

Changing Landscape of the Actuarial Profession

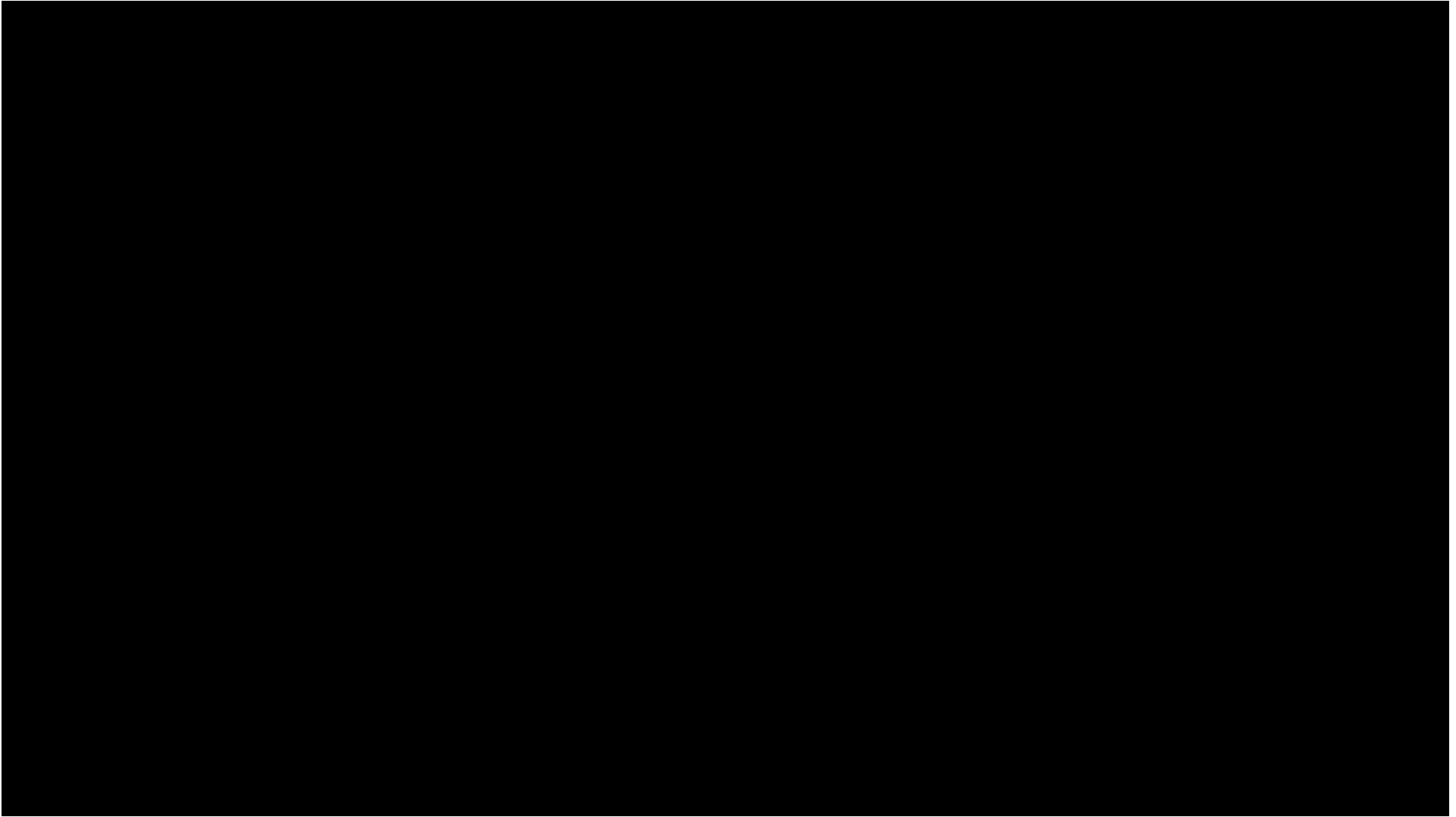
Mahidhara Davangere V

MBA, MFC, MSc (Maths), Associate Actuary (UK)

