THE POWER TO KNOW®

Risks and Rewards for the Insurance Sector

The big issues, and how to tackle them

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An Industry View

“The risks we face keep changing shape and in particular we need to keep thinking about the longer term challenges. Long after we have proven our mettle by rising to current economic difficulties, we need to show that we can respond quickly and effectively to rising global competition and more mobile capital flows.”

Andrew Moss, Group Chief Executive, Aviva, in the foreword to the UK’s Insurance Industry Working Group’s report, *Vision for the Insurance Industry in 2020*, London, July 2009.

A Regulatory View

“The recent financial crisis clearly demonstrated that risks to the financial system can arise not only from banks, but also from other financial firms – such as investment banks or insurance companies – that traditionally have not been subject to the type of regulation and consolidated supervision applied to bank holding companies.

“To close this gap, the Congress should ensure that all systemically important financial institutions are subject to a robust regime for consolidated prudential supervision.”

Ben Bernanke, Chairman, Board of Governors, Federal Reserve System, in a speech given in Chatham, MA, October 2009.

About the Authors

Michael Imeson is a Contributing Editor of *The Banker* magazine, an Associate Editor at Financial Times Global Events, and Director of Financial and Business Publications, his own editorial services agency. Imeson is a member of the British Association of Communicators in Business.

Alastair Sim is Senior Director of Global Marketing (EMEA) for SAS. He also leads the company’s Global Marketing Program for Risk Management, and is a key member of SAS’ Global Marketing Board. Sim is a fellow of the Chartered Institute of Marketing.

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Foreword

The economic, social and environmental changes that have taken place around the world in the past decade have been difficult for everyone. Many of those changes took on a greater level of complexity following the financial crisis and global economic downturn of the past two years. Who knows what is in store for us next year, next month or even tomorrow?

Insurance companies – as risk managers, risk carriers and major investors – are in the front line when dealing with these upheavals and the challenges they create. The role of insurance is to bring some predictability, manageability and stability in what is, in essence, a chaotic world.

Insurers are themselves subject to the same upheavals and challenges as everyone else. But who brings order out of chaos for them? They are, of course, well equipped to manage their own risks, because risk management is their core business, their vital skill.

So what are the main issues that face insurers? That is the first question this white paper seeks to answer, and the answer is easy. We have set it out in Chapter 1; it ranges from how to put customers at the center of everything an insurer does, to strong risk and capital management (as required, for example, by the EU's Solvency II directive), to how to incorporate sustainability factors in core insurance processes and business operations.

How should insurers deal with these issues? That is the second question, and the answer is far from easy. We deal with it in Chapter 2, focusing on the role that business analytics has to play in helping insurers cope with the challenges they must confront. We explain how – in dealing with these issues – it is important to have an integrated view that brings together everything necessary for improving the organization's performance, such as managing customers, new business, claims, fraud, rate making and assets.

This is where SAS has a role to play, as more than 3,000 financial institutions worldwide use SAS® Business Analytics software – many of them insurance companies. It is the recognized leader in business analytics solutions and services, delivering insight to allow business leaders to make fact-based decisions on strategy and operations.

This white paper is aimed at senior executives worldwide in all types of insurance companies – life insurance, general insurance, reinsurance, composites – who want to gain greater insight into the challenges they face. They can be sure they will be well-equipped to tackle these challenges if they do so within a business analytics framework.

Michael Imeson, Contributing Editor, The Banker
Alastair Sim, Senior Director, SAS
October 2010

The Key Issues Facing Insurance Companies Today

The insurance industry is truly huge and the figures almost beyond comprehension. Worldwide premium income reached $4.2 trillion in 2008. Insurers' global assets under management stood at $19.8 trillion in 2007. The value of the risks insured by insurance companies for individuals and entities today is estimated to be around $400 trillion.

The United Nations Environment Programme Finance Initiative, which published these statistics in October 2009, describes insurance as "integral to the efficient functioning of markets, economies and societies." Insurance companies are at the cutting edge of understanding and managing risk, and acting as "early warning systems for society" by amplifying risk signals.

New risks are rapidly emerging that need covering; not just short-term risks related to the financial crisis and global economic downturn, but longer term ones such as climate change, poverty, aging populations and new varieties of international terrorism. Insurers have developed policies to cover these risks for their customers, and are working on new products. Yet insurers face risks and challenges of their own that they must plan for and manage, above and beyond what they do for others. That is what this white paper is about.

Insurance companies, just like any commercial enterprise, want to improve market share and gain new business. Therefore the design and build of new, innovative products (such as rate making) is key. The business also has to understand its customers properly if it is to increase revenue profitably and manage risk. This understanding must include an appreciation of likely future claims trends in order to decide how much capital must be set aside to meet internal and regulatory requirements.

So, in summary, what are the big issues for insurers? We have identified many, which we have put into eight broad categories:

1. Ensuring that customers are at the center of everything an insurer does.
2. Developing new, competitively priced products.
3. Integrating delivery channels, especially digital channels with traditional channels.
4. Enhancing operational efficiency and effectiveness.
5. Maintaining relations with governments and regulators.
6. Retaining strong capital positions and achieving good investment returns.
7. Strengthening risk management.
8. Embedding sustainability into core insurance processes, and into an insurer's wider activities.

This is a somewhat subjective, and therefore by no means exhaustive, list. For example, the Centre for the Study of Financial Innovation (CSFI), in its *Insurance Banana Skins 2009*, names 35 risks facing insurers. However, many of those risks can be regarded as subsets of the seven issues we have chosen: “Distribution channels” and “retail sales practices” are subsets of customer-centricity and “managing technology”, “back office” and “managing costs” are subsets of operational efficiency and effectiveness. In fact, all 35 of CSFI’s risks could fall, by definition, into our sixth category, risk management.

