
Broking 2020:

Leading from the front in a new era of risk



Protecting against a new breed of emerging risks requires co-ordination across corporations, insurance companies and policymakers. Insurance brokers are ideally placed to lead this 'risk facilitation'. But as the pace of change within the marketplace accelerates, a major rethink of how they operate and compete is likely to be needed.

An aerial photograph of a large, open stone plaza. Several business professionals in suits and dresses are walking across the plaza. Long shadows are cast across the ground, suggesting it is either early morning or late afternoon. The plaza is paved with large, light-colored stone tiles. In the bottom right corner, there is a curved stone wall or ledge.

About the research

The findings within this report are based on an in-depth survey of risk buyers (typically Heads of Risk or CFOs) from multinational corporations. The participants bring together a range of sectors and company sizes. In addition, we undertook face-to-face interviews with Steve Hearn, Deputy CEO of the Willis Group, Daniel S. Glaser, President and Chief Executive Officer of Marsh & McLennan Companies, and Dominic Christian, Executive Chairman of Aon Benfield International.

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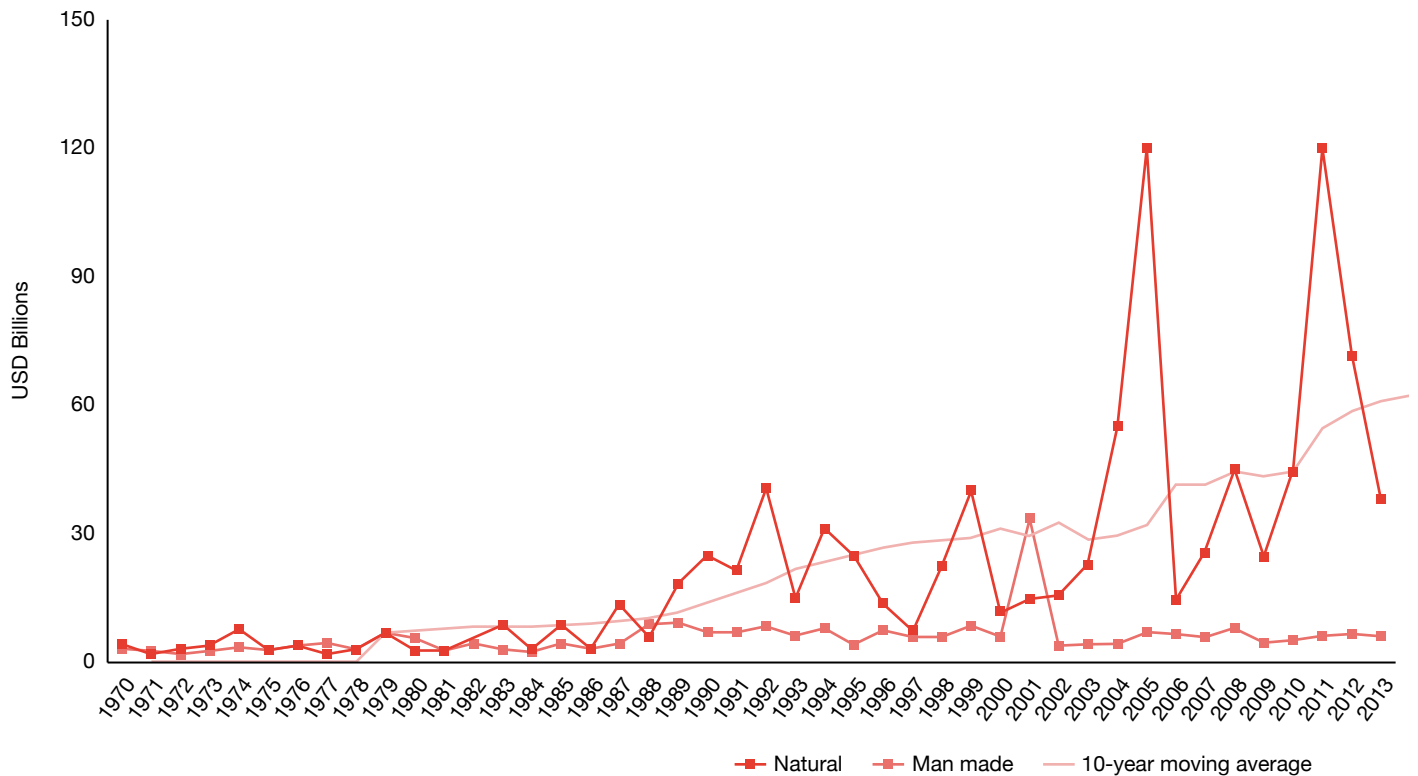
Introduction: A new era

We're pleased to introduce Broking 2020: Leading from the front in a new era of risk.

The world is facing an increasingly complex, uncertain and, in some important areas, under-insured risk environment. For example, climatic and geopolitical instability are making once unthinkable losses seem almost commonplace as illustrated in Figure 1, which highlights the sharp rise in average catastrophe losses since the 1970s.

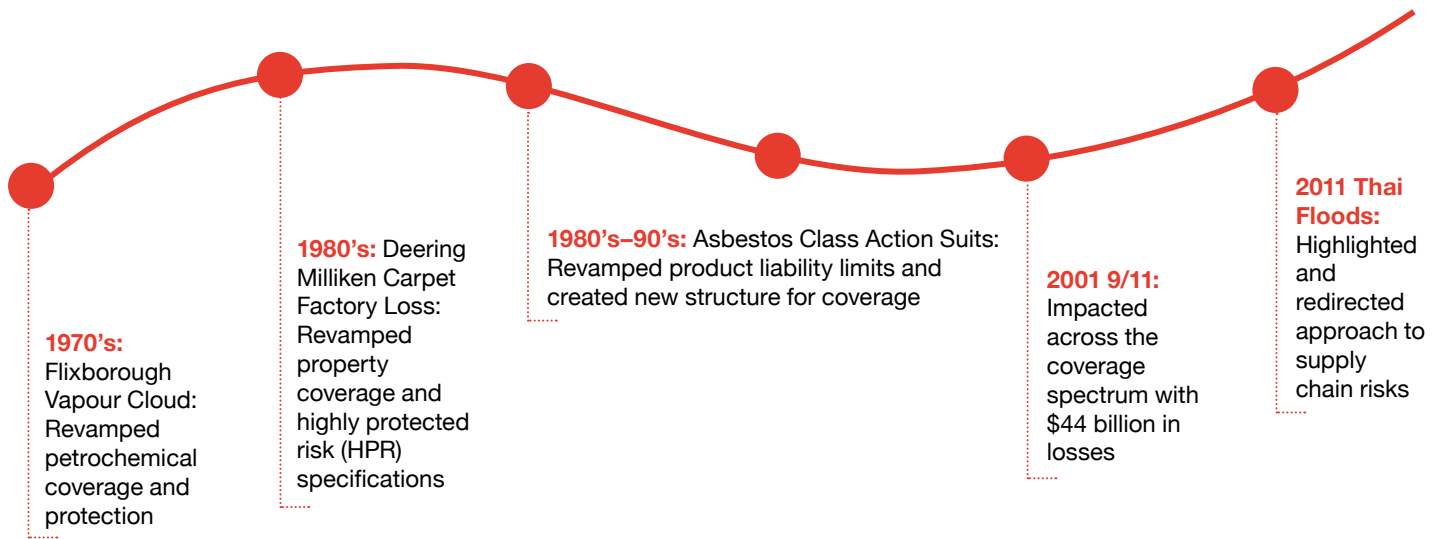
Looking at past responses to shifts in the risk environment, Figure 2 outlines significant claims that have affected industry practices in recent decades. Figure 3 highlights the potentially dangerous economic impact by revealing the growing gap between insured and uninsured losses.