Managing Director, Prammartha



The World around us is changing



Businesses undergoing significant change

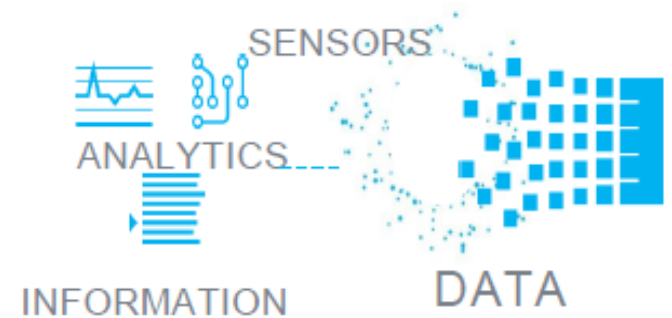
Changing Customer Expectations



Changing Risks



The Explosion of Data



Transition in the Workforce



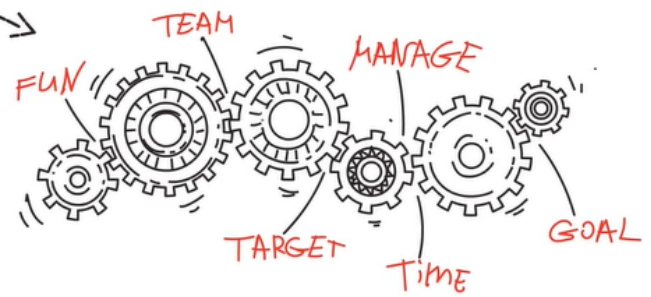
TECHNOLOGY AND LARGE VOLUMES OF DATA

TRANSFORMING BUSINESS

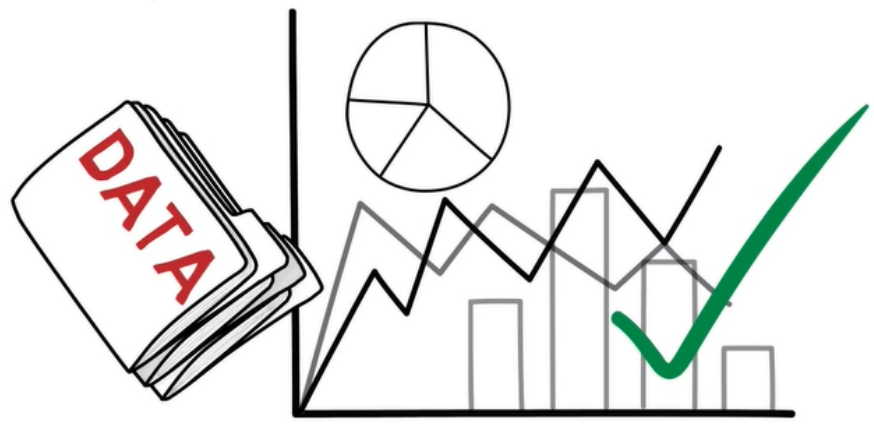


Data Science and Analytics - a necessity

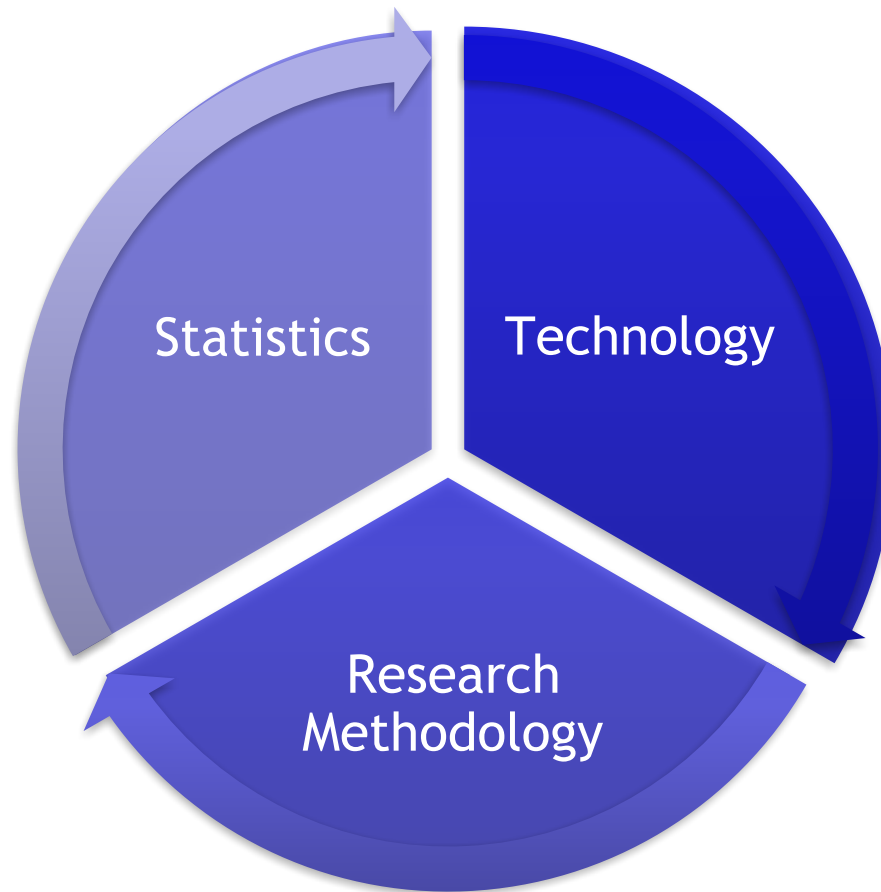
A day in the life of a Data Scientist



Experiment required → Hypothesis



What is Data Science?



***A Multi disciplinary subject -
Simplified***



Data Science - Behind the Scene



U B E R



Data Science - Behind the Scene



Actuaries produce the NAB Online Retail Sales Index

NAB Online Retail Sales Index

Indepth report – July 2012

nab

more give, less take

Chart 1: Growth in online sales vs. retail sales (% yoy)

Chart 2: Growth in online sales by retail location (% yoy)

Table 1: Key online retail statistics

	Index points	12m growth (%)
Online sales	377.1	25.1
Retail sales	296.3	0.2
Domestic sales	449.4	24.4
International sales	205.4	22.5

All data is non-seasonally adjusted (NSA). Online sales data is produced by Actuaries. Traditional retail sales data is sourced from the Australian Bureau of Statistics (ABS).

At a glance

Traditional v online (NSA, July yoy)

Growth in traditional sales (June): 9%

Growth in online retail sales: 25%

Online purchases hit \$41.2bn compared with \$30.1bn in 2011, or 5.3% of the size of traditional retailing

Domestic v international (NSA, July yoy)

Growth in domestic online retail sales: 24%

Growth in international online retail sales: 29%

Domestic online purchases for around 70% of total online sales

Share of spend by region

Australian metropolitan purchases: 24%

WA regional purchases: 37%

Per capita income

ACT: 13%

Online spend by sector and age group

18-24: 27%

25-34: 36%

35-44: 33%

45-54: 27%

55-64: 25%

More examples Data Science at Work

Cancer Research



Connected Vehicle

Price Optimisation



Network Optimization

Customer Interaction



Race Optimisation

Performance Predication



Traffic Analysis



Insurance Industry Disruptions



Insurance data will grow

94%,

84% of which is unstructured

*“By 2020, Internet of Things spending will rise to **\$3 trillion** and nearly*

30 billion devices”



Organisations looking to move from Descriptive to Cognitive Solutions

Cognitive

How can we learn dynamically?

