

Green Insurance in a Digital World

Expanding the remit of the insurance industry
through service provision for business resilience
and adaptive capacity



SUMMARY

What will the insurance industry look like in ten years time? Very different. There is already significant change taking place across the industry as insurtech start-ups crowd the market with new capabilities and offerings. Incumbents are starting to respond. But what about climate change? The industry faces a challenging future if it does not respond urgently, because there is the potential for large markets to become uninsurable and this raises questions about future solvency across the industry and more general financial stability.

This report surveys the changes taking place across the industry (the 'change agenda') and investigates how these could be harnessed efficiently to address climate change through green insurance. The study identifies connections between the change agenda identified in risk manager surveys and mechanisms for implementing green insurance. It is shown that all of the items on the industry's change agenda - including the development of customer-centric business models, digital transformation and new services - have their direct counterpart in green insurance. Green insurance therefore offers a natural, effective and elegant way to grow commercial insurance lines while simultaneously addressing critical environmental challenges. It is a proactive approach based on the delivery of vibrant, interactive and profitable services for business resilience and adaptive capacity.

Overall, the insurance industry is at a pivotal point. That pivotal point, triggered by the disruptive effect of the start-ups exploiting digital technologies for customer-centricity, has been arrived at largely in the absence of climate change drivers. However, by incorporating green into the change agenda, a vital and unique perspective is provided into how the industry could transform itself to provide active stewardship on climate risk. That process starts with a green pivot.

The green pivot has the potential to create new markets, new business models, new services, new technologies as well as new forms of green bonds and insurance linked securities. Interoperation between insurance digital marketplaces (and exchanges), the Internet of Things and the Industrial Internet is likely to play an important role in the service provision platforms. In turn these will create opportunities for reinsurers, insurers, brokers, loss adjusters, advisors and many others. The green pivot also provides opportunity for agile players from other industries to participate, potentially securing strategic positions in emerging risk, response and resilience. Partnerships with insurance incumbents to build new markets may become a significant trend.

The green insurance market is characterised by services across five major categories and these are each illustrated with examples of capabilities and services. The size of the new insurance market is estimated and the overall market is broken down across the five categories. Types of coverage are described with reference not only to traditional enterprise systems but also to the rapidly-evolving green businesses.

Green insurance has the potential to be scaled quickly through extended enterprise systems as well as cities, regions and international trading systems. The services also have the potential to connect with the capital markets in new ways in order to unlock vital resources and direct their use in ways that enhance business resilience and adaptive capacity. Systems for standardised metrication of risk and performance indices and blockchain engineering are used to identify ways in which green insurance service systems can be constructed and new types of green bonds and securities can be formulated. The formation of new value chains in the spaces between traditional segments of the insurance industry is described.

The timescales over which green insurance services need to be implemented are short because climate change is taking hold. With the need to act quickly, examples of existing innovations are

used to illustrate various approaches to green insurance, particularly through value orchestration. These provide innovative ways to secure new market share as well providing positive feedback to quicken the overall pace of change in traditional businesses.

This report presents an initial blueprint for green insurance and describes how digital disruption creates unprecedented opportunities. There is the potential to quickly create a new industry that is dynamic, digitally-rich and customer-focussed and which can be created now by those who are agile and determined to thrive.

ABOUT THE AUTHOR

Dr Michael Gell has a long background in energy, environment and digital technologies having started his career with British Gas R&D in the late 1970's. Following a decade of research into low-energy housing and industrial energy efficiency, his focus broadened to advanced electronics with IBM and MOD. He established BT's research centre on nano-electronics in 1986 and in 1990 set up the company's research centre on digital technology and internet systems. He led agile research teams and patented numerous inventions in digital technologies, including real-time pricing and ultrafast switching for telecommunication services. Michael went on establish an independent energy and environmental business in 1995 and this has evolved to Greendlick. The company has developed predictive risk analytics for green business and green investment strategies. Over the last decade the company has also designed advanced technologies for green products, green insurance and green computing. Michael has provided expertise to hundreds of companies across US, Europe, and Asia Pacific in technology, green business and transformation. He is a regular keynote speaker (including at the AIRMIC Annual Conference 1997), has over 100 publications, and numerous patents. From 1992-97, he was Editor of European Transactions on Telecommunications - Economics. Michael has served on multi-stakeholder committees (IEEE EPEAT) developing environmental standards for electronic equipment and has provided expert advice on national environmental pilot programmes and design and operation of greenhouse gas disclosure platforms. In 2009 he was a member of the World Economic Forum Task Force on Low Carbon Economic Prosperity.

CONTENTS

- 1. CHANGING WORLDS, CHANGING FORTUNES**
 - 2. CHANGE AGENDA**
 - 3. CLIMATE CHANGE & THE INSURANCE INDUSTRY**
 - 4. GREEN AGENDA**
 - 5. ADDING GREEN TO THE CHANGE AGENDA**
 - 6. OPPORTUNITIES FOR NEW SERVICES**
 - 7. THE GREEN PIVOT**
 - 8. STRATEGIC POSITIONING**
 - 9. SERVICE SYSTEMS IN GREEN MARKETS**
 - 10. SUMMARY**
- ABBREVIATIONS**

1. CHANGING WORLDS, CHANGING FORTUNES

1.1 Start of a digital transformation

The insurance industry has entered a phase of increasing competition and disruption as digital technologies are used in new ways by start-ups and incumbents to deliver better customer service at lower cost. The changes that have started will lead to more changes and eventually the industry will become locked into a process where change drives more change.

