GIRO40
8 – 11 October, Edinburgh

Dynamic Risk in a Connected World
Richard Cornish Vodafone
Tony Lovick Towers Watson
Proliferation of devices can be confusing

Technology will evolve and transform
Connected Car Data – What will you do with it?

Ford says SYNC base is now 4M, will reach 13M by 2015

Telematics is a new opportunity

- Pricing Accuracy Based On Risk
- Behavioural Modification Programs (teens, mature market, etc.)
- Safety Features: Emergency response, roadside assistance, stolen vehicle recovery
- Vehicle Maintenance Reporting
- Green Driving and Fuel Management
- Concierge Services: Door unlock, navigation, location assistance
- Safer Roads and Lives Saved
Key stakeholders in a UBI strategy

Consumers:
- Control of premium
- Understandable rating based on how, when, where drive
- Access to useful driving feedback
- Value-added services
- “Green” and “progressive” products

Insurers:
- Enhanced pricing
- Product differentiation and brand awareness
- Reduced loss costs
- Improved consumer satisfaction and retention

Regulators:
- Saves lives
- “Fairly” discriminatory variables
- Consumer acceptance and premium control
- Environmentally friendly

Building knowledge and value

Business optimisation
- Attract new customers
- Create novel products
- Improve profitability
- Support change mgmt
- Develop competencies

Knowledge creation and decision support
- Device technology will change rapidly
- Distracts management
- Delays time to market and wastes resources
- Exposes obsolescence risk

Value
- Device technology will change rapidly
- Distracts management
- Delays time to market and wastes resources
- Exposes obsolescence risk
Upheaval in Distribution and Value Chain

Insurers
Intermediaries
Price comparison sites
Software houses
Data houses
Motor Manufacturers / OEMs
Government

Sensor Fusion & Tethering – Are apps a gimmick?

Reducing Claims
Selecting Risk
Reducing Risk
Measuring Risk

http://www.youtube.com/watch?v=C7JQ7Rpwn2k

http://www.youtube.com/watch?v=cCTA0TFpv2k
Market Share Progression

25 million potential customers

- Monitored drivers
  - Telematics policies
  - Conventional monitored
  - 0.8%
- Non-Monitored drivers
  - Conventional non-monitored
  - 95%

UBI Benefits

25 million potential customers

- Monitored drivers
  - Telematics policies
  - Conventional monitored
  - 0.8%
- Non-Monitored drivers
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Self-Selection

- Self-Avoid
  - Customer self-selection
Hardware Options and Benefits

Customer self-selection  
Behavioural change  
Claims repudiation  
Thief Tracking  
Granular risk analytics  
Non-insurance services  

Reducing Claims  
Selecting Risk  
Reducing Risk  
Measuring Risk

Why use data for Pricing?

New provider ESMI aims to ‘revolutionise’ health insurance

The provider is offering simple fixed rate insurance … regardless of age, health, career or lifestyle … same fixed premium for every policy holder, … no premium loadings for … existing medical conditions.

http://www.covermagazine.co.uk/cover/news/2294384/new-provider-esmi-aims-to-revolutionise-health-insurance
Counting Harsh Brakes – Is it enough?

Reducing Claims

Selecting Risk

Reducing Risk

Measuring Risk

Data

Usage – based insurance is on its way – are you ready?

It could also take advantage of … harsh braking ...

https://www.insuranceday.com/generic_listing/it/usage-based-insurance-is-on-its-way-are-you-ready.htm

14 October 2013
Counting Harsh Brakes – Is it enough?

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Counting Harsh Brakes – Is it enough?

Risk Factor
Driving Style
Other Users
Road Risk

Avoid Impact
Harsh
Not Harsh
Claim
No Claim
No Threat
Harsh
Not Harsh

Collision
Parking
Theft
Glass
Granular data is the key to short- and long-run success

- Many providers choose to collect very limited “event-counter” data
  - Don’t have the skills necessary to manage and analyze the granular data
  - Don’t have capability to compress data to minimize costs
  - Don’t understand the opportunity cost of using limited data
- Granular data is critical to
  - Adequately addressing inevitable data issues
  - Decrease timescales necessary to build an effective score
  - Increase the effectiveness of the score
  - Support longer-term behavioral modification programs and other value-added services

Granular data results in a better score faster

- Event counter based analysis is a linear process that can span years to “get it right”
- Granular data facilitates continuous trial and improvement cycle that significantly reduces time to effective scoring

Use results, collect data, continually refine
Telematics Infrastructure

- **Insurer Processes**
  - Policy / Device / Claims Data
  - Sales
  - Servicing
  - Distribution
  - Customer
  - Feedback
  - Claims
  - Retention

- **Telematic Service Provider**
  - GPS Satellite
  - Self Install

- **Towers Watson Infrastructure**
  - Device
  - GPRS
  - Server
  - Portal

- **Telematics Infrastructure**
  - Device
  - Compressor
  - Self Install

Road type

- Relative number of accidents per mile

- Road Type:
  - Motorway
  - Rural A roads
  - Urban A roads
  - Other rural roads
  - Other urban roads
Data management process schematic

- Data management requires:
  - The ability to manage substantial data volumes (up to 1 million records per policy per year) using a UBI specific logical data model to efficiently query data
  - Secure, robust, automated processes to upload, clean and link data
  - Analytical expertise to set criteria for data requirements
  - Claims handling expertise to set criteria for data options
  - Robust operational reporting to include exception reporting

How powerful is the Towers Watson score?