We do not, therefore, claim that this white paper is fully comprehensive, if you will pardon the motor insurance analogy. Nor do we have the space to look at how different types of insurers – in particular life insurers versus general insurers – are affected. Nevertheless, we feel that this chapter neatly summarizes the main issues affecting insurance companies.

Ensuring that Customers Are at the Center of Everything

“Know your customer” and “put the customer at the center of everything you do” are key business principles. They are the modern equivalents of what previous generations of executives knew as “the customer is king” and “the customer is always right.” But just because customer-centricity has long been recognized as crucial does not mean to say that businesses are good at it.

Most insurance companies need to do more to put their customers at the center. Even those that can justifiably claim they are truly customer-centric have to work hard to stay focused on the principle. But the effort is worth it because the prize is worth it. An insurance company that really does put customers at the center will boost customer confidence and loyalty. This, in turn, will translate into increased sales revenue, higher profits and, ultimately, enhanced shareholder value.

The fact that insurers need to do more to engage with customers was highlighted in a mid-2009 report from the UK’s Insurance Industry Working Group (IIWG), co-chaired by Alistair Darling, then the Chancellor of the Exchequer, and Andrew Moss, Chief Executive of Aviva. The report, *Vision for the Insurance Industry in 2020*, makes four broad recommendations, the first of which is that insurers, working with the government and regulators, should establish “a more customer-focused approach”, not only “to increase customers’ confidence and trust in the insurance industry” but also to improve financial literacy.

Allianz, the Germany-based provider of insurance, banking and asset management services to 75 million people in 70 countries, in its latest *Sustainable Development Summary* report, recognizes the need to try harder with customers. “With the reputation of financial institutions deteriorated by the financial crisis, our sector needs to rebuild customer trust,” says the company. “At Allianz, we are further strengthening our operating approach to put customers at the heart of everything we do.” Michael Diekmann, the company’s Chief Executive Officer, is quoted in the report as saying that “above all we have to listen to our customers’ needs – especially now, when so many of them feel uncertain as a result of the crisis.”

Developing New, Competitively Priced Products

Product development is a constant challenge. The ingenuity of insurers to find new ways of covering risk – and pricing it just right so that both the insured and the insurer benefit – is always being tested. Developing new products is a never-ending process, with no time to rest. Insurance firms cannot become complacent and rely on existing products; they must constantly innovate, not only to move with market changes, but if possible to lead the market.

Where do new product opportunities lie? One very fertile area is in working with governments to allow the private sector to take on some of the risks predominantly covered by the state – mainly pensions, unemployment benefit and health care – to reduce the burden on the state and taxpayers, and at the same time provide a profitable source of new business for insurers.

Another opportunity is in helping people and organizations become "climate-proof" by insuring them against climate-change-related events such as floods, droughts and storms. Another is in helping governments and businesses become "climate-friendly" by insuring renewable energy projects and efforts to reduce greenhouse gas emissions. Insurance companies that succeed in helping policyholders become climate-proof and climate-friendly will become "climate-profitable."

Great Eastern, the largest insurance group in Singapore and Malaysia, places great importance on offering customers a wide and innovative range of products for protection, savings and investment. "It constantly researches the market so that it can launch new products and enhance its product offerings," the company says in its corporate profile. "This way, it remains competitive and provides customers with product solutions that can suit their different financial goals and insurance needs."

Japanese insurer Nippon Life, 120 years old in July 2009, is devoting much time to developing "easy to understand" products, it says in its annual report. It received a great deal of feedback from people complaining that the wording of some of its policies was too complex, so it took action to simplify them.

Despite the favorable impressions that insurers give in their reports and statements, the CSFI found in its *Insurance Banana Skins 2009* survey that many respondents – three-quarters of whom were insurers or brokers – believed that insurers have a poor reputation for product development. One respondent commented that there were currently "hardly any new products in general insurance and reinsurance." Another said insurers were "slow, cumbersome and not very imaginative," and another believed that price was the only differentiator. Respondents believed that the crisis will slow down product development and leave the insurance sector more exposed to competition, particularly from banks in the long-terms savings market.

Integrating Delivery Channels

The delivery of insurance products to customers has changed in the past decade, but not as much as in banking. First Internet-enabled computers, and now smart phones, have proved in some cases to be efficient methods of marketing distribution, whether used by own sales forces, tied agents or brokers. However, branches, face-to-face meetings, post and telephone are still used much more than digital channels. The challenge today is to integrate all of these channels so that the insurer has a single view of the customer and can deliver exactly what the customer wants.

The CEA, the European insurers federation, published a report in March 2010, *Insurance Distribution Channels in Europe*, which highlighted the ways in which new technologies, in particular the Internet, have had a modest impact on the distribution of life and general insurance products.

The report found that general insurance products are mainly provided by traditional intermediaries, that is, agents and brokers. Agents are more important than brokers in most countries, the main exceptions being Belgium, Ireland and the UK where brokers account for more than 50 percent of general insurance premiums. The report showed that face-to-face contact is still the predominant sales method: "Sales through the internet, phone or mail were generally not significant in most countries (market share below 5 percent) except in the Netherlands (45 percent) and the UK (21 percent). The high proportion recorded in the Netherlands is, among other factors, correlated with the recent privatization of the health insurance scheme, health insurance products being mainly distributed by distance selling. In the UK, the broad use of the internet and telephone, particularly for acquiring motor policies, explains the high ratio."

As for life products, bancassurance is the main distribution channel in many western European countries. It represents 84.5 percent of the total life business in Portugal, for example. On the other hand, bancassurance remains limited in Germany and the UK. Sales through the Internet remain low throughout Europe because life policies are expensive complex products for which customers require advice. "The lower market share of distance selling does not mean that the internet is not used by buyers to gather information about insurance cover or to compare various offers, but rather demonstrates some difficulties in underwriting a contract via this specific channel," notes the report.

