



SOA Predictive Analytics Seminar – Malaysia

26 Aug. 2019 | Kuala Lumpur, Malaysia

Session 2

Business Analytics in Insurance Practical case studies and implementation

George Kau, ACMA, CGMA, FASM, FSA, MBA

02/09/2019

Business Analytics in Insurance

Practical case studies and implementation

George Kau ACMA CGMA CA(M) FSA FASM MBA
KPMG PLT

August 2019



Business Analytics

Business Analytics

- Introduction

Business analytics play a vital role in strategic planning, offer business insights for situational analysis.



Predictive Analytics belong to the Business Analytics family

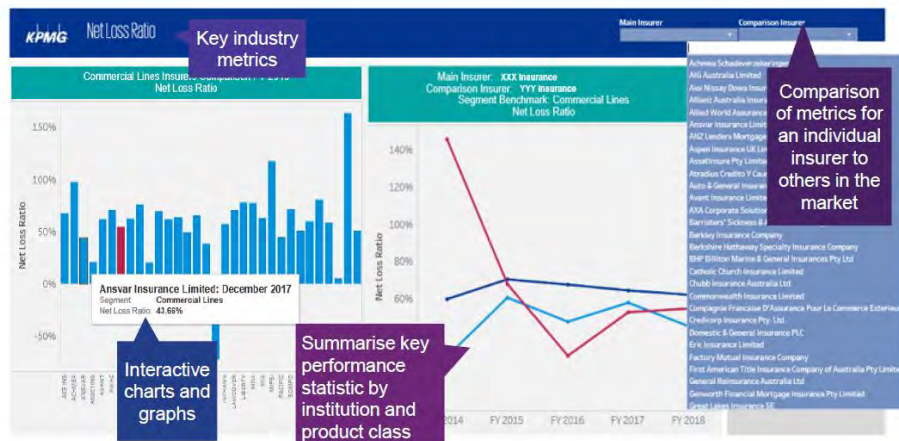


© 2018 KPMG PTT, a limited liability partnership established under Malaysian law is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (“KPMG International”), a Swiss entity. All rights reserved.

Document Classification: KPMG Confidential

Business Analytics

- KPMG Insurance Insight Dashboard for Life and General Insurance



© 2018 KPMG PTT, a limited liability partnership established under Malaysian law is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (“KPMG International”), a Swiss entity. All rights reserved.

Document Classification: KPMG Confidential

Business Analytics

- KPMG Insurance Insight Dashboard for Other Industries

React quickly to changing business and economic environments

Wider coverage

Deeper insights

Holistic visibility

Improve efficiency and precision

New perspectives

Take advantage of innovative tech-enabled solutions, built by the award-winning team of data professionals in KPMG in Malaysia.

Generate intelligent, actionable insights for your organisation, helping you make well-informed decisions.

Achieve greater efficiency, from ingestion of multiple data sources to visualisation in the form of interactive dashboards.

Why KPMG?

- Global alliance with Microsoft
- Deep industry knowledge
- Diverse team with various skillsets
- Regional and global support from KPMG networks
- Connects the dots between business and technology
- Proven expertise in Data and Analytics project execution
- Named a leader in Gartner's Magic Quadrant 4 years in a row



© 2019 KPMG P.T., a limited liability partnership established under Malaysian law, is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

Business Analytics

- Comparing with Predictive Analytics

Business Analytics	Categories	Predictive Analytics
Descriptive analysis (What happened)	Purpose	Finding hidden pattern & predict (What will happen)
Raw data is transformed to information for presentation purpose	Data	Raw data is transformed to "clean data" for algorithms purpose
Get insight to solve a problem by guesstimate, assumption and subjective judgement	Insight	Get insight of the algorithms identify complex pattern and build a model
Decision make based on intuition without solid evidence	Decision	Decision make based on the model
Structured data, manageable data	Data Type	Structured/unstructured data, big data
Reporting, dashboard	Technology	Predictive modelling, forecasting

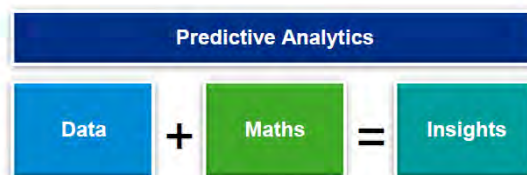


© 2019 KPMG P.T., a limited liability partnership established under Malaysian law is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.