What is currently happening in the insurance industry has many similarities to what happened to the computer giants and telephone monopolies in the early 1990's. The big players did not disappear. They transformed (and are still transforming) into new companies that offer services centred on the customer. There are smaller companies competing and collaborating to offer better and better services and this has left the overall information and communications technology (ICT) industry in a state of perpetual innovation and disruption.

Turning to the insurance industry, it would not be surprising if over the next decade we see the levels of change experienced by the ICT industry over the last two decades compressed into a much shorter time. In the mid-1990's it was commonplace to distinguish between things that were happening at the normal pace and those that were happening in 'internet time'. There was recognition that things were speeding up, the pace of change was quickening, and systems and processes designed by and for the old monopolies, some of which were also heavily regulated, would not be competitive. New ways of doing business based on e-commerce were emerging and there were concerns that the technology might not be sufficiently proven or reliable; many, however, took e-commerce seriously and moved forward to build digital markets and new sources of wealth creation.¹

That is where the insurance industry is now. It is an industry about to be transformed through an already installed base of digital connectivity that is spreading quickly to connect hundreds of millions of new devices through sensors and actuators as well as new technologies, such as blockchain, that hold promise for new forms of digital enterprise and new sources of wealth creation. Unlike the situation in telecoms, the new competitors do not have to dig up roads to lay new cables or search for sites to erect new mobile masts. The new competitors in insurance can focus immediately on orchestrating and delivering value. It is for this reason that the internet revolution of the 1990's may turn out to rather slow compared with what is about to happen in the insurance industry.

1.2 An added complexity

It can be useful sometimes to draw analogies from the past because it can give hints and clues about what might happen in the future, even though the context may be somewhat different. That is the case now with the insurance industry. However, there is another factor to take into account in the transformation: climate change. Climate change has the potential to cause disruption on a huge scale. The insurance industry is directly in the line of fire. The industry has the potential to lose hundreds of \$ billions as climate-related impacts make themselves felt. There are suggestions from some quarters that in ten years time the industry may withdraw from some large markets as these become uninsurable and beyond that the industry may experience single-loss events that could be a significant part of \$1 -5 trillion. A \$5 trillion industry would find it difficult to sustain a sequence of

¹ Supply Chain Cybermastery. Building high performance supply chains of the future. A J Berger and J L Gattorna, Gower, Aldershot (2001).

loss events that are each comparable in size to the industry. According to Mark Wilson, Group Chief Executive Officer, Aviva plc “If we do not take urgent action to limit global temperature increases to within 2°C the impacts upon the economy, society and our business will be nothing short of devastating”.² Aviva has stated that it regards climate change as a strategic issue for the insurance sector.³

1.3 Building resilience and adaptive capacity

The opportunity that the insurance industry faces is one in which the digitally-driven customer-centric business-models are used to harness transformation in such a way that it delivers a dual benefit. On the one hand, the transformation needs to deliver a more vibrant industry that is responsive to customer needs and on the other hand the transformation needs to create a means by which the climate change challenge is addressed. What is required is a more sophisticated transformation. One that channels the energy and creativity being unleashed in the marketplace to simultaneously address the needs of the individual customer as well as the needs of the insurance industry, the broader economy and society to remain safe. Solving the climate change problem, or at least solving it in such a way that the worst effects of climate change can be avoided, would bring benefit to everyone. The effects of climate change cannot be avoided completely, since there is an inertia in the earth system to respond to the climate driving forces that humans are applying.

The problem that this study addresses is how to design and deliver that more sophisticated transformation. The study begins with a survey and analysis of the change agenda that is currently sweeping the industry and moves on to exploring what the industry has been doing about climate change. Ways in which the insurance industry could become more proactive in delivering solutions to climate change are then identified. The means by which those solutions can be delivered are linked to various building blocks (new technologies, new business models, etc) that are already emerging through the change agenda. By connecting solutions to the climate change problem with solutions being developed for customer-centric markets, a transformation opportunity is identified that uses a common approach to address two challenges and one that therefore has the potential to be cost effective. It is the identification of this common approach that is at the heart of what is meant by 'a more sophisticated transformation'.

The critical ingredient in all of this is the recognition that business resilience and the building of business resilience is central to success. Businesses generally will need to be more resilient and have greater adaptive capacity in the face of climate-related impacts.

The new services which this study identifies and describes are business resilience and adaptive capacity services. Associated with these services are new forms of insurance and supporting these new forms of insurance is a wide range of digital technologies, new processes, new business models, new partnerships, new ways of assessing risk, and new ways of interacting with customers.

² Aviva bit.ly/Climate15

³ <http://www.aviva.com/media/thought-leadership/climate-change-value-risk-investment-and-avivas-strategic-response/>