Big data – friend or foe?

Nigel Bradshaw

Redmayne Consulting

Overview of the talk

- Introduction

- Role of underwriting

- Historic development of underwriting

- What is big data?

- Case study: Mortascore

- Future development of underwriting

- Big data – friend or foe?

Introduction

Nigel Bradshaw

- Actuary

- Royal Life, Prolific L&PL

- Scottish Provident (co-inventor Self Assurance)

Redmayne Consulting (est. 2002)

- Protection and other risk business consulting

- Proposition development

- Actuarial work

Mortality Metrics (est. 2012)

- Founded by actuaries, big-data modellers and big-data marketers

- Core product Mortascore: individual mortality scores

- Other products: postcode models, health models, bespoke modelling

Role of underwriting

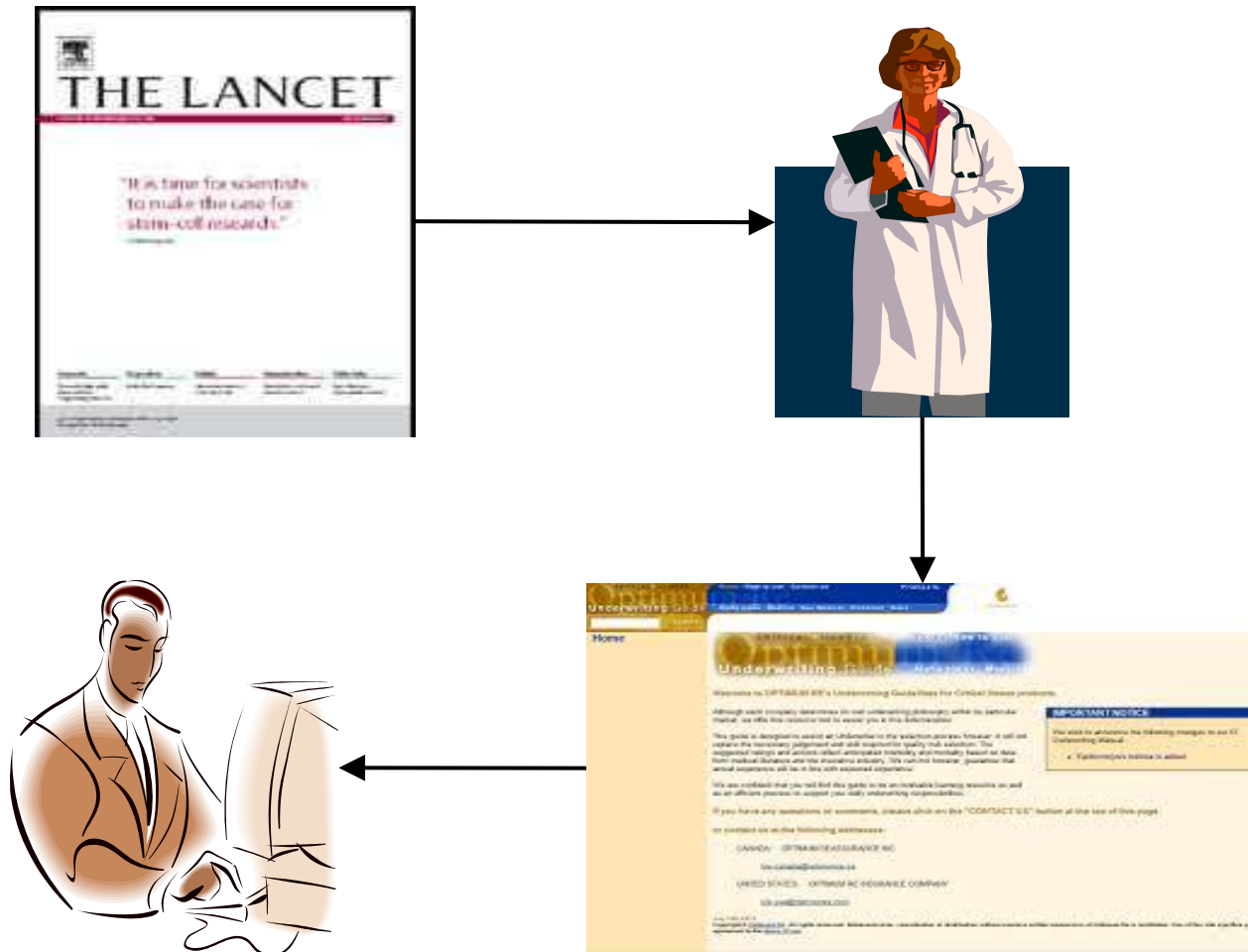- Managing out anti-selective early claims

- Matching the long-term experience to the pricing assumptions.