Predictive Analytics -case studies

Today's Presentation - Objective



Predictive analytics = Fortune telling?

Applications of Predictive Analytics

- Insights from Predictive Analytics



© 2019 KPMG P.L.T., a limited liability partnership established under Malaysian law is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

Applications of Predictive Analytics

- Insights from Predictive Analytics

1. Sales & marketing – increase activity & efficiency

2. Underwriting & pricing – differentiate risks more accurately

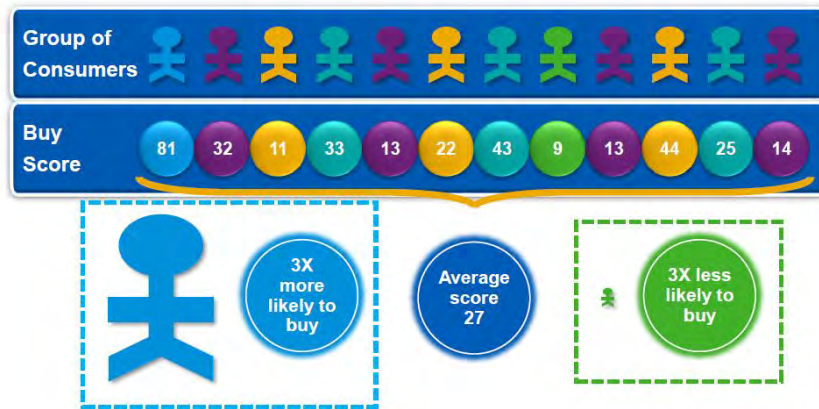
3. Work force analytics – recruit staff with higher potential



© 2019 KPMG P.L.T., a limited liability partnership established under Malaysian law is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

1. Sales & Marketing

- Increase activity & efficiency



1. Sales & Marketing (Cont'd)

- Increase activity & efficiency

3X more likely to buy = 3X more sales for same effort = 3X less effort for same sales

Master AI and machine learning now

Insurtech trends for 2019

1. Sales & Marketing (Cont'd)

- Increase activity & efficiency

**Not so easy...
What are the challenges?**



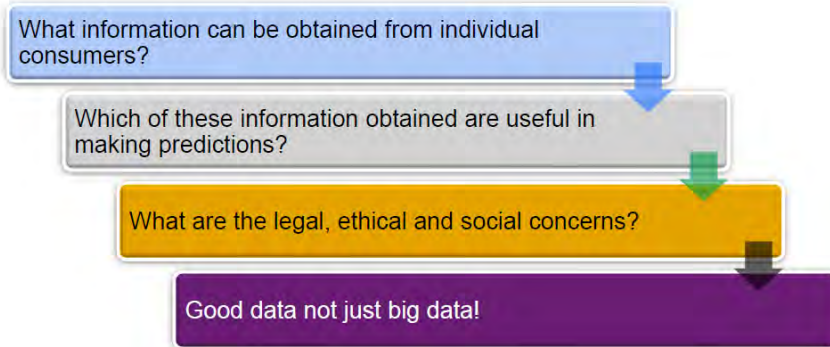
1. Sales & Marketing (Cont'd)

- No data from the bancassurance partner...