- Using the DriveAbility pooled data, our algorithm identifies certain "miles" as being 10,000 time riskier than others

- Aggregating miles at the vehicle level results in the shown scores
  - The highest decile of vehicles has an expected cost 10 times higher than that of the best decile
Feedback and behaviour change – Can it reduce risk?

Do you enjoy driving?
Teen driver experience

Example: 16-17 year old over time

State Farm Drive Safe & Save™ with In-Drive®
Smartphone App
Insurers are staking out different positions for their UBI programs

**State Farm**
- **Feature Focus**
  - Opportunity to de-commoditise the product
  - Product/service focus, including driver coaching requires an understanding of driving behaviour and the key influencing factors
- **Convenient Mobile Application**
  - Access to your settings and driving Happi Card
  - Real-time access to vehicle location on-the-go
  - Detailed kilometrage of miles you gallon and vehicle diagnostics

**Progressive**
- **Price Proposition**
  - Will price remain king with more powerful risk segmentation?
  - Price focus will require strong analytic insight with more telematics data to create new risk factors

Drivers demand – Defend us from whiplash claims!

- Reducing Claims
- Selecting Risk
- Measuring Risk
- Reducing Risk

## Value-Added Services propositions

- **State Farm - Drive Safe & Save**
  - Programmes provide a variety of package choices for value-added services.
  - Moved to InDrive self-installable solution
  - 10% enrollment discount that can increase up to 50% based on mileage, turns, acceleration, braking, speed, and time of day
  - Initial fee of $10. Services available in $5-$14.99 per month

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<tr>
<td>Incident Alert</td>
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- **Allianz - SestoSenso**
  - Value added services linked to personal protection, theft and breakdown
  - 24 hour emergency assistance – accident, breakdown and theft
  - Based on annual fee

- **Allianz - Allie**
  - No insurance included
  - Value added services – accident, breakdown and theft for an annual fee
  - Now offers Genialloyd discounts

## Architecture Feedback

- **Today's Data**
- **Trip**
- **Score & Feedback**
- **Customer**

- Reducing claims
- Reducing risk
- Selecting risk
- Measuring risk
Architecture Scoring

Today's Data

Trip on Day

Score & Feedback

Customer

Insurer

Architecture Analytics

Today's Data

Trip on Day

Score & Feedback

Customer

Insurer
Any Questions
Tony Lovick, MA FIA
Global UBI Analytics Actuary
Tony.Lovick@TowersWatson.com

- Tony graduated in Mathematics from Oxford University in 1987, and qualified as a Fellow of the Institute of Actuaries in 1994. He spent twenty one years with Aviva Group, before joining EMB, now Towers Watson, as a Senior Consultant.\(^{(1)}\)
- Tony is interested in innovative actuarial research and its delivery through pragmatic systems development.
- Within Towers Watson, Tony is the lead Architect for the Usage Based Insurance project serving a number of insurers.
- Latest research from Tony improves pricing models with a noise reduction technique to take account of uncertainty.\(^{(2)}\) Last year EMB filed a patent application for this innovation.\(^{(3)}\)
- Tony undertook a number of roles within Aviva, most recently as Price Optimisation Actuary, “Pay as you drive” Actuary and Head of Statistics and Development, in the Personal Lines Pricing Division of Norwich Union. As Price Optimisation Actuary he undertook the client side pricing and architecture design, concluding in a successful Motor Renewal pilot. As the actuary leading the research for Pay as you drive, he helped inspire the analysis, build of the data warehouse systems\(^{(4)}\), and launch of the product to market. As part of this project Aviva prepared two patents with Tony listed as the inventor, one of which is now granted.\(^{(5)}\)
- As Head of Statistics he led the implementation of full postcode risk cost models for motor and home insurance, pioneering the introduction of external data to Aviva rating systems.

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\(^{(1)}\) [http://www.linkedin.com/in/anthonylovick](http://www.linkedin.com/in/anthonylovick)
\(^{(3)}\) [http://www.ipo.gov.uk/types/patent/patent?startYear=2011&startMonth=January&startDay=12th+6347&endYear=2011&endMonth=January&endDay=12th+6347&filter=EMB&perPage=10&sort=Publication+Date](http://www.ipo.gov.uk/types/patent/patent?startYear=2011&startMonth=January&startDay=12th+6347&endYear=2011&endMonth=January&endDay=12th+6347&filter=EMB&perPage=10&sort=Publication+Date)
\(^{(4)}\) [http://www.silicon.com/financialservices/0,3800010322,39169285,00.htm](http://www.silicon.com/financialservices/0,3800010322,39169285,00.htm)