Management Information and big data in Insurance

New drivers to create business opportunities

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- Big data: a disruptive driver for innovation:
  - market landscape and opportunities
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Towers Watson Management Information service line

- There is a continuum in the way organisations design processes and implement technology to manage and exploit their data.
- As business complexity increases and the wealth of available data grows, organisations develop analytics capabilities to generate sophisticated data-driven innovations.

A. Enable data potential
   - Build a system-based analysis capability
   - Develop foundational data governance and technology infrastructure
   - Design operating model

B. Exploit/enhance MI
   - Develop and deliver insights supporting the strategy of the organisation and the management of operational performance
   - Provide consistent, trusted, timely management information — facilitate its delivery access to conduct high value analysis and decision making

C. Unlock potential through advanced analytics
   - Use sophisticated statistical and simulation techniques to solve unique problems
   - Big data — data science (experiment, explore, iterate, refine)

Innovation/Agility
Cause-and-effect modelling/data science, structured and unstructured data

Industrialisation/
large scale - structured data
MI hygiene factors and conditions for success

Example of MI pitfalls

- Generic and unfocussed
- Data, data and more data – with no focus on the main outcome
- Difficult to penetrate and then impossible to interpret
- Internal or cross-report conflicts undermine confidence, even if infrequent
- Poor data and systems
- Variable knowledge of business terminology
- MI analysts do not have the right skills, are not in the right role
- Low stakeholder buy-in
MI hygiene factors and conditions for success

MI Report Components

Quickly Assimilated
- Graphs, maps and grids
- Expert commentary

Right KPIs and Measures
- Gross and net of controls
- More than one lens
- Challenged

Simple and Focussed
- Key, pertinent information
- Understood by recipients

Contextual
- Benchmarks, trends
- Business plan
- Last year(s) performance

Strategic business drivers
Business questions
Validated, accurate and complete data
Training of KPI providers and receivers
Embedded risk culture
Executive challenge and debate
Feeds across business and into strategic decisions
Experts available to provide deeper insight
Management Information (MI) methodology development

Towers Watson has developed a five-step process to enable clients to articulate the strategic priorities and business drivers at Executive level.

- These are translated into Executive Key Performance Indicators (KPIs).
- Functional business drivers are then consistently defined and allow the design of operational metrics.

Key business benefits

- KPIs can be mapped to strategic drivers and priorities of an organisation, then cascaded down to operational reporting accordingly. This approach can help define consistent reporting for both an internal and external purpose (“one version of the truth”).
- Lead indicators allow an early sight on performance ahead of quarterly reporting. Trends versus target and warnings can be identified early in the cycle.
- Clear line of sight from financials to company actions.

Significant engagement at C-Suite level
What is big data?

- 2000+ petabytes (>2 * 10^{12} megabytes) of information generated every day in the world (source IBM), with 60% growth of volumes / year.
- 90% of the data available today has been created in the last 2 years.
- 34,000 tweets are generated per minute – 7 billion Google pages are viewed per day.
- Increasing variety of sources, most of them (80%) are unstructured (or semi-structured): web logs, RFID, sensors networks, social data, emails, internet text and documents, call detail records, weather data, video.
- Only 5% of available information is used by companies: so much room for doing better.
- Usages of data are being revolutionised, with great early-movers showing the way: Amazon, Google, Tesco, Walmart, leveraging new skills & technologies.

The Data world is changing creating many new opportunities and challenges
Big data represents a significant opportunity for the Insurance Industry...