Enhancing Operational Efficiency and Effectiveness

Business leaders know the importance of operating efficiently and effectively – performing functions in an orderly manner with minimum waste to produce the intended results. Optimized operations is a prerequisite for better business performance, more efficient claims management, reduced costs, improved competitiveness, higher profitability and greater shareholder value.

Zurich Financial Services, the Swiss-based global insurer, earlier this decade made a high-profile decision to change its business practices and embark on a series of transformational initiatives, including a rigorous operational focus known as "The Zurich Way." This produced measurable improvements across all areas, but the job is far from over. "Through operational transformation we continue to build strength at our core – in such areas as risk management, underwriting and claims – while maintaining flexibility, dynamism and innovation in our chosen markets," explains Zurich in its *2009 Business Review*.

The company's operational capabilities are based on four "strategic cornerstones:" operational transformation, profitable growth, customer-centricity and people management. By operational transformation it means "the planned and systematic evolution of how we execute, focusing on customers, effectiveness and efficiency." These may be the right foundations on which to build, but the company does not pretend it is an easy task.

Allianz also places operational efficiency at the center of its strategy. It attributed its resilience in the midst of the financial and economic crisis to three key factors:

- Its long-standing 3+One program, which sets out its most important management objectives.
- Its goal of continuous improvement in its insurance core skills: risk pricing, claims management and investment management.
- The transformation of its operating business model launched in 2006, which places the customer "at the center of the whole organization" and which also "facilitates integrating all technical improvements into one common set of business processes."

"These measures ensure that all our business units use the highest standards to meet the needs of our customers while delivering benefit for our shareholders. We call this approach Delivering the Best of Allianz," said the company in its annual report. This final point is a crucial point, because it explicitly links a successful operating model with customer-centricity and shareholder value.

Finally, it is worth relating how the General Insurance Association (GIA) of Singapore two years ago adopted a new Motor Claims Framework (MCF) for its members to instill greater discipline and efficiency into the claims process. Large underwriting losses were being made on motor accounts, and in 2008 losses more than doubled to the largest ever, severely denting profits. GIA President Derek Teo wrote in the association's annual report that "this kind of result shows that something is radically wrong in the way we conduct motor insurance business in Singapore."

The solution was the MCF. Almost immediately after being introduced there were impressive increases in the efficiency of claims management that the GIA said would contain the rising cost of motor claims and premiums.

Maintaining Relations with Governments and Regulators

With one or two notable exceptions, insurance companies were not to blame for the global financial crisis. Yet they are worried they will become innocent victims of the regulatory backlash that has taken place against banks. The G20 leaders, the Financial Stability Board, the International Association of Insurance Supervisors, the Committee of European Insurance and Occupational Pensions and Supervisors, and national finance ministries and financial regulators are laying down new laws and rules that threaten the profitability, and even viability, of many insurers.

Even if the financial crisis had never happened, the regulatory burden would have increased. In the EU, for instance, the Solvency II directive had been long in the planning, even though the key principles were only agreed on last year. Solvency II, when it comes into effect on January 1, 2013, will oblige insurers to improve their risk management and ensure they set aside enough capital to cover all their risks – not just insurance risk, but credit, market, operational and other additional identified risks. The directive's creators intend that, through better risk and capital management, the likelihood of insurers failing will be reduced, thus strengthening protection for policyholders and reducing the likelihood of market disruption. EU insurers, and those doing business in the EU, are working hard to ensure they comply.

Rising taxation is also a challenge. Many countries have, or intend to, raise personal and corporate tax to levels that will curtail demand in insurance markets and reduce post-tax profits on the business that can still be done. Competition from emerging financial centers – especially in the Arab Gulf, India and Asia, which have lighter-touch regulation and, more significantly, lower tax rates and lower costs – is increasing and could damage the home bases of some of the world's longest established insurers.

Consequently, insurers and their trade associations are becoming more active in lobbying governments and regulators. They want assurances that red tape and tax will not stifle their activities. They also want politicians to take positive steps to support their insurance sectors, at home and abroad.

Britain's Insurance Industry Working Group is a good example of businesses and government getting together to tackle difficult problems, and is a model that other countries might consider adopting. The IIWG states that "the industry will work with the Government and the FSA (Financial Services Authority) to promote a stable regulatory regime … and to ensure regulation provides cost-effective and appropriate oversight"; that insurers will work with the government "to deliver a stable, predictable and competitive tax system for the medium to long-term" that takes account of "increasing global competition in a world in which capital is flexible and highly mobile"; and that "the industry will work with the Government to proactively support the UK's insurance business abroad, particularly in emerging markets, as well as within the UK."

In the US, the American Insurance Association (AIA) has welcomed the Obama administration's comprehensive plan for financial regulatory reform. However, it is worried that other attempts at regulatory change will unnecessarily affect insurers. In March 2010, Leigh Ann Pusey, AIA President, issued a statement expressing "serious concerns" about proposed legislation released by Senator Chris Dodd, Chairman of the Senate Committee on Banking, Housing and Urban Affairs. She said that the proposals would penalize insurers "for the mistakes of riskier financial firms."

"Legislation that proposes to prevent future crises by forcing property-casualty insurers to pay into a pre-funded resolution mechanism or arbitrarily including insurers in a systemic risk regulatory regime penalizes stability, leading those same consumers and investors to unfairly conclude that the property-casualty sector is unsustainable and unreliable," complained Pusey. Although she ended by saying the AIA stood ready to work with the committee to achieve effective financial regulatory reform, her statement illustrates the difficulties of regulators and the regulated finding common ground.

Retaining Strong Capital Positions and Achieving Good Investment Returns

In distressed financial markets, maintaining capital reserves and achieving respectable returns on proprietary and clients' investments has proved to be a difficult, and often impossible, challenge for insurers.