Figure 1: Global catastrophe insured losses—1970 to 2013



Source: Guy Carpenter Global Catastrophe Review 2013

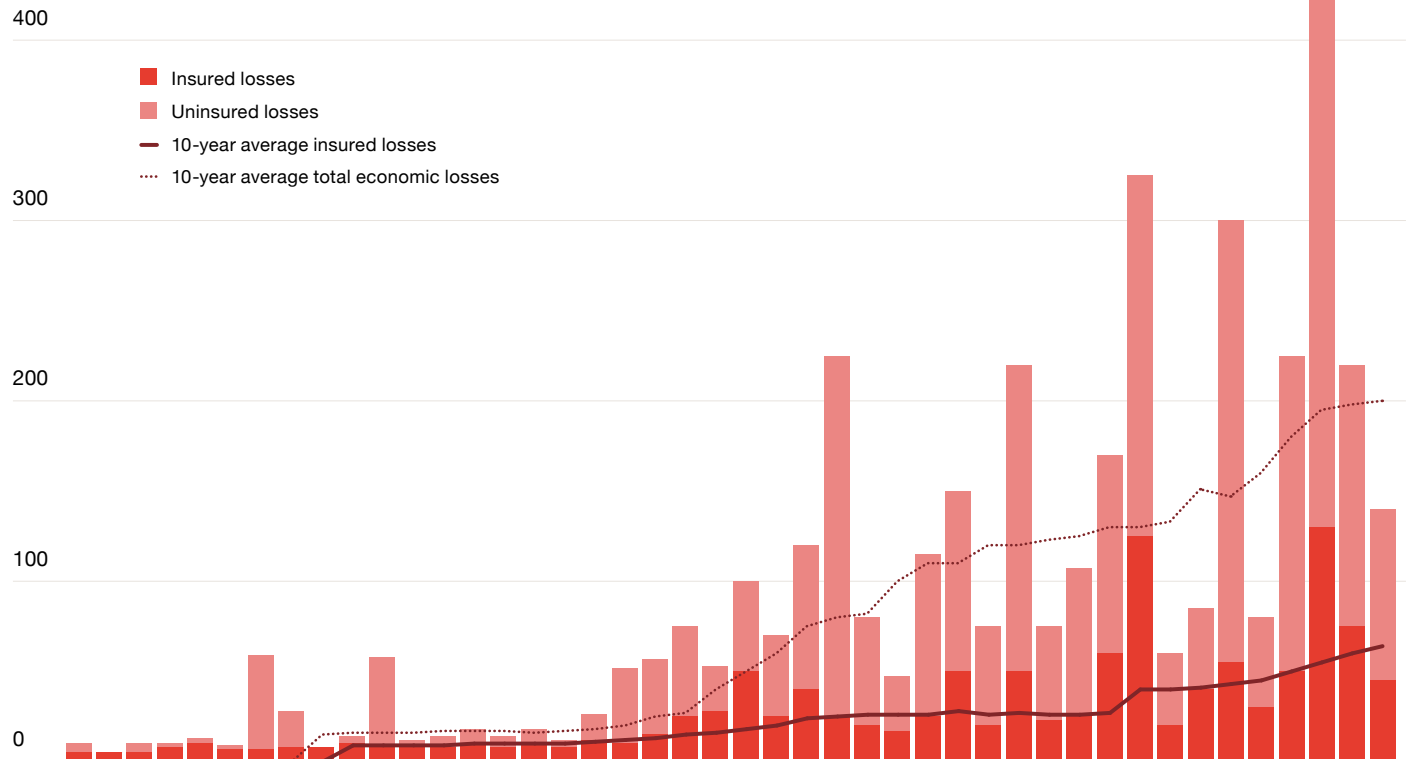
Figure 2: Significant claims that affected industry practices



Source: PwC analysis

Figure 3: Insured losses versus uninsured losses, 1970-2013

In USD bn, at 2013 prices



Economic loss = insured + uninsured losses

Source: Swiss Re Sigma

Escalating exposures

The risk of loss is likely to continue to increase. An example of this is how the globalised economy is creating ever more diffuse and vulnerable supply chains. In turn, growing reliance on technology is introducing an array of new and escalating risks in areas ranging from cyber-attack to nanotechnology.

Given the potential for sharply rising losses and ever more complex loss drivers, the evolving risk environment can no longer be managed solely through traditional approaches. Solving these complex and dangerous challenges requires a comprehensive risk facilitation leader to educate, promote and co-ordinate solutions across a range of stakeholders including corporations, insurance/reinsurance companies, capital markets, and policymakers worldwide.

Risk facilitation leader

So what are the implications for brokers? As the traditional intermediary in the risk transfer chain, brokers are ideally placed to identify and develop viable and innovative solutions to the changing risk environment—to be global risk facilitation leaders. We believe there are a number of ways that brokers can ensure they stay on top of the frenetic pace of change in this new era of risk:

- Adapt business and operating models to simultaneously support both cost-efficient standard risk management *and* a knowledge-intensive consultative interaction with clients
- Expand their information gathering network to better anticipate and understand the new and emerging risks facing their clients
- Improve their ability to collect, integrate, analyse and communicate data to create actionable insights—shifting to more of an ‘analytical/consultative’ broker

Emerging risks are the number one priority for risk functions in the companies we surveyed.

“The world we have made as a result of the level of thinking we have done thus far creates problems we cannot solve at the same level of thinking at which we created them.”

—Albert Einstein



Customer revolution

- Power shifting more to customers on standardised risks
- Potential new business opportunities on a variety of “emerging risks”
- New business in niche markets

Demands for profitability and capital stewardship

- Investing in IT to gain efficiencies
- Dealing with “the black swan problem”
- Economically managing a wide variety of ever changing risks

Information and analytical sophistication

- New markets, new products
- Technology/analytical investments for economic insights/innovation

The way forward

In this paper, we look at the forces reshaping the marketplace and what would enable brokers to come out in front. Our exploration of the future of broking draws upon interviews with Dominic Christian, Executive Chairman of Aon Benfield International, Daniel S. Glaser, President and Chief Executive Officer of Marsh & McLennan Companies, Steve Hearn, Deputy CEO of the Willis Group. The report also draws on the findings of PwC's survey of risk service buyers from a range of large international corporations, who discussed their changing priorities and expectations. We would like to thank the contributors for providing their valuable time and insights.