Insurance possesses one of the highest potentials for big data value

* Source: MGI Big data: the next frontier for innovation, competition and productivity, June 2011
Big data represents a significant opportunity for the Insurance Industry…

A favorable environment

- Insurance is a data intensive industry
- It can increase applications of levers involving segmentation and automated algorithms

Right skills

- Insurance possesses leading analytical talents
- Actuaries have a perfect profile to become big data practitioners

Some hurdles to overcome

- Change of mind-set as to drive innovation with big data (outside already defined schemas)
- An evolution of IT capability is required, by embedding new innovative technology solutions
- Some additional technical skills will be required (e.g. Hadoop developers)

Insurance possesses one of the highest potentials for big data value
Big data innovation is today’s reality

Big data is already a key driver for innovation in Insurance

- Insurance Industry players that lay the groundwork for implementing big data will be best positioned to make bold moves as big data solutions evolve. Those that do not prepare and that take a wait-and-see attitude may never be able to catch up\(^1\)
- 15-20% of insurers planning to move to big data solutions within the next 12 months\(^2\)
- >25% of insurers using or plan to use Internet clickstreams, audio data, mobile geospatial data, telematics and social media\(^2\)
- <50% of insurers using data to improve operational areas\(^2\)

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1 BCG, Big data, the next big thing for Insurers
2 Novarica / Tata Consulting survey: big data and analytics in Insurance, 9 August 2012
Big data can drive benefits across all business functions of the Insurance Industry

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<td>• Customer segmentation and targeting</td>
<td>• Identification of genuine leads</td>
<td>• Optimise process through the integration of new data sources (e.g., behaviour, trends, telematics)</td>
<td>• Claim triage optimisation</td>
<td>• Detect underwriting and claims fraud</td>
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Big data can drive benefits across all business functions of the Insurance Industry

**Increase sales revenue**
- Sales conversion increase; cross-sell / up-sell increase; retention optimisation
- Identify the top 15% high value leads from all quotes generated via an insurer website and set an outbound call / e-mail strategy to increase conversion*

**Decrease cost**
- 75% in marketing costs with better targeting for an insurer after Hurricane Sandy*
- 30% increase in detection of auto fraudulent claims / 2-3% claims costs reduction with better claim mitigation & prevention with advanced outlier detection of over 150 millions data points*

**Increase customer experience**
- Decrease claims handling time by early identification of potential fraud & large claim detection
- Run sentiment analysis for Insurance industry screening social media

**Develop affinity products**
- Analyse user affinity to subscribe to online products (based on behaviour and history), risk of churn, cross/up-selling potential
- SMS/e-mail policy holders in case of weather alert with safety recommendations in order to minimise potential losses
- Based on geo-localisation, recommend “safe” parking places

* Source: TW research / MGI Big data: the next frontier for innovation, competition and productivity, June 2011
Example of business use cases

New channels for acquisition and user experience

- Online allowing much better customer analytics, targeting, profiling, personalisation
- Combine online data (web logs, search requests), with traditional CRM data (socio-demo, transactions)
- Include market/context data in some cases (vehicles registrations, criminology stats, income data by city/region)
- Analyse user affinity to subscribe to online products (based on behaviour and history), risk of churn, cross/up-selling potential
- Personalise the online funnel to reduce the drop-off and improve conversion and margins
- Understand sequences between first interest and actual subscription to better engage the customers and retarget them after they leave the website
- Integrate new data sources such as e-reputation, sentiment analysis or contact-center data.
- There is strong evidence that aggregators look at innovative ways to exploit new sources of data as a key competitive differentiator, with the added complexity to exploit structured data and social (text) data.

Many new kinds of data
Changing and growing quickly
Much bigger volumes
Infinite number of combinations to look into
New algorithms for massive data
Example of Usage Based Insurance Services

**Strategy Development**
- UBI strategy development
- Business case development
- Operating model design
- Market entry strategy
- Educational workshops

**Consumer Proposition Design**
- Brand (or new brand) values
- Target market proposition
- Pricing model
- Reward mechanism
- Additional services
- Claims handling enhancements
- Policy wording

**Marketing & Distribution Strategy**
- Marketing & distribution strategy
- Target market segmentation
- Consumer surveys
- Initial UBI score
- Development of try-before-you-buy app
- Media optimisation
- Campaign management

**Analytical services**
- Granular data
- Data cleansing
- Risk analysis
- Powerful risk scores
- Driver feedback analytics

**Implementation Support**
- Develop target operating model
- Supplier selection - if relevant
- Implementation plan
- Training
- Customer migration and communication plan - if relevant