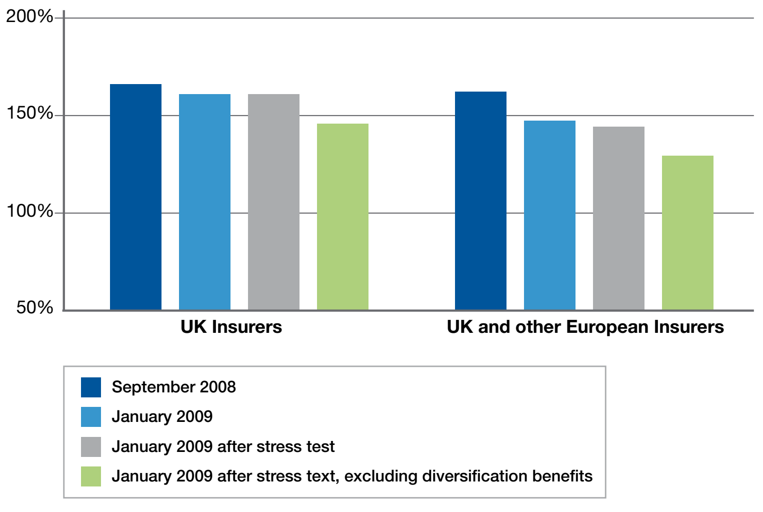
They have taken three hits from the financial crisis and economic downturn. First, their capital reserves have been depleted in several ways: by lower revenues and lower retained profits; by a shortage of equity and debt investors; by liquidity demands; by low interest rates; and by a fall in the value of securities, property and other asset classes, although the recent market bull runs have gone some way to reverse the trend. Having less capital threatens insurers' solvency positions and their ability to meet customers' claims, exposes them to the risk of regulatory noncompliance with capital adequacy rules (such as the EU's existing solvency requirements and the new Solvency II directive), and makes it harder to write new business.

Secondly, their proprietary investment portfolios have lost value, hitting profits that have traditionally been buoyed by asset appreciation. Thirdly, their clients' investments have fallen in value; life company policyholders' long-term savings, pensions pots and other assets have fallen in value, resulting in disappointed and disaffected customers. Insurance companies offering guaranteed returns have been especially vulnerable.

CSFI's *Insurance Banana Skins 2009* survey showed that poor investment performance, equity markets and capital availability were regarded as the first, second and third biggest risks identified by respondents, and "are all connected with the fall-out from the credit crunch, and its impact on the strength and profitability of the insurance industry."

The IIWG's report showed how European insurers had suffered from "capital erosion from falls in equity, property and bond values" (see Figure 1, Capital Strength of European Insurers – Total Capital Ratio (TCR)). Having said that, their capital positions are still strong.

Capital strength of European insurers – Total Capital Ratio (TCR)



Notes: The Total Capital Ratio is the relationship between the amount of capital held by the business and the amount of capital needed to support the insurer's business and financial strength rating. A TCR above 100 percent therefore indicates that the insurer is adequately capitalized. The TCRs allow for diversification benefits unless stated otherwise.

Source: ABI Research based on Morgan Stanley Research. 'The insurance industry: rebuilding confidence in Europe,' ABI (2009a).

Figure 1: Capital strength of European insurers.

Strengthening Risk Management

The turbulence in the financial markets stretched insurance companies' risk management policies and procedures. They held up well compared with those of banks, but they are nevertheless being reviewed and strengthened, where appropriate, in all key areas: insurance, liquidity, operational, credit, market and other relevant identified risks.

Any risk management approach needs to be enterprisewide – it must be formulated at the center, integrated across the organization, and applied by the heads of each business line. At AIG, for example, the insurance company that suffered the most in the crisis, risk management has been improved. "The business executives are responsible for establishing and maintaining risk management processes in their areas of activity under the risk management framework established by AIG senior management, and responding to their specific business needs and issues, including risk concentrations within their respective businesses," says the company in its latest annual report.

Effective corporate risk governance at the top of the organization is essential. AIG's major risks, for example, are addressed at the corporate level through enterprise risk management (ERM), which is headed by AIG's chief risk officer (CRO). ERM reports to the CEO and is responsible for assisting AIG's business leaders, executive management and board of directors to identify, assess, quantify, manage and mitigate the risks incurred by AIG.

Regulators are also taking a closer interest in how insurers manage risks, an important example of which is the EU's Solvency II directive, work on which started well before the financial crisis. The directive was adopted in 2009 and comes into effect in 2013. Its main objective is to force insurance companies to improve their risk management and set aside enough capital to cover all the risks they take.

Like the Capital Requirements Directive, which implements the Basel II framework in Europe, Solvency II is organized in three pillars. Pillar 1 requires firms to show they have enough capital to cover the risks (insurance, credit, market and operational risks) to which they are exposed and to remain solvent, according to two measures: the Solvency Capital Requirement (SCR), which is the ideal level; and the Minimum Capital Requirement (MCR), which is the lowest level below which a firm must not fall. A firm can choose to calculate its SCR and MCR using its own internal model (which must be approved by the regulator) or the European Standard Formula.

Pillar 2 is the Supervisory Review Process. This requires firms to demonstrate that their risk management systems and capital allocation processes are effective, which they do through an Own Risk and Solvency Assessment (ORSA). Pillar 3 requires firms to disclose publicly certain information about their risk and capital management.

Embedding Sustainability into Core Insurance Processes and into an Insurer's Wider Activities

It is essential for companies today to act in a socially, ethically, economically and environmentally responsible way, and be seen to do so. Their activities have to be proven to be sustainable, with clear policies on staff diversity, financial inclusion, the environment and other related issues. Insurers will therefore look closely at the sustainability credentials of their corporate customers when underwriting policies.