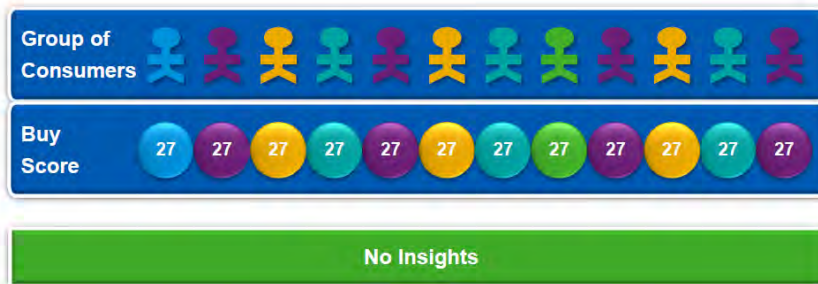
1. Sales & Marketing (Cont'd)

- What kind of data do we need?

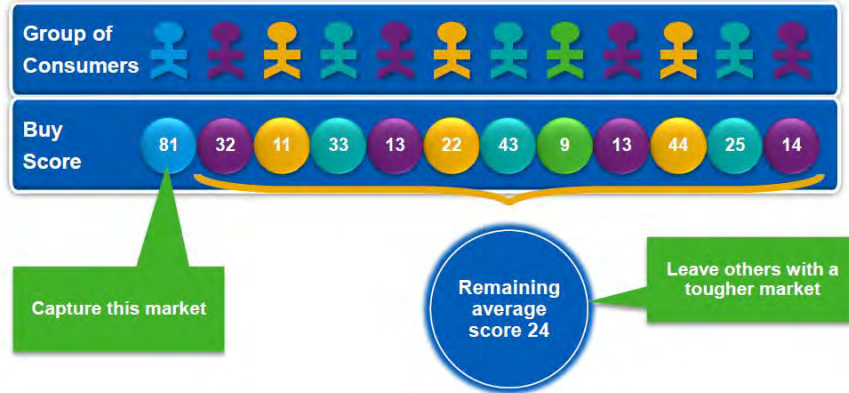


1. Sales & Marketing (Cont'd)

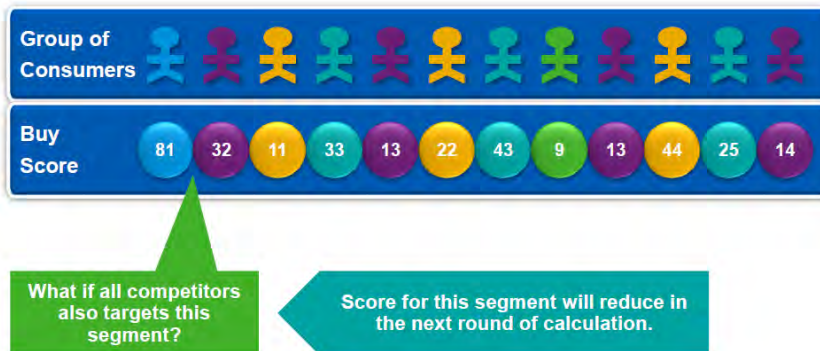
- Can't do the maths... or just not doing it