What emerges from our analysis is that while brokers are generally seen as 'trusted advisors', their clients' expectations are changing faster than ever and others are vying to take on this partnership role. In relation to the increasingly complex and constantly shifting 'non-standard' risks, risk managers are looking for 'consultative partners', who have the necessary knowledge of their risk challenges and who can develop the solutions they can't afford to create

themselves. Meeting these demands is likely to require rapid and extensive adjustments in brokers' business and operating models, especially as they will still have to provide cost-effective solutions for 'standard' risks. Our exploration of how brokers can respond focuses in particular on cyber risk and nanotechnology, two of the risks that characterise this unfamiliar and challenging risk landscape.

We hope that you find the paper challenging and useful. If you would like to discuss any of the issues presented in more detail, please speak to your usual PwC contact or one of the authors listed.

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“Change always brings new risk, and ways of doing things. On this basis, this should change the landscape for broker support and services.”

—Survey participant

Insurance 2020: Future of insurance

Broking 2020: Leading from the front in a new era of risk is the latest viewpoint in PwC's Insurance 2020 series, which explores the mega trends that are reshaping the competitive environment for insurers, brokers, policyholders and the markets in which they operate.¹

Our clients are using the Insurance 2020 materials to help them judge the implications of these trends for their particular organisations and to

determine the strategies needed to respond. The central message from Insurance 2020 is that whatever organisations are doing in the short-term—be this dealing with market instability or just going about day-to-day business—they need to be looking at how to keep pace with the sweeping Social, Technological, Economic, Environmental and Political (STEEP) developments that are transforming the world.

STEEP drivers

1. Social

Customer behaviours:

- Social networking
- Customer expectations
- Risk awareness
- Health

Talent drain

Stakeholder trust

Corporate social responsibility

2. Technological

Information and analytics

Devices and sensors

Software and applications

Medical advances

3. Economic

Urbanisation

New growth opportunities

Fiscal pressure

Inflation/Deflation

Risk sharing & transfer

Social security & benefits

Distributor shift

Partnerships

4. Environmental

Climate change & catastrophes

Sustainability

Pollution

5. Political

Regulatory reform

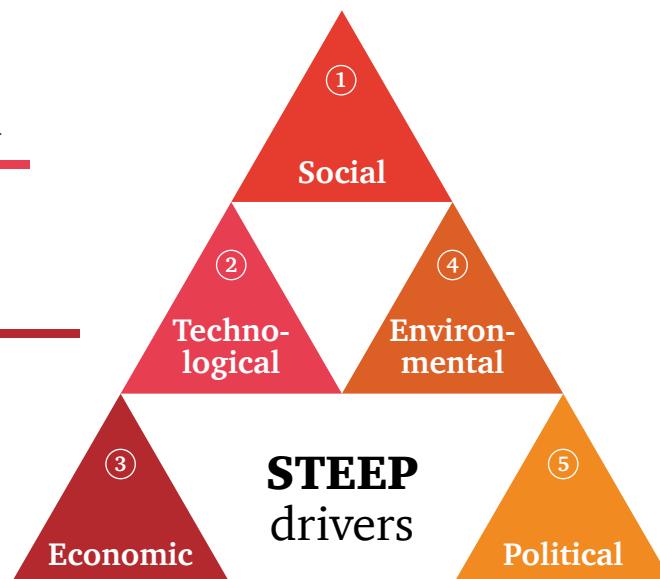
Geo-political risk

Rise of state-directed capitalism

Terrorism

Tax treatment

Sharia compliance (Takaful)



Source: PwC analysis

¹ www.pwc.com/insurance/future-of-insurance and www.pwc.com/projectblue

1. Forces transforming the risk landscape

Established approaches to risk management are now being outflanked and outpaced by the contagious speed and connectivity of new, evolving and escalating risks (known and as yet unknown).



The disruptive forces that are reshaping the global risk landscape and their impact on businesses, brokers, insurers/reinsurers and governments can be framed using our STEEP framework:

1 Social

Social media² is changing how businesses engage with their customers and with each other. The tracking of these interactions is providing valuable new sources of ‘big data’ insight. However, it also allows for the viral spread of negative news and misinformation, which could lead to a sudden loss of value and even the collapse of a client corporation (‘digital wildfires’).

2 Technology

Technology is transforming how people communicate and conduct business. For brokers, technology can help to boost information flows and value-adding analytical capabilities on the one side and take costs out of distribution and service on the other. As such, it is opening up new ways of engaging with risk managers, insurers and reinsurers and providing the basis for richer discussions and sharper insights.

Yet technology also presents difficult challenges across the different market segments. For brokers whose client base includes large risk management

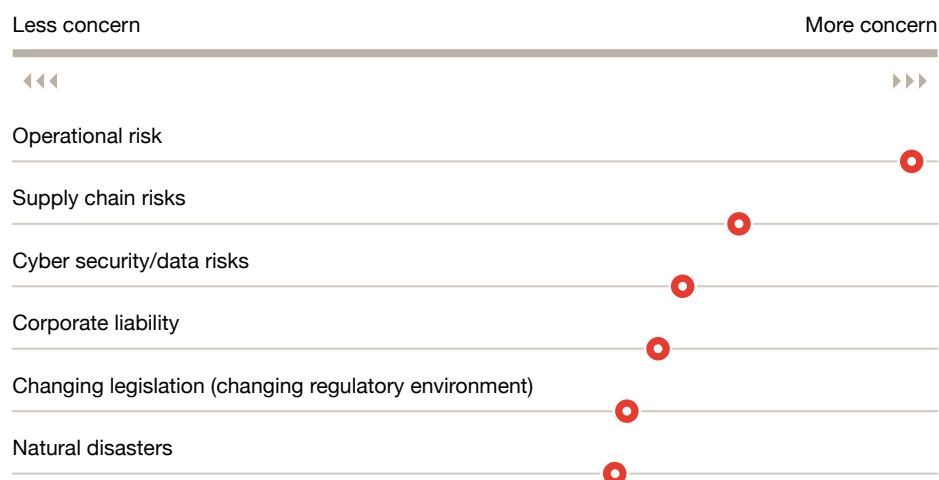
accounts there is an ever present disparity regarding fees and expenses. Standardised placement options would allow for greater cost controls. But consulting activities and the requisite intellectual capital to provide appropriate solutions to emerging issues will create alternative costs that must be divided between clients and insurers. Similarly, while new placement platforms can provide cost-effective options for commission-based mid-market clients, greater systems compatibility and easier information flows between brokers and carriers may be needed to realise the full value of these developments.

Moreover, there is also a darker side to new technology. As Figure 4 highlights, cyber security is a top concern for the participants of our survey of risk managers—well ahead of natural disasters. These concerns stretch beyond corporations to governments. The anxieties of policymakers are highlighted by Chris Inglis, recently retired deputy director of the US National Security Agency, who has gone so far as to say that “it’s not possible to secure this [cyber]space”³

The interplay between technological possibility and the risk of loss can also be seen in the developments of nanotechnology. A new class of ‘smart materials’ is set to revolutionise everything from cars to cosmetics. While these discoveries open up a world of possibility, there are also growing concerns that exposure to nanoparticles could lead to a variety of losses.

Figure 4: Most serious risk concerns

Rank the following risks in order of concern.