Insurance companies themselves are, of course, bound by the same principles. They need to be profitable and keep shareholders happy, but they must also be good corporate citizens. The original impetus behind sustainability policies may have been driven by the desire to improve corporate reputations, but businesses today recognize that sustainable development has to be a core discipline that is critical to survival and fundamental to the long-term financial success of the business.

Having said that, the financial crisis has caused insurers to lower the importance of sustainability issues as they focus on more pressing matters. In the *Insurance Banana Skins 2009* survey, "climate change" was only 28th on the list of insurers' concerns, falling from fourth place in 2007, and "pollution" was 34th, down from 21st, reflecting a sense of declining urgency about these issues. "How fashions change!" wrote the survey's authors. "The only obvious reason for the sharp decline of what respondents last time described as 'the hot topic' is that green issues have been downgraded by the recession." Some respondents thought it would be only a temporary blip, and that climate change would bounce back up the listings very quickly. Others thought it was not a genuine issue, but one "got up" by the green lobby.

Some of the world's biggest insurers are members of the United Nations Environment Programme Finance Initiative (UNEP FI), the partnership between UNEP and more than 170 financial institutions worldwide, whose role is to promote best environmental and sustainability practices. The Insurance Working Group (IWG) within UNEP FI looks at sustainability issues in the insurance sector and how firms can integrate environmental, social and governance (ESG) factors into their core business strategies and operations.

The IWG says it believes "that the systematic analysis, integration and management of ESG risks and opportunities in core insurance processes (e.g., underwriting, product development, investment, claims management, and sales and marketing) is material to enhancing long-term company value." The IWG talks about the need for "sustainable insurance," consistent with "the triple bottom line of people, planet and profit."

How to Deal with the Issues Using the Power of Business Analytics

We have outlined the issues facing insurance companies today. The question now is how in practice should they be dealt with? Part of the answer to that question is to understand and exploit the full power of business analytics.

Business analytics is the collection and analysis of data about a business which is then used to help the business make better-informed decisions. It uses the latest software and technology, but it also embraces processes and people to become part of the corporate culture. A business analytics framework therefore contains solutions, software and services that help companies navigate challenges and capitalize on opportunities.

It starts with the automated collection of reliable, relevant and timely data on all aspects of the business. The data is then cleansed, managed and analyzed, and used in one of five ways: to provide standard and ad hoc management reports and dashboards; to profile and segment groups of people, risks or transactions; to forecast what will happen in the future; to engage in predictive modeling; and to optimize business decisions (see panel for details).

The outcome is to provide decision makers with automated insight into their organizations; not only into what happened in the past, but why it happened, what may happen in the future and how the organization can manage its business to take into account unknown events and achieve the best possible outcome. This insight – coupled with management's personal knowledge and experience – is used to make fact-based decisions, decisions that will optimize and transform the business.

Business Analytics: The Five Main Forms

1. **Standard and ad hoc management reports and dashboards.** These provide automatic feedback from many sources on the achievement of key performance criteria. These reports and dashboards are used to improve management's ability to make better and faster decisions on matters such as meeting targets on sales, call center response times and service standards.

2. **Profiling and segmentation.** This measures the behavior or performance of a group of people, risks or transaction types. Examples include measuring customers by profitability, claims by size or frequency, and customers by product preference.

3. **Forecasting.** This enables insurers to estimate what will happen in the future, based on the statistical evaluation of current and historic aggregate data.

4. **Predictive modeling.** Aimed at deriving the CLV (customer lifetime value), this predicts future behavior or performance based on an analysis of transactional data, third-party data (like claims history, geo-demographic data, and structured financial product performance) or derived data often calculated from one or more data elements. Examples include pricing adequacy based on costs, possible losses and required margin; and the likelihood of fraud.

5. **Optimization.** This optimizes business decisions, usually based on multiple scenarios or multiple predictive analytics models. However, any activity that can be optimized can also be constrained, so the trick is to limit the constraining effects. For instance, the success of a campaign will usually be constrained by the size of the marketing budget, so the objective should be to achieve the best possible results within the budgetary limits.

For more details relating specifically to the insurance sector, refer to the white paper *The Optimized Insurer: Using Analytics to Optimize Business Performance*, which is available from www.sas.com.

Business analytics therefore has a vital role to play in helping insurers meet the challenges of today, and should become part of a firm's culture. It will allow an insurer to gather accurate intelligence on its customers, intelligence that will deepen customer insights to put customers at the center. Sound data analysis will form the basis of new product development and pricing, and enhance operational efficiency and effectiveness. Accurate information and regular reporting are prerequisites of regulatory compliance, and also risk management. Finally, a business analytics framework will assist an insurer in assessing key sustainability factors – environmental, social and ethical – when underwriting and pricing policies, developing new products and investing, as well as when measuring its own sustainability credentials.

This chapter takes the key issues outlined in the previous chapter and shows how they can be managed using the business analytics capabilities described above. The result will be better business performance, greater profitability and satisfied shareholders.

Putting Customers at the Center

As outlined in the first section, for all the progress made in recent years on customer relationship management and getting to know customers better, insurance companies are still not focusing on customers as much as they should be. A truly customer-centric organization that improves the customer experience will reap the rewards, in terms of increased loyalty, revenues and profitability.

Business analytics can play an important role in this respect by helping insurance companies gather more accurate intelligence about their customers. Enhanced customer intelligence will help a company deepen its customer insights, choreograph its customer interactions and continuously improve its marketing performance.

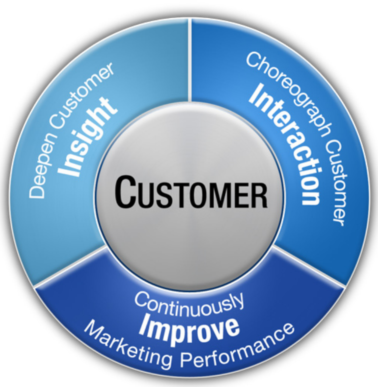


Figure 2. A customer-focused marketing process.