2. Underwriting & Pricing - Competition

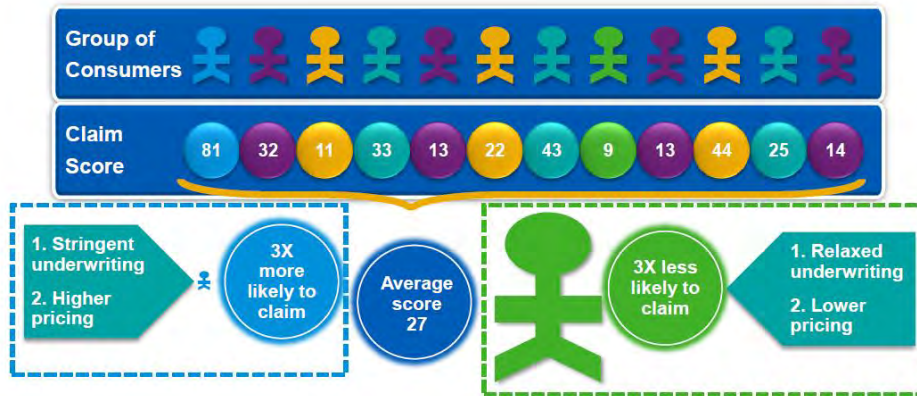


2. Underwriting & Pricing (Cont'd) - Competition



2. Underwriting & Pricing (Cont'd)

- Differentiate risks more accurately



3. Work Force Analytics

- Recruit staff with higher potential



Source: https://www.youtube.com/watch?v=JObM_uYn0RY



Predictive Analytics -implementation issues

Implementation Strategy - Investment needed

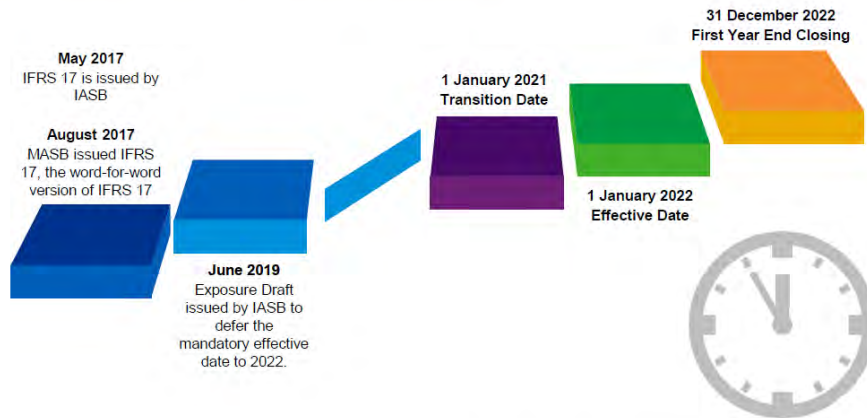
Where to start?
Building a platform business requires state-of-the-art technology and very fast and flexible time to market. This is not achievable on legacy systems alone. Insurers will have to invest in customer-facing digital platforms, intelligent automation to streamline processes, and develop smart contracts for claims and predictive underwriting.

View Point
Customer satisfaction and retention will likely be a more important key performance indicator (KPI) than operational efficiency.

Player in this scope
KPMG is one of the player using artificial intelligence, machine learning and big data to provide insurers greater insight into their data.