Historic development of underwriting

Spencer Leigh's history of underwriting at Royal Insurance

1845 - 1870	Underwriting was by interview with full Board
1870 - 1900	Chief underwriter was a Board Director
1900 - 1950	Chief underwriter sat on the Executive
1950 - 1985	Chief underwriter was a senior manager
1985 – 2000	Spencer Leigh had a second job as a radio presenter on Radio Merseyside

What is big data?

What is big data?

Lots of internal data

Lots of external data
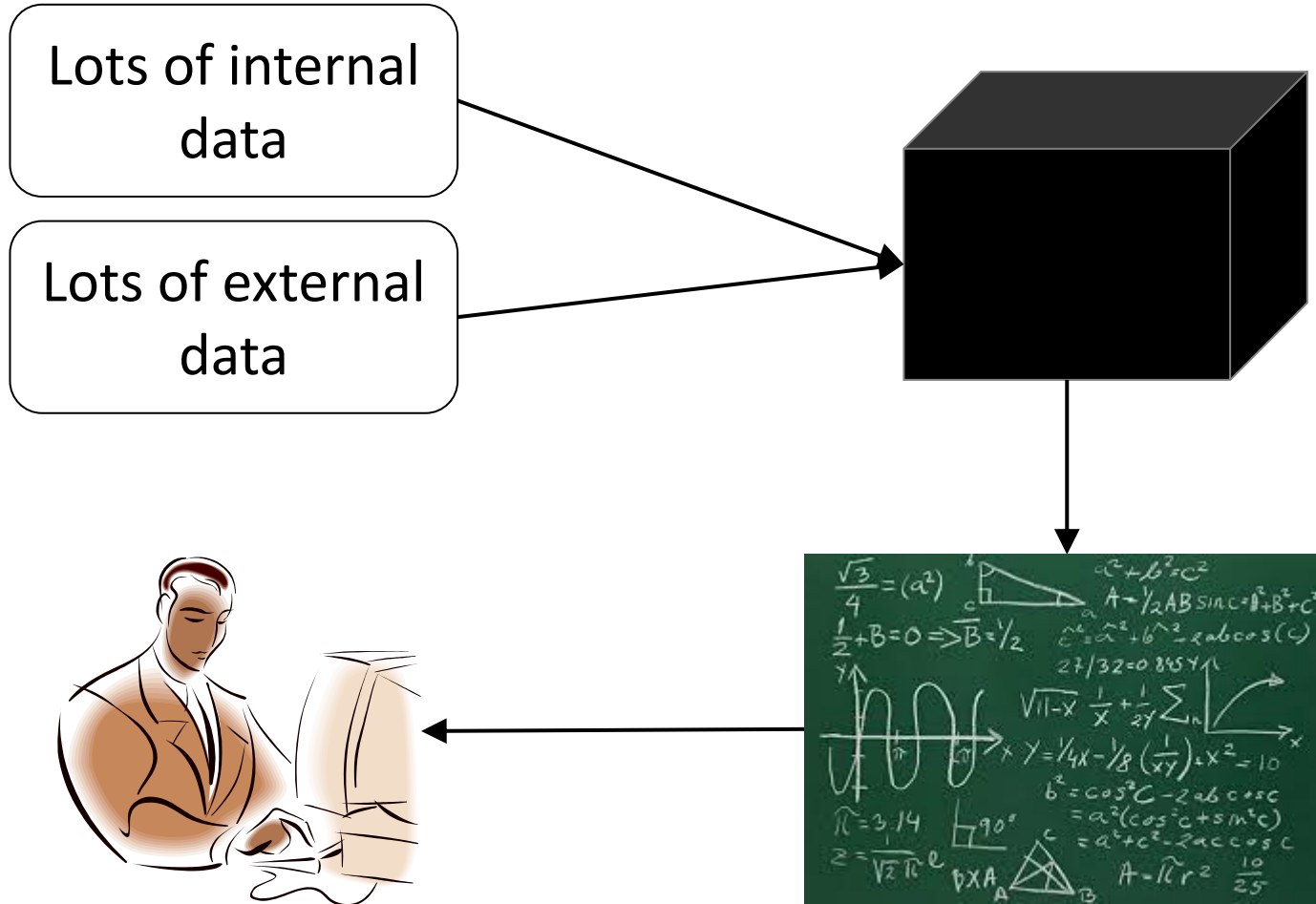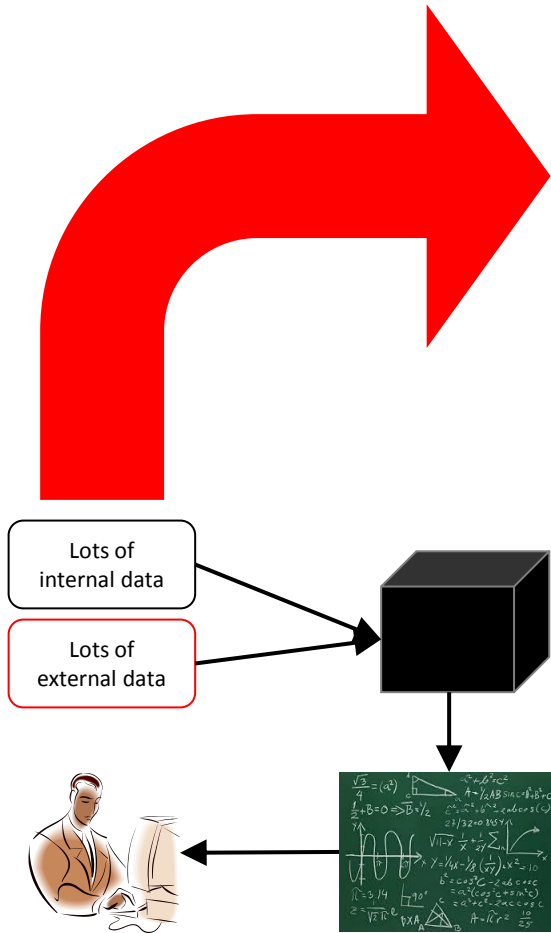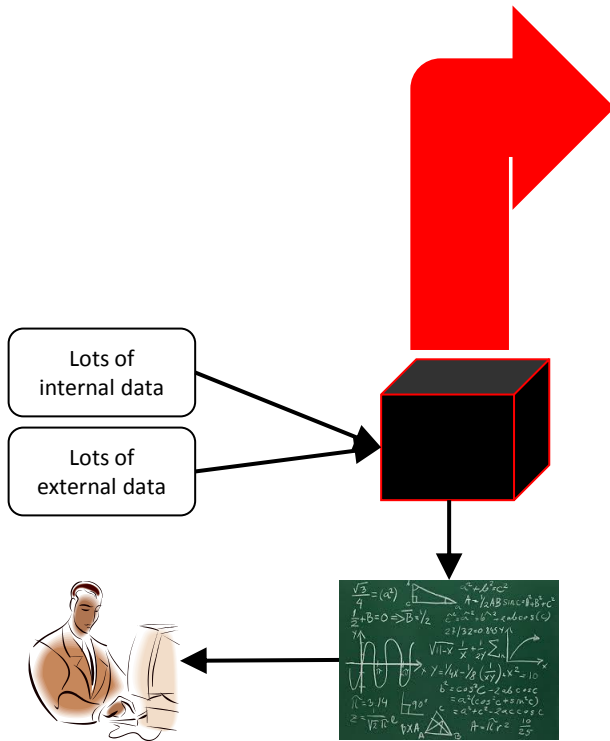
Case Study: Mortascore