Firstly, to gain insight into what customers will do in the future, a company must understand what they have done in the past. Business analytics can be used to manage customer data and understand the behavior patterns of the best and worst customers. By gaining insight into customers' attitudes, behavior, profitability and risk, management will be able to make smarter decisions about marketing.

Secondly, customers want to feel that their insurer understands them. They expect to be properly communicated with and treated consistently. Marketing efforts, therefore, must be well-orchestrated and synchronized across multiple channels. Business analytics gives a company the ability to do just this – to choreograph a comprehensive, multichannel marketing communication strategy that optimizes every resource to achieve the desired goals and maximize return on investment. Finally, business analytics is critical in implementing a closed-loop marketing process that makes adjustments and improvements over time.

But better customer intelligence is just one part of the customer-centricity story. To make it a winning story, insurance providers must also have robust strategies and processes in place to retain existing customers and win new ones; find new ways to maximize customer profitability through effective sales channels; and have more precise segmentation and better communications.

In other words, they must fully embrace customer relationship management, and deploy it within a business analytics framework. Such a framework will allow the insurer to maximize customer intelligence to get the best return from campaigns; optimize customer campaigns and channels by automatically tracking each campaign element; implement complex customer interaction strategies, such as multichannel and event-triggered campaigns; and create, deliver and track high-volume, opt-in, personalized e-mail marketing campaigns based on a thorough understanding of the customer.

Developing a Wide Choice of Insurance Products That the Market Needs, and Which Are Competitively Priced

Sound data is at the foundation of new product development and how new products are underwritten and priced. Calculating the probability of traditional risks turning into losses is difficult enough, and requires sound actuarial methods and disciplines; calculating probabilities for emerging risks to be insured, and arriving at workable premiums, is even more complex. Obtaining a comprehensive and accurate view of data is important for insurers, but hard to achieve, especially considering the cyclical nature of the market. Advanced analytic techniques are therefore essential.

Up-to-date, accurate data about the risks to be insured, and who is to be insured, is the basis for sound underwriting. The underwriter uses this data to estimate the expected losses and expenses over the anticipated period of coverage; to calculate the premiums necessary to cover these costs; and to avoid adverse selection (i.e., where people, organizations or property that are most likely to suffer losses are covered in greater proportion than others).

A business analytics framework will allow insurers to manage all types of insurance products they offer, using a platform that can be easily integrated into existing IT and management frameworks. The platform will include an insurance data model and data management processes that support the company's risk analysis, actuarial calculations and economic capital assumptions. A further benefit is that it will measure return on investment (ROI) to show whether a product has been priced profitably or not. Measuring ROI over the long periods that many insurance policies run without a claim is particularly difficult, but it can be done.

Integrating Delivery Channels

Across all channels, digital and traditional, customer information needs to be gathered and analyzed to provide an immediate and complete picture of each customer. Without a complete picture, delivery will be fragmented.

Digital channels, though not as widely used as traditional, offer the best chances of collecting customer data. Every website interaction can be captured to create customer-centric knowledge which can be integrated with other digital and traditional channels. This will allow insurers to more effectively understand, model and market to their customers.

A business analytics solution applied to an Internet channel will include a website user scoring system that identifies key behaviors, the geographic location of the user and RFM (recency, frequency, monetary value) scores for users. It will be able to track the effectiveness of any given marketing campaign and recommend how to refocus advertising spending and marketing content.

Such an approach can also be used by staff members in branches and call centers at their computers. During a conversation with customers, or from paper or electronic documents filed by customers, data is keyed or scanned into the system. Once in the system it will be cleansed and merged with the data gathered from digital and other distribution channels to build a single customer view.

Enhancing Operational Efficiency and Effectiveness

Ensuring that operations are carried out quickly and at reasonable cost, and that they achieve what they are supposed to achieve, is a constant slog but essential to maintain profitability, return on investment and shareholder value. At the core of improved operations is data, but many companies find it hard to manage their data, vast quantities of which are scattered throughout the enterprise, and convert it into the intelligence that executives need to understand and optimize their operations. To add to their problems, the common silo mindset of business units slows the delivery of information to those who need it, and a lack of clear operational performance measurements can make it impossible to execute corporate strategy successfully.

A business analytics framework will gather information from various sources throughout the enterprise and then use it to provide the operational performance measures needed to make better strategic decisions and communicate those decisions throughout the company. It will allow the business to gain a complete picture of its operations and increase both its efficiency and effectiveness.

There are four main areas where insurance companies could dramatically enhance their operational efficiency and effectiveness, helped by better operational insight:

- **Claims** (e.g., link analysis, claims benchmarking, loss forecasting and fraud management).
- **Customer management** (e.g., segmentation, lifetime value, retention, cross-sell and up-sell, and understanding the customer experience).
- **Channels and products** (e.g., distribution insight, product mix and the network).
- **Risk management** (e.g., Solvency II, economic capital, asset/liability management and operational risk).

By using business analytics, an insurer can understand its operations more fully and optimize them. It is important in claims management, for example, especially in difficult economic times; with sales and premium income already depressed, an increase in claims payouts can easily turn profit into loss. To make matters worse, claims fraud tends to increase in a recession. It is therefore more important than ever to manage the claims process effectively, speeding up the time it takes to settle a claim, as well as more accurately assessing claims and forecasting likely outcomes.

Managing the cost of claims means making the right decision as each new piece of the claim puzzle comes into place. As a claim becomes more complex with more settlements – perhaps there is a physical injury element or legal considerations to be taken on board – the cost to the insurer accelerates. It is therefore crucial to make the right offer, at the right time, to the right people – while accurately forecasting the loss reserves – in order to mitigate the severity of the claim.