Source: PwC Risk Buyer Survey 2014

² The number of mobile devices and connections in the world has now surpassed the number of people on the planet (Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2013–2018, Cisco, 05.02.14)

Lloyd's estimates that 17 fast growth markets had between them an annualised insurance deficit of \$168 billion in 2012.⁴

3 Environmental

Catastrophe liabilities are being heightened by the increasing value of assets and production in South East Asia, Latin America and other fast growth regions. Huge swathes of these regions are climatically or seismically unstable. In addition, there is often a lack of risk information available to ensure pricing adequacy. Steve Hearn, Deputy CEO of the Willis Group cited the 2011 Thai floods as a warning of what can go wrong if brokers and insurers are behind the curve on developments in risk and pricing.

4 Economic

Better risk insight, protection and transfer are essential in sustaining global growth. Yet at present there is a huge and growing protection gap. This under-insurance creates significant threats to growth and their ability to recover from disasters.

In turn, globalisation is creating ever more diffuse supply chains—another top risk concern for our survey participants. In fact, supply chain risk is starting to become a bigger consideration in the manufacturing strategy than the costs within many major corporations.

5 Political

Governments in state-dominated insurance sectors such as China and India simply do not have the desire or the capability to absorb their countries' fast rising insured values (either directly or through state-owned reinsurers). Even in mature markets, many governments are unable or unwilling to continue to play the role of 'insurer of last resort', especially if a major or multiple loss event occurred.

The perfect storm

While the STEEP drivers can create new and difficult challenges on their own, it is the disruption they can create when they combine that is causing most concern. We've already seen examples of this 'perfect storm': the virtually simultaneous occurrences of Hurricane Ike, fears over a possible avian flu pandemic and the collapse of Lehman Brothers in 2008–2009. What if some future cyber breakdown (technological) precipitates a financial crisis (economic) in the midst of a Cat 5 hurricane (environmental)? It's the need to understand and model these scenarios which is causing many corporations to look for help beyond traditional risk management and risk transfer channels.

³ Wall Street Journal, 23.06.14

⁴ Lloyd's and the Centre for Economics and Business Research, Global Underinsurance Report, 27.11.12 (www.lloyds.com/news-and-insight/riskinsight/underinsurance-report)

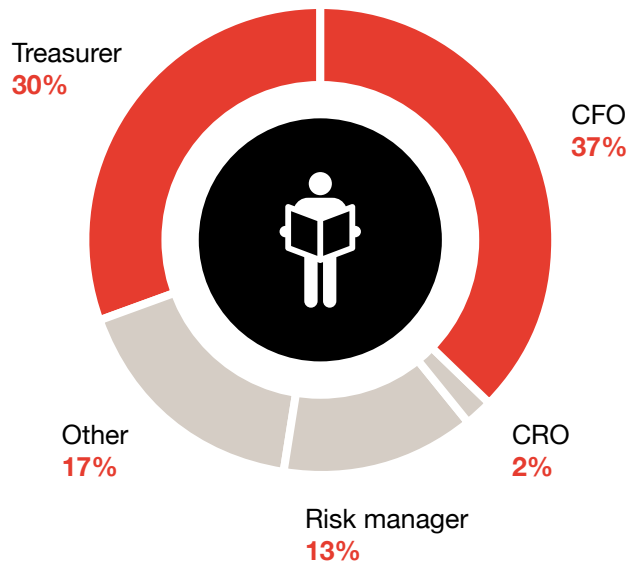
An ‘age of ages’

What this all adds up to is a new and very different risk landscape to anything that has been experienced before. Daniel S. Glaser, President and Chief Executive Officer of Marsh & McLennan Companies, described the time we’re living in as an ‘age of ages’, in which the age of information (data and connectivity), age of uncertainty (e.g. cyber and heightened climatic risk) and age of accelerating change are coming together to create a set of coalescing risks that few corporations have or are indeed able to build into the economics of the businesses. “The exposures boards are focusing on have moved on from familiar operational risks to cover risks of a gravity and unpredictability that could challenge the continuance of their businesses,” he said. “Many clients are finding it difficult to look around these risks to the opportunities ahead.”

Board-level advisors

The strategic nature and catastrophic potential of many of these emerging risks mean they are attracting significant boardroom attention. As Figure 5 highlights, it is the CFO who is most likely to make the final decision on purchasing cover, ahead of treasury and risk teams, which underlines the top level focus.

Figure 5: Who makes the final purchase decision (select only one)?



Note: Pie total is 99% due to rounding
Source: PwC Risk Buyer Survey 2014

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—Daniel S. Glaser, President and Chief Executive Officer of Marsh & McLennan Companies

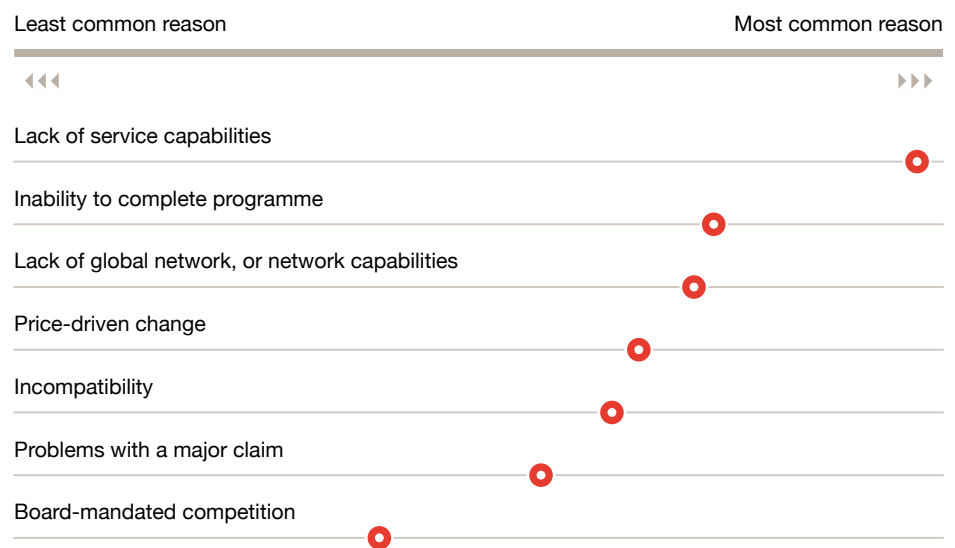
The strategic nature of the evolving demands being placed on brokers is further underlined by the fact that price is below service capabilities and the ability to complete the programme in the list of why companies would switch brokers (see Figure 6). This may in part be because rates are generally soft at present. But it does suggest that brokers are well-placed to pursue high margin opportunities. They also have the scope to invest in the information advantage and new market developments needed to capitalise on these openings.

Brokers' ability to help their clients respond to today's emerging and strategically critical risks would confer considerable benefits on both them and the companies they serve. This

not only includes mitigating the risk of losses but also enabling enterprises to pursue strategic opportunities with greater confidence. On the flip side, failure to provide insightful advice could call relationships and capabilities into question.