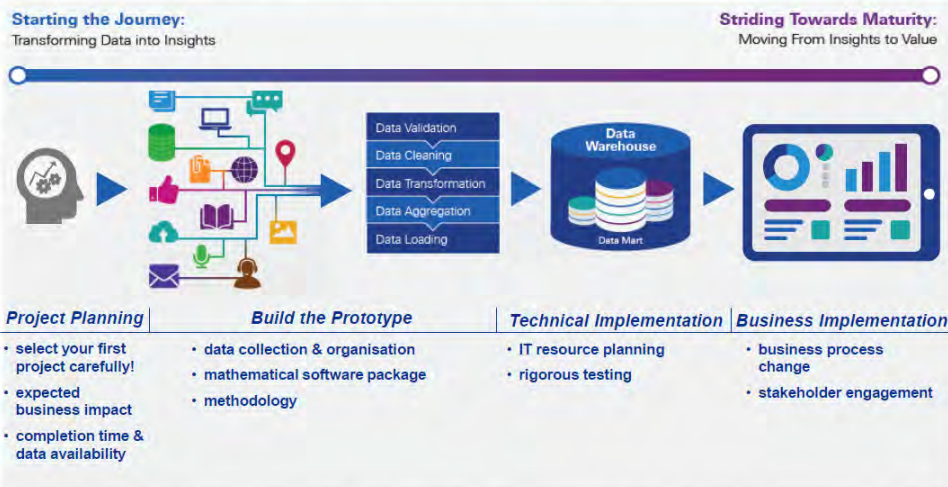
Implementation Journey

- Competing resources with IFRS17 compliance project



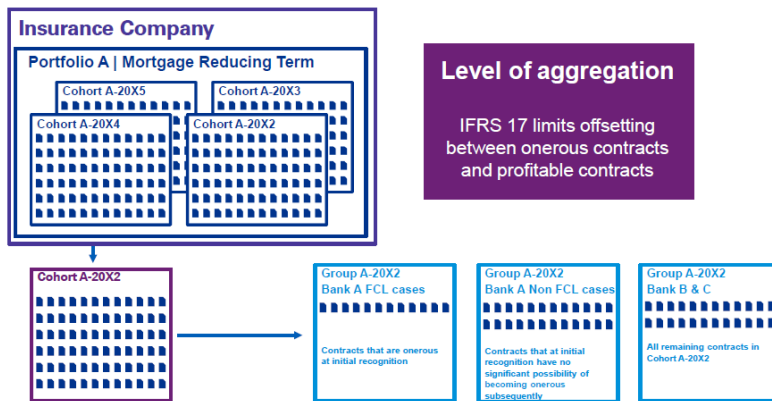
Implementation Journey

- Designing the art architecture beyond IFRS17 compliance



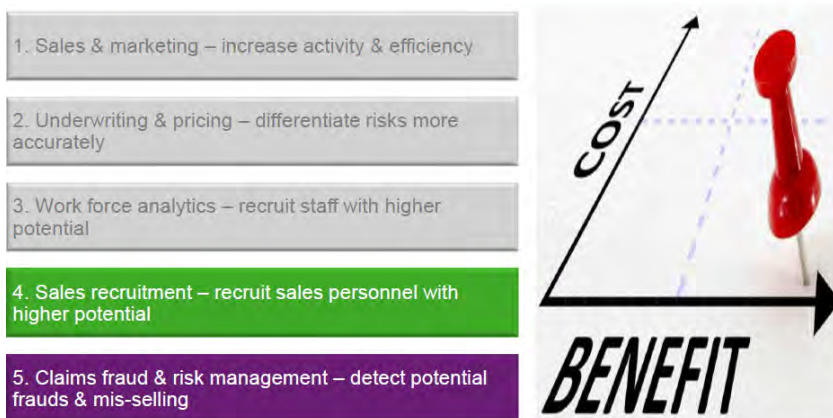
Implementation Journey

- Data warehouse captures relevant pricing factors that drive profitability



Implementation Journey

- Data warehouse captures relevant data



Implementation Journey

- New skillset potentially funded by actuarial study support program



**SOCIETY OF
ACTUARIES®**

› **Predictive Analytics exam is administered as a five-hour and 15-minute project requiring analysis of a data set in the context of a business problem and submission of a report.**

- Predictive Analytics Problems and Tools
- (**R, RStudio**)
- Problem Definition
- Data** Visualization
- Data** Types and Exploration
- Data** Issues and Resolutions
- Generalized Linear Models**
- Decision Trees
- Cluster and Principal Component Analyses
- Communication

Source: <https://www.soa.org/Education/Exam-Reg/edu-exam-pa-detail.aspx>



© 2019 KPMG PLT, a limited liability partnership established under Malaysian law is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

27

Document Classification: KPMG Confidential

Implementation Journey

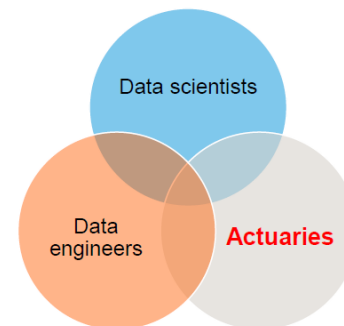
- IT professionals supplement up-skilled actuaries

Actuarial Professional Bodies

1. Actuaries Institute, Australia
2. Casualty Actuarial Society, USA
3. Institute and Faculty of Actuaries, UK
4. Society of Actuaries, USA

The actuarial profession has been actively advancing the use of predictive analytics methods in its work. Actuaries have been fast to collect and transform big data into useful information to glean future tendencies and patterns.