Large amounts of data are involved in claims management, but a business analytics framework can properly manage and analyze this data. It is able to detect whether a claimant has artificially inflated a claim to compensate for excesses and inconvenience, or whether a claim is wholly fraudulent.

Maintaining Good Relations with Governments and Regulators

Governmental and regulatory action can be both hindrance and a help for insurers. Business-hostile laws, burdensome financial regulation and increased levels of taxation can all adversely affect profitability, the viability of certain business lines and the attractiveness of a financial center. On the other hand, in recent times governments have taken emergency action to support the industry – the US government's rescue of AIG being a case in point – or created policies designed to make their countries more attractive as an insurance base than other countries.

Generally, however, insurers see officialdom as more a threat than an opportunity, and business analytics can be a great help in ensuring regulatory compliance. The regulations, laws and standards affecting insurers are numerous. They include the EU's Solvency II directive, the US' Sarbanes-Oxley law, and, almost everywhere else, rules on consumer protection, anti-money laundering and the distribution of retail products.

Take the Solvency II directive, which will fundamentally change the capital adequacy regime for Europe's insurers when it comes into force in 2013. One of the challenges the directive poses is the need for robust data management. Due to volume and complexity, data organization and planning will account for between 60 and 80 percent of a Solvency II project's cost. But with the power of business analytics, an insurance company will be able to collect and integrate data across the enterprise, analyze it using powerful software, and put it into a suitable format for reporting up the line to chief risk officers and the board, and to supervisors.

Other Solvency II challenges that business analytics can be deployed to overcome are executive-level understanding of risk, operational integration at a daily process level, system accuracy and control, and the need to operate in multiple jurisdictions with the different languages, currencies, laws and regulation that entails.

Treating customers fairly (TCF) is another area where business analytics can make a difference. A number of regulators around the world now require financial firms, including insurers, to demonstrate to themselves and to regulators that they are fair to consumers.

Retaining Strong Capital Positions and Achieving Good Investment Returns

Maintaining capital reserves and achieving returns on clients' and proprietary investments has proved difficult or impossible at a time when financial markets are distressed and economies are in recession or registering below-trend growth. Capital efficiency – in terms of investment strategy, liquidity and portfolio management – when capital is in short supply, is everything.

The debate on capital and risk management is dominated in Europe by the Solvency II directive, but it is a critical issue for insurers worldwide and is inextricably linked to sound investment strategies. Some insurers have their own asset management divisions or subsidiaries, while others outsource the responsibility to specialist asset management companies.

When the Solvency II directive comes into force in 2013, insurance companies throughout Europe will have to set aside more capital to cover all the risks they take. They will have to abide by the following measures – the Solvency Capital Requirement (SCR) and the Minimum Capital Requirement (MCR), as well as qualitative requirements – and business analytics will help them in those calculations and assessments, which will entail a large data gathering, cleansing, analyzing and management exercise.

Insurers managing their own investments will also need to do so within a business analytics framework. The first step will be to gather and analyze data to acquire a deep and up-to-date understanding of the business, its organizational structure, the financial ratios, its tax liabilities and more. The second and third steps will be to construct an investment portfolio to match the company's return objectives and risk appetite, and to select the securities and other assets to fit that portfolio; both of these stages will require the profiling and segmentation of asset types, forecasting, predictive modeling and optimization. Finally, investment performance, risk measures and other finance-specific evaluations will be measured and reported to management for action to be taken where necessary.

Enterprise risk management solutions are key elements of the investment process. Daily updates of market data on equities, fixed income, indices and other financial instruments across the whole portfolio range can be loaded into a central data warehouse. This data can then be used by risk management systems to automatically carry out regular value-at-risk (VaR) calculations. In addition to the daily standardized risk calculations, the risk systems will analyze unusual market events, carry out any type of scenario analysis on an ad hoc basis and determine the risk exposures.

Strengthening Risk Management

The core business of insurance is managing and carrying risk – transferring risk from policyholders to insurers through the underwriting process. But the insurer's other risks – market, credit, operational, liquidity risk and so on – must also be managed effectively. All of these risks should be managed through an enterprisewide framework that allows the insurer to identify, measure, manage, report and monitor risks, and then adjust the company's risk profile in line with its business objectives and risk appetite. There must be clear governance so that everyone – from the supervisory board and executive management through to heads of business and compliance – knows what their responsibilities and reporting lines are.

Effective enterprise risk management is about embedding risk management into everyday processes at all levels of the organization. To achieve this requires unified, quantitative software that can provide integrated, comprehensive data management; powerful predictive analytics; user-friendly self-service reporting; and a transparent environment that lets the risk professionals manage the entire process.

A business analytics framework will therefore be helpful. It will, for example, assist European insurers in complying with the Solvency II directive. Solvency II is designed to protect policyholders and prevent a financial crisis in the European insurance industry by requiring insurers to implement sound economic risk management practices. Other regulatory bodies worldwide are following the European example and implement similar solvency standards in an effort to strengthen the insurance sector.

Business analytics software and services will help an insurer meet solvency regulations by:

- Implementing an enterprise data management platform that will combine asset and liability data from operational applications across all different lines of business, then cleanse and transform that data into a consolidated enterprise view.

- Performing complex quantitative risk analysis calculations, such as the Solvency Capital Requirement (SCR) and Minimum Capital Requirement (MCR) calculations necessary for Solvency II.

- Complying with regulatory requirements for transparency with a transparent reporting mechanism that gives a clear understanding of the organization's risk position, thus enabling informed, strategic business decision making.

At the narrower level, business analytics can be deployed to deal with specific risks such as fraud, a serious operational risk. Insurance claims fraud is widespread and expensive, with estimated losses exceeding $30 billion a year in the US alone. Most fraud detection solutions uncover fraud based on a single claim or customer in isolation and are unable to identify wider bogus claims patterns associated with organized crime. A fraud framework underpinned by different analytics techniques will detect and prevent both opportunistic and organized claims fraud.