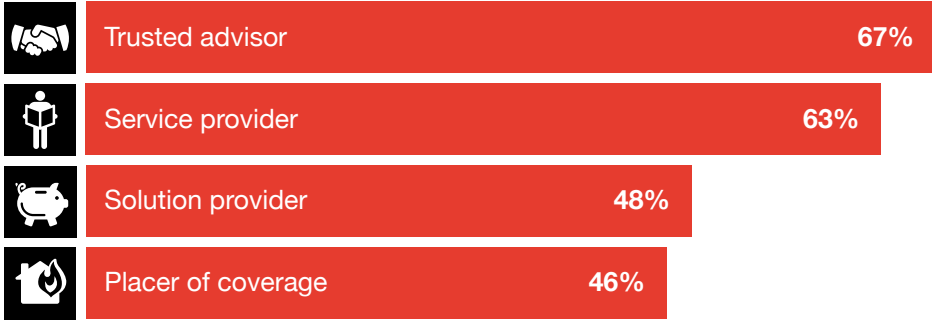
So how well positioned are brokers to capitalise on these opportunities? Two-thirds of risk managers in our survey characterise their brokers as 'trusted advisors' (see Figure 7), but relying only on past relationships to carry the industry forward is seemingly not an effective strategy. As Figure 7 further highlights, far more participants see their broker as a straightforward service provider than source of solutions.

Figure 6: Rank the following reasons that you have/would commonly switch brokerage firms.



Source: PwC Risk Buyer Survey 2014

Figure 7: How would you characterise your relationship with your brokerage firm?



Respondents were allowed to choose multiple responses.

Source: PwC Risk Buyer Survey 2014



Survey participants see service capabilities and the ability to complete the programme as more important than price in choosing a broker.

2. Consultative broking demands broader information gathering, insight and collaboration

The new risk landscape requires greater sharing of data and knowledge and a fully co-ordinated response.



Investment in people, advanced systems and data gathering have enabled major corporations to become much better informed about their risk profiles and risk management options. There has been a move to greater retention of routine risks as a result and pressure on prices for covering what is still insured. How can brokers remain competitive within this 'standard' risk segment of the market?

The parallel challenge is how to keep pace with the new and escalating risks. The scale and uncertainty of such emerging risks make it difficult for any individual business, government or even insurer to quantify them. Cyber risk provides a good example of how these exposures are hard to define, difficult to assess and constantly evolving. The result is ambiguity over what exposures are actually insured, whether the protection is adequate and whether it has been secured at the right price. What role can brokers play in bringing these complex and unfamiliar risks under greater control?

PwC's observation is that the market is polarising between standard and non-standard risks. The development of fast, efficient and cost-effective electronic platforms are crucial in being able to serve the standard end of the spectrum. In turn, a combination of analytics, expertise and bespoke solutions are key elements of the consultative approach needed to manage non-standard risks.

Two-speed growth

Two-speed growth is one of the core themes we've been exploring in our Insurance 2020 papers. At a macro level this reflects the divergent growth trajectories between developed and emerging markets. On the developed market side, the challenge is how to sustain growth in relatively mature insurance sectors. While overall growth has slowed in markets such as China and Brazil, the need for insurance cover has continued to expand in the wake of increased wealth and investment in infrastructure and production capabilities. But the growth opportunities for brokers and insurers need to be set against the greater uncertainty over risk and difficulties in pricing it accurately stemming from the limited availability of risk data.

The diverging standard and non-standard markets brokers have to serve are a further example of how companies are being required to operate at different speeds. The challenge is how to develop and market the high end capabilities needed to help clients manage new and emerging risks, while sustaining the cost competitiveness and ease of placement needed at the standard end of the market.

74% of survey participants are looking to brokers for analytics to help inform their decision-making.

Demands on broker as ‘partner’ increasing

So where are brokers today? All of the risk managers we surveyed see placement as a given (almost all expect it). Nearly three-quarters also want analytics to help inform their decision-making, with concerns over new and emerging risks being a strong driver for this demand.

But while risk managers continue to primarily rely on brokers as the main source of information in making their risk placement decisions (see Figure 8), they do *not* always see brokers as the primary source of solutions for their risk concerns (see Figure 9). It’s especially notable that carriers and industry groups are

ahead of brokers as the primary source of solutions for cyber and supply chain risks, which are at the forefront of the risk concerns identified in our survey (see Figure 4 on page 3).

Becoming the go-to partners for developing and co-ordinating innovative and effective solutions in these priority risk areas is at the heart of the commercial opportunity for brokers. Yet, our survey suggests that there are important areas where brokers are falling short of the market’s demands and therefore need to adapt. For example, less than a third of respondents are very satisfied with brokers’ analytical and modelling services across a range of areas (see Figure 10).

Figure 8: Primary source of information in making risk placement decisions

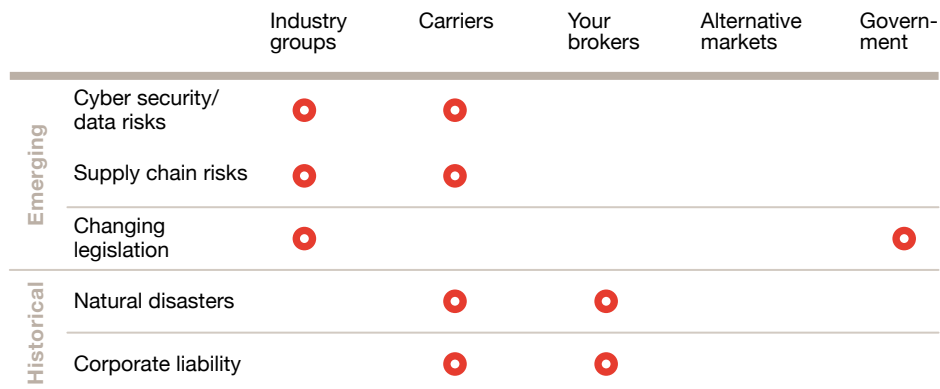
What sources of information do you rely on most when making risk placement decisions?



Source: PwC Risk Buyer Survey 2014

Figure 9: Primary source of solutions for risk concerns

Where do you expect the primary solution for these risks to come from?

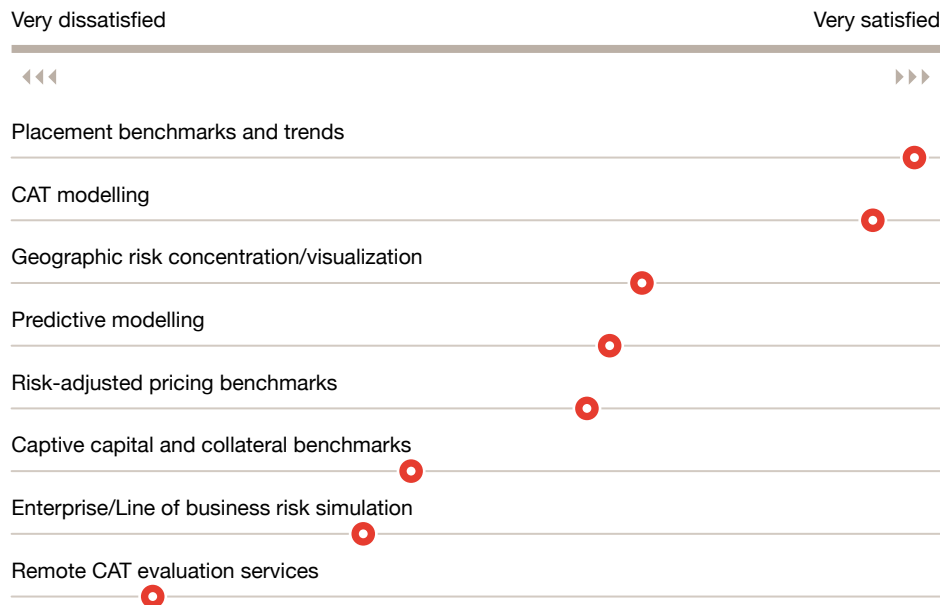


Top two responses shown.

