Digital analytics and the impact of technology

Daniel Ryan, Head R&D – Life & Health and Big Data
Swiss Re Group at a glance

Swiss Re is a leading and highly diversified global reinsurer, founded in Zurich (Switzerland) in 1863.

The Group offers traditional reinsurance products and related services for property and casualty, as well as for life and health businesses.

The Group also offers commercial insurance through Corporate Solutions and manages closed and open books of life and health business via Life Capital.

The financial strength\(^1\) of the Swiss Re Group is currently rated:
- Standard & Poor’s: AA- (stable)
- Moody’s: Aa3 (stable)
- A.M. Best: A+ (stable)

Swiss Re was named as the insurance sector leader in the 2015 Dow Jones Sustainability Indices.

Key statistics (USD billions)\

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<th>FY 2012</th>
<th>FY 2013</th>
<th>FY 2014</th>
<th>FY 2015</th>
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<tbody>
<tr>
<td>Total revenues</td>
<td>33.6</td>
<td>36.9</td>
<td>37.3</td>
<td>35.7</td>
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<tr>
<td>Net income</td>
<td>4.2</td>
<td>4.4</td>
<td>3.5</td>
<td>4.6</td>
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<tr>
<td>Shareholders’ equity</td>
<td>34.0</td>
<td>33.0</td>
<td>35.9</td>
<td>33.5</td>
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\(^1\) As at 23 February 2016
Swiss Re adopts smart analytics and cognitive computing to further extend its competitive positioning...

Selected examples from over 200 delivered cases

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<th>Transparent motor China</th>
<th>For China, we have built a sophisticated model predicting motor accident frequencies leveraging a wide range of data sources</th>
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<tr>
<td>Client and market intelligence</td>
<td>Analysing internal and external communication, we quantify Swiss Re client relationships and identify hot topics and market trends</td>
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<tr>
<td>Rapid sales analytics</td>
<td>Improve sales effectiveness: binding likelihood increases by 20% when sales activities happen after quotes</td>
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<tr>
<td>Screening risk engineering reports</td>
<td>Through text analytics, we structure a large number of property risk reports, reducing the single risk report analysis time down from 4 hours to real time</td>
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<tr>
<td>Contract intelligence hub</td>
<td>We have developed an advanced contract analytics solution covering all re/insurance contracts from all lines which allows us to analyse clauses</td>
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...and builds smart analytics capabilities globally at scale
Global motor risk map – Market Risk Estimation Globally

- As the Chinese regulator removed the motor tariff in August 2014, Swiss Re's Chinese clients now need to develop more sophisticated pricing, risk and strategy models.
- This is especially challenging for R&N clients who have difficulties coping with the new regulatory capital requirements.
- We provide Chinese R&N clients of P&C Reinsurance with motor risk maps to help price their motor book more accurately and manage their portfolio better.
- The success of the project enabled Swiss Re to extend the service to other High Growth Markets.

Building on many different sources, we identified the factors which most optimally predict the accident frequency. Our sophisticated motor risk model enables our cedents to conduct portfolio steering, to remove biases from their data, benchmark their portfolio & expand strategically.
From global motor risk map to “insurance” severity

- The success of the usage of non-insurance data in order to get an independent view of the market risk for frequency motor accidents indicated that this could be done for severity too.

- Swiss Re developed a model that predicts severity of accidents in terms of number of deaths, injured property damage and type of collision using exclusively non-insurance data.

- The above mentioned capability allows for prediction in non-insurance terms.

- In order to map this prediction to insurance severity we employ modules of another unique Swiss Re methodology, the Liability Risk Drivers*) model.

*) The patented Swiss Re Liability Risk Drivers™ (LRD) model is Swiss Re’s comprehensive forward-looking model for costing liability business worldwide. Liability catastrophe modules are being built for accumulation control and other purposes. Swiss Re has already engaged on LRD with Axa.
Swiss Re & IBM Watson
Centre of Competence in Cognitive Computing

Swiss Re to work with IBM Watson to harness the power of Big Data for Reinsurance

22 OCTOBER 2015, ZURICH

• Swiss Re to work with IBM to make better use of Big Data using Watson in its Life & Health Reinsurance business unit
• Swiss Re and IBM intend to further develop an industry-wide range of solutions in support of underwriting processes
• Swiss Re establishes dedicated Center of Competence for cognitive computing in collaboration with IBM

Swiss Re and IBM (NYSE: IBM) today announced that they are developing a range of underwriting solutions that rely on IBM Watson's cognitive computing technologies. One of the first applications will be in Swiss Re's Life & Health Reinsurance business unit.

To compete successfully and profitably, insurers must identify and act on emerging trends. In addition, insurers need the ability to spot operational issues or opportunities in real time and respond proactively.

Cognitive technologies, coupled with human experience and insights, can enhance and help inform timely decision making. By applying Watson's capabilities, the new platform could allow Swiss Re professionals to make better informed decisions and more accurately price risk.

Thomas Wellauer, Swiss Re's Group Chief Operating Officer, says: "Systems like cognitive computing can continuously read the ever growing amount of information while helping us connect the dots and making it easier to interpret that information in the right context. Swiss Re and IBM are collaborating to establish a vision for cognitive computing at Swiss Re and the wider insurance industry."