Prescriptive

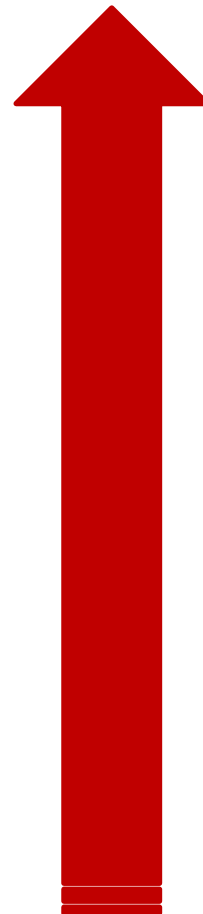
How can we achieve the best outcome?

Predictive

What could happen?

Descriptive

What has happened?



*Learning Models
Experience Memory*

*Optimization
Models
Recommendations*

*Predictive Models
Scores*

*Reports
Dashboards
Visualization*

Businesses needs - Insights



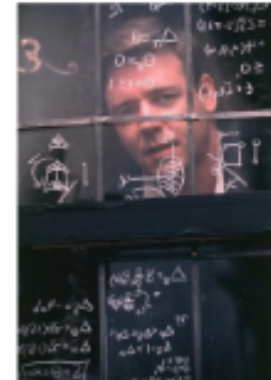
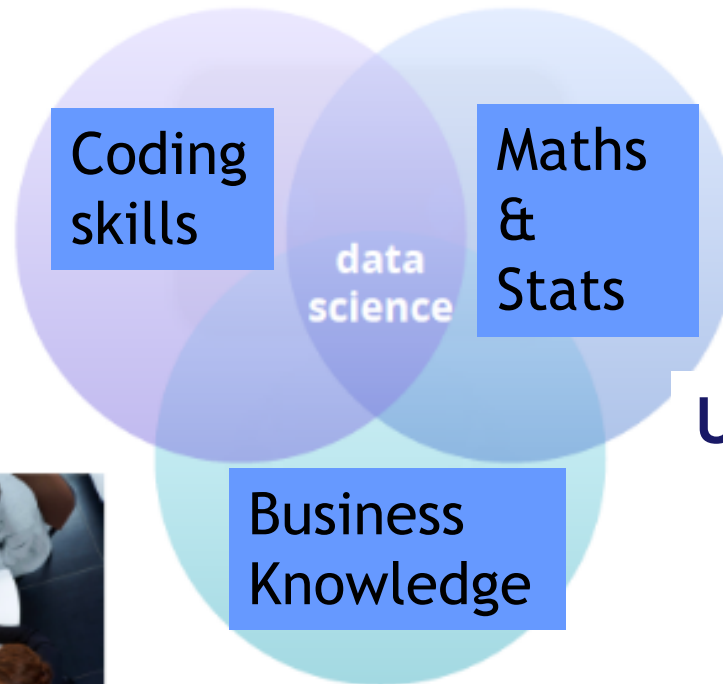
Actuaries as Data Scientists - or perhaps *“Business Scientists”*



