increasing demand for skills
- The value of Actuaries

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Overview

Access to Data

Business Intelligence

- **Constantly evolving**
- **Predict components**

Skills

**Shortage:
20 million
analysts**

**Actuaries
Statisticians
Developers
Computer
Science**

**Full
Picture**

Describe

Diagnose

Advanced
Analytics

Prescribe

Predict

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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)
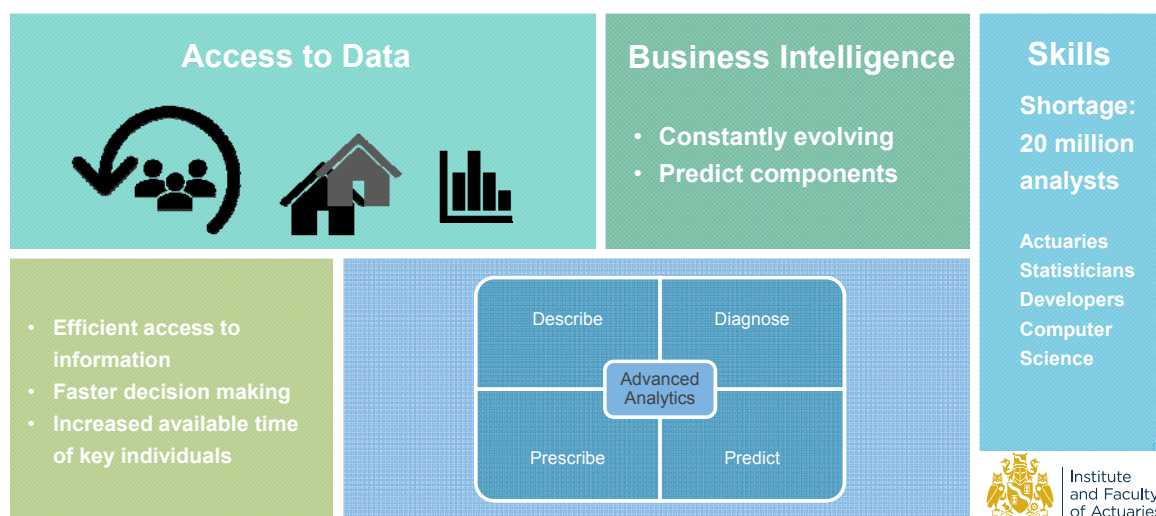
- Data and result visualisation

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Overview

Access to Data

Business Intelligence

- **Constantly evolving**
- **Predict components**

Skills

Shortage: 20 million analysts

**Actuaries
Statisticians
Developers
Computer
Science**

- **Efficient access to information**
- **Faster decision making**
- **Increased available time of key individuals**

Describe	Diagnose
Advanced Analytics	
Prescribe	Predict

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