We anticipate a healthy supply of predictive modelling and data analytics specialist in the job market in the near future.



© 2019 KPMG PLT, a limited liability partnership established under Malaysian law is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

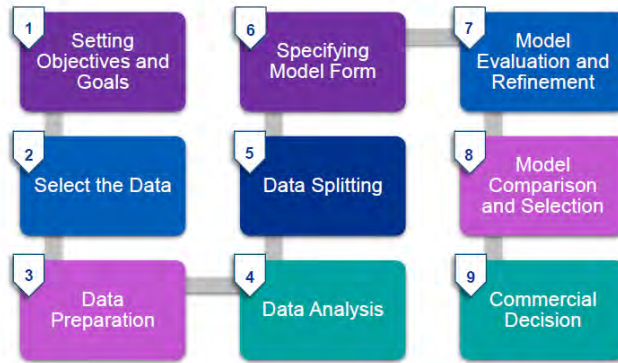
28

Document Classification: KPMG Confidential

Implementation Journey

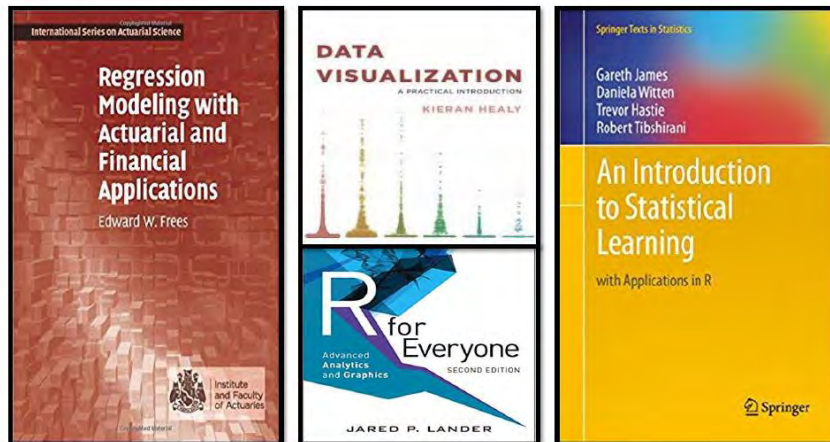
- Getting it right from the start

Actuaries serve an important role with predictive analytics by using modeling and data analysis techniques on large data sets to discover predictive patterns and relationships for business use.



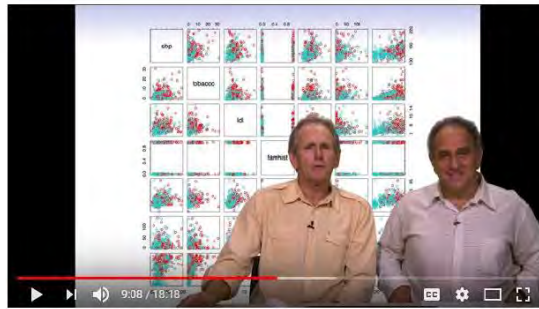
Implementation Journey

- Textbooks for SoA PA Exam



Implementation Journey

- Learning without borders!



- ISL Videos online
- Your new commute material
- On YouTube too (see link below)

Source:
<https://www.r-bloggers.com/in-depth-introduction-to-machine-learning-in-15-hours-of-expert-videos/>
<https://lagunita.stanford.edu/courses/HumanitiesSciences/StatLearning/Winter2016/info>



© 2019 KPMG P.L.T., a limited liability partnership established under Malaysian law is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

Opportunity for the Actuarial Profession

- Our competitive advantage



© 2019 KPMG P.L.T., a limited liability partnership established under Malaysian law is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

Questions?



© 2019 KPMG PLT, a limited liability partnership established under Malaysian law is a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.



Thank you



kpmg.com/socialmedia



kpmg.com/app

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

© 2019 KPMG PLT, a company incorporated under Malaysian law and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

The KPMG name and logo are registered trademarks or trademarks of KPMG International.