Source: PwC Risk Buyer Survey 2014

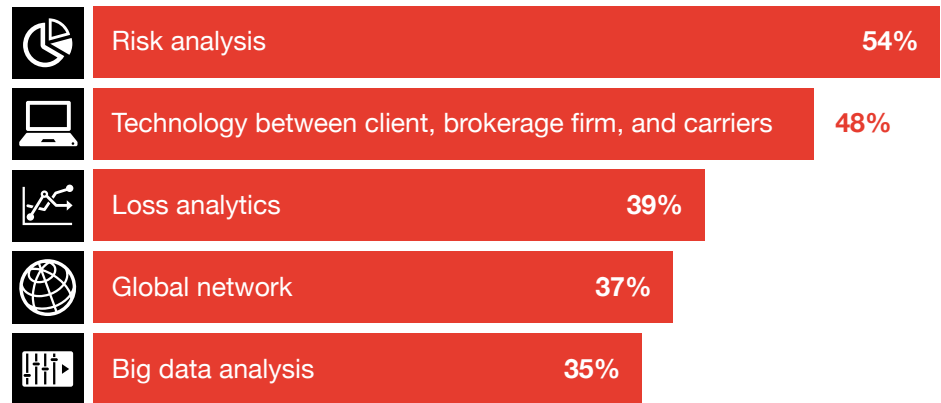
Figure 10: Satisfaction with brokers' services

If you use the services in the list below, rate how satisfied you are with them.



Source: PwC Risk Buyer Survey 2014

Figure 11: How can your brokerage firm assist on a more efficient basis?



Respondents were allowed to choose multiple responses.

Source: PwC Risk Buyer Survey 2014

Information advantage as the key differentiator

In our view, big data and advanced analytics are going to be crucial in managing the emerging risk landscape and strengthening brokers' position as the primary source of risk solutions. These capabilities open up opportunities to identify, anticipate, quantify and price a wide variety of risks. At the heart of these analytical developments is the shift from hindsight to foresight as brokers continue to evolve from being simply placers of coverage to being preventative risk advisors and managers.

These more advanced capabilities can be monetised as a complement to advisory services. Further openings include the development of risk information services that can be accessed by either corporations or capital market participants. The hedge funds investing in Insurance-Linked Securities (ILS) are an example of potential users of these services. The capabilities can be developed in-house, through acquisition or partnership with specialist consultancies.

Daniel S. Glaser of Marsh & McLennan highlighted the importance of using brokers' expertise and dynamic analytics to help businesses anticipate and understand the risks they face and being able to make more informed decisions about how to address them. "As analytics develop, we're in a much better position to help boards look beyond risk as a claims cost to measure its true economic cost," he said. "However, clients don't always know or take advantage of what we can offer. The ball is therefore very much in our court to clearly articulate how brokers can support their decision making and help their businesses to pursue opportunities and growth."

To support this, our survey reveals a strong appetite among corporate clients for more advanced forms of analytical support. When participants were asked how their brokers could assist them on a more efficient basis, risk analysis topped the list (see Figure 11). Significantly, more than a third also cited 'big data' analysis. We believe the winners will be those brokers who quickly master the art and science of

identifying ambiguous threats and then mobilise a broad private/public stakeholder pool to economically manage those risks over time.

"Clients are essentially asking for three things: 'What risk can you help me to understand better', 'how can you help me to grow my business' and 'how can you help me transfer risk through traditional or capital market means at a price I can accept'," said Dominic Christian, Executive Chairman of Aon Benfield International. "There are very few brokers who have the scale, licences and analytical capabilities to answer all three of these questions, which is why the market is becoming more concentrated and difficult to enter. But I still think there is scope for niche companies to compete in particular complex risk areas, cyber for example."

Many smaller brokers may lack the scale to develop advanced capabilities in-house. So it will be important for them to find ways to pool resources or access market-wide information services.

Collaborative approach

To lead in this new era of risk, it's also important that brokers forge close relationships with a broader set of stakeholders that includes governments, academia, specialist risk consultancies and even their industry peers. The ability to identify and collaborate with a diverse set of partners is going to become a core competency for risk facilitation leaders. In this respect, it's also going to be important to develop shared databases and research capabilities.

The challenges include how to bring together all the information and expertise and forge it into actionable real world solutions. In turn, brokers need to assure this diverse stakeholder group that they are the right party to lead.

Supporting multiple operating models— Consultative and lean

The underlying consideration in this twin-speed market is how to control costs and operate at the level of service and support that different clients now demand. The new analytical capabilities and the people to support them clearly come at a price.

The challenges brokers face in a cost-competitive marketplace are highlighted by the \$420 million cost saving programme announced by the Willis Group in April 2014. "As we continue to invest to grow revenues, we also have an opportunity to take more action on expenses," said Dominic Casserley, Willis Group CEO, announcing the first quarter results.⁵

The balance of consultative and standard broking will vary from client to client. It's therefore important to gain a clear understanding of their particular needs and price expectations. The level of required support will also vary over time, so it's important to be able to track and anticipate evolving demands.

Moreover, even if the focus of the business is primarily consultative, the ability to sustain lean and efficient operations is critical. In particular, sharpening efficiency and focus will enable the business to free up resources for more complex and higher margin activities.

Key aspects of the leaner operating model are likely to require a redefinition of the value proposition for both the customer and the carrier. Key priorities include the ability to identify and quickly mobilise all appropriate information gathering and solution creating expertise from within the organisation and outside. The need to respond to clients' changing channel and engagement preferences in a sufficiently fast and economic way would also require the development of a new acquisition, placement and service architecture. Elements would include a low-cost service model and self-service models for certain areas of business and deployment of the cloud for workflow, as well as providing transparency to stakeholders. The primary objective is to enhance competitive relevance rather than simply drive down costs. In particular, it's important to ensure targeted cost savings that enhance rather than impair the capabilities needed to meet evolving risk and client demands.

Facilitating the expansion of ILS

ILS now makes up around 15% of the reinsurance limit in property catastrophe.⁶ Yet, the full potential of ILS is still untapped. As we explored in our 2013 paper, *Expanding the potential of ILS*,⁷ investors are facing competition to put their money to work within their current market focus, primarily US East Coast property catastrophe. We're therefore set to see alternative capacity moving into wider geographical zones and extending its reach into a broader set of exposures such as flood, terrorism or pandemic risk.