The project is yet another new industry domain for IBM's Watson, a technology that represents a new era in computing in which systems are able to analyse and process vast amounts of unstructured data, quickly surface insights and continuously learn from their interactions with humans and data. Delivered via the cloud, Watson's key underlying technologies are deep learning and natural language processing, the latter of which allows for humans to ask questions and interact with the system as they would a colleague.
Swiss Re Centre of Competence in C²
Watson Treaty Intelligence

A global treaty application, that provides search and insights on the entire Swiss Re treaty portfolio, and which integrates our Contract Intelligence index.
Technology transforming our understanding of health
Next generations of wearable devices

Complex stationary medical monitors
- Full range of vital signs
- Sophisticated algorithms
- Restricted movement
- High accuracy
- High price

Simple portable medical monitors
- Spot monitoring
- Single vital sign
- Moderate accuracy
- Poor motion tolerance

Simple wearable consumer monitors
- Limited vital signs
- Ergonomic focus
- Low accuracy
- Limited motion tolerance

Sophisticated, easy to use, wearable, accurate, motion tolerant multiple vital signs monitor
- Multiple vital signs
- Medical grade accuracy
- Highly motion tolerant
- Relatively low cost
- Ergonomometric/aesthetic
- Data mgnt. ecosystem
- Social media connectivity
Technology transforming our understanding of behaviour
Social physics & Living Labs

• How flow of ideas and information translates into changes in behaviour

• Promoting the development and sharing of social interactions from Living Labs

Source: 2013 Sense Networks - mClick-to-Visit™ Analytics
Source: 2008 Sense Networks - San Francisco Tribes

Source: Big Data comes to the Office, The New Yorker
Behavioural research @ Swiss Re
Interventions at every stage on the customer journey

Testing. Testing. Testing. 100+ trials with insurers
Cautionary note on forward-looking statements

Certain statements and illustrations contained herein are forward-looking. These statements (including as to plans objectives, targets and trends) and illustrations provide current expectations of future events based on certain assumptions and include any statement that does not directly relate to a historical fact or current fact. Forward-looking statements typically are identified by words or phrases such as “anticipate”, “assume”, “believe”, “continue”, “estimate”, “expect”, “foresee”, “intend”, “may increase” and “may fluctuate” and similar expressions or by future or conditional verbs such as “will”, “should”, “would” and “could”. These forward-looking statements involve known and unknown risks, uncertainties and other factors, which may cause Swiss Re’s actual results of operations, financial condition, solvency ratios, capital or liquidity positions or prospects to be materially different from any future results of operations, financial condition, solvency ratios, capital or liquidity positions or prospects expressed or implied by such statements or cause Swiss Re to not achieve its published targets. Such factors include, among others:

- further instability affecting the global financial system and developments related thereto;
- deterioration in global economic conditions;
- Swiss Re’s ability to maintain sufficient liquidity and access to capital markets, including sufficient liquidity to cover potential recapture of reinsurance agreements, early calls of debt or debt-like arrangements and collateral calls due to actual or perceived deterioration of Swiss Re’s financial strength or otherwise;
- the effect of market conditions, including the global equity and credit markets, and the level and volatility of equity prices, interest rates, credit spreads, currency values and other market indices, on Swiss Re’s investment assets;
- changes in Swiss Re’s investment result as a result of changes in its investment policy or the changed composition of its investment assets, and the impact of the timing of any such changes relative to changes in market conditions;
- uncertainties in valuing credit default swaps and other credit-related instruments;
- possible inability to realise amounts on sales of securities on Swiss Re’s balance sheet equivalent to their mark-to-market values recorded for accounting purposes;
- the outcome of tax audits, the ability to realise tax loss carryforwards and the ability to realise deferred tax assets (including by reason of the mix of earnings in a jurisdiction or deemed change of control), which could negatively impact future earnings;
- the possibility that Swiss Re’s hedging arrangements may not be effective;
- the lowering or loss of one of the financial strength or other ratings of one or more Swiss Re companies, and developments adversely affecting Swiss Re’s ability to achieve improved ratings;
- the cyclicalty of the reinsurance industry;
- uncertainties in estimating reserves;
- uncertainties in estimating future claims for purposes of financial reporting, particularly with respect to large natural catastrophes, as significant uncertainties may be involved in estimating losses from such events and preliminary estimates may be subject to change as new information becomes available;
- the frequency, severity and development of insured claim events;
- acts of terrorism and acts of war;
- mortality, morbidity and longevity experience;
- policy renewal and lapse rates;
- extraordinary events affecting Swiss Re’s clients and other counterparties, such as bankruptcies, liquidations and other credit-related events;
- current, pending and future legislation and regulation affecting Swiss Re or its ceding companies, and the interpretation of legislation or regulations by regulators;
- legal actions or regulatory investigations or actions, including those in respect of industry requirements or business conduct rules of general applicability;
- changes in accounting standards;
- significant investments, acquisitions or dispositions, and any delays, unexpected costs or other issues experienced in connection with any such transactions;
- changing levels of competition; and
- operational factors, including the efficacy of risk management and other internal procedures in managing the foregoing risks.

These factors are not exhaustive. Swiss Re operates in a continually changing environment and new risks emerge continually. Readers are cautioned not to place undue reliance on forward-looking statements. Swiss Re undertakes no obligation to publicly revise or update any forward-looking statements, whether as a result of new information, future events or otherwise. This communication is not intended to be a recommendation to buy, sell or hold securities and does not constitute an offer for the sale of, or the solicitation of an offer to buy, securities in any jurisdiction, including the United States. Any such offer will only be made by means of a prospectus or offering memorandum, and in compliance with applicable securities laws.