Programming
& data
manipulation



Business knowledge
+ company data



Understanding
algorithms
and
validation
framework



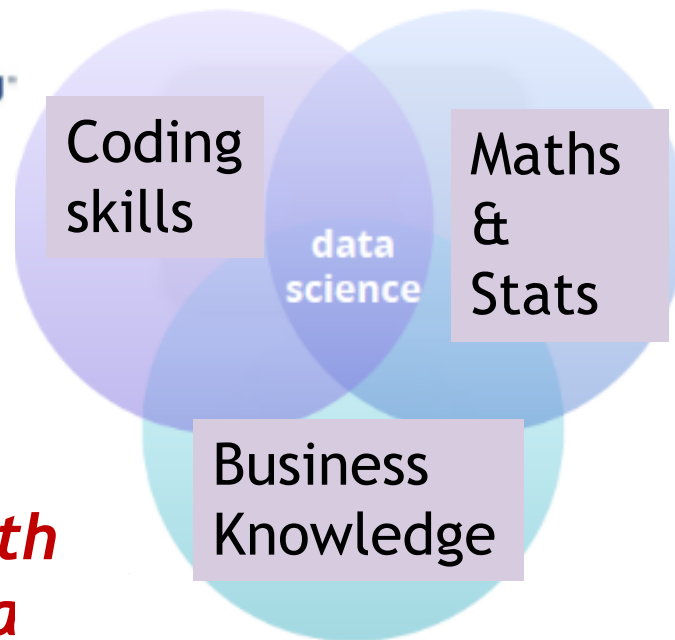
Actuaries - *the required skillset*

Programmin
g & data
manipulatio



*Let Machines
do the coding*

*Actuaries
collaborating with
other professiona*



Business
knowledge +
company data

Understanding
algorithms
and
validation
framework

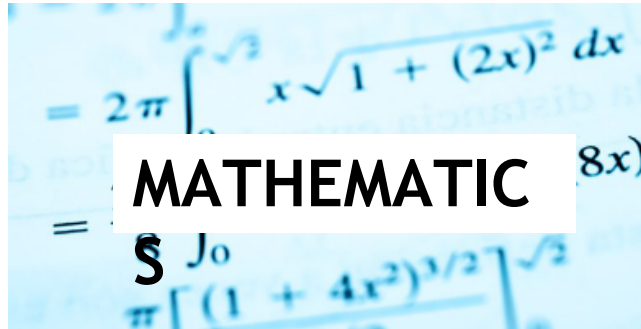


*Off the
shelf
algorithms
from open
source
Working
knowledge
is sufficient*

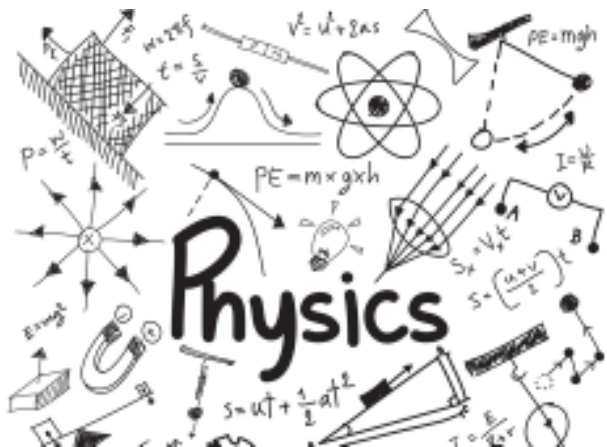


Actuarial Science

A Multidisciplinary Subject



MODELLING & PROGRAMMING



Evolving Actuarial Profession

- 2019 Curriculum change bringing it closer to Broader Data Science skillset
 - CT Series transformed to **Core Business, Core Statistics** and **Core Modeling**
 - **R programming** integral part of syllabus across all the Actuarial Associations
- Introduction of various roles for Actuaries besides Fellowship
 - Chartered Actuary (for Associates as Generalists)
 - Chartered Enterprise Risk Actuary (CERA- risk related roles)
 - Certified Actuarial Analysts (CAA - at entry level)



Initiatives of Actuarial Institutes around the world

- Actuarial Society of South Africa - *Business Intelligence Forum*
- The Actuaries Institute - Australia - *Data Analytics Working Group*
- Canadian Institute of Actuaries - *Predictive Modelling Committee*
- Casualty Actuarial Society - *New Qualification CSPA*
- Institute of Actuaries of France - *Big Data Committee*
- Institute and Faculty of Actuaries - *MAID Working Party*



Working Group on Wider Actuarial Applications - *Next Steps*

- 1. Research*
- 2. New approaches to current actuarial work*
- 3. Possible ideas and solutions in new opportunities from actuarial work*
- 4. Implications for professional affairs*
- 5. Collaborations with*



Institute
and Faculty
of Actuaries



The Road Ahead

- *Data Science, Artificial Intelligence, Machine Learning, Internet of Things* and the ever changing innovations represents a major opportunity for the actuarial profession
- Co-operation between different actuarial associations will enable the profession to make the most of the opportunity *otherwise we may become marginalized*





MAHIDHARA DAVANGERE V
Email: mahidhara@pramartha.com



**Australia | India | Kenya | Malaysia | South Africa | UAE | US |
Zimbabwe**
www.pramartha.com