Embedding Sustainability into Core Insurance Processes and into an Insurer's Wider Activities

All companies today must be seen to be operating in a sustainable way. They must show that their activities have a positive impact on the wider community, on the economy and on the environment – or at least that they do not have a negative impact.

The Insurance Working Group (IWG) of the United Nations Environment Programme Finance Initiative (UNEP FI) has been looking long and hard at sustainability issues, in particular how to integrate environmental, social and governance (ESG) factors into insurance companies' business strategies and operations. The IWG believes that the systematic analysis, integration and management of ESG risks and opportunities in core insurance processes – underwriting, product development, investment, claims management, and sales and marketing – is material to enhancing long-term company value.

The IWG's report, *The Global State of Sustainable Insurance: Understanding and Integrating Environmental, Social and Governance Factors in Insurance*, published in October 2009, stresses the importance of data collection and analysis in ensuring that ESG risks are properly taken into account when underwriting and pricing insurance products. It says that a "detailed analysis of a large body of historical experience and loss data" is necessary to understand these ESG risks, even though much of the data required may be in short supply.

This is where a business analytics framework can help. Such a framework will gather data on global emerging risks – such as climate change, biodiversity loss, ecosystem degradation, demographic change, financial exclusion, human rights and new laws and regulations – analyze and understand the data, which can then be used by the insurer as the basis for making sound, forward-looking risk assessments and underwriting decisions.

The framework can also be used by an insurer to collect and analyze data on the ESG performance of its corporate policyholders. It is the duty of all policyholders to disclose all material risk factors, but conventional disclosure practices may lag behind current requirements and may not therefore capture all ESG factors; with the power of business analytics, an insurer will be able to detect such nondisclosures and help its customers meet their obligations. The same capability can be applied to an insurer's investment portfolios as well, to assess how well companies in which it invests comply with ESG principles.

Finally, an insurer can use business analytics to measure its own compliance with ESG principles. To what extent have we been able to limit carbon emissions, waste and water consumption? How much of an equal opportunity employer are we? Are we operating ethically? Are we ready for new regulations? All these searching questions require significant data input and analysis to provide accurate answers. Once it has the answers, the company's management will be able to make properly informed decisions on what steps to take next.

Taking Action

This document has outlined the vital role that insurers play in the world economy as risk managers, as risk carriers and as institutional investors. It has shed light on the critical issues that face insurers – the need to put customers at the center of their strategy and activities, develop new products, enhance operational efficiency and effectiveness, maintain good relations with governments and regulators, manage capital and investments, strengthen risk management, and act in a sustainable way.

Most importantly, this paper has shown how insurers can deal with those issues by harnessing the power of business analytics. A business analytics framework will collect, integrate and analyze data, and then report it up the line for business leaders to make fact-based decisions that resolve problems and make the most of opportunities (see Figure 3). The result will be more effective management, a better performing business, greater profitability and – the Holy Grail for all enterprises – enhanced shareholder value.

Figure 3: A framework for business analytics.

So what is the recommended course of action for insurers who want to go down this route? The simple answer is that they should ensure that business analytics becomes a central feature of their strategy and operations. It should become part of their culture, just as so many other business basics – such as customer management, operational excellence, workforce development and diversity, and investor relations – have become embedded in every successful enterprise.

Insurers using a business analytics framework, embedded and aligned with every aspect of the enterprise, will find it easier to deal with the big issues of the day. They will be able to turn adversity into opportunity. Deploying such a framework – incorporating the latest software and technology, and embracing sound processes and skilled people – will allow them to collect and analyze data about their core business activities and make fact-based decisions that propel the enterprise forward. It will help them comply with new legislative and regulatory requirements. And it will act as a guide and facilitator on the route to good corporate citizenship.

Success in all dimensions is what insurers aspire to; success in meeting not only the narrow financial expectations of shareholders, but also in meeting the different expectations of customers, employees, suppliers, local communities, regulators and other stakeholders. This success can be achieved through the power of business analytics.

About SAS

SAS is the recognized leader in business analytics software, solutions and services, which will deliver the right information – at the right time – to empower fact-based decisions at every level of your enterprise. Our leadership is built on the combined strengths of our software, our domain expertise and our more than three decades of experience helping our customers not only adapt to change, but anticipate it.

SAS has more than 30 years of experience in financial services, working closely with around 3,000 of the top financial institutions worldwide in the areas of risk, customer and performance management.

The SAS Business Analytics Framework is composed of:

- **Data management.** Only SAS has built, from the ground up, a comprehensive enterprise data management environment, bringing together any format and type of data to enable analyses within or from outside the organization. This vision is made even stronger by our leadership in data mining and text mining – helping you find patterns within, and interpret, both structured data and unstructured data, such as e-mails, text documents, images and video.

- **Analytics.** For three decades, SAS has been the leader in helping organizations apply statistical and mathematical functions to support actuarial calculations and risk management processes, as well as predictive analytics, to drive proactive decision making. Understand not only what happened in the past, but also "Why is this happening?", "What will happen next?" and "What's the best that can happen?"

- **Query and reporting**. With SAS, query and reporting are part of a seamless approach for creating and sharing intelligence.

- **Business solutions.** The capabilities above provide the technology foundation for delivering SAS business solutions that improve performance within every organization – such as achieving greater return from customer relationships, claims optimization, measuring and managing risk, and driving effective human capital strategies.

- **Packaged industry solutions.** These reflect SAS' domain expertise in specific industries or lines of business, such as insurance.

Everything we do contributes to better performance management. SAS helps you achieve not only financial excellence, but also operational excellence – seeing, managing, improving, learning and evolving to be the best you can be.

SAS Institute Inc. World Headquarters +1 919 677 8000
To contact your local SAS office, please visit: **www.sas.com/offices**