- Mortascore is a proprietary Big-Data product

- Produced by Mortality Metrics Ltd

  - A sister company of Redmayne Consulting

- Mortascore provides an individual relative mortality index

  - e.g. Nigel Bradshaw   1.3

  - e.g. Matt Rann   0.8

- Based on socio, economic, geographic and lifestyle factors

  - Excludes medical factors
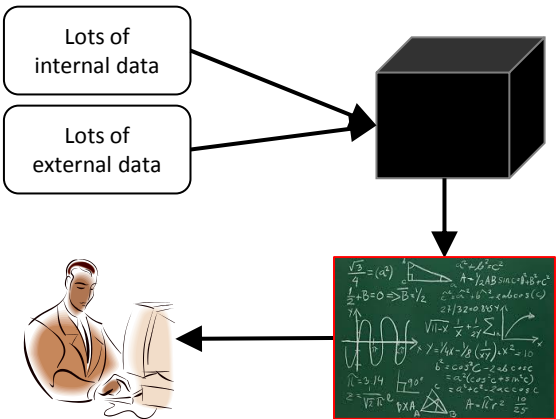
Case Study: Mortascore

- Built from population data

- 44m in-force records from CallCredit

  - Full marketing database

  - Nearly all adults in the country

  - 100's of parameters against each individual

- Deaths from TDA

  - 70%+ of all deaths

  - Matched in CallCredit data to access their 100's of parameters
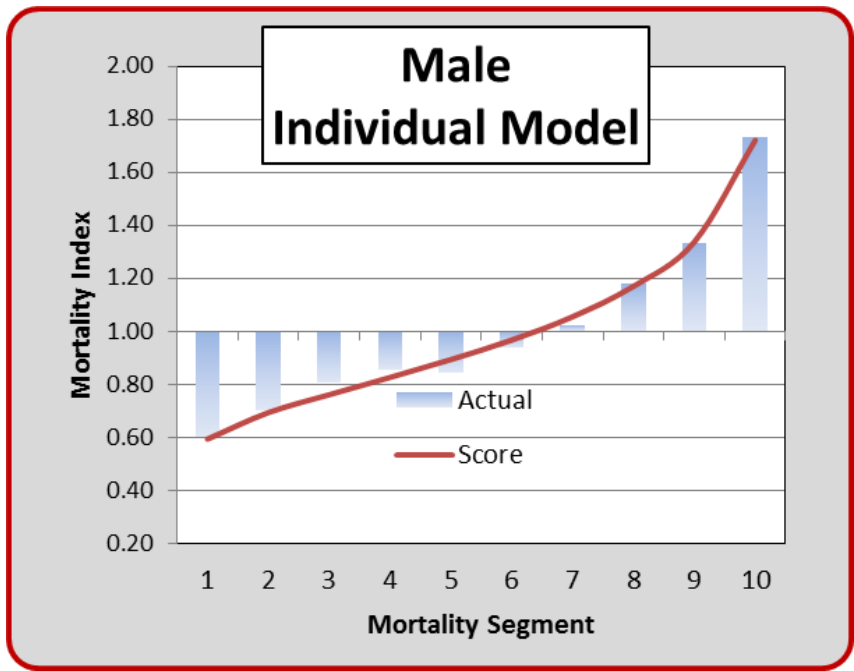
Case Study: Mortascore

- "Standard" big-data modelling

  - Data validation and cleansing

  - Robust parameter set

  - GLM

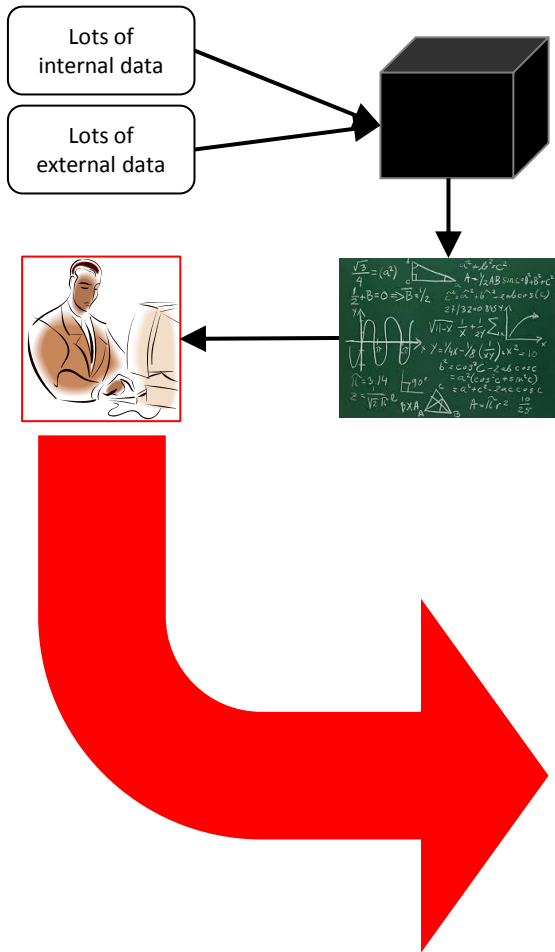 - Open access software

  - Train and test

  - Bagging

Lots of internal data

Lots of external data

Case Study: Mortascore

Lots of internal data

Lots of external data

Mortality Index of the form:

0.1234 x parameter 1

+ 0.5678 x parameter 2

+ ....

Male Individual Model

Actual
Score

Case Study: Mortascore

Applications	
Insurers	**Reinsurers**
Preferred life pricing	Support insurer pricing
Reduce traditional underwriting questions	Insurance portfolio pricing
DM profit enhancement	Tender pricing
Predicative underwriting	Bulk annuity pricing
Enhanced annuity pricing	Reserving
Bulk annuity pricing	
Distributor pricing	
Reserving	
Misc. investigations	Misc. investigations

Future development of underwriting

Medical advances and evidence

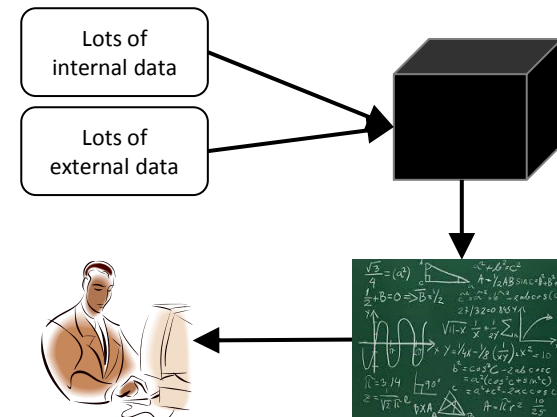## Technology

Freedom to underwrite

Big data

Big data – friend or foe?

- Big data will happen

- Actuaries will use it

- If underwriters do not use it you will be marginalised

- Your choice

Big data – friend or foe?

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