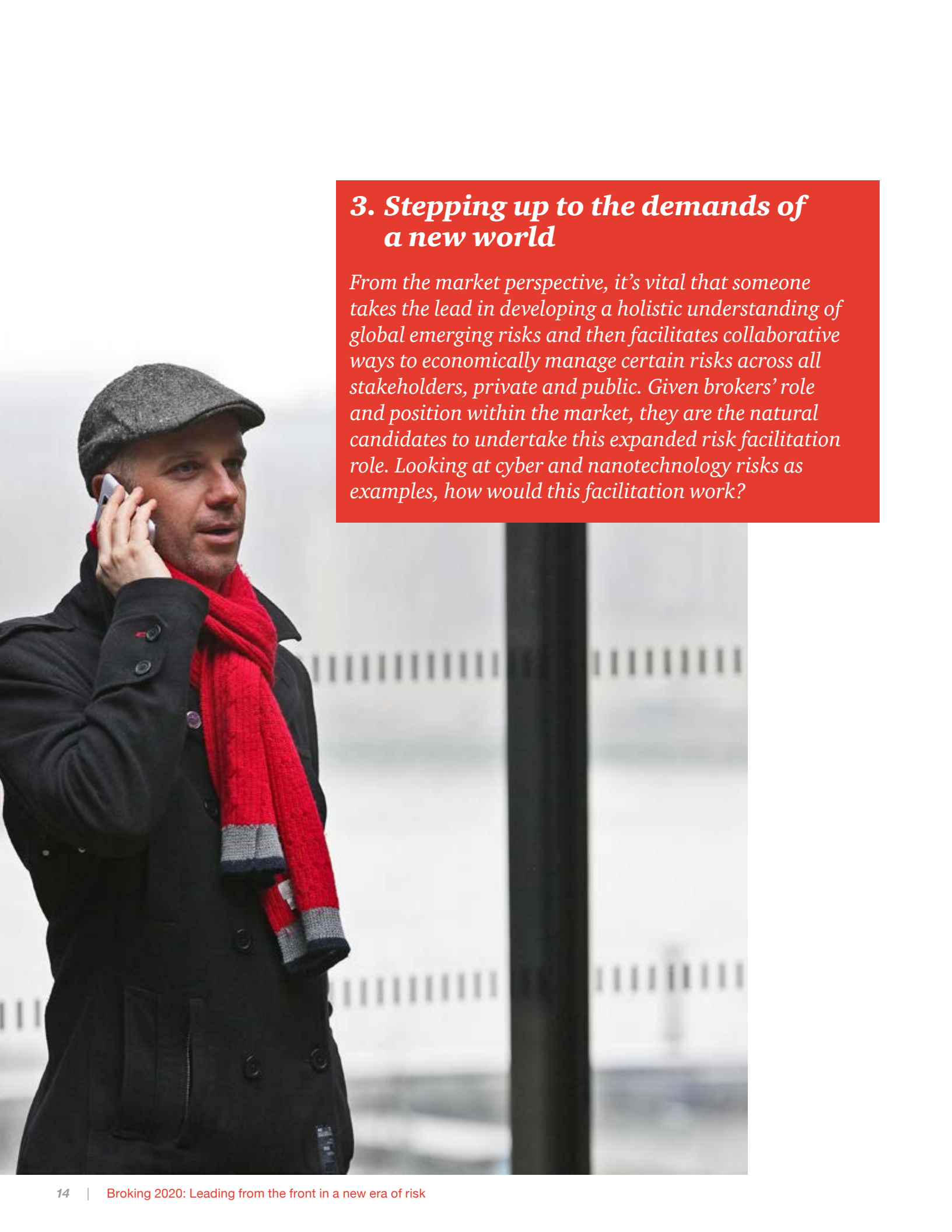
"Increasing demand for ILS has created an opportunity that brokers are uniquely positioned to exploit," said Richard Mayock, PwC's Global Insurance Brokerage Leader, in an interview with Artemis in 2013.⁸ "In the coming two–three years, we see a scenario where brokers leverage three of their strategic assets—deep data-driven market insights, global customer relationships, and knowledge of public and private emerging risk concerns—to assist with the development of a stream of new ILS products and market them through a broker-led exchange specifically focused on economic risk mitigation."

⁵ Willis Group media release, 29.04.14

⁶ Guy Carpenter June 2014 renewal briefing

⁷ http://www.pwc.com/en_GX/gx/insurance/pdf/expanding-the-potential.pdf

⁸ www.artemis.bm, 9.09.13



3. Stepping up to the demands of a new world

From the market perspective, it's vital that someone takes the lead in developing a holistic understanding of global emerging risks and then facilitates collaborative ways to economically manage certain risks across all stakeholders, private and public. Given brokers' role and position within the market, they are the natural candidates to undertake this expanded risk facilitation role. Looking at cyber and nanotechnology risks as examples, how would this facilitation work?

Information advantages are already giving leading brokers the edge in certain areas of risk identification and mitigation. Building on this, brokers would take the lead in:

1. Identifying, quantifying, managing, and tracking a wide spectrum of emerging or as yet ambiguous threats
2. Mobilising corporations, insurance/reinsurance companies, capital markets, and global governments to develop a better understanding of certain threats and more efficient strategies to manage them over time
3. Designing the right mix of self-insured retention, insurance, reinsurance, and capital market risk mitigation to economically protect corporations and the wider economy from the impact of catastrophic risks

Our survey suggests that brokers are in a strong position to assume broad-based leadership in this area. They have strong ties with their government and commercial clients—nearly 80% of survey participants consult with their broker at least weekly, indicating that this is far more than just an insurance placement/renewal relationship. Brokers also have the confidence of their commercial clients—nearly 90% of participants believe their brokers have a good understanding of their risk requirements.

As Steve Hearn of the Willis Group notes, “we’re engaging with our clients in a different way than if we were just transacting. The new breed of ‘analytical brokers’ are more information-driven than their traditional counterpart and have a deeper knowledge of the client’s particular industry,” he continued. “To lead, there needs to be a shift in mindset from ‘we have a policy’ to ‘we understand the dynamics of your business and market and can help you to develop the solutions.’”

“The new breed of ‘analytical brokers’ are more information-driven than their traditional counterpart and have a deeper knowledge of the client’s particular industry”

—Steve Hearn, Deputy CEO of the Willis Group

Cyber risk highlights value of a new brokerage model

Cyber risk exemplifies how the market is changing and what brokers can do to broadly facilitate management of the risks within it.

Cyber insurance is one of the fastest growing product lines in the commercial insurance sector.⁸ However, the nature and extent of cyber risk is not measureable statistically given the lack of loss experience. Additionally, cyber risk is not fixed as it can expand or contract due to a wide variety of reasons such as the actions of foreign governments (friend and foe alike). This is likely to be one of the reasons why US Admiral Michael S. Rogers of the National Security Agency has “encouraged companies to spend more time and resources on detecting intruders already in their systems rather than just spending to try to prevent system incursions. He also said he favoured legislation that would facilitate information sharing between the government and industry concerning cyber threats.”⁹ This was a highly

significant statement that requires a lot of new and expanded capabilities to accomplish, many of which do not currently exist. From a risk facilitation perspective these include:

- **Spending more time and resources on detecting intruders:** Admiral Rogers’ statement could be read as a subtle warning that there are already risks in the cyber system that could generate losses. If so, how firms are creating risk inventories and controlling their information assets is of primary importance to the development of effective insurance protection for these assets.

The problem is that the processes and capabilities to analyse these assets are in the early stages of development. In comparison, natural catastrophe modelling is more than 20 years old. Yet even here, many insurance companies still find themselves overexposed to unexpected property losses from time-to-time. In the event of a catastrophic cyber loss, how many commercial insurers would find themselves in jeopardy? How many are even tracking such risks?

- **Information sharing between the government and industry concerning cyber threats:** To the extent corporations and their insurers don’t have detailed inventories and controls around their information assets and exposures how are they going to intelligently share information with governmental officials? More fundamentally, what can they possibly do with any governmental information they may receive?

The broking community is ideally placed to enable each of these activities, and the management of risks identified in the activities:

- Brokers can both facilitate detailed inventories of their clients’ information assets, and then accumulate and rank cyber exposures with a rigour comparable, for example, to analysis of property risks
- Once this sharing is in place, brokers can scan a wide variety of external forms of information to identify threats that could pose risks to the identified exposures. Reports of brokers’ findings could be distributed to at-risk companies and insurers, and then working teams can be formed

⁸ See, for example, Mary Thompson, “Why cyber-insurance will be the next big thing,” CNBC, 1.07.14, <http://www.cnn.com/id/101804150>

⁹ “BGOV CYBERSECURITY SUMMIT: RECAP,” Bloomberg, <http://about.bgov.com/cybersecurity/> For more information on cyber see, for example, Lev Grossman, “Inside the Code War: The Internet is a Battlefield, The Prize is Your Information, and Bugs are The Weapons,” Time, July 21, 2004, pp. 18-25

- A brief list of the most pressing threats, and reports on how they seem to be developing over time, can serve as the basis for a dialogue between working teams and government officials, who hopefully will be able to either confirm the existence of a threat, dismiss a threat, identify other threats, etc.
- Depending on the outcome of the above meetings, risk management alternatives could be identified and explored, including potential capital market solutions

Drawing on this model, brokers are well-positioned to facilitate the management of the *entire* cyber risk process, so long as their data and analytical capabilities are up to the task.



...cyber risk is not fixed as it can expand or contract due to a wide variety of reasons such as the actions of foreign governments (friend and foe alike).

‘Gray goo’ and the threat of nanotechnology

Nanotechnology offers another example of the risk facilitation approach. Nanotechnology refers to matter that exists in the atomic and molecular realm, which comes in a variety of forms such as buckyballs, nanoparticles, carbon nanotubes, quantum dots, etc. Given the minuscule size of these items they can obviously be inhaled or otherwise enter the body, which could prove harmful in numerous ways (intentional and unintentional alike).

Significantly, nanotechnology could potentially pose a global risk by way of what is known as the “gray goo problem”, which was first articulated by K. Eric Drexler, an engineer and nanotechnology theorist. In order to build objects one molecule at a time, you need a nanomachine called an assembler. This is a device that is made of only a small collection of molecules itself—it is too tiny to see, and it works with materials on such an infinitesimal scale that it couldn’t ever get anything significant done on its own. That’s why assemblers would have to be programmed to self-replicate by building copies of themselves out of surrounding molecules. Once one of these assemblers has enough compatriots, it can get some serious work done. From a technological standpoint, this scenario is exciting and productive. However, Drexler’s question was,

essentially, the following: ‘What if we lose control of these nanomachines?’ Could they convert all living matter into assemblers, effectively devouring the planet with a mass of grey goo?¹⁰

As a futuristic disaster scenario, “gray goo” is about as sci-fi as it gets, but more relevant to the contemporary risk environment is the potential abuse of nanotechnology by belligerent governments, terrorist organisations and corporate espionage. We can therefore apply the above criteria to nanotechnology as follows:

- **Spending more time and resources identifying nano-products:** Identifying and creating inventories for exposures to various nano-products will require significant information resources that integrate internal and external sources of data. This capability will enable the production of timely, actionable reports and analyses on a wide variety of nano-threats, exposures to the threats and how select threats are developing over time.
- **Information sharing between governments and businesses concerning nano-threats:** As with cyber, as corporations and their insurers do not have detailed inventories and controls around their nano-exposures, how are they going to intelligently share

information with governmental officials? More fundamentally, what can they possibly do with any governmental information they may receive?

The broking community is once again ideally placed to enable each of these activities, and the management of risks identified therein:

- Brokers can both facilitate detailed inventories of their clients’ various nano-exposures, and they can accumulate and rank these exposures in a manner that is both insightful and actionable
- Brokers’ reports could be distributed to at-risk corporations and insurers, and they can then form working teams
- Brief lists of nano-based threats can be created, which can serve as the basis for a dialogue between the working teams and government officials, who hopefully will be able to confirm the existence of a threat, dismiss a threat, identify other threats, etc.
- Depending on the outcome of the above meetings, risk management alternatives could be identified and explored

¹⁰ “How likely is the grey goo scenario?” The Science Channel, <http://curiosity.discovery.com/question/likely-gray-goo-scenario>

Conclusion: Out in front

Broking is at a once-in-a-generation crossroads. Brokers face the parallel challenges of developing the capabilities needed to enable their clients to manage a new and escalating set of emerging risks, while remaining relevant and cost-competitive within a standard risk management market.

For many, the response is likely to be a twin-track approach based around the varying scale, complexity and expectations of the client business. But there are also important interdependencies as effective management of low margin business frees up expert resources for higher margin client support for non-standard risks.

Strategically critical collaboration

Cutting across these challenges is the brokers' place as risk facilitation leaders. Even the corporations with the most sophisticated risk management capabilities won't be able to navigate through today's maze of risk and uncertainty on their own. It simply isn't economically viable to do so, not just in how much the necessary risk data, expertise and innovation would cost to maintain, but also in the strategic risk to the realisation of key business goals. Only by taking advantage of the full capabilities of brokers, in their own right and as part of the

collaborative risk facilitation process, can businesses maximise the upsides and minimise the downsides. For brokers, leading risk facilitation opens up both commercial opportunities and a crucially important role with society and the global economy.

We believe there are five key questions brokers will need to address if they are to make the most of the opportunities in their evolving marketplace:

- 1.** Do you have clear enough insights into the rapidly shifting risk and pressures facing your clients?
- 2.** Do you have the expertise to turn advanced analytics into actionable solutions?
- 3.** Are you doing enough to bring together and make the most of the information, expertise and talent available to you within your organisation and among your partners and stakeholders?
- 4.** Do you have the operational efficiency and flexibility to respond to clients' changing channel and engagement choices in a sufficiently fast and economic way?
- 5.** Do you have the confidence of your clients, risk transfer partners and other key stakeholders needed to lead effective risk facilitation?

The brokers at the forefront of addressing these challenges and capitalising on the unfolding opportunities will have the incisive yet highly practical analytics, ability to anticipate emerging risks, capacity for innovation and inspirational leadership needed to create effective and economic risk management solutions. The results would provide a powerful boost for a sector facing disruptive competitive pressures and shifts in customer expectations. This new risk era provides brokers with an opportunity to realise the full value of their capabilities and market position.

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